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Contents

Federal Register

Vol. 88, No. 18

Friday, January 27, 2023

Reader Aids
Consult the Reader Aids section at the end of this issue for phone numbers, online resources, finding aids, and notice of recently enacted public laws.

To subscribe to the Federal Register Table of Contents electronic mailing list, go to https://public.govdelivery.com/accounts/USGPOOFR/subscriber/new, enter your e-mail address, then follow the instructions to join, leave, or manage your subscription.

CFR PARTS AFFECTED IN THIS ISSUE

A cumulative list of the parts affected this month can be found in the Reader Aids section at the end of this issue.

Rules and Regulations

Federal Register
Vol. 88, No. 18
Friday, January 27, 2023

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents.

OFFICE OF PERSONNEL MANAGEMENT

5 CFR Part 185

RIN 3206–AN39

Program Fraud Civil Remedies: Civil Monetary Penalty Inflation Adjustment

AGENCY: Office of Personnel Management (OPM).

ACTION: Final rule.

SUMMARY: This rule adjusts the level of civil monetary penalties contained in U.S. Office of Personnel Management regulations implementing the Program Fraud Civil Remedies Act of 1986, in accordance with the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 and Office of Management and Budget guidance.

DATES: *Effective date:* February 27, 2023.

FOR FURTHER INFORMATION CONTACT: Valerie Dew, Office of the General Counsel, Office of Personnel Management, 1900 E St. NW, Washington, DC 20415, *Valerie.Dew@opm.gov,* (202) 606–1700.

SUPPLEMENTARY INFORMATION:

I. Background

On November 2, 2015, the President signed into law the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 (sec. 701 of Pub. L. 114–74, 28 U.S.C. 2461 note) (''the Act''). The Act required agencies to: (1) adjust the level of civil monetary penalties with an initial ''catch-up'' adjustment through an interim final rulemaking, and (2) make subsequent annual adjustments for inflation. The purpose of these adjustments is to maintain the deterrent effect of civil penalties. OPM has updated the agency's monetary penalties since the passage of the 2015 Act.

This rule takes into account adjustments for the year 2023 based on inflation for that year. These calculations were made based on guidance contained in Office of Management and Budget Memorandum M–23–05:

CFR citation	Description of the penalty	2022 Inflation adjustment	2023 Inflation adjustment
5 CFR 185.103(a)	Civil Penalty for False Claims	$12,537	$13,508
5 CFR 185.103(f)(2)	Civil Penalty for False Statements	12,537	13,508

This final rule is being issued without prior public notice or opportunity for public comments. The 2015 Act's amendments to the Inflation Adjustment Act required the agency to adjust penalties initially through an interim final rulemaking, which did not require the agency to complete a notice and comment process prior to promulgating the interim final rule. The amendments also explicitly required the agency to make subsequent annual adjustments notwithstanding 5 U.S.C. 553 (the section of the Administrative Procedure Act that normally requires agencies to engage in notice and comment). The formula used for adjusting the amount of civil penalties is given by statute, with no discretion provided to OPM regarding the computation of the adjustments. OPM is charged only with performing ministerial computations to determine the amount of adjustment to the civil penalties due to increases in the Consumer Price Index for all Urban Consumers (CPI–U).

II. Calculation of Adjustment

The Office of Management and Budget (OMB) issues guidance annually on calculating adjustments. Under this guidance, OPM has identified applicable civil monetary penalties and calculated the annual adjustment. A civil monetary penalty is any assessment with a dollar amount that is levied for a violation of a Federal civil statute or regulation, and is assessed or enforceable through a civil action in Federal court or an administrative proceeding. A civil monetary penalty does not include a penalty levied for violation of a criminal statute, or fees for services, licenses, permits, or other regulatory review. The calculated catch-up adjustment is based on the percent change between the Consumer Price Index for all Urban Consumers (CPI–U) for the month of October in the year of the previous adjustment (or in the year of establishment, if no adjustment has been made) and the October 2015 CPI–U.

Office of Management and Budget Memorandum M–23–05 stated that the cost-of-living multiplier for calculating adjustments in 2023 was 1.07745. This multiplier is to be applied to the current level of civil monetary penalties for agencies. When OPM's 2022 penalties of $12,537 are multiplied by 1.07745, the resulting penalty amount is $13,508.

III. Procedural Requirements

A. Executive Orders 13563 and 12866, Regulatory Review

Executive Orders 13563 and 12866 direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. In accordance with the provisions of Executive Order 12866, this rule is not a significant rule as was not reviewed by OMB.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) requires an agency to prepare a regulatory flexibility analysis for rules unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. The RFA applies only to rules for which an agency is required to first publish a proposed rule. See 5 U.S.C.

603(a) and 604(a). The Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 requires agencies to adjust civil penalties annually. No discretion is allowed. Thus, the RFA does not apply to this final rule.

C. Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 804(2))

This rule is not a major rule under the Small Business Regulatory Enforcement Fairness Act. This rule:

(a) Does not have an annual effect on the economy of $100 million or more.

(b) Will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions.

(c) Does not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of United States-based enterprises to compete with foreign-based enterprises.

D. Unfunded Mandate Reform Act of 1995 (2 U.S.C. 1532)

This rule does not involve a Federal mandate that may result in the expenditure by State, local and tribal governments, in the aggregate, or by the private sector, of $100 million or more and that such rulemaking will not significantly or uniquely affect small governments.

E. E.O. 12630, Takings

This rule does not have takings implications.

F. E.O. 13132, Federalism

This rule does not have federalism implications. The rule does not have substantial direct effects on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government.

G. E.O. 12988, Civil Justice Reform

This rule complies with the requirements of E.O. 12988. Specifically, this rule:

(a) Does not unduly burden the judicial system.

(b) Meets the criteria of section 3(a) requiring that all regulations be reviewed to eliminate errors and ambiguity and be written to minimize litigation; and

(c) Meets the criteria of section 3(b)(2) requiring that all regulations be written in clear language and contain clear legal standards.

H. E.O. 13175, Consultation With Indian Tribes

In accordance with Executive Order 13175, OPM has evaluated this rule and determined that it has no tribal implications.

I. Paperwork Reduction Act

This document does not contain proposed information collection requirements subject to the Paperwork Reduction Act of 1995, Public Law 104–13.

List of Subjects in 5 CFR Part 185

Basis for civil penalties and assessments, Claims, Penalties, Program fraud civil remedies.

Office of Personnel Management.

Stephen Hickman,

Federal Register Liaison.

For the reasons set forth in the preamble, amend part 185 of title 5 of the Code of Federal Regulations as follows:

PART 185—PROGRAM FRAUD CIVIL REMEDIES

■ 1. The authority citation for part 185 continues to read:

Authority: 28 U.S.C. 2461 note; 31 U.S.C. 3801–3812.

§ 185.103 [Amended]

■ 2. In § 185.103, amend paragraphs (a) introductory text and (f)(2) by removing ''$12,537'' and adding ''$13,508'' in its place.

[FR Doc. 2023–01612 Filed 1–26–23; 8:45 am]

BILLING CODE 6325–48–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2023–0024; Project Identifier AD–2022–01492–A; Amendment 39–22311; AD 2023–02–04]

RIN 2120–AA64

Airworthiness Directives; Mooney International Corporation Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Mooney International Corporation Model M20C, M20D, M20E, M20F, and M20G airplanes. This AD was prompted by reports of the hybrid material elevator balance weight cracking. This AD requires inspecting to determine whether a certain elevator balance weight is installed. If installed, this AD requires inspecting each affected elevator balance weight for corrosion and cracking, and depending on the findings, either replacing each affected elevator balance weight with a non-hybrid (lead) elevator balance weight or repetitively inspecting each affected elevator balance weight. This AD also prohibits the installation of an affected elevator balance weight on any airplane. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective February 13, 2023.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of February 13, 2023.

The FAA must receive comments on this AD by March 13, 2023.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- *Federal eRulemaking Portal:* Go to *regulations.gov*. Follow the instructions for submitting comments.
- *Fax:* (202) 493–2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at *regulations.gov* by searching for and locating Docket No. FAA–2023–0024; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For service information identified in this final rule, contact Mooney International Corporation, 165 Al Mooney Road North, Kerrville, TX 78028; phone: (800) 456–3033; email: *support@mooney.com;* website: *mooney.com*.
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222–5110. It is also available at *regulations.gov* by searching for and locating Docket No. FAA–2023–0024.

FOR FURTHER INFORMATION CONTACT: Bang Nguyen, Aviation Safety Engineer, Compliance & Airworthiness Division, FAA, 10101 Hillwood Parkway, Fort Worth, TX 76177; phone: (817) 222–4973; email: *bang.nguyen@faa.gov.*

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under **ADDRESSES**. Include ''Docket No. FAA–2023–0024 and Project Identifier AD–2022–01492–A'' at the beginning of your comments. The most helpful comments reference a specific portion of the final rule, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this final rule because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to *regulations.gov*, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this final rule.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this AD contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this AD, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as ''PROPIN.'' The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this AD. Submissions containing CBI should be sent to Bang Nguyen, Aviation Safety Engineer, Compliance & Airworthiness Division, FAA, 10101 Hillwood Parkway, Fort Worth, TX 76177. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA has received reports of corrosion and cracks found on elevator balance weights on Mooney International Corporation Model M20F airplanes. The affected airplanes are equipped with smooth skin elevators, part number (P/N) 430000–503 and P/N 430000–504, with hybrid material elevator balance weight P/N 430018–1 installed. The hybrid elevator balance weight P/N 430018–1 is similar in size and shape (but not in weight) to the elevator balance weight P/N 430016–7. It is possible the hybrid elevator balance weight P/N 430018–1 has also been installed on Model M20C, M20D, M20E, and M20G airplanes. The hybrid elevator balance weights were found to have developed galvanic corrosion and visible signs of cracking, which caused them to become severely displaced.

This condition, if not addressed, could result in partial or total separation of the elevator balance weight during flight, which could lead to elevator flutter and consequent loss of control of the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

FAA's Determination

The FAA is issuing this AD because the agency has determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Related Service Information Under 1 CFR Part 51

The FAA reviewed Mooney International Corporation Service Bulletin M20–345A, dated December 13, 2022. This service information specifies procedures for inspecting to determine whether a hybrid elevator balance weight P/N 430018–1 is installed, inspecting each hybrid elevator balance weight P/N 430018–01 for chipping or cracking, and depending on the inspection results, either repetitively inspecting each hybrid elevator balance weight or replacing with a non-hybrid (lead) elevator balance weight P/N 430016–7. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in **ADDRESSES**.

AD Requirements

This AD requires accomplishing the actions specified in the service information already described and prohibits the installation of an affected elevator balance weight on any airplane.

Justification for Immediate Adoption and Determination of the Effective Date

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C. 551 *et seq.*) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for ''good cause,'' finds that those procedures are ''impracticable, unnecessary, or contrary to the public interest.'' Under this section, an agency, upon finding good cause, may issue a final rule without providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty days, upon a finding of good cause.

An unsafe condition exists that requires the immediate adoption of this AD without providing an opportunity for public comments prior to adoption. The FAA has found that the risk to the flying public justifies foregoing notice and comment prior to adoption of this rule because corrosion on the elevator balance weight could lead to cracks that, if not addressed, could result in elevator flutter leading to elevator failure with consequent loss of control of the airplane. Because undetected corrosion could have developed over time and therefore the cracks can develop quickly and without warning, the affected elevator balance weights must be inspected before further flight. Accordingly, notice and opportunity for prior public comment are impracticable and contrary to the public interest pursuant to 5 U.S.C. 553(b)(3)(B).

In addition, the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days, for the same reasons the FAA found good cause to forego notice and comment.

Regulatory Flexibility Act

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because the FAA has determined that it has good cause to adopt this rule without prior notice and comment, RFA analysis is not required.

Costs of Compliance

The FAA estimates that this AD affects 3,098 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

ESTIMATED COSTS

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspect for existence of P/N 430018–1	1 work hour × $85 per hour = $85	Not Applicable	$85	$263,330

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the inspection. The FAA estimates the following costs to do any necessary inspection or replacement that would be required based on the results of the initial inspection. There were 137 elevator balance weights P/N 430018–1 produced. Therefore, up to 137 airplanes of the 3,098 affected airplanes could have the affected elevator balance weights installed. The FAA has no way of knowing if all 137 affected elevator balance weights are installed.

ON-CONDITION COSTS

Action	Labor cost	Parts cost	Cost per product
Inspect elevator balance weights P/N 430018–1 for cracks/corrosion.	6 work-hours × $85 per hour = $510	Not Applicable	$510 per inspection cycle.
Replace elevator balance weights P/N 430018–1.	10 work-hours × $85 per hour = $850 ..	$650	$1,500.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a ''significant regulatory action'' under Executive Order 12866, and

(2) Will not affect intrastate aviation in Alaska.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

■ 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

■ 2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2023–02–04 Mooney International Corporation: Amendment 39–22311; Docket No. FAA–2023–0024; Project Identifier AD–2022–01492–A.

(a) Effective Date

This airworthiness directive (AD) is effective February 13, 2023.

(b) Affected ADs

None.

(c) Applicability

Mooney International Corporation Model M20C, M20D, M20E, M20F, and M20G airplanes, all serial numbers up to 680170 inclusive, certificated in any category.

(d) Subject

Joint Aircraft System Component (JASC) Code: 5520, Elevator Structure.

(e) Unsafe Condition

This AD was prompted by reports of the hybrid elevator balance weight cracking. The FAA is issuing this AD to detect and address the corrosion and cracking of the hybrid elevator balance weight. The unsafe condition, if not addressed, could result in partial or total separation of the elevator balance weight during flight, which could lead to elevator flutter with consequent loss of control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Action

(1) Before further flight after the effective date of this AD, inspect both elevators to determine if any hybrid elevator balance weight part number (P/N) 430018–1 is installed in accordance with STEP 1.1 of the Instructions section in Mooney International Corporation Service Bulletin M20–345A, dated December 13, 2022. The repetitive inspection and replacement required by paragraphs (g)(2) and (3) of this AD are not required if any hybrid elevator balance weight P/N 430018–1 is not installed.

(2) If any hybrid elevator balance weight P/N 430018–1 is installed, before further flight after the effective date of this AD and thereafter at intervals not to exceed 100 hours time-in-service or 12 months, whichever occurs first, inspect each hybrid elevator balance weight P/N 430018–1 for any corrosion and cracks in accordance with STEP 2 of the Instructions section in Mooney International Corporation Service Bulletin M20–345A, dated December 13, 2022.

(3) If any corrosion or cracks are found as a result of any inspection required in paragraph (g)(2) of this AD, before further flight, replace the elevator balance weight with a non-hybrid (lead) elevator balance weight P/N 430016–7 in accordance with STEPS 3.1.1 through 3.1.8 of the Instructions section in Mooney International Corporation Service Bulletin M20–345A, dated December 13, 2022, except contacting Mooney Service Parts in STEP 3.1.7 is not required by this AD. The repetitive inspections required by

paragraph (g)(2) of this AD are no longer required for that elevator balance weight after this replacement.

(4) As of the effective date of this AD, do not install hybrid elevator balance weight P/N 430018–1 on any airplane.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Fort Worth ACO, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (i) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(i) Related Information

For more information about this AD, contact Bang Nguyen, Aviation Safety Engineer, Compliance & Airworthiness Division, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; phone: (817) 222–4973; email: *bang.nguyen@faa.gov*.

(j) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Mooney International Corporation Service Bulletin M20–345A, dated December 13, 2022.

(ii) [Reserved]

(3) For service information identified in this AD, contact Mooney International Corporation, 165 Al Mooney Road North, Kerrville, TX 78028; phone: (800) 456–3033; email: *support@mooney.com;* website: *mooney.com*.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222–5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: *fr.inspection@nara.gov,* or go to: *www.archives.gov/federal-register/cfr/ibr-locations.html*.

Issued on January 19, 2023.

Gaetano A. Sciortino,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2023–01730 Filed 1–24–23; 4:15 pm]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2022–1224; Airspace Docket No. 22–ACE–18]

RIN 2120–AA66

Amendment of Class E Airspace; Marshalltown, IA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This action amends the Class E airspace at Marshalltown, IA. This action is the result of an airspace review as part of the decommissioning of the Elmwood very high frequency (VHF) omnidirectional range (VOR) as part of the VOR Minimal Operational Network (MON) Program.

DATES: Effective 0901 UTC, April 20, 2023. The Director of the Federal Register approves this incorporation by reference action under 1 CFR part 51, subject to the annual revision of FAA Order JO 7400.11 and publication of conforming amendments.

ADDRESSES: FAA Order JO 7400.11G, Airspace Designations and Reporting Points, and subsequent amendments can be viewed online at *www.faa.gov/air_traffic/publications/*. For further information, you can contact the Airspace Policy Group, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

FOR FURTHER INFORMATION CONTACT: Jeffrey Claypool, Federal Aviation Administration, Operations Support Group, Central Service Center, 10101 Hillwood Parkway, Fort Worth, TX 76177; telephone (817) 222–5711.

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority. This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart I, Section 40103. Under that section, the FAA is charged with prescribing regulations to assign the use of airspace necessary to ensure the safety of aircraft and the efficient use of airspace. This regulation is within the scope of that authority as it amends the Class E airspace extending upward from 700 feet above the surface at Marshalltown Municipal Airport, Marshalltown, IA, to support instrument flight rule operations at this airport.

History

The FAA published a notice of proposed rulemaking in the **Federal Register** (87 FR 66629; November 4, 2022) for Docket No. FAA–2022–1224 to amend the Class E airspace at Marshalltown, IA. Interested parties were invited to participate in this rulemaking effort by submitting written comments on the proposal to the FAA. No comments were received.

Class E airspace designations are published in paragraph 6005 of FAA Order JO 7400.11G, dated August 19, 2022, and effective September 15, 2022, which is incorporated by reference in 14 CFR 71.1. The Class E airspace designations listed in this document will be published subsequently in FAA Order JO 7400.11.

Availability and Summary of Documents for Incorporation by Reference

This document amends FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022. FAA Order JO 7400.11G is publicly available as listed in the **ADDRESSES** section of this document. FAA Order JO 7400.11G lists Class A, B, C, D, and E airspace areas, air traffic service routes, and reporting points.

The Rule

This amendment to 14 CFR part 71 amends the Class E airspace extending upward from 700 feet above the surface to within a 6.5-mile (increased from a 6.4-mile) radius of Marshalltown Municipal Airport, Marshalltown, IA; and removes the Elmwood VOR/DME and associated extensions from the airspace legal description.

This action is due to an airspace review as part of the decommissioning of the Elmwood VOR, which provided navigation information for the instrument procedures at this airport, as part of the VOR MON Program.

FAA Order JO 7400.11, Airspace Designations and Reporting Points, is published yearly and effective on September 15.

Regulatory Notices and Analyses

The FAA has determined that this regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current, is non-controversial and unlikely to result in adverse or negative

comments. It, therefore: (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that only affects air traffic procedures and air navigation, it is certified that this rule, when promulgated, does not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Environmental Review

The FAA has determined that this action qualifies for categorical exclusion under the National Environmental Policy Act in accordance with FAA Order 1050.1F, ''Environmental Impacts: Policies and Procedures,'' paragraph 5–6.5.a. This airspace action is not expected to cause any potentially significant environmental impacts, and no extraordinary circumstances exist that warrant preparation of an environmental assessment.

Lists of Subjects in 14 CFR 71

Airspace, Incorporation by reference, Navigation (air).

Adoption of the Amendment

In consideration of the foregoing, the Federal Aviation Administration amends 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

■ 1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

71.1 [Amended]

■ 2. The incorporation by reference in 14 CFR 71.1 of FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022, is amended as follows:

Paragraph 6005 Class E Airspace Areas Extending Upward From 700 Feet or More Above the Surface of the Earth.

* * * * *

ACE IA E5 Marshalltown, IA [Amended]

Marshalltown Municipal Airport, IA
(Lat. 42°06′46″ N, long. 92°55′04″ W)

That airspace extending upward from 700 feet above the surface within a 6.5-mile radius of Marshalltown Municipal Airport.

Issued in Fort Worth, Texas, on January 19, 2023.

Martin A. Skinner,

Acting Manager, Operations Support Group, ATO Central Service Center.

[FR Doc. 2023–01535 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2022–1317; Airspace Docket No. 22–ACE–19]

RIN 2120–AA66

Amendment of Class E Airspace; Multiple Missouri Towns

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This action amends the Class E airspace at Hannibal, MO; Monroe City, MO; and Monticello, MO. This action is the result of airspace reviews conducted as part of the decommissioning of the Quincy very high frequency (VHF) omnidirectional range (VOR) as part of the VOR Minimal Operational Network (MON) Program. The name of CPT Ben Smith Airfield-Monroe City Airport, Monroe City, MO, is also being updated to coincide with the FAA's aeronautical database.

DATES: Effective 0901 UTC, April 20, 2023. The Director of the Federal Register approves this incorporation by reference action under 1 CFR part 51, subject to the annual revision of FAA Order JO 7400.11 and publication of conforming amendments.

ADDRESSES: FAA Order JO 7400.11G, Airspace Designations and Reporting Points, and subsequent amendments can be viewed online at *www.faa.gov/air_traffic/publications/.* For further information, you can contact the Airspace Policy Group, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

FOR FURTHER INFORMATION CONTACT: Jeffrey Claypool, Federal Aviation Administration, Operations Support Group, Central Service Center, 10101 Hillwood Parkway, Fort Worth, TX 76177; telephone (817) 222–5711.

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority. This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart I, Section 40103. Under that section, the FAA is charged with prescribing regulations to assign the use of airspace necessary to ensure the safety of aircraft and the efficient use of airspace. This regulation is within the scope of that authority as it amends the Class E airspace extending upward from 700 feet above the surface at Hannibal Regional Airport, Hannibal, MO; CPT Ben Smith Airfield-Monroe City Airport, Monroe City, MO; and Lewis County Regional Airport, Monticello, MO, to support instrument flight rule operations at these airports.

History

The FAA published a notice of proposed rulemaking in the **Federal Register** (87 FR 66630; November 4, 2022) for Docket No. FAA–2022–1317 to amend the Class E airspace at Hannibal, MO; Monroe City, MO; and Monticello, MO. Interested parties were invited to participate in this rulemaking effort by submitting written comments on the proposal to the FAA. No comments were received.

Class E airspace designations are published in paragraph 6005 of FAA Order JO 7400.11G, dated August 19, 2022, and effective September 15, 2022, which is incorporated by reference in 14 CFR 71.1. The Class E airspace designations listed in this document will be published subsequently in FAA Order JO 7400.11.

Availability and Summary of Documents for Incorporation by Reference

This document amends FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022. FAA Order JO 7400.11G is publicly available as listed in the **ADDRESSES** section of this document. FAA Order JO 7400.11G lists Class A, B, C, D, and E airspace areas, air traffic service routes, and reporting points.

The Rule

This amendment to 14 CFR part 71:

Amends the Class E airspace extending upward from 700 feet above the surface to within a 6.4-mile (decreased from a 6.5-mile) radius of Hannibal Regional Airport, Hannibal, MO;

Amends the Class E airspace extending upward from 700 feet above the surface at CPT Ben Smith Airfield-

Monroe City Airport, Monroe City, MO, by removing the Quincy VORTAC and associated extension from the airspace legal description; and updates the name of the airport (previously Monroe City Regional Airport) to coincide with the FAA's aeronautical database;

And amends the Class E airspace extending upward from 700 feet above the surface at Lewis County Regional Airport, Monticello, MO, by removing the Quincy VORTAC from the airspace legal description.

This action is due to airspace reviews conducted as part of the decommissioning of the QUINCY VOR, which provided navigation information for the instrument procedures at these airports, as part of the VOR MON Program.

FAA Order JO 7400.11, Airspace Designations and Reporting Points, is published yearly and effective on September 15.

Regulatory Notices and Analyses

The FAA has determined that this regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current, is non-controversial and unlikely to result in adverse or negative comments. It, therefore: (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that only affects air traffic procedures and air navigation, it is certified that this rule, when promulgated, does not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Environmental Review

The FAA has determined that this action qualifies for categorical exclusion under the National Environmental Policy Act in accordance with FAA Order 1050.1F, ''Environmental Impacts: Policies and Procedures,'' paragraph 5–6.5.a. This airspace action is not expected to cause any potentially significant environmental impacts, and no extraordinary circumstances exist that warrant preparation of an environmental assessment.

Lists of Subjects in 14 CFR 71

Airspace, Incorporation by reference, Navigation (air).

Adoption of the Amendment

In consideration of the foregoing, the Federal Aviation Administration amends 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

■ 1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

71.1 [Amended]

■ 2. The incorporation by reference in 14 CFR 71.1 of FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022, is amended as follows:

Paragraph 6005 Class E Airspace Areas Extending Upward From 700 Feet or More Above the Surface of the Earth.

* * * * *

ACE MO E5 Hannibal, MO [Amended]

Hannibal Regional Airport, MO
(Lat. 39°43′31″ N, long. 91°26′38″ W)

That airspace extending upward from 700 feet above the surface within a 6.4-mile radius of Hannibal Regional Airport.

* * * * *

ACE MO E5 Monroe City, MO [Amended]

CPT Ben Smith Airfield-Monroe City Airport, MO
(Lat. 39°38′04″ N, long. 91°43′37″ W)

That airspace extending upward from 700 feet above the surface within a 6.3-mile radius of CPT Ben Smith Airfield-Monroe City Airport.

ACE MO E5 Monticello, MO [Amended]

Lewis County Regional Airport, MO
(Lat. 40°07′45″ N, long. 91°40′42″ W)

That airspace extending upward from 700 feet above the surface within a 6.3-mile radius of the Lewis County Regional Airport.

Issued in Fort Worth, Texas, on January 19, 2023.

Martin A. Skinner,

Acting Manager, Operations Support Group, ATO Central Service Center.

[FR Doc. 2023–01536 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2022–0541; Airspace Docket No. 22–AAL–48]

RIN 2120–AA66

Revocation of Alaskan Airway V–621 Near Atqasuk, AK

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This action revokes Alaskan Very High Frequency (VHF) Omnidirectional Range (VOR) Federal airway V–621 (hereinafter referred to as Alaskan V–621) due to the planned decommissioning of the Atqasuk, AK (ATK), Non-Directional Beacon (NDB) navigational aid (NAVAID).

DATES: Effective date 0901 UTC, April 20, 2023. The Director of the Federal Register approves this incorporation by reference action under 1 CFR part 51, subject to the annual revision of FAA Order JO 7400.11 and publication of conforming amendments.

ADDRESSES: FAA Order JO 7400.11G, Airspace Designations and Reporting Points, and subsequent amendments can be viewed online at *www.faa.gov/air_traffic/publications/.* For further information, you can contact the Rules and Regulations Group, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

FOR FURTHER INFORMATION CONTACT: Colby Abbott, Rules and Regulations Group, Office of Policy, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority. This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart I, Section 40103. Under that section, the FAA is charged with prescribing regulations to assign the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. This regulation is within the scope of that authority as it modifies the route structure as necessary to preserve

the safe and efficient flow of air traffic within the National Airspace System (NAS).

History

The FAA published a notice of proposed rulemaking (NPRM) for Docket No. FAA–2022–0541 in the **Federal Register** (87 FR 32373; May 31, 2022), revoking Alaskan V–621 due to the planned decommissioning of the Atqasuk, AK, NDB. Interested parties were invited to participate in this rulemaking effort by submitting comments on the proposal. No comments were received.

Alaskan VOR Federal airways are published in paragraph 6010(b) of FAA Order JO 7400.11G, dated August 19, 2022, and effective September 15, 2022, which is incorporated by reference in 14 CFR 71.1. The Alaskan VOR Federal airway action listed in this document will be published subsequently in FAA Order JO 7400.11.

Availability and Summary of Documents for Incorporation by Reference

This document amends FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022. FAA Order JO 7400.11G is publicly available as listed in the **ADDRESSES** section of this document. FAA Order JO 7400.11G lists Class A, B, C, D, and E airspace areas, air traffic service routes, and reporting points.

The Rule

This action amends 14 CFR part 71 by revoking Alaskan VOR Federal airway V–621 due to the planned decommissioning of the Atqasuk, AK, NDB. The airway change is described below.

Alaskan V–621: Alaskan V–621 extends between the Barrow, AK, VOR and the Atqasuk, AK, NDB. The airway is removed in its entirety.

FAA Order JO 7400.11, Airspace Designations and Reporting Points, is published yearly and effective on September 15.

Regulatory Notices and Analyses

The FAA has determined that this regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore: (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under Department of Transportation (DOT) Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule, when promulgated, will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Environmental Review

The FAA has determined that this airspace action of revoking Alaskan VOR Federal airway V–621, due to the planned decommissioning of the Atqasuk, AK, NDB, qualifies for categorical exclusion under the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) and its implementing regulations at 40 CFR part 1500, and in accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, paragraph 5–6.5a, which categorically excludes from further environmental impact review rulemaking actions that designate or modify classes of airspace areas, airways, routes, and reporting points (see 14 CFR part 71, Designation of Class A, B, C, D, and E Airspace Areas; Air Traffic Service Routes; and Reporting Points), and paragraph 5–6.5k, which categorically excludes from further environmental review the publication of existing air traffic control procedures that do not essentially change existing tracks, create new tracks, change altitude, or change concentration of aircraft on these tracks. As such, this action is not expected to result in any potentially significant environmental impacts. In accordance with FAA Order 1050.1F, paragraph 5–2 regarding Extraordinary Circumstances, the FAA has reviewed this action for factors and circumstances in which a normally categorically excluded action may have a significant environmental impact requiring further analysis. Accordingly, the FAA has determined that no extraordinary circumstances exist that warrant preparation of an environmental assessment or environmental impact study.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

The Amendment

In consideration of the foregoing, the Federal Aviation Administration amends 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

■ 1. The authority citation for 14 CFR part 71 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

§ 71.1 [Amended]

■ 2. The incorporation by reference in 14 CFR 71.1 of FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022, is amended as follows:

Paragraph 6010(b) Alaskan VOR Federal Airways.

* * * * *

V–621 [Removed]

Issued in Washington, DC, on January 23, 2023.

Brian Konie,

Acting Manager, Airspace Rules and Regulations.

[FR Doc. 2023–01606 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF AGRICULTURE

Forest Service

36 CFR Part 294

RIN 0596–AD51

Special Areas; Roadless Area Conservation; National Forest System Lands in Alaska

AGENCY: Forest Service, USDA.

ACTION: Final rule and record of decision.

SUMMARY: The U.S. Department of Agriculture (USDA or Department) is repealing an October 2020 rule (the 2020 Alaska Roadless Rule) that exempted the Tongass National Forest (the Tongass) from the 2001 Roadless Area Conservation Rule (2001 Roadless Rule). Repealing the 2020 Alaska Roadless Rule will reinstate the pre-existing management regime, which prohibited timber harvest and road construction/reconstruction with limited exceptions within designated Inventoried Roadless Areas (IRAs).

DATES: This rule is effective January 27, 2023.

FOR FURTHER INFORMATION CONTACT: Joe Krueger, Interdisciplinary Team Leader, at 202–649–1189 or *sm.fs.akrdlessrule@usda.gov.* Individuals using telecommunication devices for the deaf

(TDD) may call the Federal Information Relay Services at 1–800–877–8339 between 8 a.m. and 8 p.m. Eastern Time, Monday through Friday.

SUPPLEMENTARY INFORMATION:

Background

The USDA Forest Service manages approximately 21.9 million acres of Federal lands in Alaska, which are distributed across two national forests (Tongass and Chugach National Forests). These national forests are characterized by a diverse array of landscapes, ecosystems, natural resources, and land use activities.

In January 2001, the USDA promulgated the 2001 Roadless Rule (66 FR 3244), establishing prohibitions on timber harvesting and road construction on approximately 58 million acres of the National Forest System (NFS), including over 14 million acres within Alaska. The intent of the 2001 Roadless Rule is to provide lasting protection for IRAs in the context of overall multiple-use land management.

During the development of the 2001 Roadless Rule, the Forest Service analyzed an alternative that would have exempted the Tongass from the Rule's application, but in the final rulemaking, the Department applied the Rule to the Tongass, with an additional mitigation measure designed to protect natural resources and accommodate an adjustment to the timber program in Southeast Alaska to focus harvest activities outside of designated inventoried roadless areas. In 2003, the Department reversed that decision and exempted the Tongass from the 2001 Roadless Rule (68 FR 75136, December 30, 2003). The 2003 rulemaking was later overturned by the U.S. District Court for the District of Alaska and the 2001 Roadless Rule was reinstated on the Tongass (with special instructions). *See Organized Village of Kake* v. *USDA,* 776 F. Supp. 2d 960 (D. Alaska, 2011). That decision was appealed by the State of Alaska, and ultimately the District Court's ruling was upheld by the U.S. Court of Appeals for the Ninth Circuit, and the Supreme Court declined further review. *See Organized Village of Kake* v. *USDA,* 795 F.3d 956 (9th Cir. 2015) (*en banc*), *cert denied sub. nom Alaska* v. *Organized Village of Kake, Alaska,* 577 U.S. 1234 (2016).

Following the reinstatement of the 2001 Roadless Rule on the Tongass in 2011, the State of Alaska filed a new lawsuit in the U.S. District Court for the District of Columbia challenging the legality of the 2001 Roadless Rule, both nationwide and as applied within Alaska. Ultimately, the District Court ruled that the State had not shown that USDA violated any Federal statute in promulgating the 2001 Roadless Rule, *see Alaska* v. *USDA,* 273 F. Supp. 3d 102 (D.D.C. 2017). The State appealed the ruling, but the appeal was subsequently held in abeyance (temporarily placed on hold) pending resolution of the State's rulemaking petition discussed immediately below. Following promulgation of the 2020 Alaska Roadless Rule, the Federal Government filed a motion with the D.C. Circuit to dismiss the appeal and vacate the underlying District Court ruling on the basis of mootness. On November 16, 2021, the D.C. Circuit dismissed the State of Alaska's challenge to the 2001 Roadless Rule, directing that Alaska's claims regarding application of the Roadless Rule to the Tongass be dismissed as moot, those portions of the District Court's decision regarding the Tongass be vacated, and the remaining claims on appeal (regarding the Chugach National Forest) be dismissed for lack of standing, see *Alaska* v. *USDA,* 17 F.4th 1224 (D.C. Cir. 2021).

On January 19, 2018, the State of Alaska submitted a rulemaking petition to Secretary of Agriculture Sonny Perdue pursuant to the Administrative Procedure Act (APA). In the petition, the State requested that USDA consider creation of a state-specific rule to exempt the Tongass from the 2001 Roadless Rule and conduct a forest plan revision or amendment for the Tongass. In June 2018, Secretary Perdue accepted the State's petition and agreed to review the State's concerns on roadless area management. The Secretary then directed the Forest Service to move forward with a State-specific roadless rule. The Secretary did not commit to the State's request for a forest plan revision or amendment. A proposed state-specific rule and draft environmental impact statement (DEIS) were issued in October 2019. USDA released a final environmental impact statement (FEIS) in September 2020 (the 2020 FEIS) and published the final rule exempting the Tongass from the 2001 Roadless Rule on October 29, 2020 (85 FR 68688, part 294 of title 36 of the Code of Federal Regulations (CFR), subpart E). That rule will be referred to as the ''2020 Alaska Roadless Rule.''

At the time of rulemaking in 2020, USDA stated that land use designations, standards, and guidelines in the 2016 Tongass Land Management Forest Plan (2016 Forest Plan), along with other conservation measures, would assure protection of roadless values on the Tongass while offering modest additional flexibility to achieve other multiple-use benefits.

On January 20, 2021, President Biden directed all executive departments and agencies to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations during the prior four years that may conflict with important national objectives including protecting the environment, and to immediately commence work to confront the climate crisis (Executive Order 13990). On January 26, 2021, President Biden directed all Federal agencies to review Tribal consultation policies and practices and recommit to more robust nation-to-nation relationships and respect for our Federal trust responsibilities (Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships). On November 23, 2021 (86 FR 66498), the USDA proposed to repeal the 2020 Alaska Roadless Rule. The USDA published a notice of proposed rulemaking (NOPR) for repeal of the 2020 Alaska Roadless Rule and requested comments, thus initiating a comment period ending January 24, 2022 (86 FR 66498, November 23, 2021). Approximately 112,000 comment documents were received, of which about 9,000 were unique submissions; the majority of these comments were in favor of the proposed repeal. In addition to the comments, 14 petitions with over 130,000 names attached were received, all in favor of repeal. The Department of Agriculture and the Forest Service invited consultation with 19 tribes in Southeast Alaska regarding the repeal of the 2020 Alaska Roadless Rule. Four formal consultation sessions were held beginning in July 2021 with 12 of the 19 tribes represented in at least one session. The Tribes represented at these consultations expressed their desire to return to the 2001 Roadless Rule as quickly and expeditiously as administratively possible.

Decision

The USDA hereby repeals the 2020 Alaska Roadless Rule and returns roadless management on the Tongass to the regulatory regime previously in force, resulting in the reinstatement of the 2001 Roadless Rule as provided for in the U.S. District Court for the District of Alaska's Judgement in *Organized Village of Kake* v. *USDA,* 776 F. Supp. 2d 960 (D. Alaska 2011). This rulemaking is not subject to pre-decisional administrative objection regulations set out in 36 CFR part 218 or 219 as it is neither a project nor plan level decision.

Alternatives Considered

As discussed below in the section titled ''National Environmental Policy Act,'' the USDA has determined that the 2020 FEIS adequately analyzes the environmental effects of this final rule and has relied on that FEIS in issuing this rule.

The 2020 FEIS analyzes six alternatives. Alternative 1 was the no action alternative in the 2020 FEIS and would maintain the 2001 Roadless Rule, as prescribed in the Alaska District Court's Judgement. Alternative 1 would maintain the designation of 9,368,000 acres of Inventoried Roadless Area on the Tongass that was established in the 2001 Roadless Rule.

Alternative 2 provided limited additional timber harvest opportunities in comparison to Alternative 1 by removing protections from certain areas designated as roadless in 2001 while maximizing protection for unroaded areas by adding other Roadless Area designations. It removed from roadless designation approximately 142,000 acres that were substantially altered by road construction or timber harvest conducted during periods when the Tongass National Forest was exempted from the 2001 Roadless Rule. Alternative 2 also would have added 110,000 acres of unroaded lands as Alaska Roadless Areas that were not designated by the 2001 Rule, and by extension, remained undesignated in Alternative 1.

Alternative 3 would have provided moderately more timber harvest opportunities than Alternative 1 by increasing the available land base from which timber harvest opportunities could occur. It would have accomplished this by making timber harvest, road construction, and road reconstruction permissible in areas where roadless characteristics have already been substantially altered and areas immediately adjacent to existing roads and past harvest areas. Alternative 3 also established a Community Priority category to allow exceptions for small-scale timber harvest and associated road construction and reconstruction within certain designated roadless areas. Overall, Alternative 3 proposed a net decrease of 1.14 million roadless acres relative to Alternative 1.

Alternative 4 provided substantial more timber harvest opportunity than Alternative 1 while maintaining inventoried roadless designations for areas defined in the 2016 Forest Plan as Scenic Viewsheds, T77 Watersheds, and The Nature Conservancy/Audubon Conservation Priority Areas. Overall, alternative 4 proposed a net decrease of 394,000 roadless acres relative to Alternative 1.

Alternative 5 provided the greatest amount of additional timber harvest and road construction/reconstruction opportunities by removing 2.32 million acres from Roadless designation, including areas defined as Scenic Viewsheds and some T77 Watersheds and TNC/Audubon Conservation areas.

Alternative 6 fully exempted the Tongass from the 2001 Roadless Rule, removing 9.37 million acres from roadless area designation. This was the alternative selected for the 2020 Alaska Roadless Rule.

Taken together, the six alternatives represent the spectrum of management regimes identified by the Forest Service through public comments, public meetings, Tribal and Alaska Native corporation consultations, and cooperating agency input.

Environmentally Preferable Alternative

The Council on Environmental Quality's regulations require that a Record of Decision specify the alternative or alternatives considered environmentally preferable, 40 CFR 1505.2(a)(2). As defined in the USDA's regulations, the environmentally preferable alternative is the alternative that will best promote the national environmental policy as expressed in section 101 of the National Environmental Policy Act (NEPA) (42 U.S.C. 4321). Ordinarily, the environmentally preferable alternative is that which causes the least harm to the biological and physical environment; it also is the alternative that best protects and preserves historic, cultural, and natural resources. In some situations, there may be more than one environmentally preferable alternative (36 CFR 220.3).

NEPA does not require the decisionmaker to select the environmentally preferable alternative or prohibit adverse environmental effects. Indeed, Federal agencies often have other concerns and policy considerations to take into account in the decision-making process, such as social, economic, technical, or national security interests, as well as agencies' statutory missions.

As described in the 2020 Alaska Roadless Rule decision, Alternative 2 has been determined to be the environmentally preferred alternative, although the environmental benefits of Alternative 2 in comparison to Alternative 1 are minor. While Alternative 2 would designate and manage slightly fewer acres (approximately 32,000 acres) as Alaska Roadless Areas relative to the acres of Inventoried Roadless in Alternative 1, it would increase conservation of roadless characteristics and values because all the acres designated and managed as Alaska Roadless Areas under Alternative 2 are undeveloped at this time. Specifically, Alternative 2 would remove the roadless designation from 142,000 acres that are designated as Inventoried Roadless Areas under Alternative 1, but have already been roaded, harvested, or substantially altered, and therefore do not currently possess the roadless characteristics and values the 2001 Roadless Rule is intended to conserve. At the same time, Alternative 2 would designate as Alaska Roadless Areas approximately 110,000 acres that are undeveloped land but that were not designated as Inventoried Roadless Areas under the 2001 Rule and, by extension, are not designated as such in Alternative 1. Alternative 2 limits timber harvest opportunities, road construction, and road reconstruction, on the most acres of undeveloped land out of all the alternatives considered. All other action alternatives considered in the 2020 FEIS involve sizeable roadless area reductions. For this reason, Alternative 2 is the environmentally preferred alternative.

That conclusion is appropriate notwithstanding modest changes between Alternative 1 and Alternative 2 in certain designated roadless areas. Alternative 2 assigns a Roadless Priority management category to 5.2 million acres that include more exceptions than allowed under Alternative 1, thereby modestly diminishing protection for those areas. However, Alternative 2 also includes a Watershed Priority category, applied to 3.28 million acres, which is more restrictive than Alternative 1. Therefore, on balance, Alternative 2 is at least as protective as Alternative 1.

The differences between Alternatives 1 and 2 are minor in comparison to the differences between these alternatives and the 2020 Alaska Roadless Rule (analyzed as Alternative 6). No old-growth harvesting would occur in ''logical extensions'' or areas ''distant from roads'' under either Alternatives 1 or 2, for example, while 35% of old-growth logging would likely occur in such areas under Alternatives 4–6. Similarly, Alternatives 1 and 2 are comparable and preferable in terms of tree harvest for Alaska Native cultural purposes because of the relatively low level of competition with commercial timber harvest they would create. Alternatives 1 and 2 are also expected to generally result in very little to no effect on communities compared to Alternatives 4, 5, and 6 (especially Alternatives 5 and 6) which have an

increased potential for effects on communities relative to the other alternatives, especially in those communities where the visitor industry sector is important. This is primarily because those communities rely on undisturbed landscapes, which in turn may affect visitor use. The smaller and less economically diversified communities have a greater risk of effects.

While Alternative 2 is the environmentally preferred alternative, the USDA has determined that the minor environmental benefits of Alternative 2 in comparison to Alternative 1 do not warrant adopting it for the reasons set forth in the following section. These reasons are primarily because Alternative 1 promotes stability and predictability, and because it reflects the overwhelming consensus recommendation of Alaskan Native Tribes as expressed through formal consultation.

Decision Rationale and Important Considerations

The USDA has selected Alternative 1 to reinstate the pre-existing management regime established in the 2001 Roadless Rule because the USDA believes that this alternative strikes the appropriate balances among the various values that the Department must consider when managing the Tongass. In particular, the USDA believes that Alternative 1 best addresses the needs and concerns of local communities, including Tribal communities. These needs include the need for stability and predictability after over two decades of shifting management, which can best be served by restoring the familiar framework of the 2001 Roadless Rule.

Adopting Alternative 1 also takes appropriate consideration of consultation with sovereign Tribal Nations, which uniformly and strongly supported Alternative 1. Although Alternative 2 serves many of the same values as Alternative 1, Alternative 2 would introduce potentially confusing changes both to the location of designated Alaska Roadless Areas and to the management prescriptions associated with certain management categories. Alternative 2 also lacks a history of implementation consistent with the 2001 Roadless Rule and the 2016 Forest Plan, potentially complicating implementation. The minor environmental advantages of Alternative 2 do not outweigh Alternative 1's other advantages and those environmental benefits could be achieved under Alternative 1 through alternative planning and program mechanisms that provide greater flexibility for achieving program goals. The Forest Service employs various planning and project-specific efforts to maintain and restore watersheds by strategically focusing investments on watershed improvement projects and conservation practices at the landscape and watershed scales. For example, watersheds have unique characteristics and can best be addressed through Forest Planning and site-specific planning. Alternatives 3 through 6, meanwhile, are insufficiently protective of the roadless characteristics and values the 2001 Roadless Rule is intended to conserve.

Alternative 1 Appropriately Balances Competing Values

When it issued the 2020 Alaska Roadless Rule, the USDA stated that the final rule's change in policy does not rest on new factual findings contradicting the factual findings the USDA made in its 2001 Roadless Rule. The policy judgments implemented through the 2020 rulemaking were ultimately the result of assigning different value or weight to the various multiple uses. Although circumstances have changed since 2001, such as the size and economic role of the timber industry in southeast Alaska, the nature and role of southeast Alaska's roadless areas have not changed. (85 FR 68691)

Like the 2020 Alaska Roadless Rule, this rulemaking is based on a reevaluation of the social value of the various uses of the Tongass, rather than on new factual findings. As the USDA noted at the time, the 2020 FEIS estimates that exempting the Tongass from the 2001 Roadless Rule (Alternative 6) would make 168,000 more acres of old-growth forest available for timber production (FEIS at 3–18) and would result in nearly 46 miles of additional roads on NFS land over the next 100 years, compared with Alternative 1 (FEIS at 3–121). The USDA also noted at the time of the 2020 Alaska Roadless Rule that ''tribal government cooperating agencies expressed concern about removal of the 2001 Roadless Rule.'' (85 FR 68691) Nonetheless, the USDA believed at the time that these consequences were acceptable in light of the Administration's policy preferences, which emphasized ''increasing rural economic opportunity, decreasing federal regulation, and streamlining federal government services.'' (85 FR 68691)

By contrast, the USDA now believes that the adverse consequences of exempting the Tongass from the 2001 Roadless Rule, particularly the increase in acreage available for timber production, the increase in road construction, and the lack of consideration for the views of Tribal Nations, outweigh the benefits of ''decreasing federal regulation'' and the other advantages cited in the 2020 Alaska Roadless Rule. Moreover, restoring the protections afforded in the 2001 Roadless Rule will advance or is consistent with other USDA policy priorities, including promoting the continued health and resilience of mature and old-growth forests; retaining and enhancing carbon storage; conserving biodiversity; mitigating the risk of wildfires; enhancing climate resilience; enabling subsistence and cultural uses; providing outdoor recreational opportunities; and promoting sustainable local economic development. *See also* Executive Order 14072 on *Strengthening the Nation's Forests, Communities, and Local Economies.* As the 2020 FEIS notes, roadless areas on the Tongass provide important ecosystem services such as high quality or undisturbed soil, water and air; sources of public drinking water; diversity of plant and animal communities; habitat for threatened, endangered, proposed, candidate, and sensitive species; primitive and semi-primitive classes of dispersed recreation; reference landscapes; natural appearing landscapes with high scenic quality; traditional cultural properties and sacred sites; and other locally identified unique characteristics.

Roadless areas on the Tongass are also the world's largest remaining, intact, old-growth temperate rainforest, which supports biodiversity and stores carbon. The Tongass holds more biomass per acre than any other rainforest in the world and stores more carbon than any other national forest in the United States. Both old-growth and young-growth forests are important for carbon storage and sequestration: old-growth forests are capable of storing large amounts of carbon in the ecosystem, while young-growth forests are capable of rapid rates of carbon sequestration with new growth. By restoring protection to 188,000 forested acres, including 168,000 acres of old-growth forest, from future timber harvest and associated roadbuilding, Alternative 1 would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, climate benefits, and ecosystem health those lands provide.

Roadless areas on the Tongass also include watersheds and areas important for fishing, hunting, outdoor recreation, and tourism, which support revenue and jobs in Southeast Alaska as well as

local community well-being. Subsistence, commercial, and sport fisheries in both marine and freshwater systems, for example, are all important to the way of life for Southeast Alaskan residents. As the 2020 FEIS explains, ''[r]oads pose the greatest risk to fish resources on the Tongass (Dunlap 1996), partly because they pose the largest risk of management-caused sediment input to streams.'' (FEIS at 3–134) Restoring the 2001 Roadless Rule will reduce the amount of potential new road construction and thereby minimize the potential for road and harvest operations to increase sediment displacement or delivery, thus minimizing associated adverse effects on fisheries and providing more durable protections to these resources than those provided under the forest plan.

Restoring the 2001 Roadless Rule protections also responds to the unanimous input provided by Tribal Nations during government-to-government consultation sessions conducted in 2021, and therefore honors the Nation-to-Nation relationship. *See* President Biden's January 26, 2021, Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships (*https://www.govinfo.gov/content/pkg/FR-2021-01-29/pdf/2021-02075.pdf*). Roadless areas on the Tongass hold immense cultural significance for Alaska Native peoples. Restoring the 2001 Roadless Rule on the Tongass is in keeping with the broad Administration commitment to strengthening Nation-to-Nation relationships, and incorporating indigenous knowledge, stewardship, and priorities into land management decision-making.

By adopting Alternative 1, this final rule also is more responsive to the vast majority of comments received as part of the 2020 rulemaking as well as in response to this rulemaking. In issuing the 2020 Alaska Roadless Rule, the USDA noted that ''[a] large majority of written comments and oral subsistence testimony supported retaining the 2001 Roadless Rule on the Tongass National Forest,'' and that ''A significant proportion of southeast Alaska municipal and Tribal governments submitted resolutions supporting the 2001 Roadless Rule's application on the Tongass National Forest,'' while also noting that ''many of the State's elected officials, including the Governor, the federal delegation, and some municipal governments support changing the 2001 Roadless Rule.'' The comments received by the USDA on this proposed rulemaking demonstrated a similar pattern and breadth of support for Alternative 1. Notably, in its 2021 comments, the Southeast Alaska Subsistence Regional Advisory Council (SEARAC) expressed the view that an exemption from the 2001 Roadless Rule would result in a decrease in the availability of subsistence resources and subsistence opportunities throughout the Tongass.

While agency rulemaking need not always reflect the views of a simple majority of commenters, the USDA believes that the strong support for restoring the 2001 Roadless Rule, especially from some local municipal and all the Tribal governments that were consulted, reflects the extraordinary ecological values of the Tongass National Forest and the cultural, social, and economic needs of the local forest dependent communities in Southeast Alaska. The USDA therefore believes that Alternative 1 represents the best balance of multiple uses and values for the Tongass.

Furthermore, in light of the 2020 FEIS and the additional comments received on the proposed rule, the USDA believes that selecting Alternative 1 would not have major adverse impacts to the timber, energy, and mining industries, and would be beneficial at best or neutral at worst for the primary economic drivers in Southeast Alaska, which include fishing and tourism.

The USDA acknowledges the continued importance of forest products from the Tongass. A number of businesses, Tribes and individuals rely on timber harvested from the Tongass for forest products, including cultural uses such as totem poles, canoes, and Tribal artisan use. Timber harvest and forest products from the Tongass for personal or administrative use (*e.g.,* firewood and Christmas trees) would continue as provided by the Roadless Rule's exceptions.

Since the Alaska Region of the Forest Service began documenting and tracking certain decisions for projects within roadless areas in 2009, the Tongass has received 59 project proposals in IRAs that included tree removal and/or road construction using the exceptions authorized by the 2001 Roadless Rule, including for mineral, energy, recreation, and transportation projects. All 59 projects were approved. These project approvals demonstrate that the 2001 Roadless Rule's exceptions for access and mineral rights, as well as appropriate special uses, have been effective, and that the operation of the 2001 Roadless Rule on the Tongass has coexisted with State, Tribal, and private interests and allowed the Forest Service to fulfill its multiple use mission. Proposed projects in IRAs will continue to be evaluated for consistency with Roadless Rule and forest plan requirements.

For these reasons, the USDA concludes that adopting Alternative 1 and reinstating the pre-existing management regime under the 2001 Roadless Rule strikes a more appropriate balance among the relevant values and policy objectives than Alternative 6, represented by the 2020 Alaska Roadless Rule. Similarly, Alternatives 3–5, like Alternative 6, would also significantly reduce roadless area protections on the Tongass in comparison to Alternative 1.

At the same time, the USDA believes that Alternative 1 strikes a better balance of relevant values and policy objectives than Alternative 2. Although, as noted above, Alternative 2 is the environmentally preferred alternative and might provide slightly greater protection to the roadless values on the Tongass than Alternative 1, Alternative 2 also represents a departure from the management approaches that have governed the Tongass over the last two decades. Notably, the comments received by the USDA during both the 2020 rulemaking process and this rulemaking process, including comments from Tribal, State, and local government entities, expressed very limited interest in Alternative 2, and instead focused on the choice between Alternatives 1 and 6.

Alternative 2 also lacks a history of implementation in comparison to the experience of managing under the 2001 Roadless Rule, potentially complicating implementation. The 2016 Forest Plan was designed to be consistent with the 2001 Roadless Rule, and in adopting the Plan, the Tongass Forest Supervisor concluded that ''the best way to bring stability to the management of roadless areas on the Tongass is to not recommend any modifications to the Roadless Rule'' (2016 Forest Plan Record of Decision (ROD) at 4, 19). Alternative 2 would represent a departure from this approach.

Therefore, the USDA believes that selecting Alternative 2 would conflict with the expectations of commenters and cooperating agencies, inject new uncertainty into the management of the Tongass, undermine the goal of stability and predictability that the USDA hopes to promote with this rulemaking, and insufficiently consider consultation with Tribal Nations.

Adopting Alternative 1 is Permissible and Appropriate Under the Governing Laws

General Authorities

The Secretary of Agriculture has broad authority to protect and administer the National Forest System (NFS) through regulation as provided by the Organic Administration Act of 1897 (Organic Act) and the Multiple-Use Sustained Yield Act of 1960. These statutes provide the Secretary of Agriculture with discretion to determine the proper uses within any area, including the appropriate resource emphasis and mix of uses. In doing so, USDA considers the relative values of the various resources and seeks to provide for the harmonious and coordinated management of all resources in the combination that will best meet the needs of the American people.

Combined with the complex, and sometimes even conflicting, judicial rulings applicable to the 2001 Roadless Rule, the recent history of roadless management on the Tongass demonstrates that a wide variety of approaches are available for roadless area management. Roadless area management, like all multiple-use land management, is fundamentally an exercise in discretion and policy judgment concerning the best use of the NFS lands and resources, informed by the underlying facts and reasonable projections of possible social, economic, cultural, and environmental consequences.

While the Tongass has endured debate regarding land and natural resource management for decades, there are common agreements. The Tongass roadless areas are vast and valuable. The Tongass contributes social, cultural, economic, and ecological values locally, regionally, nationally, and internationally. Local communities are reliant on, or impacted by, Federal land management decisions, and there is not always consensus on land management priorities. All acknowledge that there are diverse opinions and views concerning whether and how road construction and timber harvesting should be restricted. The USDA has received many comments that highlight differences in views concerning the best available information, as well as general opinions and preferences. The USDA is grateful for the attention and interest that Tribal nations, local communities, State offices, stakeholder groups, and individuals have devoted to helping shape the decision-making process.

Perspectives and opinions differ as to how to best shape restrictions that protect a valuable resource while providing cultural, social, and economic benefits for both local communities and the nation, which is reflected in the nearly 500,000 comments received throughout the analysis and promulgation of the 2020 Alaska Roadless Rule (input received during official comment periods is summarized in Appendix H of the 2020 Alaska Roadless Rule FEIS as well as in the Scoping Summary) and the 112,000 comments provided in response to the 2021 NOPR.

The USDA's assessment is that the best mechanism to account for these many and competing interests is to return the regulatory landscape back to the 2001 Roadless Rule. The USDA believes that the underlying goals and purposes of the 2001 Roadless Rule continue to be important, especially in the context of the values that roadless areas on the Tongass represent for local communities and Native peoples, and the multiple ecologic, social, cultural, and economic values supported by roadless areas on the Forest. This final rule therefore falls within the discretion afforded to the USDA under the Organic Act and the Multiple-Use Sustained Yield Act of 1960 to determine the proper uses within the Tongass.

Alaska-Specific Statutes

The USDA has also considered several Alaska-specific statutes applicable to the Tongass in selecting the final rule, including the Tongass Timber Reform Act (TTRA) and Alaska National Interest Lands Conservation Act (ANILCA).

Tongass Timber Reform Act

The TTRA directs the Forest Service to seek to provide a supply of timber from the Tongass that meets annual market demand and the market demand for each planning cycle subject to appropriations and to the extent consistent with providing for the multiple-use and sustained-yield of all renewable resources and other applicable requirements, including the requirements of the National Forest Management Act (NFMA). The 2016 Forest Plan, which was prepared at a time when the 2001 Roadless Rule was in effect, anticipates sufficient timber availability to meet projected demand as described in the 2016 Forest Plan FEIS and ROD. In addition, the 2016 Forest Plan provides guidance to conduct annual monitoring and review of current timber demand. Because the Department has considered market demand for timber as one of the goals to be balanced with environmental preservation and other multiple-use goods and services, reinstating the 2001 Roadless Rule fully complies with the TTRA.

Section 810 of ANILCA—Subsistence Determination

Section 810 of ANILCA (16 U.S.C. 3120) provides that in determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands under any provision of law authorizing such actions, the head of the Federal agency shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. Section 810 also specifies that if the ''withdrawal, reservation, lease, permit, or other use, occupancy or disposition'' of Federal lands ''would significantly restrict subsistence uses,'' the agency must take certain additional steps. Specifically, the agency must give notice to the appropriate State agency and the appropriate local committees and regional councils and give notice of, and hold, a hearing in the vicinity of the area involved, and determine that (1) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (2) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (3) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

When it issued the 2020 Alaska Roadless Rule, the USDA determined that an ANILCA section 810 analysis was not required because the action it was taking was ''a rulemaking process and programmatic-level decision that is not a determination whether to 'withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition' of NFS lands.'' Nonetheless, the USDA conducted a subsistence use analysis in order ''to honor regional commitments and inform future project-level planning and decision-making subject to ANILCA Section 810,'' and provided notices and conducted subsistence hearings consistent with section 810.

After analyzing potential impacts to subsistence uses and resources in the 2020 FEIS, the USDA concluded in the 2020 Alaska Roadless Rule ROD that ''the risk of a significant restriction to

subsistence resource abundance and distribution is largely equivalent across'' the six alternatives considered in that rulemaking, that ''the final rule may eventually influence subsistence resource access due to timber management activities,'' and that ''[t]he final rule may eventually indirectly result in a significant restriction of subsistence use of deer by increasing overall competition for the subsistence resource by urban and rural residents.'' The USDA therefore proceeded to make the three factual determinations required by section 810, determining that the anticipated subsistence impacts are necessary, consistent with the sound management of NFS land; that ''the final rule addresses the amount of NFS land necessary to accomplish the proposed action;'' and that implementation of the 2016 Forest Plan will result in ''reasonable steps [being taken] to minimize effects on subsistence resources.''

Like the 2020 rulemaking, this final rule is a rulemaking and programmatic-level decision, and does not ''withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition'' of National Forest System land. Therefore, no section 810 subsistence analysis is required for this rulemaking.

However, for consistency with its practice when promulgating the 2020 Alaska Roadless Rule and in order ''to honor regional commitments and inform future project-level planning and decision-making subject to ANILCA Section 810,'' the USDA has reviewed the subsistence impact analysis in the 2020 FEIS, which was conducted ''in a manner consistent with Section 810 of ANILCA.'' This review relies on the information contained in the 2020 FEIS (see the section below titled ''National Environmental Policy Act''). In addition, because the 2020 rulemaking process took place recently and addressed the same issues as this rulemaking, the USDA did not conduct additional subsistence hearings, but instead relied on the notices and hearings conducted as part of the 2020 rulemaking process, as supplemented by the general notices and consultations carried out in connection with this rulemaking.

Likelihood of Significant Restriction of Subsistence Uses

This subsistence impact review begins by considering whether reinstating the 2001 Roadless Rule may ''significantly restrict subsistence uses.'' The 2020 FEIS analyzes the effects of each of the alternatives on three subsistence use factors: (1) resource distribution and abundance; (2) access to resources; and (3) competition for the use of resources.

With regard to distribution and abundance of subsistence resources, the 2020 FEIS indicates that ''[a]s a result of their association with old-growth forest habitat, which is the main terrestrial habitat type affected by the alternatives, deer are considered the 'indicator' for potential subsistence resource consequences'' related to distribution and abundance. The 2020 FEIS acknowledges that both the 1997 Tongass Forest Plan Revision FEIS and the 2008 Tongass Plan Amendment FEIS concluded that deer habitat capabilities in several areas of the Tongass may not be adequate to sustain current levels of deer harvests, and, therefore, implementation of any of the 1997 or 2008 Forest Plan alternatives could lead to a significant possibility of a significant restriction on the abundance or distribution of the subsistence use of deer. The 2016 Forest Plan EIS made the same conclusion with regard to abundance and distribution, although it concluded that the possibility of a significant restriction would be less than the possibility under the 1997 or 2008 Forest Plans because of the lower than anticipated rates of timber harvests. Because harvest levels were expected to be the same under all of the alternatives considered for roadless rulemaking, the 2020 FEIS found that ''future [timber] harvest and road building is not expected to result in large reductions in abundance or a major redistribution of deer under any of the alternatives [compared to the 2016 Forest Plan],'' and that ''the risk of a significant restriction would be the same under all of the alternatives.''

Regarding access to resources, the 2020 FEIS found that ''[n]ew road construction is likely to result in the development of some new use patterns around some communities, but these changes are not likely to lead to a significant possibility of a significant restriction of subsistence access to the resources.'' The analysis identified some differences between the alternatives, with Alternatives 1 ''likely [to] have the lowest impact on subsistence users who prefer unroaded areas,'' while likely resulting in ''increase[d] road density in already developed areas,'' such that ''[m]ore harvest is likely to occur in the vicinity of existing roads.'' Nonetheless, across all alternatives, the FEIS found that ''future harvest and road building are not expected to result in substantial interference with access to active subsistence use sites.''

Regarding competition for subsistence resources, the 2020 FEIS also noted the findings in the 2016 Forest Plan FEIS, and again found that, for all the alternatives considered, ''[t]he significant possibility of a significant restriction [in subsistence use], resulting from a change in competition, still exists but would be less than the possibility under [past Forest Plans] . . . because of the much lower anticipated rates of timber harvest and road construction'' under the 2016 Forest Plan. When considering potential differences between alternatives, the FEIS noted that increases in competition could result from a variety of factors, including habitat reduction and the types of community access to subsistence resources. The FEIS assumed that ''[n]ew road construction adjacent to communities with ferry access'' and ''[n]ew road construction adjacent to existing road systems where interties between communities exist'' could result in increased competition, and noted that ''Alternatives 1, 2, and 3 would have a higher potential to result in additions to existing road systems because harvest would be limited to areas outside existing IRAs,'' whereas under Alternatives 4, 5, and 6, ''harvest could also occur in these areas . . . but additional acres in presently undeveloped areas would also be available for harvest.'' Under all of the alternatives, increased competition for subsistence resources was found to be most likely on Chichagof, Baranof, and Prince of Wales Islands, where competition for deer and other land mammals is already high and habitat has been significantly reduced due to prior timber harvest and associated road construction.

Considering these potential impacts, the USDA concludes that a significant possibility of a significant restriction of the subsistence use of deer due to increased competition exists in some locations under the reinstated 2001 Roadless Rule. While the FEIS noted that Alternative 1 would ''likely have the lowest impact on subsistence users who prefer unroaded areas,'' it assumed that concentrating development outside of IRAs would lead to increased competition in some locations, particularly areas near existing roads with existing roaded interties or ferry access to other communities. Therefore, the USDA conservatively concludes that reinstating the 2001 Roadless Rule may indirectly result in a significant restriction of subsistence use of deer by increasing competition for the resource in some locations. This conclusion is consistent with the conclusion reached in the 2020 Alaska Roadless Rule ROD.

Because the USDA concludes that there is a significant possibility of a significant restriction of subsistence use,

it proceeds to consider whether: (1) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (2) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (3) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions. The Department again notes, however, that it is not required to make these determinations for purposes of issuing this rule, but rather, makes these determinations voluntarily in light of the considerations noted above.

Necessary, Consistent With Sound Management of Public Lands

The USDA concludes that any significant restriction of subsistence uses that may result from reinstating the 2001 Roadless Rule is necessary, consistent with sound management principles for the utilization of NFS lands. As noted in the previous section, the potential restriction of subsistence uses exists under all of the alternatives. This decision reinstates restrictions on development within IRAs and may lead to the concentration of new development in areas near existing roads, indirectly leading to increased competition for subsistence resources in those areas. As explained above, however, reinstating these restrictions on development within IRAs will promote many important values that are central to the USDA's management of NFS lands, including protection of soil, water and air resources, species habitat, opportunities for recreation, traditional and cultural uses, and respect for indigenous knowledge, stewardship, and priorities. Moreover, this alternative would minimize overall road miles, and would therefore minimize some impacts to subsistence uses, including impacts on subsistence users who prefer roadless areas. The USDA also notes that in its 2021 comments, the Southeast Alaska Subsistence Regional Advisory Council (SEARAC) expressed the view that an exemption from the 2001 Roadless Rule would result in a decrease in the availability of subsistence resources and subsistence opportunities throughout the Tongass. Therefore, any restriction on subsistence uses that may result under Alternative 1 (which restores the 2001 Roadless Rule) is necessary, consistent with the sound management of NFS lands.

Amount of Public Land Necessary To Accomplish the Purposes of the Proposed Action

As explained in the 2021 NOPR, ''[t]he stated purposes of the 2001 Roadless Rule included retention of the largest and most extensive tracts of undeveloped land for the roadless values of watershed protection and ecosystem health that these lands provide'' (86 FR 66503). Specific to the Tongass, the 2021 NOPR noted that the 2001 Roadless Rule recognized ''the unique and sensitive ecological character of the Tongass National Forest, the abundance of roadless areas where road construction and reconstruction are limited, and the high degree of ecological health'' (86 FR 66501–66502). In addition to these original purposes of the 2001 Roadless Rule, the proposed action also serves the purpose of respecting indigenous knowledge, stewardship, and priorities.

Each of these purposes requires the USDA to evaluate, and take action with respect to, the Tongass as a whole. The Tongass as a whole was addressed in the 2001 Roadless Rule and analyzed in the 2020 FEIS. As explained above, in the section titled ''Alternative 1 Appropriately Balances Competing Values,'' the USDA believes that Alternative 1—which would reinstate the 2001 Roadless Rule throughout the Tongass—best balances the competing values that the Department must consider when managing the Tongass, which include both the ecological and social values served by the 2001 Roadless Rule and the need of local and Tribal communities for stability and predictability. Therefore, the USDA concludes that restoring the 2001 Roadless Rule's land classification system and associated prohibitions and exceptions to all IRAs within the Tongass is necessary to accomplish the purposes of this action, and that the action will involve the minimal amount of lands necessary to accomplish those purposes.

Reasonable Steps To Minimize Adverse Impacts to Subsistence Uses and Resources

The 2016 Forest Plan provides forest-wide standards and guidelines for subsistence and related standards and guidelines for riparian areas, fish, and wildlife, which collectively minimize adverse impacts to subsistence uses and resources. Many important subsistence areas are assigned land use designations that limit timber harvesting and road construction. For example, beach and estuary fringe forest-wide standards and guidelines generally apply to beach fringe and estuarine areas not under more restrictive designations.

In addition, any adverse subsistence impacts of the proposed action are likely to be modest, at most. While the 2020 FEIS concluded that both this final rule (Alternative 1 in the FEIS) and the 2020 Alaska Roadless Rule (Alternative 6) could lead to a significant possibility of a significant restriction on the subsistence use of deer, the final rule is expected to result in fewer overall road miles than the 2020 Alaska Roadless Rule, and to have ''the lowest impact on subsistence users who prefer unroaded areas.''

The potential site-specific effects of future actions, including potential future development near existing roads, on subsistence uses, and reasonable ways to minimize these effects, will be analyzed and considered during project-level design, analysis, and decision-making. Therefore, reasonable steps will be taken to minimize any potential adverse impacts on subsistence uses and resources resulting from the final rule.

2001 Roadless Rule's Original Purpose

The USDA is increasingly mindful of the original stated purposes of the 2001 Roadless Rule in restoring the rule's restrictions for the Tongass, especially in the era of addressing climate change and the need to reduce and avoid greenhouse gas emissions. The stated purposes of the 2001 Roadless Rule included retention of the largest and most extensive tracts of undeveloped land for roadless values, watershed protection, and ecosystem health. The purposes also included fiscal considerations, mainly the cost of managing the road system to safety and environmental standards. Specific to the Tongass, the 2001 Roadless Rule's Record of Decision noted that social and economic considerations were key factors in analyzing alternatives, along with the unique and sensitive ecological character of the Tongass, the abundance of roadless areas where road construction and reconstruction are limited, and the high degree of ecological health (66 FR 3254). The past 20 plus years of experience managing the Tongass, with and without the rule in operation, provides an important window for assessing whether the 2001 Roadless Rule's prohibitions should be maintained.

A significant percentage of the Tongass remains undeveloped, providing for large, extensive tracts of undeveloped land, but much of that is characterized as rock, ice, or muskeg. The final rule will ensure that the additional 188,000 forested acres made available for timber harvest by the 2020

Alaska Roadless Rule, with the majority characterized as old-growth timber, will remain protected from timber harvest and roadbuilding.

Watershed protection was a prominent aspect in the decision to adopt the nationwide 2001 Roadless Rule. In the Tongass today, watershed protection goals are served both by the roadless rule and by complementary and reinforcing policies. Large tracts of undeveloped lands and watershed protections are protected by existing statutory and forest plan direction, including lands in designated Wilderness and National Monuments. In addition, the TTRA (Pub. L. 101–626, title II, section 201) and the National Defense Authorization Act for Fiscal Year 2015 (Pub. L. 113–291, 128 Stat. 3729, section 3720(f)) designated approximately 856,000 acres as Land Use Designations (LUD) II areas, which are managed in a roadless state to retain their wildland character. Approximately 3.6 million acres in key watersheds (defined in the 2016 Forest Plan as Tongass 77 Watersheds and The Nature Conservancy/Audubon Conservation Areas) are currently managed for no old-growth timber harvest, thus minimizing adverse impacts to fisheries. Management direction of LUD II areas and key watersheds within IRAs would be afforded additional, regulatory protections by applying Roadless Rule protections.

Ecosystem health was another important element of the 2001 rulemaking. Although the FEIS reveals a modest difference between implementation of the 2001 Roadless Rule and the 2020 Alaska Roadless Rule, a key indicator of ecosystem health for the Tongass is a functional and interconnected old-growth ecosystem. While protection of productive old-growth would continue to occur under the 2016 Forest Plan's old-growth habitat conservation strategy and Southeast Alaska Sustainability Strategy (SASS) initiatives, existing connectivity between these old-growth reserves would be maintained and provided more long-term and durable protection under this final rule by prohibiting timber harvest on 188,000 acres that include significant blocks of old-growth timber.

Limited road maintenance budgets were another factor cited in support of the 2001 Roadless Rule. The 2001 Roadless Rule cited fiscal concerns over building new roads in IRAs due to an $8.4 billion backlog of deferred maintenance across the NFS transportation system at that time. While recent deferred maintenance records were reviewed, a sound comparison could not be made with the deferred maintenance levels of 2001, due to substantial changes in defining and interpreting deferred maintenance. Since 2001, the inventory methods and road work considered to be part of deferred maintenance have changed multiple times (2002, 2005, 2007, 2012, and 2013). These changes make a direct comparison with 2001 deferred maintenance numbers impracticable. There are approximately 3,500 miles of deferred maintenance on the Tongass road system with a projected cost of $59 million estimated in 2021. The amount of deferred maintenance indicates that this factor remains relevant during this rulemaking process.

The 2020 FEIS projected a range of 994 to 1,043 miles of new road construction (primarily in support of timber harvesting) over the next 100 years across all alternatives with Alternatives 1 and 2 at the low end and Alternative 6 at the high end and Alternatives 3, 4, and 5 in between. The locations of future harvests and associated roadbuilding are unknown, however, the additional 49 miles of new road projected under the 2020 Alaska Roadless Rule would be expected to adversely affect roadless values, watershed protection, and ecosystem health. The final rule is not expected to materially increase or decrease the amount of timber harvested in the Tongass, as that is governed by the 2016 Forest Plan and influenced by a number of other non-roadless factors.

National Versus Local Decision-Making

For decades, the USDA has worked with States, Tribes, local communities, and collaborative groups toward land management solutions for roadless areas. Sometimes solutions have been found nationally. Sometimes a state-by-state approach has been the best option. Often, the solutions are found forest-by-forest or even area-by-area. In this instance, the 2001 Roadless Rule's approach to roadless area management is once again considered the best approach for roadless area management on the Tongass. Other states, Idaho and Colorado, have sought and been granted the opportunity for roadless management to be tailored to their needs. Indeed, the USDA received at least thirteen individual State petitions seeking various State-specific solutions during the timeframe in which the 2001 Rule was temporarily enjoined or set aside. The State of Alaska's 2018 rulemaking petition asked the USDA to recognize that in contrast to the scarcity of undeveloped lands that occurs in many other States, undeveloped areas are plentiful in Alaska. Instead, the State of Alaska maintains that the circumstances of the Tongass appear to be best managed through the local planning processes.

The Department acknowledges the importance of local planning processes and benefits of conservation solutions developed through NFMA planning procedures, such as occurred during the 2016 Forest Plan amendment process. Throughout the development of the 2020 FEIS and in response to this proposed rulemaking, the Department and Forest Service conducted extensive public engagement, received thousands of comments, including from Alaskan citizens; and conducted government-to-government consultation sessions. It is clear that roadless areas on the Tongass support multiple ecologic, social, cultural, and economic values that are significant locally, regionally, nationally, and even internationally. This includes the fact that the Tongass represents, along with adjacent areas in Canada, the largest intact tract of coastal temperate rainforest on earth, and it contains nearly a third of all old-growth temperate rainforests left in the world. This ecosystem is recognized for its relatively large forest carbon stocks and ability to sequester carbon that can help to moderate climate change. The Tongass stores more carbon than any other national forest in the United States. Large old-growth trees in the Tongass are important for carbon storage and sequestration, which can play a role in addressing the climate crisis.

Moreover, roadless areas on the Tongass support a wide variety of ecosystem services that the American people enjoy and maintain the productivity and health of the region's fisheries and fishing industry. The underlying goals and purposes of the 2001 Roadless Rule continue to be important, especially in the context of the values that roadless areas on the Tongass represent for local communities and Native peoples. These facts warrant the restoration of the 2001 Roadless Rule provisions.

The final rule ensures that future forest planning efforts maintain the conservation values associated with 9.37 million acres of Inventoried Roadless Areas.

In selecting the final rule among the several alternatives considered, the USDA has considered State of Alaska's policy preferences as expressed in its 2018 Petition. USDA has also reflected on the original decision rationale for applying the roadless rule to the Tongass in 2001. As described in the response to comments on the final rule on January 12, 2001, USDA noted that ''the agency has considered the

alternatives of exempting and not exempting the Tongass, as well as deferring a decision per the proposed rule. Social and economic considerations were key factors in analyzing those alternatives, along with the unique and sensitive ecological character of the Tongass, the abundance of roadless areas where road construction and reconstruction are limited, and the high degree of ecological health.'' Then, and again now, in making this decision, the Department considered the extraordinary ecological values of the Tongass and the cultural, social, and economic needs of the local forest dependent communities in Southeast Alaska. USDA believes that this management approach best reflects and responds to those multiple values.

From an ecologic perspective, restoring the 2001 Roadless Rule protections on the Tongass would help conserve natural resources by restoring roadless area management on 9.34 million acres, which protects 188,000 acres of forest from potential harvest and roadbuilding and would support retention of the largest and most extensive tracts of undeveloped land for the roadless values, watershed protection, and ecosystem health those lands provide. Roadless areas on the Tongass represent the world's largest remaining, intact, old-growth temperate rainforest, which supports biodiversity and sequesters carbon. The final rule reflects the Administration's priority on protecting those values.

Restoring the 2001 Roadless Rule protections also reflects the Administration's priorities to build on the region's primary private-sector economic drivers of tourism and fishing. Roadless areas on the Tongass include watersheds and areas important for fishing, hunting, outdoor recreation, and tourism, which support revenue and jobs in Southeast Alaska as well as local community well-being. Restoring 2001 Roadless Rule protections to those areas would support those values. This approach is consistent with the Department's Southeast Alaska Sustainability Strategy (more about the strategy is available at *https://go.usa.gov/xMNzF*), announced on July 15, 2021, to serve the broader economy of Southeast Alaska, support community resiliency, and conserve the social, cultural, and ecologic values supported by the Tongass.

Restoring the 2001 Roadless Rule protections also responds to the January 26, 2021, Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships issued by President Biden (*https://www.govinfo.gov/content/pkg/FR-2021-01-29/pdf/2021-02075.pdf*). This rule is directly responsive to unanimous input from Tribal Nations during government-to-government consultation sessions conducted in 2021 and 2022. Roadless areas on the Tongass are of immense cultural significance for Alaska Native peoples. Restoring application of the 2001 Roadless Rule to the Tongass would reflect the Administration's commitment to strengthening nation-to-nation relationships, and incorporating indigenous knowledge, stewardship, and priorities into land management decision-making.

Relationship of the Alaska Roadless Rule to the Forest Plan

The 2001 Roadless Rule's scope and applicability language was designed to avoid conflicts between the rule and forest plans, as well as to avoid unnecessary or duplicative administrative processes for the operation of the 2001 Roadless Rule. As such, the 2001 Roadless Rule expressly directed that the rule did not compel the amendment or revision of any land and resource management plan. See 36 CFR 294.14(b) (2001). When the Tongass Land Management Plan was amended in 2016, the Forest Service elected to directly implement the 2001 Roadless Rule's timber harvesting prohibitions in determining suitability (see 2016 Forest Plan, Appendix A, page A–3, Appendix I, page I–177, indicating all Inventoried Roadless Areas were removed from the suitable land base during Stage 1 of the suitability analysis due to the 2001 Roadless Rule).

As part of the Department's 2020 final rulemaking decision to exempt the Tongass from the 2001 Roadless Rule, the Department directed the Forest Service to issue a ministerial notice of an administrative change to the 2016 Forest Plan pursuant to 36 CFR 219.13(c), to alter the timber suitability of lands deemed unsuitable solely due to the application of the 2001 Roadless Rule. 36 CFR 294.51. Further, the 2020 rulemaking was clear that the administrative change simply provided conformance of the 2016 Forest Plan to the final rule in regard to lands suitable for timber production and would not change the level of timber harvest, how timber is harvested on the Tongass, or any other aspects of the 2016 Forest Plan. See 85 FR 68695. However, the ministerial administrative change was never issued, and no change has been made to the suitable timber lands designation in the 2016 Forest Plan.

Public Comment Process

The Forest Service published a Notice of Intent to prepare an EIS for the Alaska Roadless Rule in the **Federal Register** (83 FR 44252) on August 30, 2018. The Notice of Intent initiated a 45-day scoping period, which ended on October 15, 2018. During this time period, the Forest Service conducted 17 public meetings including meetings in Anchorage, AK; Washington, DC; and communities throughout Southeast Alaska: Angoon, Craig, Gustavus, Hoonah, Kake, Ketchikan, Petersburg, Point Baker, Sitka, Tenakee Springs, Thorne Bay, Wrangell, Yakutat, and two meetings in Juneau. During the scoping period, over 144,000 comment letters or emails were received.

On October 17, 2019, the Department published a NOPR in the **Federal Register** (84 FR 55522) and on October 18, 2019, a Notice of Availability for the DEIS was published (84 FR 55952). On October 25, 2019, an amended Notice of Availability was published (84 FR 57417), which amended the comment closing date of the 60-day comment period to December 17, 2019. During the 60-day comment period, the Forest Service conducted 21 public meetings including meetings in Anchorage, Alaska; Washington, DC; and Southeast Alaska communities: Angoon, Craig, Gustavus, Haines, Hoonah, Hydaburg, Juneau, Kake, Kasaan, Ketchikan, Pelican, Petersburg, Point Baker, Sitka, Skagway, Tenakee Springs, Thorne Bay, Wrangell, and Yakutat. Approximately 267,000 comment letters or emails were received during the 60-day comment period, including 11 petitions containing about 117,000 signatures.

On November 23, 2021, the USDA published the NOPR for repeal of the 2020 Alaska Roadless Rule, initiating a 60-day comment period (86 FR 66498). Approximately 112,000 comment documents were received (about 9,000 were unique submissions). In addition to the comments, 14 petitions with over 130,000 names attached were received.

Cooperating Agencies

As part of the 2020 rulemaking, the Forest Service invited 32 federally recognized Tribes in Alaska to participate as cooperating agencies during the rulemaking process. Originally, the State of Alaska and six Tribes agreed to become cooperating agencies, including Angoon Community Association, Central Council Tlingit and Haida Indian Tribes of Alaska, Hoonah Indian Association, Hydaburg Cooperative Association, Organized Village of Kake, and Organized Village of Kasaan.

The Forest Service made several trips to potentially affected villages to work individually with Tribal cooperating agencies, provide technical expertise, and collect input. All Tribal cooperating agencies opposed the proposed rule (Alternative 6), while some expressed support for additional local control, increased opportunity for local forest product businesses, and limited increased access for a variety of local needs.

Based on input from Tribal cooperating agencies, USDA considered the use of the Tribes' traditional use areas for the community use analysis boundaries in the development of the DEIS. USDA did not apply the traditional use areas for the impact analysis because they are considerably larger than the community use areas. The use of larger analysis areas diffuses the impacts, and the Agency wanted the impacts to be focused by community. The Agency added an appendix displaying the traditional use areas to recognize the importance of these areas to the Tribes.

The USDA revisited the community use analysis boundary issue between the DEIS and the 2020 FEIS and solicited subsistence use data by community from the State of Alaska. Alaska Department of Fish and Game provided updated survey information from six communities regarding areas of subsistence gathering. This data indicated Southeast Alaskans are traveling further for subsistence gathering.

After the publication of the proposed rule (October 17, 2019), the Organized Village of Kake withdrew as a cooperating agency. After the publication of the FEIS (September 25, 2020), the remaining Tribal cooperating agencies, Angoon Community Association, Central Council Tlingit and Haida Indian Tribes of Alaska, Hoonah Indian Association, Hydaburg Cooperative Association, and Organized Village of Kasaan withdrew as cooperating agencies.

The USDA appreciates and recognizes the contributions of all the Alaska Native Tribes that participated in development of the 2020 FEIS but later withdrew as cooperating agencies. The USDA understands that the previous rule is not the outcome the Tribal cooperating agencies had hoped for, and the Department recognizes the concerns they expressed. The Department and Forest Service greatly value each Tribal cooperating agency. The participation and advice of Tribal cooperating agencies improved the analyses and alternatives.

The decision in this rulemaking to restore 2001 Roadless Rule protections to the Tongass reflects input received by USDA and the Forest Service during additional government-to-government consultation sessions in 2021 and 2022 (see Consultation with Indian Tribal Governments section). USDA and the Forest Service recognize and value Indigenous stewardship, knowledge, cultural values, ways of life and connection to this land since time immemorial. The Department's hope is that restoring the 2001 Roadless Rule will create space for more creative solutions that are sensitive to the diverse interests of Alaskan Native Tribal communities and begin to restore the trust between our sovereign nations.

Comments on the Proposed Rule

About 112,000 comments were received on the 2021 NOPR, including several petitions with more than 100,000 signatures in total, during the 60-day comment period. Several Southeast Alaska municipal and Tribal governments and industry organizations also submitted comments or resolutions. A large majority of comments supported repeal of the 2020 Alaska Roadless Rule and reinstatement of the 2001 Roadless Rule on the Tongass. The USDA considered all substantive comments submitted as part of this rulemaking, as well as comments submitted on the 2019 DEIS and testimony given at subsistence hearings in 2019. The following is a summary of the comments received relating to the 2021 NOPR and the agency response. A complete response to comments on the NOPR is contained in a response to comments report available through *https://www.fs.usda.gov/project/?project=60904.* Also, see Appendix H of the 2020 FEIS.

Comments Opposed to the Repeal of the 2020 Alaska Roadless Rule and Reinstatement of the 2001 Roadless Rule on the Tongass

Comment: Some commenters opposed the repeal of the 2020 Alaska Roadless Rule, stating it does not make sense for Alaska and hinders economic development. They state the 2001 Roadless Rule has been a major barrier to developing resources and improving transportation in Southeast Alaska. Some comments expressed that the rationale provided by the USDA when it exempted the Tongass in 2003 is still valid today.

Response: The 2001 Roadless Rule does not prohibit many of the activities cited in these comments. For example, the 2001 Roadless Rule does not prohibit tree removal for the construction or maintenance of utility lines. While new temporary or permanent roads are not permitted in IRAs, with exceptions, temporary linear construction zones can be authorized to facilitate the construction of utility lines. The 2001 Roadless Rule does not prohibit the construction, operation, and maintenance of hydropower facilities, including otherwise lawful road construction associated with such facilities. The 2001 Roadless Rule does not prohibit statutorily authorized mineral exploration or development, including roads that may be needed to provide access to mining claims or mining facilities. The 2001 Roadless Rule also provides exceptions to allow the construction, reconstruction, or realignment of Federal aid highways in IRAs and road construction or reconstruction pursuant to reserved or outstanding rights, and as provided by statute or treaty. This includes the State of Alaska's rights under section 4407 of Public Law 109–59, as amended. For additional discussion of the activities allowed under the 2001 Roadless Rule, see pages 3–166, 3–167, 3–169, 3–170, 3–178, and 3–179 of the 2020 FEIS.

Comments in Support of the Repeal of the 2020 Alaska Roadless Rule and Reinstatement of the 2001 Roadless Rule on the Tongass

Comment: Many commenters supported the reinstatement of the 2001 Roadless Rule in Alaska, stating that restoring Roadless Rule protections in the Tongass will support many environmental, economic, and cultural values, and will help maintain the way of life of the Native peoples who live there. Many requested that the USDA fully restore 2001 Roadless Rule protections on the Tongass; as well as end large-scale old-growth timber sales on the entirety of the Tongass.

Response: The USDA has considered the importance of roadless area conservation for a combination of cultural, social, ecological, and economic values. The USDA recognizes that the underlying goals and purposes of the 2001 Roadless Rule continue to be important, especially in the context of the values that roadless areas on the Tongass represent for local communities and Native peoples, and the multiple ecologic, social, cultural, and economic values supported by roadless areas on the Forest.

Comments Relating to the Alaska Roadless Rule Citizens Advisory Committee (CAC) Recommendations

Comment: Commenters were concerned that the USDA disregarded the substantial work of the CAC, its final

recommendations (November 2018), its recommended exceptions for timber harvesting and road building, and its input on unique characteristics found on the Tongass.

Response: The Forest Service considered the input and recommendations provided by the CAC to the State of Alaska. It is important to recall that the CAC's Final Report (page 11) stressed that it ''represents options to consider for analysis, not recommendations for what the Committee expects or desires to see as the final Alaska Roadless Rule.'' Many of the CAC options were incorporated into Alternatives 2, 3, 4, and 5 of the 2020 FEIS and were considered during both the 2020 rulemaking and as part of today's final rule.

Comments on Effects to Energy, Renewable Energy, and Infrastructure

Comment: Commenters were concerned that repeal of the 2020 Alaska Roadless Rule would make it more expensive to site, plan, permit, develop, operate, and maintain energy and renewable energy projects such as hydropower and geothermal and associated infrastructure. Some commenters stated that while the effects on the energy systems of Southeast Alaska may not be immediate, the action will have a deleterious impact on consumer rates and the ability for electric utilities to access crucial infrastructure and constitutes a significant energy action as defined in Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, issued May 18, 2001).

Response: The 2001 Roadless Rule has and will continue to accommodate access for qualified mining, energy, and community infrastructure needs while also conserving the multiple ecologic, social, cultural, and economic values supported by roadless areas on the forest. The USDA has considered this final rule in context of Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, issued May 18, 2001. The USDA believes that this final rule is not likely to have a significant adverse effect on the supply, distribution, or use of energy, and the Administrator of the Office of Information and Regulatory Affairs has not designated this final rule as a significant energy action as defined in Executive Order 13211. Therefore, a statement of energy effects is not required.

The Federal Power Act (FPA) grants the Federal Energy Regulatory Commission (FERC) the authority to issue and administer licenses for hydropower projects. For projects located on NFS lands, section 4(e) of the FPA requires FERC to assure the project will not interfere or be inconsistent with the purpose for which the forest reservation was created or acquired. While section 4(e) of the FPA gives the Forest Service the authority to impose mandatory conditions in the FERC license to ensure the adequate protection and use of forest land and resources, these 4(e) conditions cannot usurp FERC's role in deciding whether to license a hydropower facility. In short, if FERC decides that a road is necessary for facility development, the Forest Service cannot veto the project or road, but rather is limited to imposing reasonable terms and conditions necessary for the adequate protection and utilization of the forest. The 2001 Roadless Rule (at 36 CFR 294.12(b)(3) (2001)) provides that a road may be constructed or reconstructed in an IRA if ''[a] road is needed pursuant to reserved or outstanding rights, or as provided for by statute or treaty.'' The FPA is one such statute.

The 2001 Roadless Rule also does not prohibit the construction or maintenance of transmission lines. While new temporary or permanent roads are not permitted in IRAs, temporary linear construction zones can be authorized to facilitate the construction of transmission lines, along with other applicable exceptions set forth in the 2001 Roadless Rule. The courts have sustained that interpretation on more than one occasion. The USDA has acknowledged that the restriction on road construction, including the construction of access roads, may pose a challenge for transmission routes that cross IRAs, potentially increasing construction and maintenance costs. However, based on analysis for previous transmission projects on the Tongass, roaded alternatives are not necessarily less expensive to construct and maintain than those relying on other means of access. Construction and maintenance costs depend on terrain, distance to communities, and other factors. Helicopter access, temporary construction zones, and/or trails can also be used to provide access and may even be less expensive than the road construction and maintenance costs associated with permanent roads in remote areas. In addition, the rights-of-way granted in section 4407 of Public Law 109–59, as amended, also allows for specified roaded access in the forest for transmission lines and other utility systems.

The 2001 Roadless Rule does prohibit road construction in IRAs for new leasable mineral projects, including geothermal projects. Although road construction is prohibited, leasable mineral projects are not prohibited in IRAs, including the incidental cutting, sale, and/or removal of trees associated with such projects. Mineral leasing laws are clear that mineral leasing is a wholly discretionary activity. In making a decision to make minerals available for leasing on the Tongass, the determination as to what restrictions should be placed on surface occupancy, as well as how access will be provided, are within the discretion of the Forest Service. As discussed in the 2020 FEIS, no leasable minerals are currently being produced on the Tongass and demand is expected to remain low (p. 3–58). In addition, no geothermal development activity is anticipated in the near future. Therefore, the repeal of the 2020 Alaska Roadless Rule and the reinstatement of the 2001 Roadless Rule will have limited impact on mineral leasing economic activity.

Comments About Alaska Mental Health Trust Lands

Comment: Commenters were concerned that repealing the 2020 Alaska Roadless Rule would adversely impact the value of Alaska Mental Health Trust (AMHT) lands, build uncertainty around access to AMHT lands, and impede the State's ability to generate revenue and to abide by the AMHT Enabling Act.

Response: Access to non-Federal lands, including AMHT lands, is guaranteed by ANILCA and the 2001 Roadless Rule recognizes statutory rights to access. The Forest Service has already issued the easements requested by the AMHT to access their conveyed lands. None of the easements issued as part of the AMHT Act of 2017 crossed IRAs.

Comments About Compliance With ANILCA

Comment: Commenters assert that implementing the 2001 Roadless Rule violates ANILCA because it withdraws more than 5,000 acres (sec. 1326(a)) and it violates all three of ANILCA's ''no more'' clause directives (sec. 1326 (a) and (b) and sec. 708).

Response: Reinstating the 2001 Roadless Rule does not constitute a withdrawal. Under section 1326(a) of ANILCA, the operative issue is whether the action taken exempts portions of the public land within the Tongass from the operation of the public land laws. Applying an agency regulation that protects and conserves the inventoried

roadless areas of the Tongass does not exempt these lands from operation of the public land laws; rather, it's an example of the Forest Service's statutory responsibility to provide for the multiple use and sustained yield of the products and services from units of the National Forest System (NFS), *Southeast Conference* v. *Vilsack,* 684 F.Supp.2d 135, 144 (D.D.C. 2010). This protective designation is consistent with the agency's responsibility to plan for multiple uses of NFS lands, *Wyoming* v. *USDA,* 661 F.3d 1209, 1234–35 (10th Cir. 2011) (holding the Roadless Rule consistent with USDA's multiple use authorities).

Comments Related to Subsistence

Comment: In its 2021 comments, the Southeast Alaska Subsistence Regional Advisory Council (SEARAC) reiterated its subsistence-related concerns shared with the Forest Service in 2019 and 2020, including the SEARAC's conclusion that an exemption from the 2001 Roadless Rule would result in a decrease in the availability of subsistence resources and subsistence opportunities throughout the Tongass. Some commenters stated that access to subsistence resources would be better under the 2020 Alaska Roadless Rule, while others stated that subsistence resources would be better protected under the 2001 Roadless Rule.

Response: This final rule repeals the 2020 Alaska Roadless Rule and reinstates the 2001 Roadless Rule on the Tongass. This is consistent with the management direction described in the 2016 Forest Plan and upon which the environmental analysis for the 2016 Forest Plan was based. Reinstatement of the 2001 Roadless Rule will prevent any additional effects on subsistence that could indirectly result from the 2020 Alaska Roadless Rule due to increased access and competition.

Although rulemaking related to the management of roadless areas on the Tongass is a programmatic policy decision and does not make a specific decision on whether to ''withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition'' of NFS lands that is subject to a determination under section 810 of ANILCA, subsistence hearings were conducted in 19 communities across the Tongass between the Draft and Final EISs for the 2020 Alaska Roadless Rule. Testimony regarding subsistence activities that was submitted at those hearings has been further considered in the current rulemaking effort, as have the comments received from SEARAC and other comments and input.

The USDA concluded that the 2020 Alaska Roadless Rule may eventually indirectly result in a significant restriction of the subsistence use of deer by increasing overall competition for the subsistence resource by urban and rural residents, especially on Chichagof, Baranof, and Prince of Wales Islands where competition for deer and some other land mammals is already high and habitat capability has been significantly reduced due to prior timber harvest and road construction (85 FR 68692). As stated above, this final rule prevents any additional effects on subsistence that could result from the 2020 Alaska Roadless Rule due to increased access and competition.

In compliance with NEPA and section 810 of ANILCA, future projects that include timber harvest, road construction, and/or road reconstruction that may significantly impact the human environment or significantly restrict subsistence uses would undergo site-specific analysis when they are proposed, and the potential impacts to subsistence resources and users would be assessed as part of these project-level analyses. Project-level analyses require a subsistence evaluation and finding in accordance with ANILCA section 810, which specifically address potential impacts in terms of: (1) resource distribution and abundance; (2) access to resources; and (3) competition for the use of resources.

Comments About Mining and Access to Minerals

Comment: Commenters expressed concern that reinstating the 2001 Roadless Rule would limit roaded access to mineral exploration and development and that the USDA should work with other agencies to update mineral studies conducted in the past. Some stated that even the perception of regulatory uncertainty brought by the 2001 Roadless Rule will limit investments in mineral projects.

Response: The 1872 Mining Law gives a statutory right of reasonable and necessary access related to the exploration and development of mineral resources, and the 2001 Roadless Rule recognizes this right. This statutory right is subject to reasonable regulation for the protection of surface resources. For any area in an IRA that is open to mineral entry, locatable mineral mining, including certain activities ancillary to mining (*e.g.,* access roads for exploration and development), may be approved. Whether or not roaded access is needed to provide reasonable access is determined on a case-by-case basis based on conditions specific to each request. This process is no different than how requests outside of IRAs are handled, as regardless of where the proposed mining activity is located, the Mining Law provides for reasonable access.

Comments on Fishing, Hunting, Outdoor Recreation, and Tourism

Comment: Commenters stated that reinstating the 2001 Roadless Rule would benefit fishing, hunting, recreation, and tourism users and industry by providing remote and adventurous recreation opportunities and healthy, intact watersheds and habitat. They state that the 2001 Roadless Rule is crucial to protecting these opportunities and resources for Southeast Alaska residents and visitors from across Alaska and around the globe.

Response: Roadless areas on the Tongass include watersheds and areas important for fishing, hunting, outdoor recreation, and tourism, which provide revenue and jobs in Southeast Alaska as well as local community well-being. Subsistence, commercial, and sport fisheries in both marine and freshwater systems, for example, are all important to the way of life for Southeast Alaskan residents. In comparison to the current rule, this final rule reduces the potential for road and harvest effects on fisheries in areas that will again be protected by the 2001 Roadless Rule and provides more durable protections to these resources than those provided under the forest plan.

Comments Concerned About Declining Community Stability

Comment: Commenters question why reinstating the 2001 Roadless Rule is needed when the 2016 Forest Plan adequately provides for the ecological sustainability of the Tongass. They state that every community in Southeast Alaska is in decline, population is declining, and jobs are being eliminated, and they ask that the USDA reconsider its conclusion that the social and economic hardships to Southeast Alaska are outweighed by the ecological benefits of reinstating the 2001 Roadless Rule. They stated that if sustainability were the priority, policy should prioritize well-conceived road building and expanding job opportunities and commerce to encourage additional infrastructure to reduce the cost of living.

Response: The 2016 Forest Plan was developed while the 2001 Roadless Rule was in effect on the Tongass. While the 2016 Forest Plan Final EIS did include alternatives that would be reliant on a roadless rulemaking (Alternatives 2 and 3), the ROD for the 2016 Forest Plan

concluded that, ''the best way to bring stability to the management of roadless areas on the Tongass is to not recommend any modifications to the Roadless Rule'' (Tongass Forest Plan ROD, p. 19).

The 2001 Roadless Rule provides flexibility for the development of roads, hydropower, transmission lines, and minerals, which are acknowledged as important to the socioeconomic well-being of Southeast Alaska residents along with the subsistence, cultural, and recreational values that also contribute to socioeconomic well-being. Restoring the 2001 Roadless Rule protections reflects this Administration's priorities to build on the region's primary private-sector economic drivers of tourism and fishing. Roadless areas on the Tongass include watersheds and areas important for fishing, hunting, outdoor recreation, and tourism, which generate the majority of employment opportunities and private sector revenue across Southeast Alaska that, in turn, supports local community well-being. This approach is consistent with the USDA's broader SASS initiative to serve the broader economy of Southeast Alaska, support community resiliency, and conserve the social, cultural, and ecologic values supported by the Tongass.

Comments Regarding Stability in Forest Management

Comment: Commenters note that the Forest Supervisor concluded in the 2016 Forest Plan ROD that ''the best way to bring stability to the management of roadless areas on the Tongass is to not recommend any modifications to the Roadless Rule,'' thereby benefiting local communities by reducing local conflicts over forest decisions and community tensions. Others, however, stated that the 2020 Alaska Roadless Rule is more effective in providing stability in forest management.

Response: This final rule is in alignment with the conclusions reached in the 2016 Forest Plan ROD to retain the regulatory protections of the 2001 Roadless Rule, thereby benefiting local communities by reducing conflicts over forest management decisions and community tensions. The 2001 Roadless Rule provides flexibility for the development of roads, hydropower, transmission lines, and mineral resources.

Comments Concerned About Natural Resource-Based Employment That Relies on a Healthy Forest

Comment: Commentors state that the healthy forests and ecosystems on the Tongass are crucial to the economic well-being of many communities in Southeast Alaska. Pointing out food security concerns and the high cost of importing food to Southeast Alaska communities, they state that their economic well-being depends on adequate subsistence resources. Commentors also state that the economies of many Southeast Alaska communities depend on commercial fishing, guiding and tourism, trapping, work in fisheries, wildlife and forest management, and small-scale harvest of forest products. They stated that all of these components of their economies depend on maintaining the ecological integrity of the forest and intact salmon-producing watersheds. Conversely, commentors also are concerned about impacts to industries like timber, energy, and mining.

Response: This final rule repeals the 2020 Alaska Roadless Rule and reinstates the 2001 Roadless Rule management regime expected by the 2016 Forest Plan and is expected to avoid any additional effects on subsistence due to the increased access and competition for resources under the 2020 Alaska Roadless Rule. This final rule also offers more long-term, regulatory protection for watersheds and other areas important for fishing, hunting, outdoor recreation, and tourism, which support revenue and jobs in Southeast Alaska as well as local community well-being. As discussed above in the rationale for the final rule, this policy change for the Tongass can be made without major adverse impacts to the timber, energy, and mining industries, while recognizing the importance of the primary economic drivers in Southeast Alaska, fishing and tourism, and contributing to the continued assurances that the carbon storage and sequestration associated with the Tongass are realized.

Comments on the Balance of Competing Interests of All Small Businesses

Comment: Commenters state that the Forest Service should work to balance competing interests to allow all industries a fair and equal opportunity for success while still meeting the conservation goals of the agency.

Response: Reinstating the 2001 Roadless Rule reflects this Administration's priorities to build on the region's primary private-sector economic drivers of tourism and fishing. Roadless areas on the Tongass include watersheds and areas important for fishing, hunting, outdoor recreation, and tourism, which support employment opportunities and private-sector revenue and jobs in and across Southeast Alaska. This contribution to employment and revenue generation in turn supports local community well-being.

With regard to natural resource-based businesses, the 2020 FEIS indicates that direct employment in natural resource-based industries (visitor, seafood, mining, and timber) accounted for 28 percent of total employment in Southeast Alaska. Of the total natural resource-based employment, the visitor and seafood industries accounted for 90 percent of employment, while mining and timber accounted for 10 percent (2020 FEIS, pp. 3–32 to 3–33). The Final EIS also indicates that the Warehousing, Utilities, and Transportation sector of Southeast Alaska employment accounts for two percent of total employment in Southeast Alaska.

The economic priorities reflected in this final rule are consistent with the USDA's SASS announced in July 2021. These competing interests have been weighed and documented in the 2022 Alaska Roadless Rule Regulatory Impact Assessment and Cost-Benefit Analysis. This Administration and USDA believe that a policy change for the Tongass can be made without significant adverse impacts to the timber and mining industries, while recognizing the importance of the tourism, and fishing industries.

For the timber industry, this final rule limits some harvest opportunities that would have been potentially available following the 2020 Alaska Roadless Rule's removal of the regulatory roadless prohibitions and adjusting the suitable timber base. However, this final rule is not expected to alter projections for timber jobs and income compared to those under the 2020 Alaska Roadless Rule. Actual timber employment and income in Southeast Alaska would depend on factors and choices made by purchasers that exist outside the context of roadless restrictions; those choices may change as markets and prices shift, as well as other factors (2020 Alaska Roadless Rule Final EIS, page 3–56).

This final rule is not expected to affect existing or future locatable mineral exploration or mining activities on the Forest because the right of reasonable access is guaranteed by the General Mining Law of 1872. Exploration, mining, and mineral processing activities, including road construction and reconstruction, are presently allowed to the extent provided by statute in IRAs and will continue to be allowed under this final rule.

Comments Supporting Commercial and Non-Commercial Fishing

Comment: Commenters stated that roadless areas provide essential and

intact spawning, rearing, and migratory habitat for salmon and that protecting roadless areas benefits commercial, sport, and subsistence fishing. They further state that intact habitats such as those in roadless areas are more resilient to changing environmental conditions caused by climate change.

Response: The 2020 FEIS acknowledges that subsistence, commercial, and sport fisheries in both marine and freshwater systems are all important to the way of life for Southeast Alaskan residents. The abundant aquatic systems of the Tongass provide spawning and rearing habitats for most fish produced in Southeast Alaska. Maintenance of this habitat and associated high-quality water is a focal point of public, State, and Federal natural resource agencies, as well as user groups, Native organizations, and individuals. In comparison with the current rule, this final rule reduces the potential for road and harvest effects on fisheries in areas that will again be better protected by the 2001 Roadless Rule. As the FEIS explains, Alternative 1 ''would have the lowest potential harvestable acres, the lowest number of new and rebuilt roads constructed, and likely the lowest number of new and reconstructed stream crossings of any alternative.'' Although ''these numbers are not substantially different than the other alternatives,'' ''[a]ll stream crossings increase risks to fish passage, and new crossings have a greater risk of sediment effects. (FEIS 3–138). Alternative 1 is therefore consistent with protection of intact spawning, rearing, and migratory habitat for salmon and the fishers who depend on that habitat.

Reinstating the 2001 Roadless Rule will help to ensure that the Tongass will continue to provide for ecosystem resiliency in changing climatic conditions.

Comments on the Adverse Effects of Roads on Fish and Fish Habitat, Including Salmon

Comment: Commenters noted that roads can have adverse impacts including increased sediment loads, modified stream flows, habitat fragmentation, degraded water quality, increased stream temperatures, fish passage barriers, loss of genetic fitness, loss of spawning and rearing habitat, and increased vulnerability to catastrophic events. They were concerned about the backlog of bridges and culverts that currently fail to meet fish passage standards. They stated that instead of building costly new roads, the Forest Service should invest in restoration, including the existing backlog of culverts that impede fish passage (known as ''RED crossings'').

Response: This final rule repeals the 2020 Alaska Roadless Rule and reinstates the 2001 Roadless Rule, thus restricting roadbuilding in IRAs on the Tongass, with limited exceptions. As noted in the 202 FEIS, Alternative 1 ''would have the lowest potential harvestable acres, the lowest number of new and rebuilt roads constructed, and likely the lowest number of new and reconstructed stream crossings of any alternative.''

As of 2020, the Tongass has documented a total of 1,136 crossings (32 percent) that do not meet current fish passage standards, otherwise known as RED crossings, as established by the Alaska Department of Fish and Game and the Forest Service. Fragmented habitat upstream of RED crossings is estimated to equal about 0.4 percent (64 miles) and 2 percent (182 miles) of all mapped anadromous and resident fish stream miles on the Forest, respectively. The restrictions on roadbuilding in the 2001 Roadless Rule will protect the watersheds within IRAs on the Tongass, and the USDA will seek opportunities to leverage funding through the USDA's SASS, the 2021 Infrastructure Investment and Jobs Act, the 2022 Inflation Reduction Act, and other sources to target priority restoration needs on the Tongass.

Comments Related to Wildlife

Comment: Commenters noted the high-value habitat that roadless areas provide for old-growth dependent species. Many species were mentioned, including birds, bears, wolves, and deer, among others. The commenters noted that the best method to ensure protection of old-growth dependent species and endemic species habitat is the reinstatement of 2001 Roadless Rule protections for the Tongass.

Response: Conserving terrestrial habitat, aquatic habitat, and biological diversity was a key issue in the development of the 2020 FEIS, recognizing that the Tongass includes large, undeveloped, and natural land areas that represent expansive, unfragmented blocks of wildlife habitat that is not available elsewhere in the NFS outside of Alaska. As stated above, the final rule restores roadless area management on 9.37 million acres, which protects 188,000 acres of forest from potential timber harvest and roadbuilding and retains the largest and most extensive tracts of undeveloped land for the habitat, biodiversity, and ecosystem health those lands provide.

Comments Related to Suitability of Lands for Timber Harvest

Comment: Commenters noted that the 2020 Alaska Roadless Rule directed the Tongass Forest Supervisor to issue a notice of administrative change to formally make 188,000 acres suitable for timber harvest, but that administrative change was not made. Some commenters stated that because the administrative change was never made, repeal of the 2020 Alaska Roadless Rule will not reduce the areas available for harvest or enhance ecological, wildlife, hunting, fishing, recreation, tourism, subsistence, cultural, and spiritual values. Other commenters stated that without the protection of the 2001 Roadless Rule, there is no reason to expect that the suitable timber base would not be expanded in the future.

Response: The 2020 Alaska Roadless Rule directed the Tongass Forest Supervisor to issue an administrative change to the 2016 Forest Plan (36 CFR 219.13(c)) that would make 188,000 acres of additional forest land suitable for timber harvest. While the Forest Service was determining the changes to the plan necessary under this direction, President Biden issued Executive Order 13990 (published on January 20, 2021) and the USDA began work to review the 2020 Alaska Roadless Rule in light of that order. If the 2020 Alaska Roadless Rule was not repealed, this administrative change to increase forest land available for timber harvest would proceed. Therefore, it is appropriate to consider the additional areas available for harvest under the 2020 Alaska Roadless Rule, as well as the ecological values of those areas.

The 2020 Alaska Roadless Rule removed the prohibitions on harvest in the 2001 Roadless Rule and could potentially result in a higher degree of habitat fragmentation and corresponding adverse effects on wildlife. The 2020 Alaska Roadless Rule could also potentially lead to more road construction and reconstruction, which could result in slightly higher adverse impacts to fish and aquatic resources and less protection for high-value watersheds. Additional roads in remote areas could provide more opportunities for roaded recreation and subsistence users who prefer roaded settings under the 2020 Alaska Roadless Rule. However, users who prefer non-motorized remote recreation, outfitter/guide use, and subsistence use of remote settings could be more adversely affected.

Comments on Compliance With the Tongass Timber Reform Act ''Seek To Meet Market Demand'' Provision

Comment: Commenters assert the Forest Service has historically failed to meet (or even approach) performance goals identified in its 2016 Tongass Forest Plan and has therefore not complied with its obligation to ''seek to meet market demand.'' They state that volumes offered for sale have consistently fallen short of volumes listed in 5-year schedules of timber sales and that many sales fail to sell due to poor design.

Response: The Tongass, in compliance with the TTRA, seeks to provide a supply of timber to meet market demand subject to appropriations and to the extent consistent with providing for the multiple use and sustained use of all renewable forest resources and other applicable laws. These other laws that apply to management of the National Forest System, such as the Organic Act, the Multiple Use and Sustained Yield Act, and the NFMA, provide broad authority and discretion to the Secretary of Agriculture to preserve, protect, and administer NFS lands and resources.

Timber is one of many resources managed by the Tongass in accordance with the Organic Act and the Multiple Use and Sustained Yield Act. While section 101 of the TTRA directs the Forest to ''seek to meet market demand,'' it specifically states that this direction is subject to appropriations, other applicable law, and NFMA. It is also noteworthy that section 101 was written to eliminate the timber supply mandate in the section of the ANILCA that it amended. Therefore, TTRA envisions not an inflexible or specific harvest level, but a balancing of the current market, law, and other uses, including preservation (*Alaska Wilderness Recreation and Tourism Association* v. *Morrison, et al.,* 67 F.3d 723 (9th Cir. 1995)). As specifically noted in the 2020 FEIS, pages 3–38 to 3–39, the actual volume of timber offered each year on the Tongass can fluctuate substantially due to a variety of factors, including but not limited to appropriations, competing agency and Forest obligations, NEPA resource evaluations and analysis, litigation, and market conditions.

The 2016 Forest Plan projections as applied in the 2020 FEIS remain the most reasonable estimates of long-term harvest levels to inform the decision among alternatives in this rulemaking. Recalculations of market demand projections and what timber harvest levels the Forest Plan should consider to seek to meet that demand are better addressed through the forest planning processes.

Comments Concerning Consideration of the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETY–LU)

Comment: Commenters assert that repeal of the 2020 Alaska Roadless Rule fails to consider or analyze Congress's decision in SAFETY–LU transportation legislation to implement the 2004 Southeast Alaska Transportation Plan by authorizing 19 easements allowing for road construction in the Tongass irrespective of IRA status.

Response: Section 4407 of Public Law 109–59, as amended, grants the State of Alaska a statutory right to the specific easements authorized in that Act, and the 2001 Roadless Rule recognizes such statutory rights (36 CFR 294.12(b)(3)). Therefore, should the State of Alaska choose to proceed with road construction on these easements, the 2001 Roadless Rule would not prohibit that development. Section 4407's provisions affect about 25 transportation and utility corridors located across the Tongass to connect communities and provide reciprocal access to NFS lands over State-managed lands.

Comments About Projects That May Have Roads in Early Stages of Development

Comment: Commenters requested that the Forest Service consider effects to projects in the early stages of road development that relied on the 2020 final rule and may now be prohibited by this rulemaking.

Response: The USDA is not aware of any early-stage road development projects on the Tongass which rely on the 2020 Alaska Roadless Rule. The only roads requested by any entity within IRAs on the Tongass since the decision on the 2020 Alaska Roadless Rule are those associated with a locatable mining project; these roads fall under the exceptions in the 2001 Roadless Rule that recognize the statutory rights provided by mining law.

Comments About Effects on Transportation Systems Within the Tongass

Comment: Commenters stated that the limitations on roadbuilding under the 2001 Roadless Rule have been a major barrier to accessing resources and improving transportation within the Tongass.

Response: The 2001 Roadless Rule provides exceptions to allow the construction, reconstruction, or realignment of Federal aid highways in IRAs and road construction or reconstruction pursuant to reserved or outstanding rights, or as provided by statute or treaty. This includes the State of Alaska's rights under section 4407 of Public Law 109–59, as amended.

Comments Supporting a Process for Improved Local, Tribal, and Community Input

Comment: Commenters urged the Forest Service to ensure a process is in place for improved local input and review of local community priorities, possibly through community economic development plans or other community planning processes.

Response: The USDA has continued meaningful consultation throughout this rulemaking process. The Forest Service welcomes local, Tribal, and community input. Receiving such input is essential to the agency for determining how best to develop plans and accomplish projects. When there are projects with outcomes that may have substantial influence on a community or region's economic, cultural, and ecological well-being, the Forest Service often convenes open houses to garner input or formally establishes working groups to develop recommendations and provide input from a cross-section of those directly affected, including local, Tribal, and community leaders. For example, a Federal advisory committee (Tongass Advisory Committee) was formed to provide recommendations on developing an ecologically, socially, and economically sustainable forest management strategy for the Tongass during the drafting of the 2016 Forest Plan Amendment (2016 Forest Plan, Appendix B).

As previously noted, on January 26, 2021, President Biden directed all federal agencies to review Tribal consultation policies and practices and recommit to more robust nation-to-nation relationships and respect for federal trust responsibilities (Executive Order 13175). The Forest Service invites Tribal input through formal government-to-government consultation, and Alaska Native corporation input through formal government-to-corporation consultation (Forest Service Handbook (FSH) 1509.13, Chapter 10). The USDA consulted with Tribes and Alaska Native corporations at the beginning of this rulemaking effort as well as during the public comment period. There have been ongoing government-to-government consultations involving Tribes pertaining to repealing the 2020 Roadless Rule. The first was conducted July 7–8, 2021, and involved nine Tribes: the Central Council of Tlingit

and Haida Indian Tribes of Alaska; the Organized Village of Kake; the Ketchikan Indian Community; the Klawock Cooperative Association; the Organized Village of Saxman; the Skagway Traditional Council; the Organized Village of Kasaan; the Douglas Indian Association, and the Hoonah Indian Association. A virtual consultation meeting was held with five tribes in August 2021. Another consultation was held February 18, 2022, at the request of one Tribe: the Organized Village of Kasaan. USDA has continued its coordination and consultation with Tribal Nations throughout development of the final rule, including another consultation with seven tribes on September 19, 2022. Tribes have also reaffirmed that their comments submitted during the 2020 EIS process are still valid (refer to appendix H of the 2020 FEIS).

In addition, the Forest Service has been working closely with local communities, Tribes, the State, and a broad range of partners through the OneUSDA Southeast Alaska Sustainability Strategy (SASS). The SASS process, projects and investments reflect USDA's commitment to a community-driven investment strategy that reflects input from local communities; acknowledges, respects and honors Indigenous stewardship, knowledge, and priorities; and values the many collaborative relationships that have developed to support social, cultural, ecologic, and economic sustainability and opportunity in the region.

Community economic development plans (or similar plans) may also be shared with the Forest Service at any time to inform and help ensure that the management of NFS lands is considerate of local, Tribal, and community needs. For example, the Southeast Conference 2025 Economic Plan, a comprehensive economic development strategy for 2021–2025, was one of the screening tools used for selecting SASS investment proposals for funding.

Comments on the Rulemaking Process for the 2020 Alaska Roadless Rule

Comment: Some commenters stated that the process leading to the 2020 Alaska Roadless Rule was inappropriately ''top down'' and that the process led to a decision (full exemption, the 2020 Alaska Roadless Rule) that did not resemble a durable solution.

Response: The long regulatory and litigation history concerning roadless area management on the Tongass is evidence that durable solutions for managing inventoried roadless areas on the Tongass are challenging. The concerns expressed during this rulemaking reflected a sentiment that the 2020 decision was a ''top down'' decision, and it is true that the 2020 Alaska Roadless Rule was not representative of the vast majority of commenters who expressed support for maintaining roadless rule protections. In making this decision, the USDA has considered all of the comments throughout both rulemaking efforts, and the comments expressed during Tribal consultation. The USDA recognizes that the underlying goals and purposes of the 2001 Roadless Rule continue to be important, especially in the context of the values that roadless areas on the Tongass represent for local communities and Native peoples, and the multiple ecologic, social, cultural, and economic values supported by roadless areas on the Forest.

Comments on the 2020 Alaska Roadless Rule Damaging Trusts and Relationships Between the Forest Service and Regional Stakeholders

Comment: Some commenters stated that the 2020 Alaska Roadless decision damaged trusts and relationships.

Response: This final rule is directly responsive to unanimous input from Tribal nations provided during government-to-government consultation sessions conducted in 2021 and reaffirmed in additional consultations in 2022. Roadless areas on the Tongass have immense cultural significance for Alaska Native peoples. Restoring application of the 2001 Roadless Rule to the Tongass reflects this Administration's commitment to strengthening nation-to-nation relationships with Tribes and incorporating traditional ecological knowledge, shared stewardship, and priorities into land management decision-making.

The final rule also is more responsive to the vast majority of comments received as part of the 2020 rulemaking as well as the 2021 repeal effort. This final rule reflects the consideration of the extraordinary ecological values of the Tongass National Forest and the cultural, social, and economic needs of the local forest dependent communities in Southeast Alaska. USDA believes that this management approach best reflects those multiple values.

Comments About Preordained Outcome

Comment: Some commenters argued that the Administration and USDA's decision to repeal the 2020 Alaska Roadless Rule was preordained in violation of NEPA. Some commentors pointed to the Southeast Alaska Sustainability Strategy's statement that the agency would pursue a repeal of the 2020 Tongass Exemption rule as proof of such predetermination.

Response: No NEPA violation occurs simply because an Administration or agency expresses its initial policy preferences before or at the beginning of a rulemaking. Here, the agency has carefully reviewed the potential environmental consequences before arriving at its decision.

Comments About Changed Circumstances and New Information

Comment: Some commenters noted that there may be changed circumstances or new information that render the 2020 EIS's analysis inadequate to support this rulemaking and urge a new or supplemental EIS be prepared.

Response: The proposed rule made a preliminary determination that the 2020 FEIS remained an effective analysis of the environmental effects of returning the Tongass to operation under the 2001 Roadless Rule. Commenters on the proposed rule have suggested that new information or changed circumstances related to (1) the USDA Southeast Alaska Sustainability Strategy, and (2) Sealaska Corporation's announced plan to transition away from logging its lands, may compel additional NEPA analysis for this rulemaking. The agency has carefully considered this information and concluded that it does not significantly alter the 2020 FEIS's analysis of the alternatives' effects on the quality of the human environment. More detailed discussion related to the agency's consideration of new information or changed circumstances is set out in the agency's Determination of NEPA Adequacy (DNA).

Comments on Consideration of Public Input

Comment: Commenters were concerned that the USDA based this final rule on the fact the large majority of comments received during the comment period for the 2020 Alaska Roadless rulemaking effort supported retaining the 2001 Roadless Rule and will again follow the majority and ignore local, informed input.

Response: The NOPR pointed out the large majority of comments received during the comment period for the 2020 Alaska Roadless rulemaking effort supported retaining the 2001 Roadless Rule. It did not draw the conclusion that the 2001 Roadless Rule should be reinstated simply because the majority of comments received during that rulemaking process were opposed to the Tongass exemption from the 2001

Roadless Rule (*i.e.,* opposed the 2020 Alaska Roadless Rule).

The USDA values the comments received and the concerns expressed by the public during the rulemaking process. The USDA considered all public comments received, input from Tribal governments, communities, cooperating agencies, and elected officials. The NEPA and rulemaking public comment processes are not vote-counting processes. Every comment has value, whether expressed by one individual or thousands. The public comment process considers the substance of each individual comment. No interest group's views or comments are given preferential treatment or consideration, and comments are considered without regard to their origin, commenter's affiliation, or number received. USDA reconsidered all alternatives and has opted to repeal the 2020 Alaska Roadless Rule for all the reasons discussed herein.

Comments Concerning the Tongass Old-Growth Conservation Strategy and Protecting Roadless Area Quality and Values

Comment: Commenters supported repeal of the 2020 Alaska Roadless Rule stating that it would have an adverse effect on the Tongass old-growth conservation strategy by directing an administrative change regarding timber suitability within IRAs and further stated that a supplemental EIS should be prepared with an alternative that would modify the 2016 Forest Plan to remove development land use designations from IRAs. They requested that the Forest Plan be amended to provide a comprehensive set of plan components that are compatible with Roadless Area qualities and values.

Response: The USDA has extensive authority governing forest management. The Secretary also has broad discretion concerning the development, amendment, or revision of land management plans, but new laws and regulations can supersede land management plan direction. The 2012 Planning Rule recognizes this authority and provides for administrative changes to forest plans to conform to new statutory or regulatory requirements (36 CFR 219.13(c)). The administrative change directed by the 2020 rulemaking regarding timber suitability only applied to lands that were deemed unsuitable solely due to IRA designation in the 2016 Forest Plan. While timber suitability is a Forest Plan component that would normally be changed through an amendment process (36 CFR 219.13(b)), the Planning Rule directs that Forest Plan components may be changed through a different mechanism under certain circumstances.

In any event, that particular administrative change was never executed. While the Forest Service was determining the changes to the 2016 Forest Plan necessary, President Biden issued the Executive orders discussed above and the USDA began work to review the 2020 Alaska Roadless Rule. This final rule repeals the direction to issue that administrative change. Instead, the 2001 Rule will apply as a direct result of the repeal of the 2020 Alaska Roadless Rule. In turn, the 2001 rule itself expressly provided that it does not compel the amendment or revision of any land and resource management plan. That fits well with the recognition in the 2016 Forest Plan (p. 1–5) that Federal law and regulation receive the highest level of priority in setting direction for Forest activities. Thus, changes to land use designation assignments are not necessary to apply the regulatory protections of the 2001 Roadless Rule or any roadless rule for that matter.

Comments Related to Climate Change, Carbon Storage, and Carbon Sequestration

Comment: Commenters supported repeal of the 2020 Alaska Roadless Rule in consideration of the urgent climate crisis and the need to retain or increase carbon storage and sequestration. Others disagreed and stated that the USDA is overstating the importance of Tongass old-growth for carbon sequestration.

Response: Roadless areas on the Tongass represent the world's largest remaining, intact, old-growth temperate rainforest, which supports biodiversity and stores carbon. These areas are considered critical for carbon sequestration and carbon storage to help mitigate climate change: the Tongass holds more biomass per acre than any other rainforest in the world and stores more carbon than any other national forest in the United States. Both old-growth and young-growth forests are important for carbon storage and sequestration.

Reinstating the 2001 Roadless Rule will provide regulatory certainty that the Tongass IRAs will continue to sequester and store carbon into the future, while providing numerous other ecological, economic, cultural, and social values to the American people and providing for ecosystem resiliency in changing climatic conditions.

Comments on Greenhouse Gasses as a Result of Increased Fuel Consumption

Comment: Some commenters stated that reinstating the 2001 Roadless Rule could reduce greenhouse gas emissions caused by fuel consumption related to timber harvest while others stated that it would impede the development of renewable resources and thereby delay the transition to clean energy in diesel-reliant communities.

Response: Regarding increased fuel consumptions related to timber harvests, this final rule does not set or change the volume of timber offered for sale. Those decisions will continue to be made in accordance with USDA policy, the 2016 Tongass Forest Plan, and the Tongass National Forest's fiscal capabilities and organizational capacity.

Hydroelectric projects, and the roads necessary to support these projects, that may help transition communities from fossil fuel energy are not prohibited in IRAs on the Tongass. The 2001 Roadless Rule also does not prohibit the construction or maintenance of transmission lines. While new temporary or permanent roads are not permitted in IRAs, outside of the exceptions in the 2001 Roadless Rule, temporary linear construction zones can be authorized to facilitate the construction of transmission lines. In addition, Alaska's transportation system guaranteed in section 4407 of Public Law 109–59, as amended, also allows for roaded access in the Forest for transmission lines and other utility systems. Therefore, the USDA believes that this final rule adequately provides for renewable energy projects and the transition to clean energy in communities across Southeast Alaska.

Comments on Opportunities To Conserve Cedar Forests in a Changing Climate

Comment: Commenters note that conservation areas, such as roadless areas protected by reinstatement of the 2001 Roadless Rule, offer opportunities to conserve cedar forests in a changing climate. Commenters request protection for yellow-cedar, red cedar and large, or old-growth trees, under the 2001 Alaska Roadless Rule.

Response: The 2020 FEIS acknowledged that yellow cedar is one species that is already experiencing effects of climate change on its distribution on the Tongass; however, management actions that benefit specific individual tree species are better addressed through other management efforts, such as forest planning or specific project design features.

Comments on the Difference in Environmental Consequences Between Continued Implementation of the 2001 Roadless Rule and Exemption From the 2001 Roadless Rule

Comment: Some commenters disagreed with the USDA's determination in 2020 that there was only a modest difference in environmental consequences between continued implementation of the 2001 Roadless Rule and exemption from the 2001 Roadless Rule. The commenters stated that roading and logging of these undeveloped lands resulting from the full exemption would have profound and significant environmental consequences for the 188,000 affected acres and beyond, including the roadless areas in which they are located.

Response: The USDA considered and disclosed the effects to roadless areas in terms of acres designated as roadless and the degree of protection provided by each alternative. The Final EIS is clear that Alternative 6 (full exemption of the Tongass from the 2001 Roadless Rule) would likely result in more degradation of roadless area characteristics than any of the other alternatives. Effects to each roadless area were presented in the Final EIS using estimated old-growth harvest acres by alternative to compare the alternatives.

The 2020 FEIS concluded that there is only a modest difference between the alternatives considered in the EIS as far as environment effects resulting from timber harvest, because the estimated acreage of land subject to harvest is not proportional to the acres of suitable timber lands, but rather is based on the projected timber sale quantity established in the 2016 Forest Plan. Although 9.4 million acres were no longer subject to the 2001 Roadless Rule with the exemption, only 188,000 more acres would become available for timber production. Road construction was estimated to increase Tongass-wide from 994 miles in the no-action alternative (Alternative 1) to 1,043 miles under the full exemption alternative (Alternative 6) over the next 100 years.

The assumptions and findings in the 2020 FEIS are still true as those findings were attributable to the fact that all of the alternatives were expected to have harvest levels similar to the levels authorized in the Forest Plan. The modest differences reflect the additional flexibility the 2020 Alaska Roadless Rule was expected to provide in making 188,000 more acres suitable for harvest, and the projection that there might be more high-volume and large-tree old-growth harvested under Alternative 6 (the 2020 Alaska Roadless Rule Alternative) because of that flexibility (See Alaska Roadless FEIS Environmental Consequences Forest Products Page 2–23).

Similarly, the 2001 Roadless Rule has not been an impediment to vital infrastructure and energy projects, given that some infrastructure and energy development is allowed under various statutes and projects have been approved consistent with the exemptions in the 2001 Roadless Rule.

While the conclusion in the 2020 FEIS that the overall adverse effect of the 2020 Alaska Roadless Rule on roadless area characteristics was modest is still valid, this final rule reflects the USDA's belief that even a modest adverse effect of this type is undesirable, in light of the USDA's current policy objectives. As explained above in the section titled ''Decision Rationale and Important Considerations,'' these objectives include prioritizing the values that roadless areas on the Tongass hold for local communities and Native peoples, as reflected, among other places, in the consultation with Tribal Nations, and the multiple ecologic, social, cultural, and economic values supported by roadless areas on the Forest.

Comments in Support of a Traditional Homelands Conservation Rule or Co-Management With Tribal Governments

Comment: Commenters stated Support for a Traditional Homelands Conservation Rule and increased co-management and consultations with Tribal governments.

Response: Shared stewardship of land management is a priority for USDA, and an important part of our responsibility to Native Nations. Ecological challenges do not recognize borders or boundary lines. Through shared stewardship, USDA is coming together with Tribal governments, States, and other partners to address these challenges and explore opportunities to improve forest health and resiliency. In July 2021, the USDA and the Forest Service held a consultation with nine Tribes in Juneau, Alaska. Topics included the Tribes' petition to create a Traditional Homelands Conservation Rule, the 2020 Alaska Roadless Rule, and the SASS. The Tribes represented at this consultation expressed their desire to return to the 2001 Roadless Rule on the Tongass as quickly and expeditiously as administratively possible, while also urging the USDA to take other steps. The USDA and the Forest Service have continued to consult with Tribal governments and Alaska Native corporations regarding this rule.

As part of the SASS, the USDA has committed up to $25 million in investments in Southeast Alaska, over 50 percent of which is expected to support Tribal and indigenous interests and Tribal and community youth engagement. Additionally, the USDA is exploring new ways utilizing existing authorities to advance co-stewardship between Tribal Nations and the USDA on NFS lands across Southeast Alaska. See the USDA SASS Initial Investments and Recommendations, March 2022 at *https://www.fs.usda.gov/internet/FSE_DOCUMENTS/fseprd1008319.pdf.*

Regulatory Certifications

National Environmental Policy Act

The Department's determination is that the FEIS issued in association with promulgation of subpart E (85 FR 68688) adequately analyzes the environmental effects of this final rule and reasonable alternatives. Therefore, the USDA has prepared a Determination of NEPA Adequacy (DNA) for this rulemaking. Under the Forest Service's National Environmental Policy Act (NEPA) procedures (36 CFR 220.4(j)), a DNA is a NEPA compliance method that allows an existing environmental analysis to be used in its entirety for a new proposed action if the Responsible Official determines that the existing NEPA analysis adequately assesses the environmental effects of the proposed action and reasonable alternatives. The DNA and 2020 FEIS are available at: *https://www.fs.usda.gov/project/?project=60904.* The environmental effects associated with adoption of the final rule were analyzed and disclosed in detail in Alternative 1 of the FEIS for the 2020 Alaska Roadless Rule (the no action alternative).

The FEIS for the 2020 Alaska Roadless Rule was prepared less than two years ago and included an effects analysis for six alternatives covering a broad range of roadless management options, including both operation under, and exemption from, the 2001 Roadless Rule's prohibitions. The NOPR included a preliminary determination that the 2020 FEIS remained an effective analysis of the environmental effects of returning the Tongass to operation under the 2001 Roadless Rule. Commenters on the proposed rule have suggested that new information or changed circumstances related to (1) the USDA Southeast Alaska Sustainability Strategy, and (2) Sealaska Corporation's announced plan to transition away from logging its lands, may compel additional NEPA analysis for this rulemaking. The agency has carefully considered this information and concludes that it does

not significantly alter the 2020 FEIS's analysis of the alternatives' effects on the quality of the human environment. Additional discussion related to the DNA can be found at the link above.

Regulatory Planning and Review

OMB has designated this rulemaking as a significant regulatory action under Executive Order 12866. The Forest Service has prepared an analysis of potential impacts and discussion of benefits and costs of the final rule in its Regulatory Impact Analysis. By removing subpart E, consisting of §§ 294.50 and 294.51, the final rule would return the Tongass to management under the provisions of the 2001 Roadless Rule, which prohibits timber harvest and road construction or reconstruction within designated Inventoried Roadless Areas with limited exceptions. Exceptions in the 2001 Roadless Rule do allow for some activity, including to protect public health and safety, provide access for statutory rights and existing leases, and in specified circumstances prevent or repair natural resource damage, maintain or restore ecosystem characteristics, or improve habitat for certain species.

Protection of roadless characteristics through reinstatement of the 2001 Roadless Rule that would occur as a result of this final rule would provide benefits associated with old-growth conservation and would avoid displacement-related losses to recreationists and the outfitter and guide industry, estimated to be $68,000 to $224,000 annually. Estimated loss of access to suitable old-growth would not materially decrease timber related jobs, income, or output, since the final rule does not change the timber sale quantity or timber demand projections from the Tongass Land and Resource Management Plan.

The TTRA directs the Forest Service, subject to other applicable laws, to ''seek to meet market demand'' for timber from the Tongass. See 66 FR 3255. However, as USDA (and the courts) have repeatedly explained, the TTRA ''does not envision an inflexible harvest level, but a balancing of the market, the law, and other uses, including preservation.'' Id. The TTRA expressly declares that subject to appropriations, other applicable law, the requirements of the National Forest Management Act; and to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, the Forest Service is to ''seek to provide a supply of timber from the Tongass, which: (1) Meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle'' (16 U.S.C. 539d).

While the TTRA provides a qualified instruction that USDA ''seek to provide a supply of timber'' from the Tongass that meets market demand, the 2001 Roadless Rule does not prevent USDA from seeking to meet market demand through timber sales on lands outside of inventoried roadless areas or consistent with Roadless Rule exceptions. The TTRA does not require USDA to meet market demand, but only to ''seek to . . . meet [ ]'' such demand. Even that qualified directive is ''subject to'' applicable law and must be ''consistent with'' USDA's authority to provide for the multiple use and sustained yield of renewable forest resources, including recreation, watershed, and wildlife and fish, in addition to timber. The final rule is fully consistent with TTRA.

Stumpage value changes are quantified in the regulatory impact analysis, alongside agency road maintenance costs, conservation value, avoided lost revenue to outfitters and guides, and value of access by recreationists not using outfitters and guides. Discounted upper bound estimates of net present value are positive for the final rule and regulatory alternatives.

The rule does not maximize net present value relative to the other regulatory alternatives as measured in quantitative terms (Alternative 2 is higher). However, such analysis does not fully capture the rule's qualitative effects (*i.e.,* biological diversity, habitat, physical values, scenic quality, recreation opportunities, traditional cultural properties, and sacred sites). Both quantitative and qualitative considerations were weighed in the agency's decision rationale for this rule.

Regulatory Flexibility Act and Consideration of Small Entities

This final rule has been considered in light of E.O. 13272 that addresses the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*), as amended, requires agencies to prepare and make available to the public a regulatory flexibility analysis that describes the economic effect of a proposed or final rule on small entities (*i.e.,* small businesses, small organizations, and small governmental jurisdictions) when the agency is required to publish a general notice of proposed rulemaking for a rule. Furthermore, section 605 of the RFA allows an agency to certify a rule, in lieu of preparing an analysis, if the final rulemaking is not expected to have a significant economic impact on a substantial number of small entities. Despite this rulemaking not being subject to the requirements of sec. 553 of the Administrative Procedure Act, the Department nevertheless prepared a regulatory flexibility analysis which can be found at *https://www.regulations.gov/docket/FS-2021-0007.* The Forest Service is directly affected by this rulemaking and by definition is not a small entity; the final rule imposes no costs or recordkeeping requirements for small entities; nor does the final rule seek to impose any direct regulatory restrictions upon any small entities. A number of small and large entities may experience regulatory assurance provided by the proposed rule, or otherwise benefit from roadless protection under the proposed rule. In consideration of the facts and analysis set forth in the regulatory flexibility analysis prepared by the Forest Service, the undersigned has determined and certified by signature on this document that this final rule will not have a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

This final rule does not require any additional record keeping, reporting requirements, or other information collection requirements as defined in 5 CFR part 1320 that are not already approved for use and, therefore, imposes no additional paperwork on the public. Accordingly, the review provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*) and its implementing regulations at 5 CFR part 1320 do not apply.

Regulatory Risk Assessment

A risk assessment is only required under 7 U.S.C. 2204e for a ''major'' rule, the primary purpose of which is to regulate issues of human health, human safety, or the environment. The statute (Pub. L. 103–354, title III, section 304) defines ''major'' as any regulation the Secretary of Agriculture estimates is likely to have an impact on the U.S. economy of $100 million or more as measured in 1994 dollars. Economic effects of the final rule are estimated to be less than $100 million per year.

Federalism

The USDA has considered the final rule in context of Executive Order 13132, Federalism, issued August 4, 1999. The USDA has determined the final rule conforms with federalism principles set out in Executive Order 13132, would not impose any compliance costs on any State, and would not have substantial direct effects on States, on the relationship between the National Government and the State

of Alaska, or any other State, nor on the distribution of power and responsibilities among the various levels of government. Therefore, the USDA concludes that this final rule does not have federalism implications.

No Takings Implications

The USDA has considered the final rule in context with the principles and criteria contained in Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights, issued March 15, 1988. The USDA has determined that the final rule does not pose the risk of a taking of private property because it only applies to management of NFS lands and contains exemptions that prevent the taking of constitutionally protected private property.

Consultation With Indian Tribal Governments

The USDA has consulted and coordinated with Tribal Nations throughout the process of developing the proposed regulation. As part of this rulemaking, the USDA's Office of Tribal Relations determined that this final rule has Tribal implications that require continued outreach efforts under Executive Order 13175. The USDA Office of Tribal Relations has determined that this rulemaking review and analysis has been conducted in accordance with Departmental Regulation (DR) 1350–002, ''Tribal Consultation'' and Executive Order 13175, ''Consultation and Coordination with Indian Tribal Governments.''

In support of the January 26, 2021, Executive Order 13175 and the President's Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships, in July 2021, USDA and the Forest Service held a consultation with ten Tribes in Juneau, Alaska: Central Council Tlingit and Haida Indian Tribes of Alaska, Douglas Indian Association, Hoonah Indian Association, Organized Village of Kake, Organized Village of Kasaan, Ketchikan Indian Community, Klawock Cooperative Association, Organized Village of Saxman, Sitka Tribe of Alaska and Skagway Village (Skagway Traditional Council). A virtual consultation was also held with 6 Tribes in August 2021: Central Council Tlingit and Haida Indian Tribes of Alaska, Craig Tribal Association, Klawock Cooperative Association, Organized Village of Kake, Organized Village of Kasaan and Ketchikan Indian Community. A virtual consultation was conducted at the request of one Tribe in February 2022 (Organized Village of Kasaan). Another virtual consultation was conducted with seven Tribes in September 2022: Central Council Tlingit and Haida Indian Tribes of Alaska, Hoonah Indian Association, Organized Village of Kake, Organized Village of Kasaan, Ketchikan Indian Community, Skagway Village (Skagway Traditional Council) and the Wrangell Cooperative Association. The Tribes represented at these consultations expressed their desire to return to the 2001 Roadless Rule as quickly and expeditiously as administratively possible. USDA committed to continuing meaningful consultation throughout the rulemaking.

This final rule reflects the input from Tribal nations provided during those government-government consultation sessions. Roadless areas on the Tongass have immense cultural significance for Alaska Native peoples. Restoring application of the 2001 Roadless Rule to the Tongass reflects this Administration's commitment to strengthening nation-to-nation relationships with Tribes and incorporating Indigenous Knowledge, stewardship, and priorities into land management decision-making.

Civil Justice Reform

The USDA reviewed the final rule in context of Executive Order 12988. The USDA has not identified any State or local laws or regulations that conflict with the final rule or would impede full implementation of the rules. Nevertheless, if such conflicts were to be identified, all State and local laws and regulations that conflict with this rule or would impede full implementation of this rule would be preempted. No retroactive effect would be given to this rule, and the final rule would not require the use of administrative proceedings before parties could file suit in court.

Unfunded Mandates

Pursuant to title II of the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538), signed into law on March 22, 1995, the USDA has assessed the effects of the final rule on State, local, and Tribal governments, and the private sector. The final rule does not compel the expenditure of $100 million or more by any State, local, or Tribal government, or anyone in the private sector. Therefore, a statement under section 202 of the Act is not required.

Energy Effects

The USDA has considered the final rule in context of Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, issued May 18, 2001. The USDA believes that the final rule is not likely to have a significant adverse effect on the supply, distribution, or use of energy, and the Administrator of the Office of Information and Regulatory Affairs has not designated this final rule as a significant energy action as defined in Executive Order 13211. Therefore, a statement of energy effects is not required.

E-Government Act

The USDA is committed to complying with the E-Government Act, to promote the use of the internet and other information technologies to provide increased opportunities for citizen access to government information and services, and for other purposes.

Congressional Review Act

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, also known as the Congressional Review Act (5 U.S.C. 801 *et seq.*), the Office of Information and Regulatory Affairs designated this rule as not a ''major rule,'' as defined by 5 U.S.C. 804(2).

List of Subjects in 36 CFR Part 294

National forests, Navigation (air), Recreation areas, Roadless area management.

For the reasons set forth in the preamble, USDA is amending part 294 of title 36 of the Code of Federal Regulations as follows:

PART 294—SPECIAL AREAS

■ 1. Add an authority citation for part 294 to read as follows:

Authority: 16 U.S.C. 472, 529, 551, 1131, 1608, and 1613 and 23 U.S.C. 201 and 205.

Subpart E—[Removed]

■ 2. Subpart E, consisting of §§ 294.50 and 294.51, is removed.

Dated: January 19, 2023.

Meryl Harrell,

Deputy Under Secretary for Natural Resources, USDA.

[FR Doc. 2023–01483 Filed 1–26–23; 8:45 am]

BILLING CODE 3411–15–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 300

[Docket No. 230119–0019]

RIN 0648–BL59

International Fisheries; Pacific Tuna Fisheries; 2022–2024 In-Season Action Announcement Procedures for Commercial Pacific Bluefin Tuna in the Eastern Pacific Ocean

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: NMFS is issuing regulations under the Tuna Conventions Act of 1950, as amended (TCA), to revise in-season action announcement procedures for the commercial fisheries for Pacific bluefin tuna. This final rule amends procedures to add notice of in-season action by direct emails to the affected public in addition to publication in the **Federal Register**. In-season actions will be effective upon the earlier of either receipt of the notice by email or publication of the notice in the **Federal Register**. In-season actions will also be posted on the NMFS website. This rule adds a provision to the in-season action procedures to allow any Pacific bluefin tuna already on board a fishing vessel on the effective date of a notice of in-season action to be retained on board and landed or transshipped within 24 hours of the effective date of the in-season action.

DATES: This rule is effective February 27, 2023.

ADDRESSES: Copies of the draft Regulatory Impact Review (RIR) and other supporting documents are available via the Federal eRulemaking Portal: *https://www.regulations.gov,* NOAA–NMFS–2022–0106 or contact the Acting Highly Migratory Species Branch Chief, Rachael Wadsworth, 501 W Ocean Blvd., Suite 4200, Long Beach, CA 90802, or *WCR.HMS@noaa.gov.*

FOR FURTHER INFORMATION CONTACT: Celia Barroso, NMFS, 562–432–1850, *Celia.Barroso@noaa.gov.*

SUPPLEMENTARY INFORMATION:

Background

On November 21, 2022, NMFS published a proposed rule in the **Federal Register** to revise regulations at 50 CFR part 300, subpart C, amending in-season action announcement procedures for Pacific bluefin tuna in the Inter-American Tropical Tuna Commission (IATTC) Convention Area (Convention Area) for 2022–2024 (87 FR 70766). The Convention Area is defined as waters of the eastern Pacific Ocean (EPO) within the area bounded by the west coast of the Americas and by 50° N latitude, 150° W longitude, and 50° S latitude. The comment period was open for 15 days. NMFS received one public comment on the proposed rule, which voiced general support for management actions to conserve Pacific bluefin tuna.

This final rule is implemented under the authority of the TCA (16 U.S.C. 951 *et seq.*), which directs the Secretary of Commerce, after approval by the Secretary of State, to promulgate regulations as necessary to implement resolutions adopted by the IATTC. The Secretary of Commerce has delegated this authority to NMFS.

Additional background information on the IATTC, the international obligations of the United States as a member of the IATTC, and the need for regulations to manage the Pacific Bluefin tuna stock was included in the proposed rule and is not repeated in this rule.

New Regulations for In-Season Action Announcements for Commercial Pacific Bluefin Tuna for 2022–2024

NMFS is revising the existing procedures at 50 CFR 300.25(g)(7) for announcing in-season actions to reduce trip limits or close the fishery by adding notice by direct email to the affected public. In-season actions will still be published in the **Federal Register** and will also appear on the NMFS website. In-season actions will be effective upon the time and date that will appear in the earlier of either receipt by notice in a direct email or publication in the **Federal Register**. In accordance with an August 5, 2022, final rule implementing commercial catch and trip limits for Pacific bluefin tuna (87 FR 47939), in the event the trip limit was reduced early or the fishery was closed due to an overestimation of catch, NMFS will reverse immediately the prior in-season action using the same procedures outlined above.

This final rule will also revise 50 CFR 300.25(g)(6) to clarify that, upon the effective date of a notice of in-season action to change a trip limit, targeting, retaining on board, transshipping or landing Pacific bluefin tuna in excess of the updated trip limit in the Convention Area will be prohibited. To avoid regulatory discards, that prohibition will include an exception to allow any Pacific bluefin tuna already on board a fishing vessel on the effective date of the notice of in-season action to be retained on board and landed or transshipped within 24 hours after the effective date announced in the in-season action, to the extent authorized by applicable laws and regulations.

Classification

The NMFS Assistant Administrator has determined that this final rule is consistent with the Tuna Conventions Act and other applicable laws.

This final rule has been determined to be not significant for purposes of Executive Order 12866.

Economic Analysis

The Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration during the proposed rule stage that, for purposes of the Regulatory Flexibility Act, this action would not have a significant economic impact on a substantial number of small entities. The factual basis for the certification was published in the proposed rule and is not repeated here. No information received during the public comment period changes the action from the proposed rule or NMFS' analysis. Therefore, the initial certification published with the proposed rule—that this rule is not expected to have a significant economic impact on a substantial number of small entities—remains unchanged. As a result, a regulatory flexibility analysis was not required and none was prepared.

Paperwork Reduction Act

This final rule contains no collection of information requirements under the Paperwork Reduction Act of 1995.

List of Subjects in 50 CFR Part 300

Administrative practice and procedure, Fish, Fisheries, Fishing, Marine resources, Reporting and recordkeeping requirements, Treaties.

Dated: January 19, 2023.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 300 is amended as follows:

PART 300—INTERNATIONAL FISHERIES REGULATIONS

Subpart C—Eastern Pacific Tuna Fisheries

■ 1. The authority citation for part 300, subpart C, continues to read as follows:

Authority: 16 U.S.C. 951 *et seq.*

■ 2. In § 300.25, revise paragraphs (g)(6) and (7) to read as follows:

§ 300.25 Fisheries management.

* * * * *

(g) * * *

(6) *In-season actions for trip limits and closure of the fishery.* If NMFS determines that action to change a trip limit needs to be taken under paragraphs (g)(3) through (5) of this section, the revised trip limit will be effective upon the date provided in a notification of in-season action in accordance with paragraph (g)(7) of this section. Upon the effective date of an in-season action to change trip limits under paragraphs (g)(3) through (5), targeting, retaining on board, transshipping, or landing Pacific bluefin tuna in the Convention Area in violation of the in-season action shall be prohibited, with the exception that any Pacific bluefin tuna already on board a fishing vessel on the effective date of the notification of in-season action may be retained on board and landed or transshipped within 24 hours after the effective date of the notice, to the extent authorized by applicable laws and regulations. After NMFS determines that the annual catch limits under paragraphs (g)(3) through (5) are expected to be reached, NMFS will close the fishery effective upon the date provided in the notification in accordance with paragraph (g)(7). Upon the effective date in the notification, targeting, retaining on board, transshipping, or landing Pacific bluefin tuna in the Convention Area shall be prohibited through the end of the calendar year, with the exception that any Pacific bluefin tuna already on board a fishing vessel on the effective date of the notice may be retained on board and landed or transshipped within 14 days after the effective date published in the fishing closure notification, to the extent authorized by applicable laws and regulations.

(7) *Announcement and effective dates of in-season actions.* If in-season actions under paragraphs (g)(2) through (6) of this section are needed, NMFS will post a notice on the NMFS web page announcing the in-season action, including effective dates. NMFS will also send emails with notice of the in-season action to affected vessel owners. This action will also be published in the **Federal Register** as soon as practicable. The in-season action will be effective upon the earlier of either receipt by email of such notice or publication in the **Federal Register**.

* * * * *

[FR Doc. 2023–01447 Filed 1–26–23; 8:45 am]

BILLING CODE 3510–22–P

Proposed Rules

Federal Register
Vol. 88, No. 18
Friday, January 27, 2023

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF AGRICULTURE

Rural Housing Service

7 CFR Part 3555

[Docket No. RHS–22–SFH–0012]

RIN 0575–AD28

Single-Family Housing Guaranteed Loan Program

AGENCY: Rural Housing Service, Agriculture Department (USDA).

ACTION: Proposed rule.

SUMMARY: The Rural Housing Service (RHS or Agency), a Rural Development (RD) agency of the United States Department of Agriculture (USDA), proposes to amend the current regulation for the Single-Family Housing Guaranteed Loan Program (SFHGLP) to implement changes related to the use of Special Servicing Options for Non-performing Loans. This proposed rule is intended to benefit borrowers by offering a less cumbersome option to eliminate documentation and eligibility challenges for borrowers who do not require payment reduction, provide lenders more flexibility in their servicing options, and reduce program risk of the guaranteed loan portfolio.

DATES: Comments must be submitted on or before March 28, 2023.

ADDRESSES: Comments may be submitted by going to the Federal eRulemaking Portal: Go to *https://www.regulations.gov* and in the ''Search Field'' box, labeled ''Search for Rules, Proposed Rules, Notices, or Supporting Documents,'' enter the following docket number: (RHS–22–SFH–0012) or the RIN# 0575–AD28. To submit or view public comments, click the ''Search'' button, select the ''Documents'' tab, then select the following document title: (Single-Family Housing Guaranteed Loan Program) from the ''Search Results,'' and select the ''Comment'' button. Before inputting your comments, you may also review the ''Commenter's Checklist'' (optional). Insert your comments under the ''Comment'' title, click ''Browse'' to attach files (if available). Input your email address and select ''Submit Comment.'' Information on using *Regulations.gov*, including instructions for accessing documents, submitting comments, and viewing the docket after the close of the comment period, is available through the site's ''FAQ'' link.

Other Information: Additional information about Rural Development and its programs is available on the internet at *http://www.rurdev.usda.gov/index.html*.

All comments will be available for public inspection online at the Federal eRulemaking Portal (*https://www.regulations.gov*).

FOR FURTHER INFORMATION CONTACT: Ticia Weare, Finance and Loan Analyst, Single Family Housing Guaranteed Loan Division, Rural Development, U.S. Department of Agriculture, STOP 0784, South Agriculture Building, 1400 Independence Avenue SW, Washington, DC 20250–0784. Telephone: (314) 679–6919; or email: *ticia.weare@usda.gov.*

SUPPLEMENTARY INFORMATION:

I. Background

The USDA's RHS offers a variety of programs to build or improve housing and essential community facilities in rural areas. RHS offers loans, grants, and loan guarantees for single- and multi-family housing, childcare centers, fire and police stations, hospitals, libraries, nursing homes, schools, first responder vehicles and equipment, housing for farm laborers and much more. RHS also provides technical assistance loans and grants in partnership with non-profit organizations, Indian tribes, State and Federal Government agencies, and local communities.

The purpose of the SFHGLP is to assist approved lenders in providing low- and moderate-income households the opportunity to own adequate, modest, decent, safe, and sanitary dwellings as their primary residence in eligible rural areas. Eligible applicants may purchase, build, rehabilitate, improve, or relocate a dwelling in an eligible rural area with 100 percent financing. The USDA–RD backed 90 percent loan note guarantee encourages lender participation by minimizing the risk of extending 100 percent loan to value, also referred to as no-money-down mortgage loans, to eligible low- and moderate-income rural applicants. Providing affordable homeownership opportunities promotes prosperity, which in turn creates thriving communities and improves the quality of life in rural areas.

The SFHGLP is authorized by the requirements of section 502(h) of the Housing Act of 1949, (42 U.S.C. 1472(h)), as amended. 7 CFR part 3555 sets forth the regulatory requirements of the SFHGLP which includes policies regarding originating, servicing, holding and liquidating SFGHLP loans. SFHGLP approved lenders make the initial eligibility determinations, and the Agency reviews those determinations to make a final eligibility decision. Under 7 CFR 3555.303 lenders are provided several traditional servicing options for Non-Performing Loans, and 7 CFR 3555.304 provides for the use of special servicing options if the traditional servicing options provided at 7 CFR 3555.303 have been exhausted or the lender has determined that the use of such servicing options would not resolve the delinquency.

The Agency's intent is to update the Special Servicing Options for Non-Performing Loans to improve the process for lenders requesting a Mortgage Recovery Advance (MRA).

II. Discussion of the Proposed Rule

RHS is issuing a proposed rule to amend the SFHGLP regulation, 7 CFR part 3555, subpart G, to change how MRA funds are advanced and repaid.

The MRA is available to the lender only after all traditional options provided at 7 CFR 3555.303 have been considered or the lender has determined that use of such servicing options would resolve the delinquency. While this remains unchanged, the Agency proposes to change how the funds are advanced and repaid. In the coming months and years, the Agency anticipates a greater volume of MRA's to be necessary to solve for the forbearance volume initiated by borrowers impacted by circumstances beyond their control.

A partial claim, or MRA as the Agency refers to it under 7 CFR 3555.304(d), is one of several special servicing options currently available to lenders. The MRA is funds advanced by the lender on behalf of a borrower to satisfy the borrower's debt, pay legal fees and foreclosure costs related to a cancelled foreclosure action and reduce principal.

The Agency will track the MRA payment due from the lender and perform normal servicing activities to collect the debt. The lender is advised to collect the debt from the borrower prior to releasing the lien. The lender's failure to collect the debt from the borrower will not relieve the lender from their obligation to repay the debt to USDA. If the lender does not repay the debt to USDA, that failure to repay could result in the lender losing their approved lender status. In the event of a loss claim by the lender, the MRA will be subtracted from the final calculation of the claim to be paid by the Agency.

The Agency also proposes to eliminate the second lien required by 7 CFR 3555.304(d)(7). By eliminating this requirement, modification of the loan would not always be required when there is no change to the terms, which may allow the loan to remain securitized. The lender or servicer issuing a servicer advance to the borrower and seeking reimbursement by the Agency should follow the Agency suggested practices. The amount of the servicer advance will show on the borrower's statement along with the principal balance of the loan, but no payment arrangement will be required. The lender or servicer will collect the servicer advance from the borrower when the first lien is satisfied, and the full amount of the servicer advance will be due to the Agency from the lender.

The current process for a lender to take advantage of this servicing option and be reimbursed for the advance requires the borrower to sign the subordinate promissory note payable to the Agency, a second lien be placed on the property, and the final recorded mortgage be submitted to the Agency. Placing a second lien on the property puts the burden of collection on the Agency instead of the lender.

These proposed changes are expected to provide lenders more flexibility in their servicing options and will benefit borrowers and lenders by offering a less expensive and less cumbersome option, creating an environment that supports successful future homeownership.

III. Summary of Proposed Rule Changes

The following is a summary of the proposed changes to 7 CFR part 3555.

(1) Amend § 3555.304(b)(3) by removing language pertaining to title search and recording fees. These services will no longer be utilized by the lender.

(2) Amend § 3555.304(d)(4) by removing language pertaining to the reimbursement of fees for title search and/or recording fees, which costs will no longer be incurred. The lender will be responsible for issuing a servicer advance to the borrower and seeking reimbursement from the Agency. The advance will show on the statement along with the principal balance of the loan, but no payment arrangement will be required. The full amount of the advance will be due from the lender prior to the release of lien on the original recorded note.

(3) Amend § 3555.304(d)(6) by revising sub-paragraphs (i), (ii), (iii), (iv), and (v) to eliminate the second lien requirement. By eliminating this requirement, modification of the loan would not always be required as there is no change to the terms, thus may allow the loan to remain securitized.

(4) Amend § 3555.304 by amending sub-paragraph (d)(7) and eliminating (d)(8) to remove references to the borrower's requirement to execute a promissory note payable to the Agency and a mortgage or deed-of-trust in recordable form perfecting a lien naming the Agency as the secured party for the amount of the mortgage recovery advance.

IV. Regulatory Information

Statutory Authority

Section 510(k) of Title V the Housing Act of 1949 [42 U.S.C. 1480(k)], as amended, authorizes the Secretary of the Department of Agriculture to promulgate rules and regulations as deemed necessary to carry out the purpose of that title. Regulations implementing section 502(h), the SFHGLP, are located at 7 CFR part 3555.

Executive Order 12372, Intergovernmental Review of Federal Programs

This program is not subject to the requirements of Executive Order 12372, ''Intergovernmental Review of Federal Programs,'' as implemented under USDA's regulations at 2 CFR part 415, subpart C.

Executive Order 12866, Regulatory Planning and Review

This proposed rule has been determined to be non-significant and, therefore, was not reviewed by the Office of Management and Budget (OMB) under Executive Order 12866.

Executive Order 12988, Civil Justice Reform

This proposed rule has been reviewed under Executive Order 12988. In accordance with this proposed rule: (1) unless otherwise specifically provided, all state and local laws that conflict with this proposed rule will be preempted; (2) no retroactive effect will be given to this proposed rule except as specifically prescribed in the proposed rule; and (3) administrative proceedings of the National Appeals Division of the Department of Agriculture (7 CFR part 11) must be exhausted before suing in court that challenges action taken under this proposed rule.

Executive Order 13132, Federalism

The policies contained in this proposed rule do not have any substantial direct effect on States, on the relationship between the National Government and States, or on the distribution of power and responsibilities among the various levels of government. This proposed rule does not impose substantial direct compliance costs on state and local governments; therefore, consultation with the States is not required.

Executive Order 13175, Consultation and Coordination With Indian Tribal Governments

This executive order imposes requirements on RHS in the development of regulatory policies that have tribal implications or preempt tribal laws. RHS has determined that the proposed rule does not have a substantial direct effect on one or more Indian tribe(s) or on either the relationship or the distribution of powers and responsibilities between the Federal Government and Indian tribes. Thus, this proposed rule is not subject to the requirements of Executive Order 13175. If tribal leaders are interested in consulting with RHS on this proposed rule, they are encouraged to contact USDA's Office of Tribal Relations or RD's Native American Coordinator at: *AIAN@usda.gov* to request such a consultation.

Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effect of their regulatory actions on state, local, and tribal governments, and the private sector. Under section 202 of the UMRA, the Agency generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to state, local, or tribal governments, in the aggregate, or to the private sector, of $100 million, or more, in any one year. When such a statement is needed for a rule, section 205 of the UMRA generally requires the Agency to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome

alternative that achieves the objectives of the rule.

This proposed rule contains no Federal mandates (under the regulatory provisions of Title II of the UMRA) for state, local, and tribal governments, or the private sector. Therefore, this proposed rule is not subject to the requirements of sections 202 and 205 of the UMRA.

National Environmental Policy Act

In accordance with the National Environmental Policy Act of 1969, Public Law 91–190, this proposed rule has been reviewed in accordance with 7 CFR part 1970 (''Environmental Policies and Procedures''). The Agency has determined that (i) this action meets the criteria established in 7 CFR 1970.53(f); (ii) no extraordinary circumstances exist; and (iii) the action is not ''connected'' to other actions with potentially significant impacts, is not considered a ''cumulative action'' and is not precluded by 40 CFR 1506.1. Therefore, the Agency has determined that the action does not have a significant effect on the human environment, and therefore neither an Environmental Assessment nor an Environmental Impact Statement is required

Regulatory Flexibility Act

This proposed rule has been reviewed with regards to the requirements of the Regulatory Flexibility Act (5 U.S.C. 601–612). The undersigned has determined and certified by signature on this document that this proposed rule will not have a significant economic impact on a substantial number of small entities since this rulemaking action does not involve a new or expanded program nor does it require any more action on the part of a small business than required of a large entity.

Assistance Listing

The program affected by this proposed rule is listed in the Assistance Listing Catalog (formerly Catalog of Federal Domestic Assistance) under number 10.410, Very Low to Moderate Income Housing Loans (Section 502 Rural Housing Loans).

Paperwork Reduction Act

The information collection requirements contained in this regulation have been approved by OMB and have been assigned OMB control number 0575–0179. This proposed rule contains no new reporting or recordkeeping requirements that would require approval under the Paperwork Reduction Act of 1995 (44 U.S.C. chapter 35).

Civil Rights Impact Analysis

Rural Development has reviewed this proposed rule in accordance with USDA Regulation 4300–4, Civil Rights Impact Analysis, to identify any major civil rights impacts the proposed rule might have on program participants on the basis of age, race, color, national origin, sex, or disability. After review and analysis of the proposed rule and available data, it has been determined that implementation of the proposed rule will not adversely or disproportionately impact very low, low- and moderate-income populations, minority populations, women, Indian tribes, or persons based on their race, color, national origin, sex, age, disability, or marital or familial status. No major civil rights impact is likely to result from this proposed rule.

E-Government Act Compliance

Rural Development is committed to the E-Government Act, which requires Government agencies in general to provide the public the option of submitting information or transacting business electronically to the maximum extent possible.

Non-Discrimination Policy

In accordance with Federal civil rights laws and USDA civil rights regulations and policies, the USDA, its Mission Areas, agencies, staff offices, employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Program information may be made available in languages other than English. Persons with disabilities who require alternative means of communication to obtain program information (*e.g.,* Braille, large print, audiotape, American Sign Language) should contact the responsible Mission Area, agency, or staff office; the USDA TARGET Center at (202) 720–2600 (voice and TTY); or the Federal Relay Service at (800) 877–8339.

To file a program discrimination complaint, a complainant should complete a Form AD–3027, *USDA Program Discrimination Complaint Form,* which can be obtained online at *https://www.ocio.usda.gov/document/ad-3027,* from any USDA office, by calling (866) 632–9992, or by writing a letter addressed to USDA. The letter must contain the complainant's name, address, telephone number, and a written description of the alleged discriminatory action in sufficient detail to inform the Assistant Secretary for Civil Rights (ASCR) about the nature and date of an alleged civil rights violation. The completed AD–3027 form or letter must be submitted to USDA by:

(1) *Mail:* U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue SW, Washington, DC 20250–9410; or

(2) *Fax:* (833) 256–1665 or (202) 690–7442; or

(3) *Email: program.intake@usda.gov*.

USDA is an equal opportunity provider, employer, and lender.

List of Subjects in 7 CFR Part 3555

Loss claim coverage—loan guarantee limits, Mortgage recovery advance, Special relief measures, Special servicing options, Stand-alone MRA.

For the reasons discussed in the preamble, the Rural Housing Service is proposing to amend 7 CFR part 3555 as follows:

PART 3555—GUARANTEED RURAL HOUSING PROGRAM

■ 1. The authority citation for part 3555 continues to read as follows:

Authority: 5 U.S.C. 301; 42 U.S.C. 1471 *et seq.*

Subpart G—Servicing Non-Performing Loans

■ 2. Amend § 3555.304 by revising paragraph (b)(3), (d)(4), (d)(6)(i) through (v), (d)(7), and removing (d)(8) to read as follows:

§ 3555.304 Special servicing options.

* * * * *

(b) * * *

(3) Expenses related to special loan servicing shall not be charged to the borrower. However, if a foreclosure was initiated and canceled prior to special loan servicing, legal fees and costs for work performed in relation to the foreclosure costs before the cancellation date may be charged to the borrower.

* * * * *

(d) * * *

(4) If the borrower is eligible for a mortgage recovery advance, the servicer will advance the funds to the borrower's

account and create a non-interest-bearing recoverable servicing advance. The advance is to be provided on the mortgage statements, along with the principal balance of the loan, but no payment arrangement will be required. The servicing advance must be collected from the borrower prior to the earlier of the release of lien or the transfer of title to the property by voluntary or involuntary means.

* * * * *

(6) The following terms apply to the repayment of mortgage recovery advances:

(i) Borrowers are not required to make any monthly or periodic payments on the mortgage recovery advance; however, borrowers may voluntarily submit partial payments without incurring any prepayment penalty.

(ii) The borrower is responsible for payment of the mortgage recovery advance to the lender in full at the earlier of the following:

(A) When the mortgage lien and the guaranteed note are paid off; or

(B) When the borrower transfers title to the property by voluntary or involuntary means.

(iii) Repayment of any part of the mortgage recovery advance reimbursed by the Agency must be remitted to the Agency by the lender at the earlier of the following:

(A) When payment is received from the borrower.

(B) The mortgage lien is released; or

(C) The borrower transfers title to the property by voluntary or involuntary means.

(iv) The Agency will collect this Federal debt from the lender.

(v) In the event of a loss claim, the mortgage recovery advance will be considered in calculating the claim paid by the Agency. The total amount paid, including the mortgage recovery advance, cannot exceed the Agency's maximum exposure, as defined in § 3555.351(b).

(7) The lender may request reimbursement from the Agency for a mortgage recovery advance. The lender shall repay any such reimbursement as provided in paragraph (d)(6) of this section.

Cathy Glover,

Acting Administrator, Rural Housing Service.

[FR Doc. 2023–01636 Filed 1–26–23; 8:45 am]

BILLING CODE 3410–XV–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2023–0015; Project Identifier AD–2022–01281–T]

RIN 2120–AA64

Airworthiness Directives; AVOX System Inc. (formerly Scott Aviation) Oxygen Cylinder and Valve Assemblies; and Oxygen Valve Assemblies

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2022–04–09, which applies to certain AVOX System Inc. (formerly Scott Aviation) oxygen cylinder and valve assemblies; and oxygen valve assemblies; installed on but not limited to various transport airplanes. AD 2022–04–09 requires an inspection of the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to determine the serial number; for certain assemblies and parts, a detailed inspection of the gap between the bottom of the packing retainer and top of the valve body on the assemblies; and replacement of assemblies having unacceptable gaps. Since the FAA issued AD 2022–04–09, the agency determined additional assemblies and parts are affected by the unsafe condition. This proposed AD would require an inspection of the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to determine the serial number of the valve, cylinder, and entire assembly. For assemblies and parts with certain serial numbers, this proposed AD would require a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body on the assemblies, and replacement of assemblies having unacceptable gaps. This proposed AD would also limit the installation of affected parts under certain conditions. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by March 13, 2023.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- *Federal eRulemaking Portal:* Go to regulations.gov. Follow the instructions for submitting comments.
- *Fax:* 202–493–2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2023–0015; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For service information identified in this NPRM, contact AVOX Systems Inc., 225 Erie Street, Lancaster, NY 14086; telephone 716–683–5100; internet *safranaerosystems.com.*
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195.

FOR FURTHER INFORMATION CONTACT: Elizabeth Dowling, Aerospace Engineer, Mechanical Systems and Administrative Services Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516–228–7300; email *9-avs-nyaco-cos@faa.gov.*

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under **ADDRESSES**. Include ''Docket No. FAA–2023–0015; Project Identifier AD–2022–01281–T'' at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend the proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to regulations.gov, including any personal information you provide. The agency will also post a report summarizing each

substantive verbal contact received about this proposed AD.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as ''PROPIN.'' The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Elizabeth Dowling, Aerospace Engineer, Mechanical Systems and Administrative Services Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516–228–7300; email *9-avs-nyaco-cos@faa.gov.* Any commentary that the FAA receives that is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA issued AD 2022–04–09, Amendment 39–21951 (87 FR 10958, February 28, 2022) (AD 2022–04–09), for certain AVOX System Inc. (formerly Scott Aviation) oxygen cylinder and valve assemblies, and oxygen valve assemblies, installed on but not limited to various transport airplanes. AD 2022–04–09 was prompted by reports of cylinder and valve assemblies having oxygen leakage from the valve assembly vent hole, caused by the absence of a guide that maintains appropriate spacing between certain parts. AD 2022–04–09 requires an inspection of the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to determine the serial number of the valve, cylinder, and entire assembly. For assemblies and parts with certain serial numbers, AD 2022–04–09 requires a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body on the assemblies, and replacement of assemblies having unacceptable gaps. The agency issued AD 2022–04–09 to address oxygen leakage from the cylinder, which could result in decreased or insufficient oxygen supply during a depressurization event; and heating or flow friction, which could cause an ignition event in the valve assembly.

Actions Since AD 2022–04–09 Was Issued

Since the FAA issued AD 2022–04–09, the agency determined additional assemblies and parts are affected by the unsafe condition. New service information has been issued that expands the population of discrepant parts, providing more serial numbers for which to inspect.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information Under 1 CFR Part 51

The FAA reviewed the following service information, which describes procedures for an inspection to determine the serial numbers of the oxygen cylinder and valve assemblies, and the oxygen valve assemblies, a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body on the assemblies, parts marking, inspection report, and return of parts to the manufacturer. These documents are distinct since they apply to different assembly part numbers.

- AVOX Systems Inc. Alert Service Bulletin 10015804–35–01, Revision 03, dated June 7, 2021.
- AVOX Systems Inc. Alert Service Bulletin 10015804–35–02, Revision 03, dated March 11, 2022.
- AVOX Systems Inc. Alert Service Bulletin 10015804–35–03, Revision 03, dated June 18, 2021.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the **ADDRESSES** section.

Proposed AD Requirements in This NPRM

This proposed AD would require accomplishing the actions specified in the service information described previously. This proposed AD would limit the installation of affected parts under certain conditions and require returning the affected parts and sending the inspection results to the manufacturer.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 3,034 oxygen cylinder and valve assemblies, and oxygen valve assemblies, installed on various transport category airplanes of U.S. registry. The FAA estimates the following costs to comply with this proposed AD:

ESTIMATED COSTS

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Serial number inspection	1 work-hour × $85 per hour = $85	None	$85	$257,890
Reporting	1 work-hour × $85 per hour = $85	$0	85	257,890

The FAA estimates the following costs to do any necessary follow-on actions that would be required based on the results of the inspection. The FAA has no way of determining the number of aircraft that might need these actions:

ON-CONDITION COSTS

Action	Labor cost	Parts cost	Cost per product
Detailed inspection	1 work-hour × $85 per hour = $85	$0	$85
Replacement	1 work × hour $85 per hour = $85	*0	$85

*The FAA has received no definitive data on the parts cost for the on-condition replacements.

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some or all of the costs of this proposed AD may be covered under warranty, thereby reducing the cost impact on affected operators.

Paperwork Reduction Act

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120–0056. Public reporting for this collection of information is estimated to be approximately 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177–1524.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA has determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

(1) Is not a ''significant regulatory action'' under Executive Order 12866,

(2) Would not affect intrastate aviation in Alaska, and

(3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

■ 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

■ 2. The FAA amends § 39.13 by:

■ a. Removing Airworthiness Directive (AD) 2022–04–09, Amendment 39–21951 (87 FR 10958, February 28, 2022), and

■ b. Adding the following new AD:

AVOX Systems Inc. (formerly Scott Aviation): Docket No. FAA–2023–0015; Project Identifier AD–2022–01281–T.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) action by March 13, 2023.

(b) Affected ADs

This AD replaces AD 2022–04–09, Amendment 39–21951 (87 FR 10958, February 28, 2022) (AD 2022–04–09).

(c) Applicability

This AD applies to AVOX Systems Inc. (formerly Scott Aviation) oxygen cylinder and valve assemblies having part number (P/N) 89794077, 89794015, 891511–14, 806835–01, 807982–01, 808433–01, or 891311–14; and oxygen valve assemblies (body and gage assemblies) having P/N 807206–01. These assemblies might be installed on, but not limited to, the aircraft identified in paragraphs (c)(1) through (12) of this AD, certificated in any category.

(1) Airbus SAS Model A300 B2–1A, B2–1C, B2K–3C, B2–203, B4–2C, B4–103, and B4–203 airplanes.

(2) Airbus SAS Model A300 B4–601, B4–603, B4–620, B4–622, B4–605R, B4–622R, F4–605R, F4–622R, and C4–605R Variant F airplanes.

(3) Airbus SAS Model A310–203, –204, –221, –222, –304, –322, –324, and –325 airplanes.

(4) Airbus SAS Model A318–111, –112, –121, and –122 airplanes.

(5) Airbus SAS Model A319–111, –112, –113, –114, –115, –131, –132, –133, and –151N airplanes.

(6) Airbus SAS Model A320–211, –212, –214, –216, –231, –232, –233, –251N, –252N, –253N, –271N, –272N, and –273N airplanes.

(7) Airbus SAS Model A321–111, –112, –131, –211, –212, –213, –231, –232, –251N, –252N, –253N, –271N, –272N, –251NX, –252NX, –253NX, –271NX, and –272NX airplanes.

(8) Airbus SAS Model A330–201, –202, –203, –223, –243, –301, –302, –303, –321, –322, –323, –341, –342, –343, and –941 airplanes.

(9) Airbus Model A340–211, –212, –213, –311, –312, –313, –541, and –642 airplanes.

(10) ATR—GIE Avions de Transport Régional Model ATR42–200, –300, –320, and –500 airplanes.

(11) ATR—GIE Avions de Transport Régional Model ATR72–101, –102, –201, –202, –211, –212, and –212A airplanes.

(12) The Boeing Company Model 747–8 airplanes.

(d) Subject

Air Transport Association (ATA) of America Code 35, Oxygen System.

(e) Unsafe Condition

This AD was prompted by reports of cylinder and valve assemblies having oxygen leakage from the valve assembly vent hole, caused by the absence of a guide that maintains appropriate spacing between certain parts. The FAA is issuing this AD to address oxygen leakage from cylinder and valve assemblies. The unsafe condition, if not addressed, could result in decreased or insufficient oxygen supply during a depressurization event; and heating or flow friction, which could cause an ignition event in the valve assembly.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Definition of Detailed Inspection

For the purposes of this AD, a detailed inspection is an intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity.

Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required.

(h) Identification of Affected Cylinder and Valve Assemblies

Within 60 days after the effective date of this AD, inspect the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to

determine if the serial numbers of the valve, cylinder, and entire assembly, are listed in Appendix 1 or Appendix 2, ''Affected Shipments,'' of the applicable service information identified in paragraphs (h)(1) through (3) of this AD. A review of airplane maintenance records is acceptable in lieu of this inspection if the serial numbers can be conclusively determined from that review.

(1) AVOX Systems Inc. Alert Service Bulletin 10015804–35–01, Revision 03, dated June 7, 2021.

(2) AVOX Systems Inc. Alert Service Bulletin 10015804–35–02, Revision 03, dated March 11, 2022.

(3) AVOX Systems Inc. Alert Service Bulletin 10015804–35–03, Revision 03, dated June 18, 2021.

(i) Inspection of the Gap, Parts Marking Actions, and Replacement, With No Changes

If, during any inspection or records review required by paragraph (h) of this AD, any oxygen valve assembly, valve or cylinder of an oxygen cylinder and valve assembly, or oxygen cylinder and valve assembly having an affected serial number is found: Before further flight, do a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body, in accordance with paragraph 3.C. of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD.

(1) If the gap is found to be acceptable, as defined in the applicable service information identified in paragraphs (h)(1) through (3) of this AD, before further flight, do the parts marking actions in accordance with paragraph 3.D.(1) of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD.

(2) If the gap is found to be unacceptable, as defined in the applicable service information identified in paragraphs (h)(1) through (3) of this AD, before further flight, remove the affected assembly, in accordance with paragraphs 3.D.(2) or 3.D.(3), as applicable, of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD; and replace with a serviceable assembly.

(j) Reporting and Return of Parts

(1) Report the results of the inspection required by paragraph (i) of this AD within the applicable time specified in paragraph (j)(1)(i) or (ii) of this AD. Report the results in accordance with paragraph 3.D.(1)(a) of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD.

(i) If the inspection was done on or after the effective date of this AD: Submit the report within 30 days after the inspection.

(ii) If the inspection was done before the effective date of this AD: Submit the report within 30 days after the effective date of this AD.

(2) If, during the inspection required by paragraph (i) of this AD, any gap is found to be unacceptable, within the applicable time specified in paragraph (j)(2)(i) or (ii) of this AD, return the assembly to the manufacturer in accordance with paragraph 3.D.(2) or 3.D.(3), as applicable, of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD, except you are not required to contact AVOX for shipping instructions.

(i) If the inspection was done on or after the effective date of this AD: Return the assembly within 30 days after the inspection.

(ii) If the inspection was done before the effective date of this AD: Return the assembly within 30 days after the effective date of this AD.

(j) Parts Installation Limitation

As of the effective date of this AD, no AVOX Systems Inc. oxygen valve assembly, or valve or cylinder that is part of an oxygen cylinder and valve assembly, or oxygen cylinder and valve assembly having an affected serial number identified in Appendix 1, ''Affected Shipments,'' or Appendix 2, ''Affected Shipments,'' of any AVOX Systems Inc. service information identified in paragraphs (h)(1) through (3) of this AD may be installed on any airplane unless the requirements of paragraph (i) of this AD have been accomplished on that affected assembly.

(k) Credit for Previous Actions

(1) This paragraph provides credit for the actions specified in paragraphs (h) or (i) of this AD, if those actions were performed before the effective date of this AD using the service information specified in paragraphs (k)(1)(i) through (iii) of this AD. This service information is not incorporated by reference in this AD.

(1) AVOX Systems Inc. Service Bulletin 10015804–35–01, dated March 6, 2019; and AVOX Systems Inc. Alert Service Bulletin 10015804–35–01, Revision 01, dated July 9, 2019.

(2) AVOX Systems Inc. Alert Service Bulletin 10015804–35–02, Revision 1, dated September 4, 2019.

(3) AVOX Systems Inc. Service Bulletin 10015804–35–03, dated April 11, 2019; and AVOX Systems Inc. Alert Service Bulletin 10015804–35–03, Revision 01, dated May 21, 2019.

(2) This paragraph provides credit for the actions specified in paragraphs (h) or (i) of this AD, if those actions were performed before the effective date of this AD using the service information specified in paragraphs (k)(2)(i) through (iii) of this AD, which was incorporated by reference in AD 2022–04–09.

(1) AVOX Systems Inc. Alert Service Bulletin 10015804–35–01, Revision 02, dated October 16, 2019.

(2) AVOX Systems Inc. Alert Service Bulletin 10015804–35–02, Revision 2, dated October 31, 2019.

(3) AVOX Systems Inc. Alert Service Bulletin 10015804–35–03, Revision 02, dated October 15, 2019.

(l) Alternative Methods of Compliance (AMOCs)

(1) The Manager, New York ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the certification office, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516–228–7300; fax 516–794–5531.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(m) Related Information

(1) For more information about this AD, contact Elizabeth Dowling, Aerospace Engineer, Mechanical Systems and Administrative Services Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516–228–7300; email *9-avs-nyaco-cos@faa.gov*.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (n)(3) and (4) of this AD.

(n) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) AVOX Systems Inc. Alert Service Bulletin 10015804–35–01, Revision 03, dated June 7, 2021.

(ii) AVOX Systems Inc. Alert Service Bulletin 10015804–35–02, Revision 03, dated March 11, 2022.

(iii) AVOX Systems Inc. Alert Service Bulletin 10015804–35–03, Revision 03, dated June 18, 2021.

(3) For service information identified in this AD, contact AVOX Systems Inc., 225 Erie Street, Lancaster, NY 14086; telephone 716–683–5100; internet safranaerosystems.com.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, *fr.inspection@nara.gov,* or go to: *www.archives.gov/federal-register/cfr/ibr-locations.html.*

Issued on January 10, 2023.

Christina Underwood,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2023–01465 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2022–1769; Airspace Docket No. 22–AAL–8]

RIN 2120–AA66

Revocation of Colored Federal Airway Blue 38 (B–38) and Blue 40 (B–40); Haines, AK

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This action proposes to revoke Colored Federal airway Blue 38 (B–38) and Blue 40 (B–40) in the vicinity of Haines, AK due to the pending decommissioning of the Haines (HNS) Non-directional Beacon (NDB).

DATES: Comments must be received on or before March 13, 2023.

ADDRESSES: Send comments on this proposal to the U.S. Department of Transportation, Docket Operations, 1200 New Jersey Avenue SE, West Building Ground Floor, Room W12–140, Washington, DC 20590; telephone: (800) 647–5527, or (202) 366–9826. You must identify FAA Docket No. FAA–2022–1769; Airspace Docket No. 22–AAL–8 at the beginning of your comments. You may also submit comments through the internet at *www.regulations.gov.*

FAA Order JO 7400.11G, Airspace Designations and Reporting Points, and subsequent amendments can be viewed online at *www.faa.gov/air_traffic/publications/.* For further information, you can contact the Rules and Regulations Group, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC, 20591; telephone: (202) 267–8783.

FOR FURTHER INFORMATION CONTACT: Steven Roff, Rules and Regulations Group, Office of Policy, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority. This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart I, Section 40103. Under that section, the FAA is charged with prescribing regulations to assign the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. This regulation is within the scope of that authority as it would modify the route structure as necessary to preserve the safe and efficient flow of air traffic within the National Airspace System (NAS).

Comments Invited

Interested parties are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions on the proposal. Comments are specifically invited on the overall regulatory, aeronautical, economic, environmental, and energy-related aspects of the proposal.

Communications should identify both docket numbers (FAA Docket No. FAA–2022–1769; Airspace Docket No. 22–AAL–8) and be submitted in triplicate to the Docket Management Facility (see **ADDRESSES** section for address and phone number). You may also submit comments through the internet at *www.regulations.gov.*

Commenters wishing the FAA to acknowledge receipt of their comments on this action must submit with those comments a self-addressed, stamped postcard on which the following statement is made: ''Comments to FAA Docket No. FAA–2022–1769; Airspace Docket No. 22–AAL–8.'' The postcard will be date/time stamped and returned to the commenter.

All communications received on or before the specified comment closing date will be considered before taking action on the proposed rule. The proposal contained in this action may be changed in light of comments received. All comments submitted will be available for examination in the public docket both before and after the comment closing date. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Availability of NPRM

An electronic copy of this document may be downloaded through the internet at *www.regulations.gov.* Recently published rulemaking documents can also be accessed through the FAA's web page at *www.faa.gov/air_traffic/publications/airspace_amendments/.*

You may review the public docket containing the proposal, any comments received and any final disposition in person in the Dockets Office (see **ADDRESSES** section for address and phone number) between 9:00 a.m. and 5:00 p.m., Monday through Friday, except Federal holidays. An informal docket may also be examined during normal business hours at the office of the Operations Support Group, Western Service Center, Federal Aviation Administration, 2200 South 216th St., Des Moines, WA 98198.

Availability and Summary of Documents for Incorporation by Reference

This document proposes to amend FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022. FAA Order JO 7400.11G is publicly available as listed in the **ADDRESSES** section of this document. FAA Order JO 7400.11G lists Class A, B, C, D, and E airspace areas, air traffic service routes, and reporting points.

Background

The aviation industry has indicated a desire for the FAA to transition Alaskan en route navigation structures away from NDB dependency. Advances in technology have allowed for alternate navigation methods to support decommissioning of high-cost ground navigation equipment, such as NDBs. The FAA conducted a non-rulemaking study in accordance with FAA Order JO 7400.2, Procedures for Handling Airspace Matters, in 2022 on the HNS NDB due to the ongoing high cost of maintenance and repairs. Interested parties were invited to participate in this effort by submitting comments on the proposal. The FAA received no comments or objections to the study, and as a result of the study, added the HNS NDB to the schedule to be decommissioned.

Colored Federal airway B–38 extends between the HNS NDB and the Elephant (EEF) NDB. The decommissioning of the HNS NDB would render B–38 unusable. This proposal would revoke B–38 in its entirety. The mitigation to the loss of B–38 is in place with United States Area Navigation (RNAV) Route T–266 overlying or paralleling the entire route.

Colored Federal airway B–40 extends between the HNS NDB and Robinson Radio Beacon, YT, Canada, excluding the portion within Canada. The decommissioning of the HNS NDB would render B–40 unusable. This proposal would revoke B–40 in its entirety. The FAA is establishing United

States Area Navigation (RNAV) Route T–481 (published as T–383 in Docket No. FAA–2022–0249 in the **Federal Register** (87 FR 16681; March 24, 2022) overlying or paralleling the entire route to mitigate the loss of B–40.

The Proposal

The FAA is proposing an amendment to 14 CFR part 71 to revoke Colored Federal airway B–38 and B–40 in the vicinity of Haines, AK due to the decommissioning of the HNS NDB. B–38 currently extends between the HNS NDB and the EEF NDB. B–40 extends between the HNS NDB and Robinson Radio Beacon, YT, Canada, excluding the portion within Canada.

Colored Federal airways are published in paragraph 6009(d) of FAA Order JO 7400.11G dated August 19, 2022 and effective September 15, 2022, which is incorporated by reference in 14 CFR 71.1. The Colored Federal airways listed in this document would be removed subsequently in FAA Order JO 7400.11.

FAA Order JO 7400.11, Airspace Designations and Reporting Points, is published yearly and effective on September 15.

Regulatory Notices and Analyses

The FAA has determined that this proposed regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore: (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under Department of Transportation (DOT) Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this proposed rule, when promulgated, will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Environmental Review

This proposal will be subject to an environmental analysis in accordance with FAA Order 1050.1F, ''Environmental Impacts: Policies and Procedures'' prior to any FAA final regulatory action.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

■ 1. The authority citation for 14 CFR part 71 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

§ 71.1 [Amended]

■ 2. The incorporation by reference in 14 CFR 71.1 of FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022, is amended as follows:

Paragraph 6009(d) Colored Federal Airways.

* * * * *

B–38 [Remove]

B–40 [Remove]

* * * * *

Issued in Washington, DC, on January 23, 2023.

Brian Konie,

Acting Manager, Airspace Rules and Regulations.

[FR Doc. 2023–01605 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2022–1678; Airspace Docket No. 22–AWA–4]

Amendment of the Nashville International Airport Class C Airspace; Nashville, TN; and the John C. Tune Airport Class D Airspace; Nashville, TN

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This action proposes to reconfigure the Nashville International Airport (BNA) Class C airspace area, and amend the ceiling of the John C. Tune Airport (JWN) Class D airspace area. The FAA is proposing this action to reduce the risk of midair collisions, and enhance the efficient management of air traffic operations in the Nashville, TN, terminal area.

DATES: Comments must be received on or before March 28, 2023.

ADDRESSES: Send comments on this proposal to the U.S. Department of Transportation, Docket Operations, 1200 New Jersey Avenue SE, West Building Ground Floor, Room W12–140, Washington, DC 20590; telephone: (800) 647–5527, or (202) 366–9826. You must identify FAA Docket No. FAA–2022–1678; Airspace Docket No. 22–AWA–4, at the beginning of your comments. You may also submit comments through the internet at *www.regulations.gov.*

FAA Order 7400.11G, Airspace Designations and Reporting Points, and subsequent amendments can be viewed online at *www.faa.gov/air_traffic/publications/.* For further information, you can contact the Rules and Regulations Group, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

FOR FURTHER INFORMATION CONTACT: Paul Gallant, Rules and Regulations Group, Office of Policy, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority. This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart I, Section 40103. Under that section, the FAA is charged with prescribing regulations to assign the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. This regulation is within the scope of that authority as it would modify the airspace structure as necessary to preserve the safe and efficient flow of air traffic within the National Airspace System (NAS).

Comments Invited

Interested parties are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions on the proposal. Comments are specifically invited on the overall regulatory, aeronautical, economic,

environmental, and energy-related aspects of the proposal.

Communications should identify both docket numbers (FAA Docket No. FAA–2022–1678; Airspace Docket No. 22–AWA–4) and be submitted in triplicate to the Docket Management Facility (see **ADDRESSES** section for address and phone number). You may also submit comments through the internet at *www.regulations.gov.*

Commenters wishing the FAA to acknowledge receipt of their comments on this action must submit with those comments a self-addressed, stamped postcard on which the following statement is made: ''Comments to FAA Docket No. FAA–2022–1678; Airspace Docket No. 22–AWA–4.'' The postcard will be date/time stamped and returned to the commenter.

All communications received on or before the specified comment closing date will be considered before taking action on the proposed rule. The proposal contained in this action may be changed in light of comments received. All comments submitted will be available for examination in the public docket both before and after the comment closing date. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Availability of NPRM

An electronic copy of this document may be downloaded through the internet at *www.regulations.gov.* Recently published rulemaking documents can also be accessed through the FAA's web page at *www.faa.gov/air_traffic/publications/airspace_amendments/.*

You may review the public docket containing the proposal, any comments received and any final disposition in person in the Dockets Office (see **ADDRESSES** section for address and phone number) between 9:00 a.m. and 5.00 p.m., Monday through Friday, except Federal holidays. An informal docket may also be examined during normal business hours at the office of the Eastern Service Center, Federal Aviation Administration, Room 210, 1701 Columbia Avenue, College Park, GA, 30337.

Availability and Summary of Documents for Incorporation by Reference

This document proposes to amend FAA Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022. FAA Order JO 7400.11G is publicly available as listed in the **ADDRESSES** section of this document. FAA Order JO 7400.11F lists Class A, B, C, D, and E airspace areas, air traffic service routes, and reporting points.

Background

In 1986, the FAA issued a final rule that established the Nashville, TN, Airport Radar Service Area (ARSA) (51 FR 8284 (March 10, 1986). The establishment of the Nashville ARSA was effective on April 10, 1986. As a result of the Airspace Reclassification final rule (56 FR 65638; December 17, 1991), which became effective in September 1993, the term ''Airport Radar Service Area'' was replaced by ''Class C airspace area.'' As with the former ARSA, the primary purpose of a Class C airspace area is to reduce the potential for midair collisions in terminal areas and promote the efficient control of air traffic in those areas. Pilots are required to establish two-way radio communications with air traffic control (ATC) before entering Class C airspace, and they must maintain two-way radio communications with ATC while operating in that airspace. These requirements are designed to keep ATC informed of all aircraft operating within the Class C airspace area.

The BNA Class C airspace was last modified on June 27, 2013 (78 FR 27029; May 9, 2013) in order to remove a small cutout from the Class C surface area. The purpose of the cutout was to exclude the airspace within a 1.5 nautical mile (NM) radius of the former Cornelia Fork Airpark airport (located 4 NM north northwest of BNA) from the BNA Class C airspace area so that pilots could operate to and from the Airpark without the requirement to contact ATC. However, the Airpark has since been permanently closed rendering the cutout unnecessary. Otherwise, the BNA Class C is unchanged from its original configuration.

Operations at BNA are rebounding from the drop in traffic that resulted during the COVID–19 pandemic. In calendar year (CY) 2015, BNA hosted 174,178 instrument operations and 184,421 total operations. In CY 2019, BNA instrument operations were 221,532 out of 234,964 total operations. CY 2020 saw a drop to 151,342 instrument operations out of 163,365 total operations, while CY 2021 increased to 205,958 instrument operations and 219,427 total operations. From January 1 through November 20, 2022, 219,675 instrument operations and 231,575 total operations were reported. Similarly, BNA passenger enplanements grew significantly from 4,013,995 in CY 2020, to 7,594,049 in CY 2021 (the latest year for which validated figures are available). This represents an increase of more than 89% in enplanements over the previous year. Furthermore, air traffic in the Nashville terminal area has increased substantially in all categories of aircraft, including medical helicopter traffic.

Three busy satellite airports, near BNA: John C. Tune Airport (JWN), Smyrna Airport (MQY), and Murfreesboro Municipal Airport (MBT), generate traffic that routinely crosses the BNA final approach courses. Significant numbers of visual flight rules (VFR) aircraft, which are not in contact with ATC, routinely operate in the same airspace outside of the BNA Class C area that is also used by aircraft operating to and from BNA. Under this proposal, those VFR aircraft would be required to establish radio contact with ATC thereby enhancing safety and efficiency in the BNA terminal area.

Between July 2019 and February 2020, BNA Terminal Radar Approach Control (TRACON) logged over 300 instances where unidentified VFR aircraft operating just outside of the existing Class C airspace boundaries resulted in Traffic Alert and Collison Avoidance System (TCAS) alerts and/or air traffic controller actions to prevent potential conflicts between aircraft.

Common instances include:

- Unidentified, non-participating VFR aircraft that are not in contact with ATC skirting the Class C airspace boundary that create potential traffic conflicts with aircraft arriving or departing BNA;
- Increased workload for air traffic controllers due to the need for additional vectoring or altitude changes of BNA arrivals and departures to ensure separation from VFR aircraft that are operating just outside the Class C airspace, but not in radio communication with ATC;
- Non-participating aircraft crossing the final approach course to BNA, and;
- Unidentified aircraft violating the Class C airspace area.

Note: A non-participating aircraft is one that is not in radio communications with ATC, and is not receiving Class C ATC services.

The FAA proposes to address these issues by modifying the BNA Class C airspace area as follows:

- Partially extending lateral limits of Class C surface area (the inner ring) from a 5 NM radius to a 7 NM of BNA;
- Expanding the lateral limits of the Class C airspace by increasing the radius of the outer ring from 10 NM to 15 NM from BNA, and;
- Extending the upper altitude limit of the Class C airspace from 4,600 feet

mean sea level (MSL) to 6,000 feet MSL, and lowering the floor of Class C airspace to 1,800 feet MSL in certain segments to the north and south of BNA.

Benefits of Modifying the BNA Class C Airspace Area

The proposed modifications of the current BNA Class C airspace area would enhance safety, efficiency, and airspace utilization by requiring pilots to establish and maintain radio communications with ATC prior to, and while operating in, the airspace. This would lessen the likelihood of BNA arrivals and departures encountering unknown aircraft that are not in contact with ATC. Other benefits would include:

- Enhanced safety by providing ATC the ability to segregate General Aviation aircraft from higher performance turbojet aircraft and from BNA arrival and departure traffic;
- Improved traffic patterns that allow for stabilized approaches to BNA;
- Reduced potential for IFR traffic encountering unidentified VFR aircraft, and;
- Reduced controller workload associated with vectoring or climbing/descending IFR aircraft to avoid unverified targets.

The unique combination of high volumes of general aviation and commercial operations, and transiting VFR aircraft that take place in the congested BNA terminal area support a proposal to expand the BNA Class C airspace area to enhance safety and efficiency.

The FAA believes that users would benefit from participation in the proposed expanded availability of Class C services around BNA which include: sequencing of all aircraft to the primary airport (BNA); standard IFR services to IFR aircraft; separation, traffic advisories, and safety alerts between IFR and VFR aircraft; and, mandatory traffic advisories and safety alerts between VFR aircraft.

Pre-NPRM Public Input

In May 2021, the FAA initiated action to form an Ad Hoc Committee (Committee) to seek input and recommendations from representatives of effected aviation users for the FAA to consider in designing proposed modifications to the BNA Class C airspace area. The purpose of an Ad Hoc Committee is to obtain preliminary input from affected users before a formal proposed airspace design is developed by the FAA for publication in a Notice of proposed rulemaking (NPRM).

The Committee met on August 25, 2021, at Murfreesboro Municipal Airport, TN. The Committee was chaired by a representative of the Metropolitan Nashville Airport Authority. Membership included representatives of local airports, state and local government offices, and aviation users. Attendance was both in person and virtually via the internet.

The Committee report stated that the proposed airspace modification appears to address the concerns raised by air traffic without being overly restrictive. Further, the Committee supported the overall goal of the proposed airspace modification to improve communication and coordination.

Ad Hoc Committee Recommendations

The Ad Hoc Committee submitted five recommendations for the FAA to consider.

First, the Committee recommended that the FAA extend the helicopter VFR corridors to the edge of the proposed new Class C airspace boundary, and review the corridor altitudes.

The FAA's review of the helicopter VFR corridors indicated no need for amendments with the Class C modification. The current transition points and tracks address the safety concerns where helicopters overfly the final approach courses at BNA and the way aircraft fly the approach will not change with the proposed Class C modification. The existing points were designed to transition VFR helicopters safely through the final approach course. They were not designed as reporting points for entering or exiting Class C airspace.

Second, the FAA should review all existing airspace Letters of Agreement (LOA) for impacts/changes as a result of the proposed Class C airspace modification.

The FAA plans to review all LOAs and Standard Operating Procedures (SOP) for potential impacts and needed changes with respect to the proposed Class C airspace modification.

Third, coordinate with local remote controlled (RC) aircraft club(s) that may fall within the proposed new inner ring to establish LOAs for safe operations of RC aircraft/unmanned aircraft systems (UAS).

The FAA reviewed known local RC clubs and determined that only the Music City Aviators (MCA) club will fall within the new inner ring boundary. The MCA LOA has been reviewed and no changes are needed due to the Class C modification.

Fourth, inform JWN and MQY stakeholders of the requirement for Mode C/ADS–B equipage for arrivals/departures through the proposed new Class C airspace (2,400 feet for JWN and 2,400 feet for MQY).

If the proposed Class C modification is approved, BNA and the Metropolitan Nashville Airport Authority will communicate the changes with the local flying community via airport meetings, public outreach, and Letters to Airmen.

Fifth, coordinate with MQY on the impact of the proposed inner ring extension overlapping MQY Class D airspace when operating on a MQY Runway 14 approach. Consider providing a notch or cutout in the BNA Class C to accommodate MQY Runway 14 approaches.

The FAA determined that creating a notch or cutout in the BNA Class C airspace to accommodate Runway 14 approaches would create a hazard for aircraft arriving and departing BNA. Currently, MQY Runway approaches are rarely approved due to conflicts/impact at BNA. Unfortunately, FAA is unable to accommodate this recommendation.

Informal Airspace Meeting

Informal Airspace Meetings provide the FAA another avenue to gather additional information to assist in the development of an airspace proposal before issuance of a NPRM.

As announced in the **Federal Register** (86 FR 70991; December 14, 2021), an Informal Airspace Meeting concerning proposed modifications of the BNA Class C airspace area was held on February 22, 2022. The meeting was conducted virtually as a webinar via the Zoom application. There were 122 registered attendees; however, many more watched the meeting on the FAA's social media sites. Seven comments were received from the attendees.

Discussion of Informal Airspace Meeting Comments

Two commenters addressed the proposed floor of Class C airspace on the east and west sides of BNA. The first commenter, who flies from TK Farm Airport (TN26), requested that the Class C floor on the east side be raised from 2,100 feet MSL to 2,400 feet MSL. The second commenter, who trained at Smyrna Airport (MQY) asked that the Class C floor on the east and west sides be raised to 3,500 feet MSL.

The FAA considered these suggestions. Discussions between BNA and MQY resulted in amending the proposed floor on the east side of the Class C (between 7 and 15 NM from BNA) from 2,100 feet MSL to 2,400 feet MSL. This raises the Class C floor over TN26 to 2,400 feet MSL as requested. This will allow aircraft to remain under the Class C airspace in order to reduce the need for multiple radio frequency

changes in that area. Aircraft will have the option to maintain communication with MQY control tower only. However, the FAA is unable to raise the floor on the east and west outer rings to 3,500 feet MSL due to conflicts with the BNA departure release area; John C. Tune (JWN) departures and arrivals; BNA downwind traffic; and MQY departures and arrivals.

One commenter stated concerns that radio communications systems are deficient in the area adjacent to, and east of, the Nashville Class C airspace. The commenter stated that this issue could be resolved with the installation of a Remote Communications Air/Ground facility (RCAG) at or near the Upper Cumberland Regional Airport (SRB) in Sparta, TN.

While the FAA is proposing to expand the BNA Class C airspace from the current 10 NM ring to a 15 NM ring, the FAA will not be expanding Nashville Approach Control's delegated airspace boundary beyond its current eastern limit. SRB airport is an additional 18 NM east of the Nashville Approach Control's airspace boundary line. Radio communications at SRB is outside of Nashville Approach airspace and therefore is not included in the Class C changes. Since Memphis ARTCC is the overlying control facility for SRB, frequency requests should be made with Memphis ARTCC. The FAA does not believe that expanding the BNA Class C airspace to the 15 NM ring will have any impact on the volume of traffic near SRB.

A pilot who regularly flies between JWN and MQY wrote that, most of the time they communicate with BNA, but if the controllers are busy, they will fly under the Class C shelf. The pilot was concerned that 1,800 feet MSL is very low and could cause poor decision making by some pilots. The commenter suggested the FAA provide an East-West VFR corridor that goes over the top of BNA for this purpose.

The FAA acknowledges that the Class C changes may impact the routing of VFR aircraft into and around Nashville. Until the FAA fully understands how VFR traffic will flow around the proposed modified airspace, the FAA will defer consideration of adding VFR corridors. The FAA encourages pilots to contact ATC for services to overfly BNA, and for services between JWN and MQY.

A commenter asked if the changes around Nashville would result in flight paths that are more concentrated, at lower altitudes, and with less separation between planes. The commenter also asked about the impact of noise.

The BNA Class C modification will not affect departure or arrival routes, nor result in lower altitudes or concentrated flight paths. It will provide for increased separation between participating aircraft during critical phases of flight allowing ATC to provide traffic advisories in a larger area around BNA. The noise at BNA is subject to aircraft arriving and departing over which the Class C change has no direct correlation.

A pilot asked if the Class C modification will make it easier for VFR flights to get radar traffic advisories.

ATC will continue to provide VFR flight following services as duty priorities allow, an increased area of Class C airspace may result in increased need for ATC services.

An airline pilot asked if the Class C change would have any flying operational impact on his carrier.

There will be no changes to procedures for air carrier aircraft. However, safety will be increased between IFR commercial arrivals and departures and VFR aircraft transiting in and around the proposed Class C airspace.

A pilot based at JWN wrote in support of any improvements to better manage and separate traffic around JWN. The pilot cited cases where it was difficult to make contact with ATC due to frequency congestion and, what the commenter sensed to be later than desired handoffs from approach control to JWN Tower. The commenter asked if the Class C modification would lead to more air traffic controllers being assigned.

The LOA between the BNA Airport Traffic Control Tower and the JWN Federal Contract Tower (FCT) was revised in February 2022 to address the transfer of communications of JWN arrivals to JWN FCT. A second revision of the LOA addresses the matching of runways in use between BNA and JWN, and streamlining the coordination of inbound aircraft with JWN. The Class C change would extend the airspace to the west of the JWN Class D airspace, but the outer lower shelf altitude would remain unchanged at 2,400 feet MSL. This would increase the separation of aircraft and the ability for ATC to provide traffic advisories and other services. The Class C proposal would not lead to an increased number of controllers.

One commenter stated three concerns about the Class C proposal. First, the commenter cited concern about the Class C segments located southeast and northeast of JWN that have a floor set at 1,800 feet MSL because there are towers that extend up to 2,049 feet MSL near the boundaries of those Class C segments. The commenter said that this could pose a problem for VFR pilots flying below 1,800 feet MSL under either lower Class C segment, and approaching near a 2,049 feet MSL tower. The commenter said that the floor of the Class C should be raised to a consistent 2,400 feet MSL. Second, the commenter contended that coordination between BNA approach control and JWN tower needs improvement. The commenter wrote that installing a radar display in JWN tower would enhance traffic management and coordination. Third, the commenter asked for confirmation that the expansion of the Class C airspace would result in a previously proposed skydiving operation at JWN being denied.

Regarding the comment about the 1,800-foot Class C segments, the lower floors of the Class C to the north and south of BNA are to ensure that IFR aircraft in critical stages of flight do not conflict with nonparticipating VFR aircraft skirting around the inner Class C ring. This design is necessary for safe air traffic operations into and out of BNA. Raising the floor of these segments to 2,400 feet MSL would negate the protection for BNA arriving aircraft. The towers noted by the commenter are depicted on the Sectional Aeronautical Charts that cover the Nashville area and are lighted in accordance with 14 CFR part 77. The FAA is not aware of pilots having issues with the towers. Ultimately, it is the pilot's responsibility to evaluate all factors that could affect a planned flight, such as minimum safe altitudes, and determine the safest course of action. Pilots are encouraged to contact ATC to take advantage of Class C services.

Regarding the comment about coordination between BNA and JWN, as discussed under a previous comment, above, the LOA between BNA and JWN has been revised recently to address transfer of communications and coordination issues. Installation of a radar display at JWN is not planned as part of the Class C airspace proposal.

Lastly, while skydiving operations at JWN are outside the scope of this rulemaking action, the FAA is addressing the matter in a separate forum.

The Proposal

The FAA is proposing an amendment to 14 CFR part 71 to modify the BNA Class C airspace area and to amend the ceiling of the JWN Class D airspace area.

The current BNA Class C airspace area consists of that airspace extending upward from the surface to and including 4,600 feet MSL within a 5 NM

radius of BNA; and that airspace extending upward from 2,100 feet MSL to and including 4,600 feet MSL within a 10 NM radius of BNA from the 019° bearing from BNA clockwise to the 198° bearing from BNA; and that airspace extending upward from 2,400 feet MSL to and including 4,600 feet MSL within a 10 NM radius of BNA from the 198° bearing from BNA clockwise to the 018° bearing from BNA.

This proposal would make minor edits in the text header of the BNA Class C airspace description, as published in FAA Order JO 7400.11, by updating BNA airport reference point (ARP) coordinates from ''lat. 36°07′28″ N, long. 86°40′42″ W'' to ''lat. 36°07′28″ N, long. 86°40′41″ W'' which reflects the latest information in the Airport Master Records file. In addition, the Smyrna Airport, TN, would be added to the text header because that airport is referenced in the Class C description. The proposed Class C modifications are described below.

The FAA is proposing to expand the BNA Class C surface area to extend from the surface up to and including 6,000 feet MSL. Additionally, the surface area radius would be extended from the current 5 NM from BNA to 7 NM from BNA from the 335° bearing from the airport clockwise to the 230° bearing from the airport. The surface area radius would remain at 5 NM from BNA from the 230° bearing clockwise to the 335° bearing from the airport. The Class C surface area would exclude that portion within the Smyrna Airport Class D airspace area.

Additionally, the Class C would include that airspace extending upward from 1,800 feet MSL to and including 6,000 feet MSL within a 15 mile radius of BNA from the 335° bearing from BNA clockwise to the 060° bearing from BNA.

Additionally, the Class C would include that airspace extending upward from 2,400 feet MSL to and including 6,000 feet MSL within a 15 NM radius of BNA from the 060° bearing from BNA clockwise to the 155° bearing from BNA, excluding that portion within the Smyrna Airport Class D airspace area.

Additionally, the Class C would include that airspace extending upward from 1,800 feet MSL to and including 6,000 feet MSL within a 15 NM radius of BNA from the 155° bearing from BNA clockwise to the 230° bearing from BNA.

Additionally, the Class C would include that airspace extending upward from 2,400 feet MSL within a 15 NM radius of BNA from the 230° bearing from BNA clockwise to the 335° bearing from BNA.

John C. Tune Airport (JWN) Class D Airspace Area

The FAA is proposing to amend the ceiling of the JWN Class D airspace area by lowering the ceiling from 2,500 feet MSL ''to but not including 2,400 feet MSL.'' The proposed westward expansion of the BNA Class C airspace, with a floor of 2,400 feet MSL, would overlie the JWN Class D airspace. Lowering the Class D ceiling as proposed would create a clear delineation between the Class C and Class D airspace areas.

In developing the above proposed modifications, the FAA has considered the public input received from the Ad Hoc Committee, and the informal airspace meetings.

Class C airspace areas are published in paragraph 4000, and Class D airspace areas are published in paragraph 5000, respectively, of FAA Order JO 7400.11G, dated August 19, 2022, and effective September 15, 2022, which is incorporated by reference in 14 CFR 71.1. The Class C airspace, and Class D airspace modifications proposed in this document would be published subsequently in FAA Order JO 7400.11.

Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA consider the impact of paperwork and other information collection burdens imposed on the public. The FAA has determined that there is no new information collection requirement associated with this proposed rule.

Regulatory Notices and Analyses

Regulatory Notices and Analyses Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 and Executive Order 13563 direct that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Pub. L. 96–354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Pub. L. 96–39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of $100 million or more annually (adjusted for inflation with base year of 1995). The current threshold after adjustment for inflation is $165 million, using the most current (2021) Implicit Price Deflator for the Gross Domestic Product.

In conducting these analyses, the FAA has determined that this proposed rule: (1) is expected to have a minimal cost impact, (2) is not an economically ''significant regulatory action'' as defined in section 3(f) of Executive Order 12866, (3) is not significant under the Department of Transportation's administrative procedure rule on rulemaking at 49 CFR 5.13; (4) not have a significant economic impact on a substantial number of small entities; (5) does not create unnecessary obstacles to the foreign commerce of the United States; and (6) does not impose an unfunded mandate on state, local, or tribal governments, or on the private sector by exceeding the threshold identified above. These analyses are summarized below.

As discussed above, the FAA determined that changes put forth in this proposed rule would reduce the risk of midair collisions, and enhance air traffic control efficiency, and airspace utilization. The proposed rule would reconfigure BNA Class C airspace area and amend the ceiling of JWN Class D airspace area. The FAA considered recommendations from an Ad Hoc Committee and informal airspace meetings from the stakeholders. The Committee report stated that the proposed airspace modification appears to address the concerns raised by air traffic without being overly restrictive. Further, the Committee supported the overall goal of the proposed airspace modification to improve communication and coordination.

In addition, air traffic in the Nashville terminal area has increased dramatically in all categories of aircraft. The goals of the proposal are to reduce the risk of midair collisions and improve the efficient management of air traffic operations in the Nasville, TN, terminal area.

The proposal to modify the BNA Class C airspace area would require VFR aircraft to establish radio contact with ATC thereby enhancing safety and efficiency in the BNA terminal area. VFR operators would only need to make minor adjustments to accommodate the expanded availability of Class C services around BNA. Therefore, the FAA expects the proposal would result in

minimal cost to VFR operators. The FAA requests comments on the benefits and costs of this proposal to inform the final rule.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (Pub. L. 96–354) (RFA) establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration.'' The RFA covers a wide-range of small entities, including small businesses, not-for-profit organizations, and small governmental jurisdictions.

Agencies must perform a review to determine whether a rule will have a significant economic impact on a substantial number of small entities. If the agency determines it will, it must prepare a regulatory flexibility analysis as described in the RFA. However, if an agency determines that a rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the RFA provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

The proposed rule would reconfigure BNA Class C airspace area and amend the ceiling JWN Class D airspace area. The FAA is proposing this action to reduce the risk of midair collisions, and enhance the efficient management of air traffic operations in the Nashville, TN, terminal area. The FAA determined that changes put forth in this would increase airspace safety and efficiency.

The change would affect general aviation operators using BNA Class C airspace area and amend the ceiling JWN Class D airspace area. Operators flying VFR would need to adjust their flight paths to avoid the modified Class C airspace and Class D airspace, if the pilots desire to operate without contacting ATC. However, the proposed modifications are intended to address the concerns raised by air traffic without being burdensome. Therefore, as provided in section 605(b), the head of the FAA certifies that this rulemaking would not result in a significant economic impact on a substantial number of small entities.

International Trade Impact Assessment

The Trade Agreements Act of 1979 (Pub. L. 96–39), as amended by the Uruguay Round Agreements Act (Pub. L. 103–465), prohibits Federal agencies from establishing standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of standards is not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standard has a legitimate domestic objective, such as the protection of safety, and does not operate in a manner that excludes imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. The FAA has assessed the potential effect of this proposed rule and determined that it would improve safety and is consistent with the Trade Agreements Act.

Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (in 1995 dollars) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a ''significant regulatory action.'' The FAA currently uses an inflation-adjusted value of $165 million in $100 million. This proposed rule does not contain such a mandate; therefore, the requirements of Title II of the Act do not apply. the safe, orderly, and expeditious flow of civil air traffic.

Environmental Review

This proposal will be subject to an environmental analysis in accordance with FAA Order 1050.1F, ''Environmental Impacts: Policies and Procedures'' prior to any FAA final regulatory action.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

■ 1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

§ 71.1 [Amended]

■ 2. The incorporation by reference in 14 CFR 71.1 of the Federal Aviation Administration Order JO 7400.11G, Airspace Designations and Reporting Points, dated August 19, 2022, and effective September 15, 2022, is amended as follows:

Paragraph 4000 Subpart C—Class C Airspace.

* * * * *

ASO TN C Nashville, TN [Amended]

Nashville International Airport, TN
(Lat. 36°07′28″ N, long. 86°40′41″ W)

Smyrna Airport, TN
(Lat. 36°00′32″ N, long. 86°31′12″ W)

That airspace extending upward from the surface to 6,000 feet MSL within a 5-mile radius of Nashville International Airport from the 230° bearing from the airport clockwise to the 335° bearing from the airport; and that airspace extending upward from the surface to 6,000 feet MSL within a 7-mile radius of Nashville International Airport from the 335° bearing from the airport clockwise to the 230° bearing from the airport, excluding that portion within the Smyrna Airport, TN, Class D airspace area; and that airspace extending upward from 1,800 feet MSL to 6,000 feet MSL within a 15-mile radius of Nashville International Airport from the 335° bearing from the airport clockwise to the 060° bearing from the airport; and that airspace extending upward from 2,400 feet MSL to 6,000 feet MSL within a 15-mile radius of the airport from the 060° bearing from the airport clockwise to the 155° bearing from the airport, excluding that portion within the Smyrna Airport, TN, Class D airspace area; and that airspace extending upward from 1,800 feet MSL to 6,000 feet MSL within a 15-mile radius of Nashville International Airport from the 155° bearing from the airport clockwise to the 230° bearing from the airport; and that airspace extending upward from 2,400 feet MSL to 6,000 feet MSL within a 15-mile radius of Nashville International Airport from the 230° bearing from the airport clockwise to the 335° bearing from the airport.

* * * * *

Paragraph 5000 Subpart D—Class D Airspace.

* * * * *

ASO TN D Nashville, TN [Amended]

John C. Tune Airport, TN
(Lat. 36°10′59″ N, long. 86°53′11″ W)

That airspace upward from the surface to but not including 2,400 feet MSL within a

4.1-mile radius of John C. Tune Airport, and within 1.2-miles each side of the 195° bearing from the airport, extending from the 4.1-mile radius to 6.1-miles south of the airport, and within 1.2-miles each side of the 015° bearing from the airport, extending from the 4.1-mile radius to 6.1-miles north of the airport. This Class D airspace area is effective during the specific dates and times established in advance by a Notice to Air Missions. The effective dates and times will thereafter be continuously published in the Chart Supplement.

* * * * *

Issued in Washington, DC, on January 17, 2023.

Brian Konie,

Acting Manager, Airspace Rules and Regulations.

[FR Doc. 2023–01022 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 100

[Docket Number USCG–2023–0040]

RIN 1625–AA08

Special Local Regulation; Bonita Tideway, Brigantine, NJ

AGENCY: Coast Guard, Department of Homeland Security (DHS).

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard is proposing to establish a temporary special local regulation for navigable waters of the Bonita Tideway near Brigantine, NJ. This action is needed to provide for the safety of life on these navigable waters during a rowing regatta on April 1, 2023, and April 2, 2023. This rulemaking prohibits persons and vessels from being in the regulated areas during the enforcement period unless authorized entry by the Captain of the Port (COTP), Delaware Bay, or a designated representative. We invite your comments on this proposed rulemaking.

DATES: Comments and related material must be received by the Coast Guard on or before February 27, 2023.

ADDRESSES: You may submit comments identified by docket number USCG–2023–0040 using the Federal Decision Making Portal at *https://www.regulations.gov.* See the ''Public Participation and Request for Comments'' portion of the **SUPPLEMENTARY INFORMATION** section for further instructions on submitting comments.

FOR FURTHER INFORMATION CONTACT: If you have questions on this rule, call or email MST1 Dylan Caikowski, Waterways Management Division, Sector Delaware Bay, U.S. Coast Guard; telephone (215) 271–4814, email *SecDelBayWWM@uscg.mil.*

SUPPLEMENTARY INFORMATION:

I. Table of Abbreviations

CFR Code of Federal Regulations
DHS Department of Homeland Security
FR Federal Register
NPRM Notice of proposed rulemaking
§ Section
U.S.C. United States Code

II. Background, Purpose, and Legal Basis

On December 19, 2022, Stockton University notified the Coast Guard that it will be hosting a collegiate rowing regatta amongst six universities on April 1, 2023, and April 2, 2023. The rowing regatta will be held in Bonita Tideway in Brigantine, NJ, between 34th Street and Brigantine Boulevard and the Brigantine Yacht Club. The COTP has determined that the rowing regatta could pose a risk to participants or waterway users if normal vessel traffic were to interfere with the event. Possible hazards include risks of participant injury or death from near or actual collisions with non-participant vessels traversing through the regulated area.

The purpose of this rulemaking is to ensure the safety of participants and waterway users within the designated rowing regatta area before, during, and after the scheduled event. The Coast Guard is proposing this rulemaking under authority in 46 U.S.C. 70041.

III. Discussion of Proposed Rule

The COTP is proposing to establish a special local regulation from 4 p.m. on April 1, 2023, until 12:30 p.m. on April 2, 2023. The special local regulation would be enforced from 4 p.m. to 6:30 p.m. on April 1, 2023, and from 8:30 a.m. to 12:30 p.m. on April 2, 2023. The regulated area would cover all navigable waters of Bonita Tideway in Brigantine, NJ, within a polygon bounded by the following: originating on the northern portion at approximate position latitude 39°24′33″ N, longitude 074°22′28″ W; thence southwest across the Bonita Tideway to the shoreline to latitude 39°24′22″ N, longitude 074°22′49″ W; thence southwest along the shoreline to latititude 39°23′49″ N, longitude 074°23′33″ W; thence across the Bonita Tideway to the shoreline at latitude 39°23′43″ N, longitude 074°23′33″ W; thence north along the shoreline to the point of origin. The duration of the zone is intended to ensure the safety of participants and waterway users before, during, and after the scheduled rowing regatta. No vessel or person would be permitted to enter the regulated area without obtaining permission from the COTP or a designated representative. The regulatory text we are proposing appears at the end of this document.

IV. Regulatory Analyses

We developed this proposed rule after considering numerous statutes and Executive orders related to rulemaking. Below we summarize our analyses based on a number of these statutes and Executive orders, and we discuss First Amendment rights of protestors.

A. Regulatory Planning and Review

Executive Orders 12866 and 13563 direct agencies to assess the costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits. This NPRM has not been designated a ''significant regulatory action,'' under Executive Order 12866. Accordingly, the NPRM has not been reviewed by the Office of Management and Budget (OMB).

This regulatory action determination is based on the size and duration of the regulated area, which would impact a small designated area of the Bonita Tideway. Vessels would be able to transit the regulated area during the enforcement period as directed by the Event Patrol Commander (PATCOM) or official patrol vessel.

B. Impact on Small Entities

The Regulatory Flexibility Act of 1980, 5 U.S.C. 601–612, as amended, requires Federal agencies to consider the potential impact of regulations on small entities during rulemaking. The term ''small entities'' comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000. The Coast Guard certifies under 5 U.S.C. 605(b) that this proposed rule would not have a significant economic impact on a substantial number of small entities.

While some owners or operators of vessels intending to transit the safety zone may be small entities, for the reasons stated in section IV.A above, this proposed rule would not have a significant economic impact on any vessel owner or operator.

If you think that your business, organization, or governmental jurisdiction qualifies as a small entity and that this proposed rule would have

a significant economic impact on it, please submit a comment (see **ADDRESSES**) explaining why you think it qualifies and how and to what degree this rule would economically affect it.

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Pub. L. 104–121), we want to assist small entities in understanding this proposed rule. If the proposed rule would affect your small business, organization, or governmental jurisdiction and you have questions concerning its provisions or options for compliance, please call or email the person listed in the **FOR FURTHER INFORMATION CONTACT** section. The Coast Guard will not retaliate against small entities that question or complain about this proposed rule or any policy or action of the Coast Guard.

C. Collection of Information

This proposed rule would not call for a new collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520).

D. Federalism and Indian Tribal Governments

A rule has implications for federalism under Executive Order 13132 (Federalism), if it has a substantial direct effect on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government. We have analyzed this proposed rule under that order and have determined that it is consistent with the fundamental federalism principles and preemption requirements described in Executive Order 13132.

Also, this proposed rule does not have tribal implications under Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. If you believe this proposed rule has implications for federalism or Indian tribes, please call or email the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

E. Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538) requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of $100,000,000 (adjusted for inflation) or more in any one year. Though this proposed rule would not result in such an expenditure, we do discuss the potential effects of this proposed rule elsewhere in this preamble.

F. Environment

We have analyzed this proposed rule under Department of Homeland Security Directive 023–01, Rev. 1, associated implementing instructions, and Environmental Planning COMDTINST 5090.1 (series), which guide the Coast Guard in complying with the National Environmental Policy Act of 1969 (42 U.S.C. 4321–4370f), and have made a preliminary determination that this action is one of a category of actions that do not individually or cumulatively have a significant effect on the human environment. This proposed rule involves a special local regulation lasting only 7 hours over 2 days that will prohibit or restrict entry within the regulated area during a rowing regatta. Normally such actions are categorically excluded from further review under paragraph L61 of Appendix A, Table 1 of DHS Instruction Manual 023–01–001–01, Rev. 1. A preliminary Record of Environmental Consideration supporting this determination is available in the docket. For instructions on locating the docket, see the **ADDRESSES** section of this preamble. We seek any comments or information that may lead to the discovery of a significant environmental impact from this proposed rule.

G. Protest Activities

The Coast Guard respects the First Amendment rights of protesters. Protesters are asked to call or email the person listed in the **FOR FURTHER INFORMATION CONTACT** section to coordinate protest activities so that your message can be received without jeopardizing the safety or security of people, places, or vessels.

V. Public Participation and Request for Comments

We view public participation as essential to effective rulemaking, and will consider all comments and material received during the comment period. Your comment can help shape the outcome of this rulemaking. If you submit a comment, please include the docket number for this rulemaking, indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation.

Submitting comments. We encourage you to submit comments through the Federal Decision Making Portal at *https://www.regulations.gov.* To do so, go to *https://www.regulations.gov,* type USCG–2023–0040 in the search box and click ''Search.'' Next, look for this document in the Search Results column, and click on it. Then click on the Comment option. If you cannot submit your material by using *https://www.regulations.gov,* call or email the person in the **FOR FURTHER INFORMATION CONTACT** section of this proposed rule for alternate instructions.

Viewing material in docket. To view documents mentioned in this proposed rule as being available in the docket, find the docket as described in the previous paragraph, and then select ''Supporting & Related Material'' in the Document Type column. Public comments will also be placed in our online docket and can be viewed by following instructions on the *https://www.regulations.gov* Frequently Asked Questions web page. We review all comments received, but we will only post comments that address the topic of the proposed rule. We may choose not to post off-topic, inappropriate, or duplicate comments that we receive.

Personal information. We accept anonymous comments. Comments we post to *https://www.regulations.gov* will include any personal information you have provided. For more about privacy and submissions to the docket in response to this document, see DHS's eRulemaking System of Records notice (85 FR 14226, March 11, 2020).

List of Subjects in 33 CFR Part 100

Marine safety, Navigation (water), Reporting and recordkeeping requirements, Waterways.

For the reasons discussed in the preamble, the Coast Guard proposes to amend 33 CFR part 100 as follows:

PART 100—SAFETY OF LIFE ON NAVIGABLE WATERS

■ 1. The authority citation for part 100 continues to read as follows:

Authority: 46 U.S.C. 70041; 33 CFR 1.05–1.

■ 2. Add § 100.T05–0040 to read as follows:

§ 100.T05–0040 Special Local Regulation; Bonita Tideway, Brigantine, NJ.

(a) *Regulated area.* All navigable waters of the Bonita Tideway in Brigantine, NJ, within the polygon bounded by the following: originating on the northern portion at approximate position latitude 39°24′33″ N, longitude 074°22′28″ W; thence southwest across the Bonita Tideway to the shoreline to latitude 39°24′22″ N, longitude

074°22′49″ W; thence southwest along the shoreline to latititude 39°23′49″ N, longitude 074°23′33″ W; thence across the Bonita Tideway to the shoreline at latitude 39°23′43″ N, longitude 074°23′33″ W; thence north along the shoreline to the point of origin.

(b) *Definitions.* The following definitions apply to this section:

Captain of the Port Representative or *COTP Representative* means a commissioned, warrant, or petty officer of the Coast Guard designated by name by the Captain of the Port to verify an event's compliance with the conditions of its approved permit.

Event Patrol Commander or *Event PATCOM* means any vessel assigned or approved by the respective Captain of the Port with a commissioned, warrant, or petty officer on board and displaying a Coast Guard ensign, or any state or local law enforcement vessel approved by the Captain of the Port in accordance with current local agreements.

Non-participant means a person or a vessel not registered with the event sponsor either as a participant or an official patrol vessel.

Official patrol vessel or *official patrol* means any vessel assigned or approved by the respective Captain of the Port with a commissioned, warrant, or petty officer on board and displaying a Coast Guard ensign, or any state or local law enforcement vessel approved by the Captain of the Port in accordance with current local agreements.

Participant means any person or vessel registered with the event sponsor as participating in the event or otherwise designated by the event sponsor as having a function tied to the event.

(c) *Patrol of the marine event.* The COTP may assign one or more official patrol vessels, as described in § 100.40, to the regulated event. The Event PATCOM will be designated to oversee the patrol. The patrol vessel and the Event PATCOM may be contacted on VHF–FM Channel 16. The Event PATCOM may terminate the event, or the operation of any vessel participating in the marine event, at any time if deemed necessary for the protection of life or property.

(d) *Special local regulations*—(1) *Controls on vessel movement.* The Event PATCOM or official patrol vessel may forbid and control the movement of all persons and vessels in the regulated area(s). When hailed or signaled by an official patrol vessel, the person or vessel being hailed must immediately comply with all directions given. Failure to do so may result in expulsion from the area, citation for failure to comply, or both.

(2) *Directions, instructions, and minimum speed necessary.* (i) The operator of a vessel in the regulated area must stop the vessel immediately when directed to do so by an official patrol vessel and then proceed only as directed.

(ii) A person or vessel must comply with all instructions of the Event PATCOM or official patrol vessel.

(iii) A non-participant must contact the Event PATCOM or an official patrol vessel to request permission to either enter or pass through the regulated area. If permission is granted, the non-participant may enter or pass directly through the regulated area as instructed by the Event PATCOM or official patrol vessel at a minimum speed necessary to maintain a safe course that minimizes wake and without loitering.

(3) *Postponement or cancellation.* The COTP, or Event PATCOM may postpone or cancel a marine event at any time if, in the COTP's sole discretion, the COTP determines that cancellation is necessary for the protection of life or property.

(e) *Enforcement periods.* This section is subject to enforcement from 4 to 6:30 p.m. on April 1, 2023, and from 8:30 a.m. to 12:30 p.m. on April 2, 2023.

Dated: January 23, 2023.

Jonathan D. Theel,

Captain, U.S. Coast Guard, Captain of the Port, Delaware Bay.

[FR Doc. 2023–01705 Filed 1–26–23; 8:45 am]

BILLING CODE 9110–04–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 117

[Docket No. USCG–2022–0518]

RIN 1625–AA09

Drawbridge Operation Regulation; Saugatuck River, Westport, CT

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard proposes to modify the operating schedule that governs the Metro-North (SAGA) Bridge, across the Saugatuck River, mile 1.1, at Westport, CT. The bridge owner, Metro-North (MNR), submitted a request on May 5, 2022 to modify the regulation to align with the Metro-North ''WALK'' Bridge train schedule and avoid bridge openings during peak transit hours. It is expected that this change to the regulations will better serve the needs of the community while continuing to meet the reasonable needs of navigation. We invite your comments on this proposed rulemaking.

DATES: Comments and related material must reach the Coast Guard on or before February 27, 2023.

ADDRESSES: You may submit comments identified by docket number USCG–2022–0518 using Federal Decision Making Portal at *https://www.regulations.gov.*

See the ''Public Participation and Request for Comments'' portion of the **SUPPLEMENTARY INFORMATION** section below for instructions on submitting comments.

FOR FURTHER INFORMATION CONTACT: If you have questions on this proposed rule, call or email Ms. Stephanie E. Lopez, First Coast Guard District, Project Officer, telephone 212–514–4335, email *Stephanie.E.Lopez@uscg.mil.*

SUPPLEMENTARY INFORMATION:

I. Table of Abbreviations

CFR Code of Federal Regulations
DHS Department of Homeland Security
FR Federal Register
MNR Metro North
OMB Office of Management and Budget
NPRM Notice of Proposed Rulemaking
§ Section
U.S.C. United States Code

II. Background, Purpose and Legal Basis

The Metro-North (SAGA) Bridge at mile 1.1, across the Saugutck River, Westport, CT, has a vertical clearance of 13 feet at mean high water and a horizontal clearance of 57 feet. Waterway users include recreational and commercial vessels, including fishing vessels.

The existing drawbridge operating regulations are listed at 33 CFR 117.221(b).

MNR is requesting the modification of the requirements in 33 CFR part 117.221(b) to align with the existing requirements for the Metro-North ''WALK'' Bridge, across the Norwalk River, at mile 0.1.

The SAGA Bridge is located at one of the busiest rail segments in the United States and the Northeast Corridor. Openings at the SAGA Bridge, between the calendar years of 2019 and 2021, resulted in five (5) delays to MNR train service. A delay due to a bridge opening has cascading affects, resulting in multiple delayed and late trains. Delays due to the openings of SAGA Bridge were notably high among the drawbridges on MNR service territory. Aligning the SAGA Bridge regulation with the WALK Bridge regulation 33

CFR 117.217(b), provides a balance between railroad operations and the interest of waterway users.

III. Discussion of Proposed Rule

The proposed rule provides the draw to open on signal between 4:30 a.m. and 9 p.m. after at least a two-hour advance notice is given via marine radio or telephone; except that from 5:45 through 9:45 a.m. and from 4 through 8 p.m. From 9 p.m. through 4:30 a.m. the draw shall open on signal after at least a four-hour advance notice is given via marine radio or telephone. A delay in opening the draw not to exceed 10 minutes may occur when a train scheduled to cross the bridge without stopping has entered the drawbridge lock. The reason for these changes is to minimize train delays while balancing the needs of waterway users.

IV. Regulatory Analyses

We developed this proposed rule after considering numerous statutes and Executive orders related to rulemaking. A summary of our analyses based on these statutes and Executive Orders follows.

A. Regulatory Planning and Review

Executive Orders 12866 and 13563 direct agencies to assess the costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits. This NPRM has not been designated a ''significant regulatory action,'' under Executive Order 12866. Accordingly, the NPRM has not been reviewed by the Office of Management and Budget (OMB).

This regulatory action determination is based on the ability of vessels to still transit the bridge given advanced notice.

B. Impact on Small Entities

The Regulatory Flexibility Act of 1980 (RFA), 5 U.S.C. 601–612, as amended, requires Federal agencies to consider the potential impact of regulations on small entities during rulemaking. The term ''small entities'' comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000. The Coast Guard certifies under 5 U.S.C. 605(b) that this proposed rule would not have a significant economic impact on a substantial number of small entities.

While some owners or operators of vessels intending to transit the bridge may be small entities, for the reasons stated in section IV.A. above, this proposed rule would not have a significant economic impact on any vessel owner or operator.

If you think that your business, organization, or governmental jurisdiction qualifies as a small entity and that this rule would have a significant economic impact on it, please submit a comment (see **ADDRESSES**) explaining why you think it qualifies and how and to what degree this rule would economically affect it.

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Pub. L. 104–121), we want to assist small entities in understanding this proposed rule. If the rule would affect your small business, organization, or governmental jurisdiction and you have questions concerning its provisions or options for compliance, please contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section. The Coast Guard will not retaliate against small entities that question or complain about this proposed rule or any policy or action of the Coast Guard.

C. Collection of Information

This proposed rule would call for no new collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520).

D. Federalism and Indian Tribal Governments

A rule has implications for federalism under Executive Order 13132 (Federalism), if it has a substantial direct effect on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government. We have analyzed this proposed rule under that order and have determined that it is consistent with the fundamental federalism principles and preemption requirements described in Executive Order 13132.

Also, this proposed rule does not have tribal implications under Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. If you believe this proposed rule has implications for federalism or Indian tribes, please contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

E. Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538) requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of $100,000,000 (adjusted for inflation) or more in any one year. Though this proposed rule will not result in such an expenditure, we do discuss the effects of this proposed rule elsewhere in this preamble.

F. Environment

We have analyzed this rule under Department of Homeland Security Management Directive 023–01, Rev.1, associated implementing instructions, and Environmental Planning Policy COMDTINST 5090.1 (series), which guide the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321–4370f). The Coast Guard has determined that this action is one of a category of actions that do not individually or cumulatively have a significant effect on the human environment. This proposed rule promulgates the operating regulations or procedures for drawbridges. Normally such actions are categorically excluded from further review, under paragraph L49, of Chapter 3, Table 3–1 of the U.S. Coast Guard Environmental Planning Implementation Procedures.

Neither a Record of Environmental Consideration nor a Memorandum for the Record are required for this rule. We seek any comments or information that may lead to the discovery of a significant environmental impact from this proposed rule.

G. Protest Activities

The Coast Guard respects the First Amendment rights of protesters. Protesters are asked to contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section to coordinate protest activities so that your message can be received without jeopardizing the safety or security of people, places or vessels.

V. Public Participation and Request for Comments

We view public participation as essential to effective rulemaking and will consider all comments and material received during the comment period. Your comment can help shape the outcome of this rulemaking. If you submit a comment, please include the docket number for this rulemaking, indicate the specific section of this

document to which each comment applies, and provide a reason for each suggestion or recommendation.

We encourage you to submit comments through the Federal Decision Making Portal at *https://www.regulations.gov.* To do so, go to *https://www.regulations.gov,* type USCG–2022–0518 in the search box and click ''Search.'' Next, look for this document in the Search Results column, and click on it. Then click on the Comment option. If your material cannot be submitted using *https://www.regulations.gov,* contact the person in the **FOR FURTHER INFORMATION CONTACT** section of this document for alternate instructions.

To view documents mentioned in this proposed rule as being available in the docket, find the docket as described in the previous paragraph, and then select ''Supporting & Related Material'' in the Document Type column. Public comments will also be placed in our online docket and can be viewed by following instructions on the *https://www.regulations.gov* Frequently Asked Questions web page. We review all comments received, but we will only post comments that address the topic of the proposed rule. We may choose not to post off-topic, inappropriate, or duplicate comments that we receive. Additionally, if you go to the online docket and sign up for email alerts, you will be notified when comments are posted or a final rule is published of any posting or updates to the docket.

We accept anonymous comments. Comments we post to *https://www.regulations.gov* will include any personal information you have provided. For more about privacy and submissions in response to this document, see DHS's eRulemaking System of Records notice (85 FR 14226, March 11, 2020).

List of Subjects in 33 CFR Part 117

Bridges.

For the reasons discussed in the preamble, the Coast Guard proposes to amend 33 CFR part 117 as follows:

PART 117—DRAWBRIDGE OPERATION REGULATIONS

■ 1. The authority citation for part 117 continues to read as follows:

Authority: 33 U.S.C. 499; 33 CFR 1.05–1; Department of Homeland Security Delegation No. 0170.1.

■ 2. Revise § 117.221 (b) to read as follows:

§ 117.221 Saugatuck River.

* * * * *

(b) The draw of the Metro-North ''SAGA'' bridge, mile 1.1 at Saugatuck, shall operate as follows:

(1) The draw shall open on signal between 4:30 a.m. and 9 p.m. after at least a two-hour advance notice is given; except that, from 5:45 through 9:45 a.m. and from 4 through 8 p.m., Monday through Friday excluding holidays, the draw need not open for the passage of vessel traffic unless an emergency exists.

(2) From 9 p.m. through 4:30 a.m. the draw shall open on signal after at least a four-hour advance notice is given.

(3) A delay in opening the draw not to exceed 10 minutes may occur when a train scheduled to cross the bridge without stopping has entered the drawbridge lock.

(4) Requests for bridge openings may be made by calling the bridge via marine radio VHF FM Channel 13 or the telephone number posted at the bridge.

* * * * *

Dated: January 8, 2023.

J.W. Mauger,

Rear Admiral, U.S. Coast Guard, Commander, First Coast Guard District.

[FR Doc. 2023–01707 Filed 1–26–23; 8:45 am]

BILLING CODE 9110–04–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 117

[Docket No. USCG–2022–0519]

RIN 1625–AA09

Drawbridge Operation Regulation; Housatonic River, Stratford, CT

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard proposes to modify the operating schedule that governs the Metro-North (Devon) Bridge, across the Housatonic River, mile 3.9, at Stratford, CT.

The bridge owner, Metro-North (MNR), submitted a request on May 5, 2022 to modify the regulation by aligning with the Metro-North ''WALK'' Bridge train schedule and avoid bridge openings during peak transit hours. It is expected that this change to the regulations will better serve the needs of the community while continuing to meet the reasonable needs of navigation. We invite your comments on this proposed rulemaking.

DATES: Comments and related material must reach the Coast Guard on or before February 27, 2023.

ADDRESSES: You may submit comments identified by docket number USCG–2022–0519 using the Federal Decision Making Portal at *https://www.regulations.gov.* See the ''Public Participation and Request for Comments'' portion of the **SUPPLEMENTARY INFORMATION** section below for instructions on submitting comments.

FOR FURTHER INFORMATION CONTACT: If you have questions on this proposed rule, call or email Ms. Stephanie E. Lopez, First Coast Guard District, Project Officer, telephone 212–514–4335, email *Stephanie.E.Lopez@uscg.mil.*

SUPPLEMENTARY INFORMATION:

I. Table of Abbreviations

CFR Code of Federal Regulations
DHS Department of Homeland Security
FR Federal Register
MNR Metro North
OMB Office of Management and Budget
NPRM Notice of Proposed Rulemaking
§ Section
U.S.C. United States Code

II. Background, Purpose and Legal Basis

The Metro-North (Devon) Bridge at mile 3.9, across the Housatonic River, Stratford, CT, has a vertical clearance of 19 feet at mean high water and a horizontal clearance of approximately 83 feet. Waterway users include recreational and commercial vessels, including fishing vessels.

The existing drawbridge operating regulations are listed at 33 CFR 117.207(b).

MNR is requesting the modification of the requirements in 33 CFR part 117.207 to align with the existing requirements for the Metro-North ''WALK'' Bridge, across the Norwalk River, at mile 0.1.

The Devon Bridge is located at one of the busiest rail segments in the United States and the Northeast Corridor. Openings at Devon Bridge, between the calendar years of 2019 and 2021, resulted in twenty-one (21) delays to MNR train service. A delay due to a bridge opening has cascading affects, resulting in multiple delayed and late trains. Delays due to the openings of Devon Bridge were notably high among the drawbridges on MNR service territory. Aligning the Devon Bridge regulation with the WALK Bridge regulation 33 CFR 117.217 (b), provides a balance between railroad operations and the interest of waterway users.

III. Discussion of Proposed Rule

The proposed rule provides the draw to open on signal between 4:30 a.m. and 9 p.m. after at least a two-hour advance

notice is given via marine radio or telephone; except that from 5:45 a.m. through 9:45 a.m. and from 4 through 8 p.m. From 9 p.m. through 4:30 a.m., the draw shall open on signal after at least a four-hour advance notice is given via marine radio or telephone. A delay in opening the draw not to exceed 10 minutes may occur when a train scheduled to cross the bridge without stopping has entered the drawbridge lock. The reason for these changes is to minimize train delays while balancing the needs of waterway users.

IV. Regulatory Analyses

We developed this proposed rule after considering numerous statutes and Executive orders related to rulemaking. A summary of our analyses based on these statutes and Executive orders follows.

A. Regulatory Planning and Review

Executive Orders 12866 and 13563 direct agencies to assess the costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits. This NPRM has not been designated a ''significant regulatory action,'' under Executive Order 12866. Accordingly, the NPRM has not been reviewed by the Office of Management and Budget (OMB).

This regulatory action determination is based on the ability of vessels to still transit the bridge given advanced notice.

B. Impact on Small Entities

The Regulatory Flexibility Act of 1980 (RFA), 5 U.S.C. 601–612, as amended, requires Federal agencies to consider the potential impact of regulations on small entities during rulemaking. The term ''small entities'' comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000. The Coast Guard certifies under 5 U.S.C. 605(b) that this proposed rule would not have a significant economic impact on a substantial number of small entities.

While some owners or operators of vessels intending to transit the bridge may be small entities, for the reasons stated in section IV.A. above, this proposed rule would not have a significant economic impact on any vessel owner or operator.

If you think that your business, organization, or governmental jurisdiction qualifies as a small entity and that this rule would have a significant economic impact on it, please submit a comment (see **ADDRESSES**) explaining why you think it qualifies and how and to what degree this rule would economically affect it.

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Pub. L. 104–121), we want to assist small entities in understanding this proposed rule. If the rule would affect your small business, organization, or governmental jurisdiction and you have questions concerning its provisions or options for compliance, please contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section. The Coast Guard will not retaliate against small entities that question or complain about this proposed rule or any policy or action of the Coast Guard.

C. Collection of Information

This proposed rule would call for no new collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520.).

D. Federalism and Indian Tribal Governments

A rule has implications for federalism under Executive Order 13132 (Federalism), if it has a substantial direct effect on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government. We have analyzed this proposed rule under that Order and have determined that it is consistent with the fundamental federalism principles and preemption requirements described in Executive Order 13132.

Also, this proposed rule does not have tribal implications under Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. If you believe this proposed rule has implications for federalism or Indian tribes, please contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

E. Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538) requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of $100,000,000 (adjusted for inflation) or more in any one year. Though this proposed rule will not result in such an expenditure, we do discuss the effects of this proposed rule elsewhere in this preamble.

F. Environment

We have analyzed this rule under Department of Homeland Security Management Directive 023–01, Rev.1, associated implementing instructions, and Environmental Planning Policy COMDTINST 5090.1 (series), which guide the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321–4370f). The Coast Guard has determined that this action is one of a category of actions that do not individually or cumulatively have a significant effect on the human environment. This proposed rule promulgates the operating regulations or procedures for drawbridges. Normally such actions are categorically excluded from further review, under paragraph L49, of Chapter 3, Table3–1 of the U.S. Coast Guard Environmental Planning Implementation Procedures.

Neither a Record of Environmental Consideration nor a Memorandum for the Record are required for this rule. We seek any comments or information that may lead to the discovery of a significant environmental impact from this proposed rule.

G. Protest Activities

The Coast Guard respects the First Amendment rights of protesters. Protesters are asked to contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section to coordinate protest activities so that your message can be received without jeopardizing the safety or security of people, places or vessels.

V. Public Participation and Request for Comments

We view public participation as essential to effective rulemaking and will consider all comments and material received during the comment period. Your comment can help shape the outcome of this rulemaking. If you submit a comment, please include the docket number for this rulemaking, indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation.

We encourage you to submit comments through the Federal Decision Making Portal at *https://www.regulations.gov.* To do so, go to *https://www.regulations.gov,* type USCG–2022–0519 in the search box and click ''Search.'' Next, look for this

document in the Search Results column, and click on it. Then click on the Comment option. If your material cannot be submitted using *https://www.regulations.gov,* contact the person in the **FOR FURTHER INFORMATION CONTACT** section of this document for alternate instructions.

To view documents mentioned in this proposed rule as being available in the docket, find the docket as described in the previous paragraph, and then select ''Supporting & Related Material'' in the Document Type column. Public comments will also be placed in our online docket and can be viewed by following instructions on the *https://www.regulations.gov* Frequently Asked Questions web page. We review all comments received, but we will only post comments that address the topic of the proposed rule. We may choose not to post off-topic, inappropriate, or duplicate comments that we receive. Additionally, if you go to the online docket and sign up for email alerts, you will be notified when comments are posted or a final rule is published of any posting or updates to the docket.

We accept anonymous comments. Comments we post to *https://www.regulations.gov* will include any personal information you have provided. For more about privacy and submissions in response to this document, see DHS's eRulemaking System of Records notice (85 FR 14226, March 11, 2020).

List of Subjects in 33 CFR Part 117

Bridges.

For the reasons discussed in the preamble, the Coast Guard proposes to amend 33 CFR part 117 as follows:

PART 117—DRAWBRIDGE OPERATION REGULATIONS

■ 1. The authority citation for part 117 continues to read as follows:

Authority: 33 U.S.C. 499; 33 CFR 1.05–1; DHS Delegation No. 0170.1.

■ 2. Revise § 117.207 (b) to read as follows:

§ 117.207 Housatonic.

* * * * *

(b) The draw of the Metro-North (Devon) bridge, mile 3.9 at Stratford, shall operate as follows:

(1) The draw shall open on signal between 4:30 a.m. and 9 p.m. after at least a two-hour advance notice is given; except that, from 5:45 through 9:45 a.m. and from 4 through 8 p.m., Monday through Friday excluding holidays, the draw need not open for the passage of vessel traffic unless an emergency exists.

(2) From 9 p.m. through 4:30 a.m. the draw shall open on signal after at least a four-hour advance notice is given.

(3) A delay in opening the draw not to exceed 10 minutes may occur when a train scheduled to cross the bridge without stopping has entered the drawbridge lock.

(4) Requests for bridge openings may be made by calling the bridge via marine radio VHF FM Channel 13 or the telephone number posted at the bridge.

Dated: January 8, 2023.

J.W. Mauger,

Rear Admiral, U.S. Coast Guard, Commander, First Coast Guard District.

[FR Doc. 2023–01708 Filed 1–26–23; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 230119–0017]

RIN 0648–BL58

Reef Fish Resources of the Gulf of Mexico and Coastal Migratory Pelagic Resources of the Gulf of Mexico and Atlantic Region; Conversion of Historical Captain Permits

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes to implement management measures as described in an abbreviated framework action under the Fishery Management Plans (FMPs) for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP) and Coastal Migratory Pelagic (CMP) Resources of the Gulf of Mexico and Atlantic Region (CMP FMP). This proposed rule would enable a permit holder to replace a historical captain endorsement in the reef fish and CMP fisheries in the Gulf of Mexico (Gulf) with a standard Federal charter vessel/headboat permit. NMFS expects that this proposed rule would reduce the potential regulatory and economic burden on historical captain permit holders.

DATES: Written comments must be received by February 27, 2023.

ADDRESSES: You may submit comments on the proposed rule identified by ''NOAA–NMFS–2022–0121'' by either of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov* and enter ''NOAA–NMFS–2022–0121'' in the Search box. Click the ''Comment'' icon, complete the required fields, and enter or attach your comments.
- *Mail:* Submit all written comments to Rich Malinowski, NMFS Southeast Regional Office, 263 13th Avenue South, St. Petersburg, FL 33701.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information, *e.g.,* name and address, confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments—enter ''N/A'' in the required fields if you wish to remain anonymous.

Electronic copies of the abbreviated framework action may be obtained from the Southeast Regional Office website at *https://www.fisheries.noaa.gov/action/framework-action-historical-captain-permits-conversion-standard-federal-charter-headboat.* The abbreviated framework includes a Regulatory Flexibility Act (RFA) analysis and a regulatory impact review.

FOR FURTHER INFORMATION CONTACT: Rich Malinowski, NMFS Southeast Regional Office, telephone: 727–824–5305; email: *rich.malinowski@noaa.gov.*

SUPPLEMENTARY INFORMATION: The Gulf of Mexico Fishery Management Council (Gulf Council) manages reef fish resources in the Gulf Exclusive Economic Zone (EEZ) under the Reef Fish FMP. The CMP fishery in the Gulf of Mexico and Atlantic Region is managed jointly by the Gulf Council and South Atlantic Fishery Management Council (Councils). NMFS implements the FMPs through regulations at 50 CFR part 622 under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 *et seq.*).

Background

During the 1980s and 1990s, the number of charter and headboat (for-hire) vessels operating in the recreational Gulf reef fish and CMP fisheries increased rapidly, creating concern among the Gulf Council, NMFS, and other members of the fishing industry about the viability of the for-hire component and the sustainability of

the fish stocks they were harvesting. The Gulf Council was also concerned about the rapid increase in the number of reef fish and CMP for-hire permits and trips, and the increased proportion of the catch harvested by the for-hire fleet.

In response to these concerns, the Gulf Council developed Amendment 14 to the CMP FMP and Amendment 20 to the Reef Fish FMP (CMP Amendment 14/Reef Fish Amendment 20) that, when implemented by NMFS, established a 3-year moratorium on the issuance of new charter vessel/headboat permits in the reef fish and CMP fisheries in the Gulf EEZ (67 FR 43558, June 28, 2002). The purpose of the moratorium was to cap the number of for-hire permitted vessels while the Gulf Council evaluated the need for further management actions to rebuild fishery resources. A fully transferable reef fish or CMP charter vessel/headboat permit, hereafter referred to as a standard permit, was issued to eligible for-hire operators, including those individuals who (1) owned a vessel with a valid charter vessel/headboat permit, or (2) could demonstrate that, prior to March 29, 2001, they had a charter vessel or headboat under construction, with associated expenditures of at least $5,000.

The Gulf Council recognized that some captains participating in the for-hire reef fish and CMP fisheries operated other individuals' vessels and did not own their vessels, and therefore were not eligible for a standard permit. Under CMP Amendment 14/Reef Fish Amendment 20, captains who met specific eligibility requirements could apply for a permit with a historical captain endorsement, referred to hereafter as a historical captain permit. Unlike a standard permit, a historical captain permit is attached to the individual instead of a specific vessel and has certain restrictions. A historical captain permit requires the captain to be on the vessel when operating a for-hire trip, and a historical captain permit cannot be transferred or sold.

Persons who submitted evidence of eligibility as a historical captain within 90 days of the implementation of the CMP Amendment 14/Reef Fish Amendment 20 were issued letters of eligibility, which could be used to obtain a historical captain permit. Initially, NMFS issued a total of 141 historical captain permits to harvest reef fish and CMP species.

In 2006, NMFS implemented Reef Fish Amendment 25/CMP Amendment 17 (71 FR 28282, May 16, 2006), which established a limited access program for permitting for-hire vessels for the reef fish and CMP fisheries in the Gulf EEZ, effectively extending the permit moratorium indefinitely. The historical captain permit continued to be a category of permit following implementation of Reef Fish Amendment 25/CMP Amendment 17, and previously issued letters of eligibility remained valid, as did the historical captain permits, provided that permit holders followed procedures for permit retention and renewal.

In April 2020, NMFS implemented a framework action developed by the Gulf Council that allowed historical captain permit holders to convert existing reef fish and CMP historical captain permits to standard charter vessel/headboat permits (85 FR 22043, April 21, 2020). At that time, 61 historical captain permits were eligible for the conversion, and all of those permits have been converted to standard permits. The Gulf Council developed the action after hearing public testimony about the economic hardships caused by the restrictions imposed on historical captain permits. Converting a historical captain permit allowed the permit holder to lease the vessel to another captain, have another captain operate the vessel, or transfer the permit to a family member or any other eligible person. A fully transferable standard permit also allows the family of a permitted captain who has died to retain the permit, unlike a historical captain permit that expires upon the captain's death.

In addition to allowing for the conversion of eligible historical caption permits, the 2020 rulemaking rendered any remaining letters of eligibility for historical captain permits invalid. However, some individuals submitted their letters to NMFS before the effective date of the 2020 rule and received historical captain permits. There are currently 4 remaining historical captain permits (two reef fish and two CMP) held by 2 individuals and the Council determined that it was appropriate to allow these permit holders the opportunity to convert their permits to a standard permit. This would eliminate the historical captain permit category and reduce the regulatory and economic burden on those remaining historical captain permit holders.

Each standard permit and historical captain permit provides a maximum number of passengers allowed on board a vessel operating under the permit. A standard permit issued as a result this proposed rule would have the same maximum number of passengers as the historical captain permit that it would replace.

Management Measures Contained in This Proposed Rule

This proposed rule would extend the same rights and responsibilities of standard Gulf reef fish and CMP charter vessel/headboat permits to eligible individuals who choose to convert their historical captain permits to standard permits.

If an individual with an eligible historical captain permit wishes to convert the permit to a standard reef fish or CMP charter vessel/headboat permit, the individual would submit a permit application to the NMFS Southeast Fisheries Permits Office along with their current historical captain permit (original document, not a copy) and supporting documents and fees, including documentation for the vessel to which the standard for-hire permit would be attached. Unlike a historical captain permit, which is issued to an individual, a standard permit must be issued to a vessel with a valid U.S. Coast Guard (USCG) certificate of documentation (COD) or state registration certificate (50 CFR 622.4(a)). If the permit applicant is the owner of the vessel, NMFS would verify that the vessel for which the new for-hire permit would be issued is owned by the applicant and does not have an existing Gulf reef fish or CMP charter vessel/headboat permit associated with it, as vessels are not allowed to have multiple charter vessel/headboat permits of the same type associated with them.

If the vessel to which the permit would be attached is to be leased, a fully executed lease agreement of at least 7 months, between the vessel owner and permit holder, would need to be included with the application. Note that vessel owners and lessees cannot independently hold permits for the same vessel at the same time. NMFS would then verify the vessel does not have any other Federal permit associated with it in another permit holder's name.

After NMFS verifies that the information provided with the application allows for the conversion, the historical captain permit would be converted to a standard permit for Gulf reef fish or Gulf CMP species. Due to the uniqueness of the historical captain permit number, the new permit would keep the existing permit number, *e.g.,* HRCG–9999 would convert to RCG–9999.

Classification

Pursuant to section 304(b)(1)(A) of the Magnuson-Stevens Act, the NMFS Assistant Administrator has determined that this proposed rule is consistent

with the abbreviated framework action, the respective FMPs, other provisions of the Magnuson-Stevens Act, and other applicable law, subject to further consideration after public comment.

This proposed rule has been determined to be not significant for purposes of Executive Order 12866.

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce has certified to the Chief Counsel for Advocacy of the Small Business Administration (SBA) that this proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities. The factual basis for this determination follows.

A description of this proposed rule, why it is being considered, and the objectives of this proposed rule are contained in the **SUPPLEMENTARY INFORMATION** section of this proposed rule. The Magnuson-Stevens Act provides the statutory basis for this proposed rule. No duplicative, overlapping, or conflicting Federal rules have been identified.

This proposed rule, if implemented, would apply to operators of charter vessels and headboats (for-hire vessels) that have a reef fish or CMP historical captain permit. There are two historical captains that each have a valid (non-expired) or renewable charter vessel/headboat historical captain permit for Gulf reef fish and Gulf CMP species for a total of four historical captain permits. Although the for-hire permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a charter vessel or a headboat and vessels may operate in both capacities on separate trips. The average charter vessel is estimated to receive approximately $94,000 (2021 dollars) in annual gross revenue; the average headboat is estimated to receive approximately $451,000 (2021 dollars) in annual gross revenue.

The SBA has established size standards for all major industry sectors in the U.S. including for-hire businesses (NAICS code 487210). A business primarily involved in the for-hire fishing industry is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of $12.5 million for all its affiliated operations worldwide. All of the for-hire businesses directly regulated by this proposed rule are believed to be small entities based on the SBA size criteria. No other small entities that would be directly affected by this proposed rule have been identified.

This proposed rule would not establish any new reporting or record-keeping requirements. It would, however, require historical captain permit holders to comply with the standard permit regulations if their historical captain permits are replaced with standard permits. The regulations stipulate that the standard permit must be issued to a vessel with a valid U.S. Coast Guard certificate of documentation or state registration certificate (50 CFR 622.4(a)). For any historical captain permit holder who elects to have their historical captain permit replaced with a standard permit and who does not currently own or lease a vessel, this would require either the purchase or lease of a vessel and payment of applicable registration and inspection fees.

This proposed rule would grant two historical captain permit holders the opportunity to replace their historical captain permits with standard permits. Because standard permits are transferrable and salable and historical captain permits are not, this would have positive economic effects in terms of increased asset value and business succession planning. Transfer values for a single standard permit ranged from approximately $0.01 to $147,000 (2021 dollars) during 2010 through 2018. It is not possible to estimate a meaningful average market value for these permits with available data; however, it is expected that the value would increase relative to the passenger capacity of the historical captain permit. Additionally, once historical captain permits are replaced with standard permits, the historical captains would no longer need to be present on the vessel while the permit is in use. This would provide greater operational flexibility and potentially increase profits for affected small entities.

There are also some potential economic costs to small entities from this proposed rule. Because replacement of historical captain permits with standard permits would be optional, only those permit holders who choose to participate in the conversion would be affected. Standard permits must be issued to a vessel that is either owned or leased by the permit holder. Some historical captains may not currently own or lease a vessel. To replace their existing permits with standard permits, these historical captains would need to purchase or lease a suitable vessel and pay all applicable inspection and registration fees. An initial U.S. Coast Guard certificate of documentation is $133 and a renewal is $26 (46 CFR 67.550). If a U.S. Coast Guard certificate of inspection is required, the annual inspection fee is $300 for vessels less than 65 ft (19.8 m) and $600 for vessels 65 ft (19.8 m) and greater in length overall (46 CFR 2.10–101(a)). State boat registration and inspection fees in Gulf States are estimated to range from approximately $10 up to $458, depending on the length of the vessel and state of registration. Due to uncertainty about the business strategies of historical captain permit holders, variation in permit passenger capacities, and the wide range of vessel options, it is not possible to estimate the cost that would be incurred by historical captains to purchase or lease a vessel. The average purchase price for a headboat operating in the Gulf is estimated to be $426,826 (2021 dollars); the average purchase price for a charter vessel operating in the Gulf is estimated to be $114,494 (2021 dollars). If historical captains intend to only sell their new standard permits, they could buy a much cheaper vessel to hold the permit prior to the sale. Estimates of for-hire vessel lease prices are not readily available; however, this may be a more affordable option than purchasing a vessel.

In addition to the cost to buy or lease a vessel, there would be an opportunity cost for some historical captains should they choose to replace their historical captain permits with standard permits. This opportunity cost pertains to the potential lost earnings that would result from no longer being able to use their historical captain permit to operate a vessel owned or leased by another individual or business. This opportunity cost cannot be quantified with available data. To extract value from the standard permit, historical captains would need to either sell their permit or attach it to a purchased or leased vessel capable of servicing paying customers. Again, replacement of historical captain permits is voluntary and it is expected that historical captains will only replace their historical captain permits with standard permits if the benefits of doing so outweigh the costs.

In summary, the information provided above supports a determination that this proposed rule would not have a significant economic impact on a substantial number of small entities. As a result, an initial regulatory flexibility analysis is not required and none has been prepared.

This proposed rule contains no information collection requirements under the Paperwork Reduction Act of 1995.

List of Subjects in 50 CFR Part 622

Fish, Fisheries, Gulf of Mexico, Historical captain, Permit.

Dated: January 19, 2023.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 622 is proposed to be amended as follows:

PART 622—FISHERIES OF THE CARIBBEAN, GULF OF MEXICO, AND SOUTH ATLANTIC

■ 1. The authority citation for part 622 continues to read as follows:

Authority: 16 U.S.C. 1801 *et seq.*

■ 2. In § 622.20, revise paragraph (b)(1)(v) to read as follows:

§ 622.20 Permits and endorsements.

* * * * *

(b) * * *

(1) * * *

(v) *Procedure for conversion of permit with historical captain endorsement.* A charter vessel/headboat permit with a historical captain endorsement may be converted to a charter vessel/headboat permit for Gulf reef fish without a historical captain endorsement. A charter vessel/headboat permit with a historical captain endorsement that is converted to a charter vessel/headboat permit without a historical captain endorsement will retain the same vessel permit maximum passenger capacity as the permit it replaces. To convert an eligible charter vessel/headboat permit with a historical captain endorsement, the permit holder must submit a permit application to the RA by February 27, 2025. If no application to convert an eligible charter vessel/headboat permit with a historical captain endorsement is submitted by February 27, 2025, the permit holder will retain a charter vessel/headboat permit with the historical captain endorsement that is subject to the restrictions described in paragraph (b)(1)(i)(B) of this section.

* * * * *

■ 3. In § 622.373, revise paragraph (f) to read as follows:

§ 622.373 Limited access system for charter vessel/headboat permits for Gulf coastal migratory pelagic fish.

* * * * *

(f) *Procedure for conversion of permit with historical captain endorsement.* A charter vessel headboat permit with a historical captain endorsement may be converted to a charter vessel/headboat permit for Gulf coastal migratory pelagic fish without a historical captain endorsement as described in paragraph (b)(1) of this section. A charter vessel/headboat permit with a historical captain endorsement that is converted to a charter vessel/headboat permit without a historical captain endorsement will retain the same vessel permit maximum passenger capacity as the permit it replaces. To convert an eligible charter vessel/headboat permit with a historical captain endorsement, the permit holder must submit a permit application to the RA by February 27, 2025. If no application to convert an eligible charter vessel/headboat permit with a historical captain endorsement is submitted by February 27, 2025, the permit holder will retain a charter vessel/headboat permit with the historical captain endorsement that is subject to the restrictions described in paragraph (b)(2) of this section.

[FR Doc. 2023–01408 Filed 1–26–23; 8:45 am]

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Notices

Federal Register
Vol. 88, No. 18
Friday, January 27, 2023

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

DEPARTMENT OF AGRICULTURE

Submission for OMB Review; Comment Request

The Department of Agriculture has submitted the following information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1995, Public Law 104–13. Comments are requested regarding; whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; the accuracy of the agency's estimate of burden including the validity of the methodology and assumptions used; ways to enhance the quality, utility and clarity of the information to be collected; and ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Comments regarding this information collection received by February 27, 2023 will be considered. Written comments and recommendations for the proposed information collection should be submitted within 30 days of the publication of this notice on the following website *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

An agency may not conduct or sponsor a collection of information unless the collection of information displays a currently valid OMB control number and the agency informs potential persons who are to respond to the collection of information that such persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

Foreign Agricultural Service

Title: Cochran Fellowship Program.

OMB Control Number: 0551–New.

Summary of Collection: Since 1984, U.S. Congress has made funds available to USDA's Cochran Fellowship Program to provide short-term training to Fellows from middle-income and emerging market countries to expose agricultural officials and industry representatives to U.S. agriculture products and policies, helping facilitate lasting, global relationships. The Cochran Fellowship Program is implemented by USDA's Foreign Agricultural Service (FAS), Global Programs, Fellowship Programs, and has hosted U.S.-based trainings for over 19,000 international participants from 127 countries worldwide.

Need and Use of the Information: FAS will collection information through the Cochran Fellowship Application, Acton Plan and Evaluation Form. The information is used in determining the adequacy of the candidacy alongside FAS Washington. The application is designed to capture the professional status of the applicant, the applicant's personal contact information, and the applicant's suitability for the program. The action plan is used to help fellows set goals based on the information they have learned throughout their training program and the evaluation forms are used by Cochran Fellowship staff to assess the success of each training program. If the information is not collected FAS would not be able to execute the Cochran Fellowship Program.

Description of Respondents: Individuals.

Number of Respondents: 550.

Frequency of Responses: Reporting: On occasion.

Total Burden Hours: 1,199.

Ruth Brown,

Departmental Information Collection Clearance Officer.

[FR Doc. 2023–01686 Filed 1–26–23; 8:45 am]

BILLING CODE 3410–10–P

DEPARTMENT OF AGRICULTURE

Submission for OMB Review; Comment Request

The Department of Agriculture has submitted the following information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1995, Public Law 104–13. Comments are requested regarding: whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; the accuracy of the agency's estimate of burden including the validity of the methodology and assumptions used; ways to enhance the quality, utility and clarity of the information to be collected; and ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Comments regarding this information collection received by February 27, 2023 will be considered. Written comments and recommendations for the proposed information collection should be submitted within 30 days of the publication of this notice on the following website *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

An agency may not conduct or sponsor a collection of information unless the collection of information displays a currently valid OMB control number and the agency informs potential persons who are to respond to the collection of information that such persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

Animal Plant and Health Inspection Service

Title: Irradiation Phytosanitary Treatment for Fresh Fruits and Vegetables.

OMB Control Number: 0579–0155.

Summary of Collection: Under the Plant Protection Act (7 U.S.C. 7701–7772), the Animal and Plant Health

Inspection Service (APHIS) is authorized, among other things, to regulate the importation of plants, plant products, and other articles to prevent the introduction of plant pests disease and noxious weeds into the United States. The regulations in 7 CFR 319 include specific requirements for the importation of fruits and vegetables. The regulations in 7 CFR 305 provide for the use of irradiation as a phytosanitary treatment for certain fruits and vegetables imported in the United States. The irradiation treatment provides protection against all inspect pest including fruit flies, the mango seed weevil, and others. It may be used as an alternative to other approved treatments for these pests in fruits and vegetables, such as fumigation, cold treatment, heat treatment, and other techniques.

Need and Use of the Information: APHIS uses the following information collection activities associated with this program, to employ irradiation as an effective phytosanitary treatment for importing fresh fruit and vegetables into the United States: compliance agreement, operational work plans (cooperative agreements), dosimetry agreement at the irradiation facility, request for dosimetry device approval, 30-day notification, labeling and packaging, recordkeeping, request for certification and inspection of facility, irradiation treatment workplan, facility preclearance workplan, trust fund agreement, phytosanitary certificate, and denial and withdrawal of certification. Without the collection of this information, APHIS would have no practical way of determining that any given commodity had actually been irradiated. Irradiation leaves no residue and usually causes no discernible change to the commodity's color or texture.

Description of Respondents: Business or other for profit; Federal Government.

Number of Respondents: 86.

Frequency of Responses: Recordkeeping; Reporting: On occasion.

Total Burden Hours: 6,092.

Animal and Plant Health Inspection Service

Title: Importation of Live Poultry, Poultry Meat, and Other Poultry Products from Specified Regions.

OMB Control Number: 0579–0228.

Summary of Collection: The Animal Health Protection Act (AHPA) of 2002 is the primary Federal law governing the protection of animal health. The AHPA is contained in title X, subtitle E, sections 10401–18 of Public Law 107–171, May 13, 2002, the Farm Security and Rural Investment Act of 2002 [7 U.S.C. 8301 *et seq.*]. Veterinary Services of the USDA's Animal and Plant Health Inspection Service (APHIS) is responsible for administering regulations intended to prevent the introduction of animal diseases into the United States. The regulations in 9 CFR part 93 and 94 allow the export of live poultry, poultry meat and other poultry products from Argentina and the Mexican States of Campeche, Quintana Roo, and Yucatan under certain conditions. APHIS will collect information using a health certification statement that must be completed by Mexican veterinary authorities prior to export, APHIS forms VS 17–129, VS 17–29, and VS 17–30 and other activities.

Need and Use of the Information: The information collected from the health certificate, forms and other activities will provide APHIS with critical information concerning the origin and history of the items destined for importation in the United States. Without the information APHIS would be unable to establish an effective defense against the incursion of Highly Pathogenic Avian Influenza and Newcastle Disease from import poultry and poultry products. This could have serious health consequences for the United States poultry and economic consequences for the United States poultry industry.

Description of Respondents: Federal Government; business or other for-profit; individuals or households.

Number of Respondents: 1,178.

Frequency of Responses: Reporting: On occasion.

Total Burden Hours: 4,722.

Ruth Brown,

Departmental Information Collection Clearance Officer.

[FR Doc. 2023–01649 Filed 1–26–23; 8:45 am]

BILLING CODE 3410–34–P

DEPARTMENT OF AGRICULTURE

Forest Service

Shasta County Resource Advisory Committee

AGENCY: Forest Service, USDA.

ACTION: Notice of meeting.

SUMMARY: The Shasta County Resource Advisory Committee (RAC) will hold a public meeting according to the details shown below. The committee is authorized under the Secure Rural Schools and Community Self-Determination Act (the Act) and operates in compliance with the Federal Advisory Committee Act (FACA). The purpose of the committee is to improve collaborative relationships and to provide advice and recommendations to the Forest Service concerning projects and funding consistent with Title II of the Act, as well as make recommendations on recreation fee proposals for sites on the Shasta-Trinity National Forest, consistent with the Federal Lands Recreation Enhancement Act. General information and meeting details can be found at the following website under Shasta County RAC *https://www.fs.usda.gov/main/stnf/workingtogether/advisorycommittees.*

DATES: The meeting will be held on Feburary 8, 2023, 9 a.m.–11 a.m., Pacific Standard Time.

All RAC meetings are subject to cancellation. For status of the meeting prior to attendance, please contact the person listed under **FOR FURTHER INFORMATION CONTACT**.

ADDRESSES: This meeting is open to the public and will be held at the ABC Conference Room Shasta-Trinity National Forest Headquarters, 3644 Avtech Parkway, Redding, CA 96002. The public may also join virtually via telephone and/or video conference. Virtual meeting participation details can be found on the website listed under **SUMMARY** or by contacting the person listed under **FOR FURTHER INFORMATION CONTACT**.

Written comments may be submitted as described under **SUPPLEMENTARY INFORMATION**. All comments, including names and addresses when provided, are placed in the record and are available for public inspection and copying. The public may inspect comments received upon request.

FOR FURTHER INFORMATION CONTACT: Sara Acridge, Designated Federal Officer (DFO) by phone at 530–806–5502 or email at *sara.acridge@usda.gov* OR contact Monique Rea RAC Coordinator by phone at 530–784–3906 or email at *monique.Rea@usda.gov.*

Individuals who use telecommunication devices for the deaf and hard of hearing (TDD) may call the Federal Relay Service (FRS) at 800–877–8339, 24 hours a day, every day of the year, including holidays.

SUPPLEMENTARY INFORMATION: The purpose of the meeting is to:

1. Discussion of RAC proposals and voting
2. Discuss Future Meeting Dates
3. Public comment period
4. Closing comments
5. Meeting adjournment

The meeting is open to the public. The agenda will include time for individuals to make oral statements of three minutes or less. Individuals

wishing to make an oral statement should make a request in writing at least three days prior to the meeting date to be scheduled on the agenda. Anyone who would like to bring related matters to the attention of the committee may file written statements with the committee staff before or after the meeting. Written comments and requests for time for oral comments must be sent to Monique Rea at 360 Main Street, Weaverville, CA 96093; or by email to *monique.rea@usda.gov.* Persons with disabilities who require alternative means of communication for program information (*e.g.,* Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at 202–720–2600 (voice and TTY) or contact USDA through the Federal Relay Service at 800–877–8339. Additionally, program information may be made available in languages other than English.

USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Equal opportunity practices in accordance with USDA's policies will be followed in all appointments to the Committee. To ensure that the recommendations of the Committee have taken into account the needs of the diverse groups served by USDA, membership shall include to the extent possible, individuals with demonstrated ability to represent minorities, women, and person with disabilities. USDA is an equal opportunity provider, employer, and lender.

Dated: January 23, 2023.

Egypt Simon,

Acting USDA Committee Management Officer.

[FR Doc. 2023–01616 Filed 1–26–23; 8:45 am]

BILLING CODE 3411–15–P

COMMISSION ON CIVIL RIGHTS

Notice of Public Meeting of the Ohio Advisory Committee to the U.S. Commission on Civil Rights

AGENCY: U.S. Commission on Civil Rights.

ACTION: Announcement of meeting.

SUMMARY: Notice is hereby given, pursuant to the provisions of the rules and regulations of the U.S. Commission on Civil Rights (Commission) and the Federal Advisory Committee Act, that the Ohio Advisory Committee (Committee) to the U.S. Commission on Civil Rights will hold a web meeting. The purpose of the meeting is to select potential panelists for a series of briefings on the source of income discrimination in housing in Ohio.

DATES: Monday, January 30, 2023, from 12:00 p.m.–1:30 p.m. ET.

ADDRESSES: The meeting will be held via Zoom.

Registration Link (Audio/Visual): https://www.zoomgov.com/j/1613521653.

Join by Phone (Audio Only): 1–833–435–1820 USA Toll Free; Meeting ID: 161 352 1653#.

FOR FURTHER INFORMATION CONTACT: Melissa Wojnaroski, DFO, at *mwojnaroski@usccr.gov* or 1–202–618–4158.

SUPPLEMENTARY INFORMATION: Committee meetings are available to the public through the conference registration link or telephone number listed above. Any interested member of the public may listen to the meeting. An open comment period will be provided to allow members of the public to make a statement as time allows. If joining via phone, callers can expect to incur regular charges for calls they initiate over wireless lines, according to their wireless plan. The Commission will not refund any incurred charges. Individuals who are deaf, deafblind, and hard of hearing may also follow the proceedings by first calling the Federal Relay Service at 1–800–877–8339 and providing the Service with the conference details found through registering at the web link above. To request additional accommodations, please email *mwojnaroski@usccr.gov* at least ten (10) days prior to the meeting.

Members of the public are also entitled to submit written comments; the comments must be received within 30 days following the meeting. Written comments may be emailed to *mwojnaroski@usccr.gov.* Persons who desire additional information may contact the Regional Programs Coordination Unit at 1–312–353–8311.

Records generated from this meeting may be inspected and reproduced at the Regional Programs Coordination Unit Office, as they become available, both before and after the meeting. Records of the meeting will be available via *www.facadatabase.gov* under the Commission on Civil Rights, Ohio Advisory Committee link. Persons interested in the work of this Committee are directed to the Commission's website, *http://www.usccr.gov,* or may contact the Regional Programs Coordination Unit at the above phone number.

Agenda

I. Welcome & Roll Call
II. Updates & Announcements
III. Discussion: Briefing Planning
IV. Next Steps
V. Public Comments
VI. Adjournment

Exceptional Circumstance: Pursuant to 41 CFR 102–3.150, the notice for this meeting is given fewer than 15 calendar days prior to the meeting because of the exceptional circumstances of making final preparations for the upcoming scheduled Committee briefings.

Dated: January 24, 2023.

David Mussatt,

Supervisory Chief, Regional Programs Unit.

[FR Doc. 2023–01665 Filed 1–26–23; 8:45 am]

BILLING CODE P

COMMISSION ON CIVIL RIGHTS

Notice of Public Meeting of the Virgin Islands Advisory Committee to the U.S. Commission on Civil Rights

AGENCY: U.S. Commission on Civil Rights.

ACTION: Notice of meeting.

SUMMARY: Notice is hereby given, pursuant to the provisions of the rules and regulations of the U.S. Commission on Civil Rights (Commission) and the Federal Advisory Committee Act, that the Virgin Islands Advisory Committee (Committee) to the U.S. Commission on Civil Rights will hold a web meeting. The purpose of the meeting is to nominate potential speakers and discuss logistics for the next in-person briefings on Voting Rights in the Virgin Islands.

DATES: Thursday, February 9, 2023, at 12:00 p.m. AT (11:00 a.m. ET).

ADDRESSES: The meeting will be held via Zoom.

Meeting Link (Audio/Visual): https://tinyurl.com/ybba65sb.

Join by Phone (Audio Only): Dial: 1–833–435–1820; Meeting ID: 161 818 3987#.

FOR FURTHER INFORMATION CONTACT: Barbara Delaviez, DFO, at *ero@usccr.gov* or 1–202–529–8246.

SUPPLEMENTARY INFORMATION: Committee meetings are available to the public through the meeting link above. Any interested member of the public

may listen to the meeting. An open comment period will be provided to allow members of the public to make a statement as time allows. If joining via phone, callers can expect to incur regular charges for calls they initiate over wireless lines, according to their wireless plan. The Commission will not refund any incurred charges. Individuals who are deaf, deafblind, and hard of hearing may also follow the proceedings by first calling the Federal Relay Service at 1–800–877–8339 and providing the Service with the conference details found through registering at the web link above. To request additional accommodations, please email *ero@usccr.gov* at least ten (10) days prior to the meeting.

Members of the public are also entitled to submit written comments; the comments must be received in the regional office within 30 days following the meeting. Written comments may be emailed to Sarah Villanueva at *svillanueva@usccr.gov.* Persons who desire additional information may contact the Regional Programs Unit at 1–202–376–7533.

Records generated from this meeting may be inspected and reproduced at the Regional Programs Coordination Unit Office, as they become available, both before and after the meeting. Records of the meeting will be available via *www.facadatabase.gov* under the Commission on Civil Rights, Virgin Islands Advisory Committee link. Persons interested in the work of this Committee are directed to the Commission's website, *http://www.usccr.gov,* or may contact the Regional Programs Coordination Unit at the above email or street address.

Agenda

I. Welcome & Roll Call

II. Briefing Planning

III. Other Business

IV. Next Steps

V. Public Comment

VI. Adjournment

Dated: January 23, 2023.

David Mussatt,

Supervisory Chief, Regional Programs Unit.

[FR Doc. 2023–01625 Filed 1–26–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF COMMERCE

International Trade Administration

[C–122–858]

Certain Softwood Lumber Products From Canada: Preliminary Results, Partial Rescission, and Preliminary Intent To Rescind, in Part, the Countervailing Duty Administrative Review, 2021

AGENCY: Enforcement and Compliance, International Trade Administration, Department of Commerce.

SUMMARY: The U.S. Department of Commerce (Commerce) preliminarily determines that countervailable subsidies are being provided to producers and exporters of certain softwood lumber products (softwood lumber) from Canada during the period of review (POR), January 1, 2021, through December 31, 2021. With respect to 66 companies, we are rescinding this administrative review because either the request for review of the company was timely withdrawn or the company did not have any reviewable entries of subject merchandise during the POR. Additionally, with respect to one company, we intend to rescind this administrative review. Interested parties are invited to comment on these preliminary results.

DATES: Applicable January 27, 2023.

FOR FURTHER INFORMATION CONTACT: Samuel Brummitt, Laura Griffith, Jonathan Hall-Eastman, John Hoffner, and Kristen Johnson, AD/CVD Operations, Office III, Enforcement and Compliance, International Trade Administration, U.S. Department of Commerce, 1401 Constitution Avenue NW, Washington, DC 20230; telephone: (202) 482–7851, (202) 482–6430, (202) 482–1468, (202) 482–3315, and (202) 482–4793, respectively.

SUPPLEMENTARY INFORMATION:

Background

On January 3, 2018, Commerce published in the **Federal Register** the countervailing duty (CVD) order on softwood lumber from Canada.[1] Several interested parties requested that Commerce conduct an administrative review of the *Order* and, on March 9, 2022, Commerce published in the **Federal Register** a notice of initiation of the fourth administrative review.[2] On April 12, 2022, we published in the **Federal Register** an additional notice of initiation of administrative review for two companies that were inadvertently excluded from the March 9, 2022 notice.[3] On April 26, 2022, Commerce selected Canfor Corporation and West Fraser Mills Ltd. as the mandatory respondents in the administrative review.[4] On August 19, 2022, Commerce selected J.D. Irving, Limited as a voluntary respondent in the administrative review.[5]

On September 12, 2022, Commerce extended the deadline for the preliminary results of this administrative review to January 23, 2023, in accordance with 19 CFR 351.213(h)(2).[6] For a complete description of the events that followed the initiation of this review, *see* the Preliminary Decision Memorandum.[7] The Preliminary Decision Memorandum is a public document and is on file electronically via Enforcement and Compliance's Antidumping and Countervailing Duty Centralized Electronic Service System (ACCESS). ACCESS is available to registered users at *https://access.trade.gov.* In addition, a complete version of the Preliminary Decision Memorandum can be accessed directly at *https://access.trade.gov/public/FRNoticesListLayout.aspx.*

Scope of the Order

The product covered by this order is certain softwood lumber products from Canada. For a complete description of the scope of the *Order, see* the Preliminary Decision Memorandum.

Partial Rescission of Administrative Review

Pursuant to 19 CFR 351.213(d)(3), it is Commerce's practice to rescind an administrative review of a CVD order where it concludes that there were no reviewable entries of subject merchandise during the POR for an exporter or producer. Normally, upon completion of an administrative review, the suspended entries are liquidated at

[1] *See Certain Softwood Lumber Products from Canada: Amended Final Affirmative Countervailing Duty Determination and Countervailing Duty Order,* 83 FR 347 (January 3, 2018) (*Order*).

[2] *See Initiation of Antidumping and Countervailing Duty Administrative Reviews,* 87 FR 13252 (March 9, 2022) (*Initiation Notice*).

[3] *See Initiation of Antidumping and Countervailing Duty Administrative Reviews,* 87 FR 21619 (April 12, 2022).

[4] *See* Memorandum, ''Respondent Selection,'' dated April 26, 2022.

[5] *See* Commerce's Letter, ''Selection of JD Irving, Limited as a Voluntary Respondent,'' dated August 19, 2022.

[6] *See* Memorandum, ''Extension of Deadline for Preliminary Results of Countervailing Duty Administrative Review; 2021,'' dated September 12, 2022.

[7] *See* Memorandum, ''Decision Memorandum for the Preliminary Results of Administrative Review of the Countervailing Duty Order on Certain Softwood Lumber Products from Canada; 2021,'' dated concurrently with, and hereby adopted by, this notice (Preliminary Decision Memorandum).

the CVD assessment rate for the review period.[8] Therefore, for an administrative review to be conducted, there must be a reviewable, suspended entry that Commerce can instruct U.S. Customs and Border Protection (CBP) to liquidate at the calculated CVD assessment rate for the review period.[9]

Based on our analysis of CBP data and comments received from interested parties, we determine that 51 producers/exporters, for which a review had been requested, had no reviewable shipments, sales, or entries of subject merchandise during the POR. Accordingly, absent evidence of a shipment on the record, we are rescinding the administrative review of the following companies, pursuant to 19 CFR 351.213(d)(3):

1. 9224–5737 Quebec Inc. (aka A.G. Bois)
2. AA Trading Ltd.
3. Anglo-American Cedar Products, Ltd.
4. Bardobec Inc.
5. Best Quality Cedar Products Ltd.
6. Blanchette & Blanchette Inc.
7. Burrows Lumber (CD) Ltd.; Theo A. Burrows Lumber Company Limited
8. Campbell River Shake & Shingle Co., Ltd.
9. Canada Pallet Corp.
10. Careau Bois Inc.
11. Cedar Island Forest Products Ltd.
12. Cedar Valley Holdings Ltd.
13. Cedarcoast Lumber Products
14. Coast Mountain Cedar Products Ltd.
15. Comox Valley Shakes (2019) Ltd.
16. CWP—Montreal inc.
17. Direct Cedar Supplies Ltd.
18. Distribution Rioux Inc.
19. Elrod Cartage Ltd.
20. Goldband Shake & Shingle Ltd.
21. Groupe Lignarex Inc.
22. Hampton Tree Farms, LLC (dba Hampton Lumber Sales Canada)
23. Hy Mark Wood Products Inc.[10]
24. Imperial Cedar Products, Ltd.
25. Intertran Holdings Ltd. (dba Richmond Terminal)
26. Island Cedar Products Ltd
27. Jazz Forest Products Ltd.
28. Les Bois Traites M.G. Inc.
29. Modern Terminal Ltd.
30. Nagaard Sawmill Ltd.
31. NSC Lumber Ltd.
32. Pacific Coast Cedar Products Ltd.
33. Rick Dubois
34. Roland Boulanger & Cie Ltee
35. S&W Forest Products Ltd.
36. Sapphire Lumber Company
37. Silvaris Corporation
38. Sonora Logging Ltd.
39. Source Forest Products
40. South Fraser Container Terminals
41. Star Lumber Canada Ltd.
42. Suncoast Industries Inc.
43. Suncoh Custom Lumber Ltd.
44. Surplus G Rioux
45. Swiftwood Forest Products Ltd.
46. T&P Trucking Ltd.
47. Waldun Forest Product Sales Ltd.
48. Watkins Sawmills Ltd.
49. Western Timber Products, Inc.
50. Winton Homes Ltd.
51. WWW Timber Products Ltd.

Additionally, pursuant to 19 CFR 351.213(d)(1), Commerce will rescind an administrative review if the party that requested the review withdraws its request within 90 days of the publication of the notice of initiation of the requested review. On June 7, 2022, the petitioner[11] timely withdrew its request for administrative review of all producers/exporters except Weyerhaeuser Co.[12] With respect to 15 producers/exporters listed in the petitioner's withdrawal of review request, neither the producer/exporter itself, nor any other party, besides the petitioner, requested a review. Accordingly, we are rescinding this review, with respect to the following companies, pursuant to 19 CFR 351.213(d)(1):

1. 54 Reman
2. Absolute Lumber Products, Ltd.
3. Adwood Manufacturing Ltd.
4. Aler Forest Products, Ltd.
5. All American Forest Products Inc.
6. Canasia Forest Industries Ltd.
7. D & D Pallets Ltd.
8. Kan Wood, Ltd.
9. L'Atelier de Readaptation au Travail de Beauce Inc.
10. Les Bardeaux Lajoie Inc.
11. Pacific Pallet, Ltd.
12. PalletSource Inc.
13. Pat Power Forest Products Corporation
14. Prendiville Industries Ltd. (aka Kenora Forest Products)
15. Valley Cedar 2 Inc.

For further information, *see* ''Partial Rescission of Administrative Review'' in the Preliminary Decision Memorandum.

Preliminary Intent To Rescind Administrative Review, in Part

Based on our analysis of the CBP entry data, we preliminarily determine that North American Forest Products Ltd. (located in Saint-Quentin, New Brunswick) had no reviewable shipments, sales, or entries of subject merchandise during the POR. Absent any evidence of shipments placed on the record, pursuant to 19 CFR 351.213(d)(3), we intend to rescind the administrative review of this company in the final results of review. For further information, *see* ''Preliminary Intent to Rescind Administrative Review, in Part'' in the Preliminary Decision Memorandum.

Methodology

Commerce is conducting this CVD administrative review in accordance with section 751(a)(1)(A) of the Tariff Act of 1930, as amended (the Act). For each of the subsidy programs found countervailable, Commerce preliminarily determines that there is a subsidy, *i.e.,* a financial contribution by an ''authority'' that confers a benefit to the recipient, and that the subsidy is specific.[13] For a full description of the methodology underlying our preliminary conclusions, *see* the Preliminary Decision Memorandum. The list of topics discussed in the Preliminary Decision Memorandum is included at Appendix I.

Preliminary Rate for Non-Selected Companies Under Review

There are 219 companies for which a review was requested and not rescinded but were not selected as mandatory respondents. The statute and Commerce's regulations do not directly address the establishment of rates to be applied to companies not selected for individual examination where Commerce limits its examination in an administrative review pursuant to section 777A(e)(2) of the Act. However, Commerce normally determines the rates for non-selected companies in reviews in a manner that is consistent with section 705(c)(5) of the Act, which provides instructions for calculating the all-others rate in an investigation.

Section 705(c)(5)(A)(i) of the Act instructs Commerce, as a general rule, to calculate an all-others rate equal to the weighted average of the countervailable subsidy rates established for exporters and/or producers individually examined, excluding any zero, *de minimis,* or rates based entirely on facts available. In this review, none of the rates for the respondents were zero, *de minimis,* or based entirely on facts available. Therefore, for the POR, we are assigning to the non-selected companies an average of the subsidy rates calculated for the companies that were selected as respondents in the administrative review.

[8] *See* 19 CFR 351.212(b)(2).

[9] *See* 19 CFR 351.213(d)(3).

[10] Hy Mark Wood Products Inc. also submitted a letter withdrawing its review request. *See* Hy Mark Wood Products Inc.'s Letter, ''Hy Mark Wood Products Inc. Withdrawal of Review Request,'' dated April 6, 2022.

[11] The petitioner is the COALITION, an *ad hoc* association whose members are: U.S. Lumber Coalition, Inc.; Collum's Lumber Products, L.L.C.; Fox Lumber Sales, Inc.; Hankins, Inc.; Pleasant River Lumber Company; PotlatchDeltic; Rex Lumber Company; S.I. Storey Lumber Co., Inc.; Stimson Lumber Company; Swanson Group; Weyerhaeuser Company; Carpenters Industrial Council; Giustina Land and Timber Company; and Sullivan Forestry Consultants, Inc.

[12] *See* Petitioner's Letter, ''Withdrawal of Request for Administrative Review,'' dated June 7, 2022.

[13] *See* sections 771(5)(B) and (D) of the Act regarding financial contribution; section 771(5)(E) of the Act regarding benefit; and section 771(5A) of the Act regarding specificity.

For further information on the calculation of the non-selected rate, *see* ''Preliminary *Ad Valorem* Rate for Non-Selected Companies under Review'' in the Preliminary Decision Memorandum.

For a list of the non-selected companies, *see* Appendix II to this notice.

Preliminary Results of Review

For the period January 1, 2021, through December 31, 2021, we preliminarily determine the following estimated countervailable subsidy rates:

Companies	Subsidy rate (percent *ad valorem*)
Canfor Corporation and its cross-owned affiliates[14]	2.04
J.D. Irving, Limited and its cross-owned affiliates[15]	1.72
West Fraser Mills Ltd. and its cross-owned affiliates[16]	2.48
Non-Selected Companies	2.19

Disclosure

We intend to disclose to parties to this proceeding the calculations performed in these preliminary results within five days of publication of this notice in the **Federal Register**.[17]

Verification

As provided in section 782(i)(3) of the Act, Commerce intends to verify the information relied upon here for its final results.

Public Comment

Case briefs or other written comments may be submitted to the Assistant Secretary for Enforcement and Compliance.[18] A timeline for the submission of case and rebuttal briefs and written comments will be provided to interested parties at a later date. Note that Commerce has temporarily modified certain of its requirements for serving documents containing business proprietary information until further notice.[19]

Pursuant to 19 CFR 351.309(c) and (d)(2), parties who submit case briefs or rebuttal briefs in this review are requested to submit for each argument: (1) a statement of the issue; (2) a brief summary of the argument; and (3) a table of authorities.

Pursuant to 19 CFR 351.310(c)(2), interested parties who wish to request a hearing, limited to issues raised in the case and rebuttal briefs, must do so within 30 days of publication of these preliminary results by submitting a written request to the Assistant Secretary for Enforcement and Compliance using ACCESS. Requests should contain the party's name, address, and telephone number; the number of participants; and a list of the issues to be discussed. If a request for a hearing is made, Commerce intends to hold the hearing at a time and date to be determined. Parties should confirm the date and time of the hearing two days before the scheduled date. Parties are reminded that all briefs and hearing requests must be filed electronically using ACCESS and received successfully in their entirety by 5:00 p.m. Eastern Time on the due date.

Final Results

Unless the deadline is extended pursuant to section 751(a)(3)(A) of the Act, Commerce intends to issue the final results of this administrative review, including the results of its analysis of the issues raised by parties in their comments, within 120 days after the date of publication of these preliminary results.

Assessment Rates

In accordance with 19 CFR 351.221(b)(4)(i), Commerce has preliminarily assigned the subsidy rates as indicated above. Pursuant to section 751(a)(2)(C) of the Act, upon issuance of the final results, Commerce shall determine, and CBP shall assess, countervailing duties on all appropriate entries covered by this review. Commerce intends to issue assessment instructions to CBP no earlier than 41 days after the date of publication of the final results of this review in the **Federal Register**, in accordance with 19 CFR 356.8(a). If a timely summons is filed at the U.S. Court of International Trade, the assessment instructions will direct CBP not to liquidate relevant entries until the time for parties to file a request for statutory injunction has expired (*i.e.,* within 90 days of publication).

For the companies for which this review is rescinded, Commerce will instruct CBP to assess countervailing duties on all appropriate entries at a rate equal to the cash deposit of estimated countervailing duties required at the time of entry, or withdrawal from warehouse, for consumption, during the period January 1, 2021, through December 31, 2021, in accordance with 19 CFR 351.212(c)(1)(i). Commerce intends to issue rescission instructions to CBP no earlier than 41 days after the date of publication of the notice of rescission in the **Federal Register**.

Cash Deposit Requirements

Pursuant to section 751(a)(1) of the Act, Commerce intends, upon publication of the final results, to instruct CBP to collect cash deposits of estimated countervailing duties in the amounts indicated above for each of the respective companies listed above and in Appendix II with regard to shipments of subject merchandise entered, or withdrawn from warehouse, for consumption on or after the date of publication of the final results of this review. For all non-reviewed companies, we will instruct CBP to collect cash deposits of estimated countervailing duties at the most recent company-specific or all-others rate applicable to the company, as appropriate. These cash deposit requirements, when imposed, shall remain in effect until further notice.

Notification to Interested Parties

These preliminary results are issued and published in accordance with sections 751(a)(1) and 777(i)(1) of the Act, and 19 CFR 351.221(b)(4).

[14] Commerce finds the following companies to be cross-owned with Canfor Corporation: Canadian Forest Products., Ltd. and Canfor Wood Products Marketing, Ltd.

[15] Commerce finds the following companies to be cross-owned with J.D. Irving, Limited: Miramichi Timber Holdings Limited, The New Brunswick Railway Company, Rothesay Paper Holdings Ltd., and St. George Pulp & Paper Limited.

[16] Commerce finds the following companies to be cross-owned with West Fraser Mills Ltd.: Blue Ridge Lumber Inc., Manning Forest Products, Ltd., Sundre Forest Products Inc., Sunpine Inc., West Fraser Alberta Holdings, Ltd., and West Fraser Timber Co., Ltd.

[17] *See* 19 CFR 351.224(b).

[18] *See* 19 CFR 351.309(c) and (d).

[19] *See Temporary Rule Modifying AD/CVD Service Requirements Due to COVID–19; Extension of Effective Period,* 85 FR 41363 (July 10, 2020).

Dated: January 23, 2023.

Ryan Majerus,

Deputy Assistant Secretary for Policy and Negotiations.

Appendix I

List of Topics Discussed in the Preliminary Decision Memorandum

I. Summary
II. Background
III. Period of Review
IV. Partial Rescission of Administrative Review
V. Preliminary Intent To Rescind Administrative Review, in Part
VI. Scope of the *Order*
VII. Subsidies Valuation
VIII. Analysis of Programs
IX. Preliminary *Ad Valorem* Rate for Non-Selected Companies Under Review
X. Programs To Be Addressed After the Preliminary Results
XI. Recommendation

Appendix II

Non-Selected Exporters/Producers

1. 0752615 B.C Ltd; Fraserview Remanufacturing Inc, DBA Fraserview Cedar Products
2. 10104704 Manitoba Ltd O/A Woodstock Forest Products
3. 1074712 BC Ltd. (Quadra Cedar)
4. 5214875 Manitoba Ltd.
5. AJ Forest Products Ltd.
6. Alpa Lumber Mills Inc.
7. Andersen Pacific Forest Products Ltd.
8. Antrim Cedar Corporation
9. Aquila Cedar Products Ltd.
10. Arbec Lumber Inc. (aka Arbec Bois Doeuvre Inc.)
11. Aspen Planers Ltd.
12. B&L Forest Products Ltd.
13. B.B. Pallets Inc. (aka Les Palettes B.B. Inc.)
14. Babine Forest Products Limited
15. Bakerview Forest Products Inc.
16. Barrette-Chapais Ltee
17. BarretteWood Inc.
18. Benoit & Dionne Produits Forestiers Ltee (aka Benoit & Dionne Forest Products Ltd.)
19. Blanchet Multi Concept Inc.
20. Bois Aise de Montreal Inc.
21. Bois Bonsai Inc.
22. Bois D'oeuvre Cedrico Inc. (aka Cedrico Lumber Inc.)
23. Bois Daaquam inc. (aka Daaquam Lumber Inc.)
24. Bois et Solutions Marketing SPEC, Inc. (aka SPEC Wood & Marketing Solution or SPEC Wood and Marketing Solutions Inc.)
25. Boisaco Inc.
26. Boscus Canada Inc.
27. Boucher Bros. Lumber Ltd.
28. BPWood Ltd.
29. Bramwood Forest Inc.
30. Brink Forest Products Ltd.
31. Brunswick Valley Lumber Inc.
32. Busque & Laflamme Inc.
33. Canyon Lumber Company, Ltd.
34. CarlWood Lumber Ltd.
35. Carrier & Begin Inc.
36. Carrier Forest Products Ltd.
37. Carrier Lumber Ltd.
38. Carter Forest Products Inc.
39. Cedarland Forest Products Ltd.
40. Cedarline Industries Ltd.
41. Central Cedar Ltd.
42. Central Forest Products Inc.
43. Centurion Lumber Ltd.
44. Chaleur Forest Products Inc.
45. Chaleur Forest Products LP
46. Channel-ex Trading Corporation
47. Clair Industrial Development Corp. Ltd.
48. Clermond Hamel Ltee
49. CLG Enterprises Inc.
50. CNH Products Inc.
51. Coast Clear Wood Ltd.
52. Columbia River Shake & Shingle Ltd.; Teal Cedar Products Ltd., dba The Teal Jones Group
53. Commonwealth Plywood Co. Ltd.
54. Conifex Fibre Marketing Inc.
55. Cowichan Lumber Ltd.
56. CS Manufacturing Inc., dba Cedarshed
57. CWP—Industriel inc.
58. Dakeryn Industries Ltd.
59. Decker Lake Forest Products Ltd.
60. Deep Cove Forest Products, Inc.
61. Delco Forest Products Ltd.
62. Delta Cedar Specialties Ltd.
63. Devon Lumber Co. Ltd.
64. DH Manufacturing Inc.
65. Doubletree Forest Products Ltd.
66. Downie Timber Ltd.
67. Dunkley Lumber Ltd.
68. EACOM Timber Corporation
69. East Fraser Fiber Co. Ltd.
70. Edgewood Forest Products Inc.
71. ER Probyn Export Ltd.
72. Falcon Lumber Ltd.
73. Fontaine Inc.
74. Foothills Forest Products Inc.
75. Fraser Specialty Products Ltd.
76. FraserWood Industries Ltd.
77. Furtado Forest Products Ltd.
78. Gilbert Smith Forest Products Ltd.
79. Glandell Enterprises Inc.
80. Goldwood Industries Ltd.
81. Goodfellow Inc.
82. Gorman Bros. Lumber Ltd.
83. Greendale Industries Inc.
84. GreenFirst Forest Products (QC) Inc.
85. Greenwell Resources Inc.
86. Griff Building Supplies Ltd.
87. Groupe Crete Chertsey Inc.
88. Groupe Crete Division St-Faustin Inc.
89. Groupe Lebel Inc.
90. H.J. Crabbe & Sons Ltd.
91. Haida Forest Products Ltd.
92. Halo Sawmill Manufacturing Limited Partnership
93. Hornepayne Lumber LP
94. Hudson Mitchell & Sons Lumber Inc.
95. Interfor Corporation
96. Interfor Sales & Marketing Ltd.
97. Ivor Forest Products Ltd.
98. J&G Log Works Ltd.
99. J.H. Huscroft Ltd.
100. Jan Woodlands (2001) Inc.
101. Jasco Forest Products Ltd.
102. Jhajj Lumber Corporation
103. Kalesnikoff Lumber Co. Ltd.
104. Kebois Ltee/Ltd
105. Kelfor Industries Ltd.
106. Kermode Forest Products Ltd.
107. Keystone Timber Ltd.
108. Lafontaine Lumber Inc.
109. Langevin Forest Products Inc.
110. Lecours Lumber Co. Limited
111. Leisure Lumber Ltd.
112. Les Bois d'oeuvre Beaudoin Gauthier Inc.
113. Les Bois Martek Lumber
114. Les Chantiers de Chibougamau Ltd./Ltee
115. Les Industries P.F. Inc.
116. Les Produits Forestiers D&G Ltee (aka D&G Forest Products Ltd.)
117. Les Produits Forestiers Sitka Inc. (aka Sitka Forest Products Inc.)
118. Leslie Forest Products Ltd.
119. Lignum Forest Products LLP
120. Linwood Homes Ltd.
121. Lonestar Lumber Inc.
122. Lulumco Inc.
123. Magnum Forest Products, Ltd.
124. Maibec Inc.
125. Mainland Sawmill, a division of Terminal Forest Products Ltd.
126. Manitou Forest Products Ltd.
127. Marcel Lauzon Inc.
128. Marwood Ltd.
129. Materiaux Blanchet Inc.
130. Metrie Canada Ltd.
131. Mid Valley Lumber Specialties Ltd.
132. Midway Lumber Mills Ltd.
133. Mill & Timber Products Ltd.
134. Millar Western Forest Products Ltd.
135. Mirax Lumber Products Ltd.
136. Mobilier Rustique (Beauce) Inc.
137. Monterra Lumber Mills Limited
138. Morwood Forest Products Inc.
139. Multicedre ltee
140. Murray Brothers Lumber Company Ltd
141. Nakina Lumber Inc.
142. National Forest Products Ltd.
143. Nicholson and Cates Ltd.
144. NorSask Forest Products Limited Partnership
145. North American Forest Products Ltd. (located in Abbotsford, British Columbia)
146. North Enderby Timber Ltd.
147. Northland Forest Products Ltd.
148. Olympic Industries, Inc.; Olympic Industries Inc—Reman Code; Olympic Industries ULC; Olympic Industries ULC Reman; Olympic Industries ULC—Reman Code
149. Oregon Canadian Forest Products Inc., dba Oregon Canadian Forest Products
150. Pacific Lumber Remanufacturing Inc.
151. Pacific Western Wood Works Ltd.
152. Parallel Wood Products Ltd.
153. Peak Industries (Cranbrook) Ltd.
154. Phoenix Forest Products Inc.
155. Pine Ideas Ltd.
156. Pioneer Pallet & Lumber Ltd.
157. Porcupine Wood Products Ltd.
158. Portbec Forest Products Ltd (aka Les Produits Forestiers Portbec Ltee)
159. Power Wood Corp.
160. Precision Cedar Products Corp.
161. Produits Forestiers Petit Paris Inc.
162. Produits forestiers Temrex, s.e.c. (aka Temrex Forest Products LP)
163. Produits Matra Inc.; Sechoirs de Beauce Inc.
164. Promobois G.D.S. Inc.
165. Rayonier A.M. Canada GP
166. Rembos Inc.
167. Rene Bernard inc.
168. Resolute FP Canada Inc.
169. Rielly Industrial Lumber Inc.
170. River City Remanufacturing Inc.
171. S&R Sawmills Ltd.
172. San Group

173. San Industries Ltd.
174. Sawarne Lumber Co. Ltd.
175. Scierie Alexandre Lemay & Fils Inc.
176. Scierie St-Michel Inc.
177. Scierie West Brome Inc.
178. Scott Lumber Sales Ltd.
179. Shakertown Corp.
180. Sigurdson Forest Products Ltd.
181. Sinclar Group Forest Products Ltd.
182. Skana Forest Products Ltd.
183. Skeena Sawmills Ltd.
184. South Beach Trading Inc.
185. South Coast Reman Ltd.
186. Southcoast Millwork Ltd.
187. Specialiste du Bardeau de Cedre Inc. (aka SBC)
188. Spruceland Millworks Inc.
189. Sundher Timber Products Inc.
190. Surrey Cedar Ltd.
191. Taan Forest Limited Partnership (aka Taan Forest Products)
192. Taiga Building Products Ltd.
193. Tall Tree Lumber Company
194. Tenryu Canada Corporation
195. Terminal Forest Products Ltd.
196. TG Wood Products
197. The Wood Source Inc.
198. Tolko Industries Ltd.; Tolko Marketing and Sales Ltd.
199. Top Quality Lumber Ltd.
200. Trans-Pacific Trading Ltd.
201. Triad Forest Products Ltd.
202. Twin Rivers Paper Co. Inc.
203. Tyee Timber Products Ltd.
204. Usine Sartigan Inc.
205. Vaagen Fibre Canada, ULC
206. Vancouver Specialty Cedar Products Ltd.
207. Vanderhoof Specialty Wood Products Ltd.
208. Visscher Lumber Inc.
209. W.I. Woodtone Industries Inc.
210. West Bay Forest Products Ltd.
211. Western Forest Products Inc.
212. Western Lumber Sales Limited
213. Westminster Industries Ltd.
214. Weston Forest Products Inc.
215. Weyerhaeuser Co.
216. White River Forest Products L.P.
217. Woodline Forest Products Ltd.
218. Woodstock Forest Products
219. Woodtone Specialties Inc.

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DEPARTMENT OF COMMERCE

International Trade Administration

[A–122–857]

Certain Softwood Lumber Products From Canada: Preliminary Results of Antidumping Duty Administrative Review

AGENCY: Enforcement and Compliance, International Trade Administration, Department of Commerce.

SUMMARY: The U.S. Department of Commerce (Commerce) is conducting an administrative review of the antidumping duty (AD) order on certain softwood lumber products (softwood lumber) from Canada. The period of review (POR) is January 1, 2021, through December 31, 2021. Commerce preliminarily determines that the producers/exporters subject to this review made sales of subject merchandise at less than normal value. We invite interested parties to comment on these preliminary results.

DATES: Applicable January 27, 2023.

FOR FURTHER INFORMATION CONTACT: Jeff Pedersen (Canfor) and Maisha Cryor (West Fraser), AD/CVD Operations, Office IV, Enforcement and Compliance, International Trade Administration, U.S. Department of Commerce, 1401 Constitution Avenue NW, Washington, DC 20230; telephone: (202) 482–2769 and (202) 482–5831, respectively.

SUPPLEMENTARY INFORMATION:

Background

On March 9, 2022, based on timely requests for administrative reviews, Commerce initiated an AD administrative review covering 291 companies and has not rescinded the review of any of these companies.[1] Thus, the review covers 291 producers/exporters of the subject merchandise, including mandatory respondents Canfor [2] and West Fraser.[3] On September 14, 2022, we extended the preliminary results until January 23, 2023.[4]

Scope of the Order

The product covered by this order is softwood lumber from Canada. For a full description of the scope, *see* the Preliminary Decision Memorandum.[5]

Methodology

Commerce is conducting this review in accordance with section 751(a)(1)(B) of the Tariff Act of 1930, as amended (the Act). For a full description of the methodology underlying our conclusions, *see* the Preliminary Decision Memorandum. A list of the topics discussed in the Preliminary Decision Memorandum is included as Appendix I to this notice. The Preliminary Decision Memorandum is a public document and is made available to the public via Enforcement and Compliance's Antidumping and Countervailing Duty Centralized Electronic Service System (ACCESS). ACCESS is available to registered users at *https://access.trade.gov.* In addition, a complete version of the Preliminary Decision Memorandum can be accessed directly at *https://access.trade.gov/public/FRNoticesListLayout.aspx.*

Preliminary Results of Review

We preliminarily determine that the following weighted-average dumping margins exist for the period January 1, 2021, through December 31, 2021:

Exporter/producer	Weighted-average dumping margin (percent)
Canfor Corporation/Canadian Forest Products Ltd./Canfor Wood Products Marketing Ltd	5.25
West Fraser Mills Ltd./Blue Ridge Lumber Inc./Manning Forest Products Ltd./and Sundre Forest Products Inc	6.90
Non-Selected Companies	6.05

Rate for Companies Not Individually Examined

Generally, when calculating margins for non-selected respondents, Commerce looks to section 735(c)(5) of the Act for guidance, which provides instructions for calculating the all-others rate in an investigation. Section 735(c)(5)(A) of the Act provides that when calculating the all-others rate, Commerce will exclude any zero and *de minimis* weighted-average dumping margins, as well as any weighted-average dumping margins based on total facts available. Accordingly, Commerce's usual practice has been to average the margins for selected respondents, excluding margins that are zero, *de minimis,* or based entirely on facts available.

In this review, we calculated a weighted-average dumping margin of 5.25 percent for Canfor and 6.90 percent for West Fraser. In accordance with section 735(c)(5)(A) of the Act, Commerce assigned the weighted average of these two calculated weighted-average dumping margins based on their publicly ranged sales

[1] *See Initiation of Antidumping and Countervailing Duty Administrative Reviews,* 87 FR 13860 (March 9, 2022).

[2] As described in the Preliminary Decision Memorandum, we have treated Canfor Corporation, Canadian Forest Products Ltd., and Canfor Wood Products Marketing Ltd. (collectively, Canfor) as a single entity. *See* Memorandum, ''Decision Memorandum for Preliminary Results of the 2021 Antidumping Duty Administrative Review of Certain Softwood Lumber Products from Canada,'' dated concurrently with, and hereby adopted by, this notice (Preliminary Decision Memorandum), at 5.

[3] As described in the Preliminary Decision Memorandum, we have treated West Fraser Mills Ltd., Blue Ridge Lumber Inc., Manning Forest Products Ltd., and Sundre Forest Products Inc. (collectively, West Fraser) as a single entity. *See* Preliminary Decision Memorandum at 6.

[4] *See* Memorandum, ''Extension of Deadline for Preliminary Results of Antidumping Duty Administrative Review—2021,'' dated September 14, 2022. A list of all companies under review is included as Appendix II to this notice.

[5] *See* Preliminary Decision Memorandum at 3–4.

data, 6.05 percent, to the non-selected companies in these preliminary results.[6]

Disclosure

We intend to disclose the calculations performed for these preliminary results to the interested parties within five days after public announcement of the preliminary results in accordance with 19 CFR 351.224(b).

Public Comment

Pursuant to 19 CFR 351.309(c), interested parties may submit case briefs to the Assistant Secretary for Enforcement and Compliance not later than 30 days after the date of publication of this notice, unless Commerce alters the time limit. Rebuttal briefs, limited to issues raised in the case briefs, may be filed not later than seven days after the date for filing case briefs.[7] Parties who submit case briefs or rebuttal briefs in this administrative review are encouraged to submit with each argument: (1) a statement of the issue; (2) a brief summary of the argument; and (3) a table of authorities.[8] Commerce has modified certain of its requirements for service of documents containing business proprietary information, until further notice.[9]

Pursuant to 19 CFR 351.310(c), interested parties who wish to request a hearing, must submit a written request to the Assistant Secretary for Enforcement and Compliance, filed electronically via ACCESS. An electronically filed document must be received successfully in its entirety via ACCESS by 5:00 p.m. Eastern Time within 30 days after the date of publication of this notice.[10] Requests should contain: (1) the party's name, address, and telephone number; (2) the number of participants; and (3) a list of issues to be discussed. Issues raised in the hearing will be limited to those raised in the respective case briefs. Commerce intends to issue the final results of this administrative review, including the results of its analysis of the issues raised in any written briefs, not later than 120 days after the date of publication of these preliminary results in the **Federal Register**, pursuant to section 751(a)(3)(A) of the Act, unless extended.

Assessment Rate

Upon issuance of the final results, Commerce will determine, and U.S. Customs and Border Protection (CBP) shall assess, antidumping duties on all appropriate entries covered by this review.[11] If a respondent's weighted-average dumping margin is above *de minimis* in the final results of this review, we will calculate an importer-specific assessment rate based on the ratio of the total amount of dumping calculated for each importer's examined sales and the total entered value of the sales in accordance with 19 CFR 351.212(b)(1).[12] If a respondent's weighted-average dumping margin or an importer-specific assessment rate is zero or *de minimis* in the final results of review, we will instruct CBP to liquidate the appropriate entries without regard to antidumping duties in accordance with the *Final Modification for Reviews*.[13] The final results of this administrative review shall be the basis for the assessment of antidumping duties on entries of merchandise under review and for future deposits of estimated duties, where applicable. We intend to issue liquidation instructions to CBP no earlier than 41 days after date of publication of the final results of this review in the **Federal Register**.

Cash Deposit Requirements

The following cash deposit requirements for estimated antidumping duties will be effective upon publication of the notice of final results of this review for all shipments of softwood lumber from Canada entered, or withdrawn from warehouse, for consumption on or after the date of publication as provided by section 751(a)(2)(C) of the Act: (1) the cash deposit rate for companies subject to this review will be equal to the dumping margin established in the final results of the review; (2) for merchandise exported by companies not covered in this review but covered in a prior segment of this proceeding, the cash deposit rate will continue to be the company-specific rate published for the most recent period; (3) if the exporter is not a firm covered in this review, a prior review, or the less-than-fair-value (LTFV) investigation but the producer is, the cash deposit rate will be the rate established for the most recently completed segment for the producer of the merchandise; (4) the cash deposit rate for all other producers or exporters will continue to be the 6.04 percent, the all-others rate established in the LTFV investigation.[14] These cash deposit requirements, when imposed, shall remain in effect until further notice.

Notification to Importers

This notice serves as a preliminary reminder to importers of their responsibility under 19 CFR 351.402(f)(2) to file a certificate regarding the reimbursement of antidumping and/or countervailing duties prior to liquidation of the relevant entries during this period of review. Failure to comply with this requirement could result in Commerce's presumption that reimbursement of antidumping and/or countervailing duties occurred and the subsequent assessment of double antidumping duties, and/or an increase in the amount of antidumping duties by the amount of the countervailing duties.

Notification to Interested Parties

Commerce is issuing and publishing these results in accordance with sections 751(a)(1) and 777(i) of the Act, and 19 CFR 351.221(b)(4).

Dated: January 23, 2023.

Ryan Majerus,

Deputy Assistant Secretary for Policy and Negotiations.

Appendix I

List of Topics Discussed in the Preliminary Decision Memorandum

Appendix II

Companies Under Review

1. 0752615 B.C Ltd./752615 B.C Ltd./ Fraserview Remanufacturing Inc, DBA Fraserview Cedar Products
2. 10104704 Manitoba Ltd O/A Woodstock Forest Product
3. 1074712 BC Ltd./DBA Quadra Cedar
4. 5214875 Manitoba Ltd.
5. 54 Reman
6. 9224–5737 Quebec Inc. (aka A.G. Bois)
7. AA Trading Ltd.
8. Absolute Lumber Products Ltd.

[6] *See* Memorandum, ''Calculation of the Rate for Non-Selected Respondents,'' dated concurrently with this notice, and Attachment II (containing a list of the non-selected companies under review).

[7] *See* 19 CFR 351.309(d); *see also* 19 CFR 351.303 (for general filing requirements).

[8] *See* 19 CFR 351.309(c)(2) and (d)(2).

[9] *See Temporary Rule Modifying AD/CVD Service Requirements Due to COVID–19; Extension of Effective Period,* 85 FR 41363 (July 10, 2020).

[10] *See* 19 CFR 351.310(c).

[11] *See* 19 CFR 351.212(b).

[12] In these preliminary results, Commerce applied the assessment rate calculation method adopted in *Antidumping Proceedings: Calculation of the Weighted-Average Dumping Margin and Assessment Rate in Certain Antidumping Duty Proceedings; Final Modification,* 77 FR 8101 (February 14, 2012) (*Final Modification for Reviews*).

[13] *See Final Modification for Reviews,* 77 FR at 8103; *see also* 19 CFR 351.106(c)(2).

[14] *See Certain Softwood Lumber Products from Canada: Antidumping Duty Order and Partial Amended Final Determination,* 83 FR 350 (January 3, 2018).

9. Adwood Manufacturing Ltd.
10. AJ Forest Products Ltd.
11. Aler Forest Products Ltd.
12. All American Forest Products Inc.
13. Alpa Lumber Mills Inc.
14. Andersen Pacific Forest Products Ltd.
15. Anglo American Cedar Products Ltd.; Anglo-American Cedar Products Ltd.
16. Antrim Cedar Corporation
17. Aquila Cedar Products Ltd.
18. Arbec Lumber Inc. (aka Arbec Bois Doeuvre Inc.)
19. Aspen Planers Ltd.
20. B&L Forest Products Ltd.
21. B.B. Pallets Inc. (aka Les Palettes B.B. Inc.)
22. Babine Forest Products Limited
23. Bakerview Forest Products Inc.
24. Bardobec Inc.
25. Barrette-Chapais Ltee
26. BarretteWood Inc.
27. Benoît & Dionne Produits Forestiers Ltee (aka Benoît & Dionne Forest Products Ltd.)
28. Best Quality Cedar Products Ltd.
29. Blanchet Multi Concept Inc.
30. Blanchette & Blanchette Inc.
31. Bois Aise de Montreal Inc.
32. Bois Bonsaï Inc.
33. Bois Daaquam inc. (aka Daaquam Lumber Inc.)
34. Bois D'oeuvre Cedrico Inc. (aka Cedrico Lumber Inc.)
35. Bois et Solutions Marketing SPEC, Inc. (aka SPEC Wood & Marketing Solution or SPEC Wood and Marketing Solutions Inc.)
36. Boisaco Inc.
37. Boscus Canada Inc.
38. Boucher Bros. Lumber Ltd.
39. BPWood Ltd.
40. Bramwood Forest Inc.
41. Brink Forest Products Ltd.
42. Brunswick Valley Lumber Inc.
43. Burrows Lumber (CD) Ltd., Theo A. Burrows Lumber Company Limited
44. Busque & Laflamme Inc.
45. Campbell River Shake & Shingle Co. Ltd.
46. Canada Pallet Corp.
47. Canadian Forest Products Ltd.; Canfor Wood Products Marketing Ltd.; Canfor Corporation
48. Canasia Forest Industries Ltd.
49. Canyon Lumber Company Ltd.
50. Careau Bois inc.
51. CarlWood Lumber Ltd.
52. Carrier & Begin Inc.
53. Carrier Forest Products Ltd.
54. Carrier Lumber Ltd.
55. Carter Forest Products Inc.
56. Cedar Island Forest Products Ltd.
57. Cedar Valley Holdings Ltd.
58. Cedarcoast Lumber Products
59. Cedarland Forest Products Ltd.
60. Cedarline Industries Ltd.
61. Central Cedar Ltd.
62. Central Forest Products Inc.
63. Centurion Lumber Ltd.
64. Chaleur Forest Products Inc.
65. Chaleur Forest Products LP
66. Channel-ex Trading Corporation
67. CHAP Alliance Inc.[15]
68. Clair Industrial Development Corp. Ltd.
69. Clermond Hamel Ltee
70. CLG Enterprises Inc.
71. CNH Products Inc.
72. Coast Clear Wood Ltd.
73. Coast Mountain Cedar Products Ltd.
74. Columbia River Shake & Shingle Ltd./ Teal Cedar Products Ltd., DBA the Teal Jones Group.
75. Commonwealth Plywood Co. Ltd.
76. Comox Valley Shakes (2019) Ltd.
77. Conifex Fibre Marketing Inc.
78. Coulson Manufacturing Ltd.
79. Cowichan Lumber Ltd.
80. CS Manufacturing Inc. (dba Cedarshed)
81. CWP—Industriel Inc.
82. CWP—Montreal Inc.
83. D & D Pallets Ltd.
84. Dakeryn Industries Ltd.
85. Decker Lake Forest Products Ltd.
86. Deep Cove Forest Products, Inc.
87. Delco Forest Products Ltd.
88. Delta Cedar Specialties Ltd.
89. Devon Lumber Co. Ltd.
90. DH Manufacturing Inc.
91. Direct Cedar Supplies Ltd.
92. Distribution Rioux Inc.
93. Doubletree Forest Products Ltd.
94. Downie Timber Ltd.
95. Dunkley Lumber Ltd.
96. EACOM Timber Corporation
97. East Fraser Fiber Co. Ltd.
98. Edgewood Forest Products Inc.
99. Elrod Cartage Ltd.
100. ER Probyn Export Ltd.
101. Falcon Lumber Ltd.
102. Fontaine Inc.
103. Foothills Forest Products Inc.
104. Resolute Growth Canada Inc.; Forest Products Mauricie LP, Société en commandite Scierie Opitciwan; Resolute-LP Engineered Wood Larouche Inc.; Resolute-LP Engineered Wood St-Prime Limited Partnership; Resolute FP Canada Inc.
105. Fraser Specialty Products Ltd.
106. FraserWood Industries Ltd.
107. Furtado Forest Products Ltd.
108. Glandell Enterprises Inc.
109. Goldband Shake & Shingle Ltd.
110. Goldwood Industries Ltd.
111. Goodfellow Inc.
112. Gorman Bros. Lumber Ltd.
113. Greendale Industries Inc.
114. GreenFirst Forest Products (QC) Inc.
115. Greenwell Resources Inc.
116. Griff Building Supplies Ltd.
117. Groupe Crete Chertsey Inc.
118. Groupe Crete Division St-Faustin Inc.
119. Groupe Lebel Inc.
120. Groupe Lignarex Inc.
121. H.J. Crabbe & Sons Ltd.
122. Haida Forest Products Ltd.
123. Halo Sawmill, a division of Delta Cedar Specialties Ltd./Halo Sawmill Manufacturing Limited Partnership
124. Hampton Tree Farms, LLC (dba Hampton Lumber Sales Canada)
125. Hornepayne Lumber LP
126. Hudson Mitchell & Sons Lumber Inc.
127. Hy Mark Wood Products Inc.
128. Imperial Cedar Products Ltd.
129. Independent Building Materials Distribution Inc.
130. Interfor Corporation/Interfor Sales & Marketing Ltd.[16]
131. Intertran Holdings Ltd. (dba Richmond Terminal)
132. Island Cedar Products Ltd.
133. Ivor Forest Products Ltd.
134. J&G Log Works Ltd.
135. J.D. Irving, Limited
136. J.H. Huscroft Ltd.
137. Jan Woodlands (2001) Inc.
138. Jasco Forest Products Ltd.
139. Jazz Forest Products Ltd.
140. Jhajj Lumber Corporation
141. Kalesnikoff Lumber Co. Ltd.
142. Kan Wood Ltd.
143. Kebois Ltee; Kebois Ltd.
144. Kelfor Industries Ltd.
145. Kermode Forest Products Ltd.
146. Keystone Timber Ltd.
147. Lafontaine Lumber Inc.
148. Langevin Forest Products Inc.
149. Lecours Lumber Co. Limited
150. Leisure Lumber Ltd.
151. Les Bardeaux Lajoie Inc.
152. Les Bois d'oeuvre Beaudoin Gauthier inc.
153. Les Bois Martek Lumber
154. Les Bois Traites M.G. Inc.
155. Les Chantiers de Chibougamau Ltd.; Les Chantiers de Chibougamau Ltd.
156. Les Industries P.F. Inc.
157. Les Produits Forestiers D&G Ltee; D&G Forest Products Ltd.
158. Les Produits Forestiers Sitka Inc. (aka Sitka Forest Products Inc.)
159. Leslie Forest Products Ltd.
160. Lignum Forest Products LLP
161. Linwood Homes Ltd.
162. Lonestar Lumber lnc.
163. Lulumco Inc.
164. Magnum Forest Products Ltd.
165. Maibec Inc.
166. Mainland Sawmill, a division of Terminal Forest Products
167. Manitou Forest Products Ltd.
168. Manning Forest Products Ltd.; Sundre Forest Products Inc.; Blue Ridge Lumber Inc.; West Fraser Mills Ltd.
169. Marcel Lauzon Inc.
170. Marwood Ltd.
171. Materiaux Blanchet Inc.
172. Metrie Canada Ltd.
173. Mid Valley Lumber Specialties Ltd.
174. Midway Lumber Mills Ltd.
175. Mill & Timber Products Ltd.
176. Millar Western Forest Products Ltd.
177. Mirax Lumber Products Ltd.

[15] On August 26, 2021 Commerce published the final results of a changed circumstances review determining that CHAP Alliance, Inc. (CHAP) is the successor-in-interest to L'Atelier de Réadaptation au Travil de Beauce Inc. (L'Atelier). *See Certain Softwood Lumber Products From Canada: Notice of Final Results of Antidumping Duty Changed Circumstances Review,* 86 FR 47621 (August 26, 2021). We intend to liquidate all entries by L'Atelier based on the final results, but revise the cash deposit rate to apply to CHAP.

[16] In the previous review, in the ACE module Interfor Corporation and Interfor Sales & Marketing Ltd. were set up with different company numbers, *i.e.,* A–122–857–118 and A–122–857–299. In the instant review, Interfor Corporation and Interfor Sales & Marketing Ltd. have stated that both Interfor Corporation and Interfor Sales & Marketing export lumber produced by Interfor Corporation. *See* Interfor Corporation and Interfor Sales & Marketing Ltd.'s Letter, ''Comments in Response to Commerce's Request for Clarification of the Review Requests,'' dated February 14, 2022. Therefore, for the final results, we will combine both company names under one company number.

178. Mobilier Rustique (Beauce) Inc.
179. Modern Terminal Ltd.
180. Monterra Lumber Mills Limited
181. Morwood Forest Products Inc.
182. Multicedre Ltee
183. Murray Brothers Lumber Company Ltd.
184. Nagaard Sawmill Ltd.
185. Nakina Lumber Inc.
186. National Forest Products Ltd.
187. Nicholson and Cates Ltd.
188. Nickel Lake Lumber
189. Norsask Forest Products Inc.
190. Norsask Forest Products Limited Partnership
191. North American Forest Products Ltd. (located in Abbotsford, British Columbia)
192. North American Forest Products Ltd. (located in Saint-Quentin, New Brunswick)
193. North Enderby Timber Ltd.
194. Northland Forest Products Ltd.
195. NSC Lumber Ltd.
196. Olympic Industries Inc.
197. Olympic Industries ULC
198. Oregon Canadian Forest Products; Oregon Canadian Forest Products Inc.
199. Pacific Coast Cedar Products Ltd.
200. Pacific Lumber Remanufacturing Inc.
201. Pacific Pallet Ltd.
202. Pacific Western Wood Works Ltd.
203. PalletSource Inc.
204. Parallel Wood Products Ltd.
205. Pat Power Forest Products Corporation
206. Peak Industries (Cranbrook) Ltd.
207. Phoenix Forest Products Inc.
208. Pine Ideas Ltd.
209. Pioneer Pallet & Lumber Ltd.
210. Porcupine Wood Products Ltd.
211. Portbec Forest Products Ltd (aka Les Produits Forestiers Portbec Ltée)
212. Power Wood Corp.
213. Precision Cedar Products Corp.
214. Prendiville Industries Ltd. (aka Kenora Forest Products)
215. Produits Forestiers Petit Paris Inc.
216. Produits Matra Inc.
217. Promobois G.D.S. Inc.
218. Rayonier A.M. Canada GP
219. Rembos Inc.
220. Rene Bernard Inc.
221. Rick Dubois
222. Rielly Industrial Lumber Inc.
223. River City Remanufacturing Inc.
224. S&R Sawmills Ltd.
225. S&W Forest Products Ltd.
226. San Group
227. San Industries Ltd.
228. Sapphire Lumber Company
229. Sawarne Lumber Co. Ltd.
230. Scierie Alexandre Lemay & Fils Inc.
231. Scierie St-Michel Inc.
232. Scierie West Brome Inc.
233. Scott Lumber Sales/Scott Lumber Sales Ltd.[17]
234. Sechoirs de Beauce Inc.
235. Shakertown Corp.
236. Sigurdson Forest Products Ltd.
237. Silvaris Corporation
238. Sinclar Group Forest Products Ltd.
239. Skana Forest Products Ltd.
240. Skeena Sawmills Ltd.
241. Sonora Logging Ltd.
242. Source Forest Products
243. South Beach Trading Inc.
244. South Coast Reman Ltd./Southcoast Millwork Ltd.[18]
245. South Fraser Container Terminals
246. Specialiste du Bardeau de Cedre Inc./ Specialiste du Bardeau de Cedre Inc. (SBC)
247. Spruceland Millworks Inc.
248. Star Lumber Canada Ltd.
249. Suncoast Industries Inc.
250. Suncoh Custom Lumber Ltd.
251. Sundher Timber Products Inc.
252. Surplus G Rioux
253. Surrey Cedar Ltd.
254. Swiftwood Forest Products Ltd.
255. T&P Trucking Ltd.
256. Taan Forest Limited Partnership (aka Taan Forest Products)
257. Taiga Building Products Ltd.
258. Tall Tree Lumber Company
259. Temrex Forest Products LP; Produits Forestiers Temrex SEC.
260. Tenryu Canada Corporation
261. Terminal Forest Products Ltd.
262. TG Wood Products
263. The Wood Source Inc.
264. Tolko Industries Ltd.; Tolko Marketing and Sales Ltd.; Gilbert Smith Forest Products Ltd.
265. Top Quality Lumber Ltd.
266. Trans-Pacific Trading Ltd.
267. Triad Forest Products Ltd.
268. Twin Rivers Paper Co. Inc.
269. Tyee Timber Products Ltd.
270. Usine Sartigan Inc.
271. Vaagen Fibre Canada ULC
272. Valley Cedar 2 Inc.
273. Vancouver Specialty Cedar Products Ltd.
274. Vanderhoof Specialty Wood Products Ltd.
275. Visscher Lumber Inc.
276. W.I. Woodtone Industries Inc.
277. Waldun Forest Product Sales Ltd.
278. Watkins Sawmills Ltd.
279. West Bay Forest Products Ltd.
280. Western Forest Products Inc.
281. Western Lumber Sales Limited
282. Western Timber Products, Inc.
283. Westminster Industries Ltd.
284. Weston Forest Products Inc.
285. Weyerhaeuser Co.
286. White River Forest Products L.P.
287. Winton Homes Ltd.
288. Woodline Forest Products Ltd.
289. Woodstock Forest Products
290. Woodtone Specialties Inc.
291. WWW Timber Products Ltd.

[FR Doc. 2023–01719 Filed 1–26–23; 8:45 am]

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[17] *See* Scott Lumber Sales Letter, ''Requests for Clarifications of Review Requests,'' dated February 10, 2022, in which Scott Lumber Sales confirmed that its complete name is Scott Lumber Sales Ltd.

[18] Patrick Lumber submitted information that South Coast Reman Ltd. and Southcoast Millwork Ltd. are the same company. *See* Patrick Lumber's Letter, ''Patrick Lumber Company Response to Request for Clarification of Review Request,'' dated February 14, 2022; *see also* Patrick Lumber's Letter, ''Company Request for Administrative Review (1/1/2021–12/31/2021),'' dated January 31, 2022. We have added Southcoast Millwork Ltd. to the ACE module for case number A–122–857–322.

DEPARTMENT OF COMMERCE

International Trade Administration

[A–533–838]

Carbazole Violet Pigment 23 From India: Initiation of Antidumping Duty New Shipper Review

AGENCY: Enforcement and Compliance, International Trade Administration, Department of Commerce.

SUMMARY: The U.S. Department of Commerce (Commerce) has determined that a request for a new shipper review (NSR) of the antidumping duty order on carbazole violet pigment 23 from India meets the statutory and regulatory requirements for initiation. The period of review (POR) for the NSR is December 1, 2021, through November 31, 2022.

DATES: Applicable January 27, 2023.

FOR FURTHER INFORMATION CONTACT: Dennis McClure, AD/CVD Operations, Office VIII, Enforcement and Compliance, International Trade Administration, U.S. Department of Commerce, 1401 Constitution Avenue NW, Washington, DC 20230; telephone: (202) 482–5973.

SUPPLEMENTARY INFORMATION:

Background

Commerce published the antidumping duty order on carbazole violet pigment 23 from India on December 29, 2004.[1] On December 9, 2022, and January 3, 2023, pursuant to section 751(a)(2)(B)(i) of the Tariff Act of 1930, as amended (the Act), and 19 CFR 351.214(c), Commerce received timely NSR requests from Navpad Pigments Pvt. Ltd. and Sudarshan Chemical Industries Limited (Sudarshan).[2] As explained in Commerce's letter to Navpad, we rejected Navpad's request to initiate an NSR because U.S. Customs and Border Protection (CBP) data indicated that the company had made a sale of subject merchandise prior to the beginning of NSR POR and Navpad is, therefore, ineligible for an NSR.[3]

[1] *See Notice of Amended Final Determination of Sales at Less Than Fair Value and Antidumping Duty Order: Carbazole Violet Pigment 23 From India,* 69 FR 77988 (December 29, 2004) (*Order*).

[2] *See* Navpad's Letter, ''New Shipper Review Request,'' dated January 3, 2023; *see also* Sudarshan's Letters, ''Request for Initiation of a New Shipper Review of the Antidumping Duty Order (A–533–838),'' dated December 9, 2022; and ''Resubmission of Request for Initiation of a New Shipper Review of the Antidumping Duty Order (A–533–838) filed on December 09, 2022,'' dated January 19, 2023 (Sudarshan's NSR Request).

[3] *See* Commerce's Letter, ''Rejection of New Shipper Review Request,'' dated concurrently with

Continued

In its submission, Sudarshan certified that it is the producer and exporter of the subject merchandise subject to this NSR request.[4] Pursuant to section 751(a)(2)(B)(i)(I) of the Act and 19 CFR 351.214(b)(2)(i), Sudarshan certified that it did not export carbazole violet pigment 23 to the United States during the period of investigation (POI).[5] Additionally, pursuant to section 751(a)(2)(B)(i)(II) of the Act and 19 CFR 351.214(b)(2)(iii)(A), Sudarshan certified that, since the initiation of the investigation, it has not been affiliated with any producer or exporter that exported carbazole violet pigment 23 to the United States during the POI, including those not individually examined during the investigation.[6]

In its submission, pursuant to 19 CFR 351.214(b)(2)(iv), Sudarshan certified that it would provide necessary information related to the unaffiliated customer in the United States during the NSR. Sudarshan also provided a certification by its unaffiliated customer of its willingness to participate in the NSR.

In addition to the certifications described above, pursuant to 19 CFR 351.214(b)(2)(v), Sudarshan submitted documentation establishing the following: (1) the date on which the subject merchandise was first entered, or withdrawn from warehouse, for consumption; (2) the volume of its first shipment and any subsequent shipments, including whether such shipments were made in commercial quantities; and (3) the date of its first sale and any subsequent sales to an unaffiliated customer in the United States.[7]

Additionally, Sudarshan submitted documentation establishing the circumstances surrounding such sales, including: (1) the price of such sale; (2) any expenses arising from such sale; (3) whether the subject merchandise involved in such sale was resold in the United States at a profit; and (4) whether such sale were made on an arm's-length basis.[8] Sudarshan also submitted documentation regarding its business activities, including: (1) offers to sell merchandise in the United States; (2) an identification of the complete circumstance surrounding its sales to the United States, as well as any home market or third country sales; and (3) an identification of its relationship to the first unaffiliated U.S. purchaser.[9]

As explained in the Initiation Checklist, Commerce conducted a query of CBP data but found no suspended/Type 3 entries made by Sudarshan.[10] Section 351.214(b) of Commerce's regulations allows Commerce to accept an NSR request when a company exported, or sold for export, subject merchandise to the United States, and can demonstrate the existence of a *bona fide* sale.[11] As Sudarshan satisfies these requirements, we are initiating an NSR and will provide Sudarshan an opportunity to correct the classification of its entry(ies) to Type 3 (*i.e.,* suspended and subject to antidumping duties) in order to be able to continue to conduct the review.[12]

Period of Review

In accordance with 19 CFR 351.214(g)(1)(i)(A), the POR for an NSR initiated in the month immediately following the anniversary month will be the twelve-month period immediately preceding the anniversary month. Therefore, the POR for this NSR is December 1, 2021, through November 30, 2022.

Initiation of NSR

Pursuant to section 751(a)(2)(B) of the Act and 19 CFR 351.214(b), and based on the information on the record, we find that Sudarshan's NSR request meets the threshold requirements for initiation of an NSR of its shipments of carbazole violet pigment 23 to the United States.[13] However, if the information supplied by Sudarshan is later found to be incorrect or insufficient during the course of this NSR, Commerce may rescind the review or apply adverse facts available, pursuant to section 776 of the Act, as appropriate. Pursuant to 19 CFR 351.221(c)(1)(i), Commerce will publish the notice of initiation of an NSR no later than the last day of the month following the anniversary or semiannual anniversary month of the order. Commerce intends to issue the preliminary results of this review no later than 180 days from the date of initiation, and the final results of this review no later than 90 days after the date the preliminary results are issued.[14]

We intend to conduct this NSR in accordance with section 751(a)(2)(B) of the Act.[15] Because Sudarshan certified that it exported subject merchandise, the sale of which is the basis for its NSR request, Commerce will instruct CBP to suspend or continue to suspend liquidation of all entries of subject merchandise produced and exported by Sudarshan. To assist in its analysis of the *bona fide* nature of Sudarshan's sale(s), upon initiation of this NSR, Commerce will require Sudarshan to submit, on an ongoing basis, complete transaction information concerning any sales of subject merchandise to the United States that were made subsequent to the POR. Further, in accordance with section 751(a)(2)(B)(iv)(VII) of the Act and 19 CFR 351.214(k), Sudarshan will be required to provide information regarding the following factors for Commerce's consideration in determining whether the sales made by Sudarshan during the period of review are *bona fide:* (1) whether the producer, exporter, or customer was established for purposes of the sales in question after the imposition of the relevant antidumping or countervailing duty order; (2) whether the producer, exporter, or customer has lines of business unrelated to the subject merchandise; (3) the quantity of sales; and (4) any other factor that Commerce determines to be relevant with respect to the future selling behavior of the producer or exporter, including any other indicia that the sale was not commercially viable.

Interested parties requiring access to proprietary information in this NSR should submit applications for disclosure under administrative protective order in accordance with 19 CFR 351.305 and 351.306.

This initiation notice is published in accordance with section 751(a)(2)(B) of the Act and 19 CFR 351.214 and 351.221(c)(1)(i).

this notice; *see also* Memorandum, ''Placement of Navpad Pigments Pvt. Ltd. CBP Data Query Results on the Record,'' dated concurrently with this notice. We note that Navpad requested an administrative review under 19 CFR 351.213(b)(1)(4). Based on Navpad's concurrent request for an administrative review, we intend to conduct an administrative review of its entries of subject merchandise during the December 1, 2021, through November 31, 2022 POR, in accordance with 751(a)(1)(B) and 751(a)(2)(A) of the Act.

[4] Sudarshan's NSR Request at Exhibit 1.

[5] *Id.*

[6] *Id.*

[7] *Id.* at Exhibits C and D.

[8] *Id.* at Exhibits 1 and C.

[9] *Id.*

[10] For further discussion, *see* Memorandum, ''Initiation of Antidumping Duty New Shipper Review: Carbazole Violet Pigment 23,'' dated concurrently with this notice (Initiation Checklist).

[11] *See* 19 CFR 351.214(b).

[12] *See* Initiation Checklist.

[13] *See generally* Sudarshan's NSR Request.

[14] *See* section 751(a)(2)(B)(iii) of the Act.

[15] The Act was amended by the Trade Facilitation and Trade Enforcement Act of 2015, which removed from section 751(a)(2)(B) of the Act the provision directing Commerce to instruct CBP to allow an importer the option of posting a bond or security in lieu of a cash deposit during the pendency of an NSR. This was also codified in Commerce's regulations at 19 CFR 351.214(e).

Dated: January 24, 2023.

James Maeder,

Deputy Assistant Secretary for Antidumping and Countervailing Duty Operations.

[FR Doc. 2023–01716 Filed 1–26–23; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XC405]

Fisheries of the Exclusive Economic Zone Off Alaska; Groundfish of the Gulf of Alaska; Central Gulf of Alaska Rockfish Program

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notification of standard prices and fee percentage.

SUMMARY: NMFS publishes the standard ex-vessel prices and fee percentage for cost recovery under the Central Gulf of Alaska (GOA) Rockfish Program (Rockfish Program). This action is intended to provide participants in a rockfish cooperative with the standard prices and fee percentage for the 2022 fishing year, which was authorized from May 1 through November 15. The fee percentage is 2.53 percent. The fee payments are due from each rockfish cooperative on or before February 15, 2023.

DATES: *Valid on:* January 27, 2023.

FOR FURTHER INFORMATION CONTACT: Charmaine Weeks, 907–586–7105.

SUPPLEMENTARY INFORMATION:

Background

The rockfish fisheries are conducted in Federal waters near Kodiak, Alaska by trawl and longline vessels. Regulations implementing the Rockfish Program are set forth at 50 CFR part 679. Exclusive harvesting privileges are allocated as quota share under the Rockfish Program for rockfish primary and secondary species. Each year, NMFS issues rockfish primary and secondary species cooperative quota (CQ) to rockfish quota shareholders to authorize harvest of these species. The rockfish primary species are northern rockfish, Pacific Ocean perch, and dusky rockfish. The rockfish secondary species include Pacific cod, rougheye rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Rockfish cooperatives began fishing under the Rockfish Program in 2012.

The Rockfish Program is a limited access privilege program established under the provisions of section 303A of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Sections 303A and 304(d) of the Magnuson-Stevens Act require NMFS to collect fees to recover the actual costs directly related to the management, data collection and analysis, and enforcement of any limited access privilege program. Therefore, NMFS is required to collect fees for the Rockfish Program under sections 303A and 304(d)(2) of the Magnuson-Stevens Act. Section 304(d)(2) of the Magnuson-Stevens Act also limits the cost recovery fee so that it may not exceed 3 percent of the ex-vessel value of the fish harvested under the Rockfish Program.

Standard Prices

NMFS calculates cost recovery fees based on standard ex-vessel value prices, rather than actual price data provided by each rockfish CQ holder. Use of standard ex-vessel prices is allowed under sections 303A and 304(d)(2) of the Magnuson-Stevens Act. NMFS generates a standard ex-vessel price for each rockfish primary and secondary species on a monthly basis to determine the average price paid per pound for all shoreside processors receiving rockfish primary and secondary species CQ. Rockfish processors that receive and purchase landings of rockfish CQ groundfish must submit, on an annual basis, a volume and value report for the period May 1 to November 15 (50 CFR 679.5(r)(10)(ii)).

Regulations at 50 CFR 679.85(b)(2) require the Regional Administrator to publish rockfish standard ex-vessel values during the first quarter of each calendar year. The standard prices are described in U.S. dollars per pound for rockfish primary and secondary species CQ landings made during the previous year.

Fee Percentage

NMFS assesses a fee on the standard ex-vessel value of rockfish primary species and rockfish secondary species CQ harvested by rockfish cooperatives in the Central GOA and waters adjacent to the Central GOA when rockfish primary species caught by a cooperative are deducted from the Federal total allowable catch. The rockfish entry level longline fishery and trawl vessels that opt out of joining a cooperative are not subject to cost recovery fees because those participants do not receive rockfish CQ. Specific details on the Rockfish Program's cost recovery provision may be found in the implementing regulations set forth at 50 CFR 679.85.

NMFS informs—by letter—each rockfish cooperative of the fee percentage applied to the previous year's landings and the total amount due. Fees are due on or before February 15 of each year. Failure to pay on time will result in the permit holder's rockfish quota share becoming non-transferable, and the person will be ineligible to receive any additional rockfish quota share by transfer. In addition, cooperative members will not receive any rockfish CQ the following year until full payment of the fee is received by NMFS.

NMFS calculates and publishes in the **Federal Register** the fee percentage in the first quarter of each year according to the factors and methods described in Federal regulations at 50 CFR 679.85(c)(2). NMFS determines the fee percentage that applies to landings made in the previous year by dividing the total Rockfish Program management, data collection and analysis, and enforcement costs (direct program costs) during the previous year by the total standard ex-vessel value of the rockfish primary species and rockfish secondary species for all rockfish CQ landings made during the previous year (fishery value). NMFS captures the direct program costs through an established accounting system that allows staff to track labor, travel, contracts, rent, and procurement. Fee collections in any given year may be less than or greater than the direct program costs and fishery value for that year, as the fee percentage is established by regulation in the first quarter of the calendar year based on the program costs and the fishery value of the previous calendar year.

Using the fee percentage formula described above, the estimated percentage of program costs to value for the 2022 calendar year is 2.53 percent of the standard ex-vessel value. Program costs for 2022 increased compared to 2021 costs; however, the fishery value increased approximately 18 percent resulting in a lower fee percentage. Similar to 2021, the majority of 2022 costs were a result of direct personnel and contract costs.

TABLE 1—STANDARD EX-VESSEL PRICES BY SPECIES FOR THE 2022 ROCKFISH PROGRAM SEASON IN KODIAK, ALASKA

Species	Month	Average price/lb.
Dusky Rockfish	May	0.13
	June	0.12
	July	0.13

TABLE 1—STANDARD EX-VESSEL PRICES BY SPECIES FOR THE 2022 ROCKFISH PROGRAM SEASON IN KODIAK, ALASKA—Continued

Species	Month	Average price/lb.
	Aug	0.14
	September	0.13
	October	0.12
	November	0.14
Northern Rockfish	May	0.13
	June	0.13
	July	0.11
	Aug	0.13
	September	0.13
	October	0.13
	November	0.14
Pacific Cod	May	0.45
	June	0.40
	July	0.41
	Aug	0.35
	September	0.41
	October	0.39
	November	0.43
Pacific Ocean Perch	May	0.15
	June	0.16
	July	0.16
	Aug	0.14
	September	0.16
	October	0.17
	November	0.15
Rougheye Rockfish	May	0.11
	June	0.12
	July	0.12
	Aug	0.12
	September	0.12
	October	0.12
	November	0.12
Sablefish	May	1.42
	June	1.39
	July	1.35
	Aug	1.35
	September	1.35
	October	1.19
	November	1.35
Shortraker Rockfish	May	0.20
	June	0.14
	July	0.16
	Aug	0.16
	September	0.16
	October	0.16
	November	0.16
Thornyhead Rockfish	May	0.40
	June	0.34
	July	0.37
	Aug	0.37
	September	0.37
	October	0.36
	November	0.37

Authority: 16 U.S.C. 773 *et seq.;* 1801 *et seq.;* 3631 *et seq.;* Pub. L. 108–447; Pub. L. 111–281.

Dated: January 24, 2023.

Kelly Denit,

Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 2023–01703 Filed 1–26–23; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XC714]

Nominations to the Marine Fisheries Advisory Committee

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; request for nominations.

SUMMARY: The Secretary of Commerce (Secretary) seeks nominations to fill vacancies on the Marine Fisheries Advisory Committee (MAFAC or Committee). MAFAC is responsible to advise the Secretary, NOAA, and NMFS on all matters concerning living marine resources that are the responsibility of the Department of Commerce. The Committee makes recommendations to assist in the development and implementation of Departmental regulations, policies, and programs critical to the mission and goals of NMFS. Nominations are encouraged from all individuals involved with or representing interests affected by NMFS actions in managing living marine resources. Nominees should possess demonstrable expertise in a field related to the management of living marine resources and be able to fulfill the time commitment required for two annual meetings and year-round subcommittee work. Individuals serve for a term of 3 years for no more than two consecutive terms if re-appointed. NMFS seeks qualified nominees to fill pending vacancies.

DATES: Nominations must be emailed on or before March 13, 2023.

ADDRESSES: Nominations should be sent to Katie Denman, MAFAC Assistant, NMFS Office of Policy, by email: *katie.denman@noaa.gov.*

FOR FURTHER INFORMATION CONTACT: Katie Denman, MAFAC Assistant; (301) 427–8034; email: *katie.denman@noaa.gov.*

SUPPLEMENTARY INFORMATION: The MAFAC was approved by the Secretary on December 28, 1970, and subsequently chartered under the Federal Advisory Committee Act, 5 U.S.C. App. 2, on February 17, 1971. The Committee meets twice a year, and holds supplementary meetings when necessary, as determined by NMFS or the Committee Chair. MAFAC is comprised of 15 to 21 individuals. Members are highly qualified, diverse individuals with experience in commercial, recreational, aquaculture, and non-commercial fisheries and businesses; seafood industry, including processing, marketing, restaurants and related industries; marine, ecosystems, or protected resources management and conservation; and human dimensions or social sciences associated with living marine resources and working waterfronts. Members may be from tribes or indigenous groups, environmental organizations, academia, consumer groups, and other living marine resource interest groups from all U.S. geographical regions, including the Western Pacific and Caribbean. The NMFS strives to ensure MAFAC members represent a diversity of individuals and interests.

A MAFAC member cannot be: a Federal employee; a state official, their designee, or an appointed member of a regional fishery management council; registered Federal lobbyist; or agent of a foreign principal. Selected candidates must pass a security check and submit a financial disclosure form. Membership is voluntary, and except for reimbursable travel and related expenses, service is without pay.

Each nomination must include the nominee's name, address, telephone number and email address; a cover letter describing the nominee's interest in serving on the Committee and qualifications; and their curriculum vitae or resume. Up to three letters of support may be submitted. Self-nominations will be accepted.

Nominations should be sent to Katie Denman (see **ADDRESSES**) and must be received by March 13, 2023. The full text of the Committee Charter and its current membership can be viewed at the NMFS' web page at *https://www.fisheries.noaa.gov/national/partners/marine-fisheries-advisory-committee-charter.*

Dated: January 23, 2023.

Jennifer Lukens,

Director for the Office of Policy, National Marine Fisheries Service.

[FR Doc. 2023–01609 Filed 1–26–23; 8:45 am]

BILLING CODE 3510–22–P

COMMITTEE FOR PURCHASE FROM PEOPLE WHO ARE BLIND OR SEVERELY DISABLED

Procurement List; Proposed Additions and Deletions

AGENCY: Committee for Purchase from People Who Are Blind or Severely Disabled.

ACTION: Proposed additions to and deletions from the procurement list.

SUMMARY: The Committee is proposing to add service(s) to the Procurement List that will be furnished by nonprofit agencies employing persons who are blind or have other severe disabilities, and delete product(s) previously furnished by such agencies.

DATES: *Comments must be received on or before:* February 26, 2023.

ADDRESSES: Committee for Purchase From People Who Are Blind or Severely Disabled, 355 E Street SW, Suite 325, Washington, DC 20024.

FOR FURTHER INFORMATION CONTACT: For further information or to submit comments contact: Michael R. Jurkowski, Telephone: (703) 785–6404,or email *CMTEFedReg@AbilityOne.gov.*

SUPPLEMENTARY INFORMATION: This notice is published pursuant to 41 U.S.C. 8503(a)(2) and 41 CFR 51–2.3. Its purpose is to provide interested persons an opportunity to submit comments on the proposed actions.

Additions

If the Committee approves the proposed additions, the entities of the Federal Government identified in this notice will be required to procure the service(s) listed below from nonprofit agencies employing persons who are blind or have other severe disabilities.

The following service(s) are proposed for addition to the Procurement List for production by the nonprofit agencies listed:

Service(s)

Service Type: Contractor Operated Civil Engineer Supply Store
Mandatory for: Malmstrom Air Force Base, Malmstrom AFB, MT
Designated Source of Supply: South Texas Lighthouse for the Blind, Corpus Christi, TX
Contracting Activity: DEPT OF THE AIR FORCE, FA4626 341 CONS LGC
Service Type: Document Conversion
Mandatory for: Department of Homeland Security, US Coast Guard Finance Center, Chesapeake, VA
Designated Source of Supply: ServiceSource, Inc., Oakton, VA
Contracting Activity: U.S. COAST GUARD, HQ CONTRACT OPERATIONS (CG–912)(000

Deletions

The following product is proposed for deletion from the Procurement List:

Product(s)

NSN(s)—Product Name(s):
7110–01–590–8676—Dual Monitor Arm, Column Mount, Ergonomic, Dark Gray, 21.7″ W × 14.6″ H x 7.1″ D
7110–01–590–8674—Monitor Arm, Column Mount, Ergonomic, Individual, Dark Gray, 17″

Mandatory Source of Supply: Chicago Lighthouse Industries, Chicago, IL
Contracting Activity: GSA/FAS FURNITURE SYSTEMS MGT DIV, PHILADELPHIA, PA

Michael R. Jurkowski,

Acting Director, Business Operations.

[FR Doc. 2023–01637 Filed 1–26–23; 8:45 am]

BILLING CODE 6353–01–P

BUREAU OF CONSUMER FINANCIAL PROTECTION

[Docket No. CFPB–2023–0009]

Request for Information Regarding Consumer Credit Card Market

AGENCY: Bureau of Consumer Financial Protection.

ACTION: Notice and request for information.

SUMMARY: Section 502(a) of the Credit Card Accountability Responsibility and Disclosure Act of 2009 (CARD Act or Act) requires the Consumer Financial Protection Bureau (CFPB) to conduct a review (Review) of the consumer credit card market, within the limits of its existing resources available for reporting purposes. In connection with conducting that Review, and in accordance with section 502(b) of the Act, the CFPB is soliciting information from the public about a number of aspects of the consumer credit card market as described further below.

DATES: Comments must be submitted on or before April 24, 2023, to be assured of consideration.

ADDRESSES: You may submit responsive information and other comments, identified by the document title and Docket No. CFPB–2023–0009, by any of the following methods:

- *Federal eRulemaking Portal: https://www.regulations.gov.* Follow the instructions for submitting comments.
- *Email: 2023_009_ConsumerCreditCardMarketRFI@cfpb.gov.* Include the document title and Docket No. CFPB–2023–0009 in the subject line of the message.
- *Mail/Hand Delivery/Courier:* Comment Intake, Request for Information Regarding Consumer Credit Card Market, Consumer Financial Protection Bureau, c/o Legal Division Docket Manager, 1700 G Street NW, Washington, DC 20552. Because paper mail in the Washington, DC area and at the CFPB is subject to delay, commenters are encouraged to submit comments electronically.

Instructions: The CFPB encourages the early submission of comments. All submissions should include the agency name and docket number for this request for information. Please note the number of the topic on which you are commenting at the top of each response (you do not need to address all topics). In general, all comments received will be posted without change to *https://www.regulations.gov.* All comments, including attachments and other supporting materials, will become part of the public record and subject to public disclosure. Sensitive personal information, such as account numbers or Social Security numbers, should not be included. Comments generally will not be edited to remove any identifying or contact information.

FOR FURTHER INFORMATION CONTACT: Wei Zhang, Consumer Credit, Payments, and Deposits Markets Section Chief, Division of Research, Markets, and Regulations, at (202) 435–7700, or *wei.zhang@cfpb.gov.* If you require this document in an alternative electronic format, please contact *CFPB_Accessibility@cfpb.gov.*

SUPPLEMENTARY INFORMATION: Section 502(a) of the CARD Act [1] requires the CFPB to conduct a review, within the limits of its existing resources available for reporting purposes, of the consumer credit card market every two years. To inform that review, section 502(b) instructs the CFPB to seek public comment.[2]

The CFPB's first such review was published in October 2013; the CFPB's second such review was published in December 2015; the CFPB's third such review was published in December 2017; the CFPB's fourth such review was published in August 2019; the CFPB's fifth such review was published in September 2021.[3] To inform the CFPB's next review, the CFPB hereby invites members of the public, including consumers, credit card issuers, industry analysts, consumer groups, and other interested persons to submit information and other comments relevant to the issues expressly identified in section 2 below, as well as

[1] *See* 15 U.S.C. 1616(a).

[2] *See* 15 U.S.C. 1616(b).

[3] CARD Act Report, *available at http://files.consumerfinance.gov/f/201309_cfpb_card-act-report.pdf;* The Consumer Credit Card Market, *available at http://files.consumerfinance.gov/f/201512_cfpb_report-the-consumer-credit-card-market.pdf;* The Consumer Credit Card Market, *available at https://files.consumerfinance.gov/f/documents/cfpb_consumer-credit-card-market-report_2017.pdf;* The Consumer Credit Card Market, *available at https://files.consumerfinance.gov/f/documents/cfpb_consumer-credit-card-market-report_2019.pdf;* The Consumer Credit Card Market, *available at https://files.consumerfinance.gov/f/documents/cfpb_consumer-credit-card-market-report_2021.pdf.*

any information they believe is relevant to a review of the credit card market.

1. Background: The CARD Act

The CARD Act was signed into law in May 2009.[4] Passage of the Act was expressly intended to ''establish fair and transparent practices related to the extension of credit'' in the credit card market.[5] To achieve these agreed-upon purposes, the Act changed the requirements applicable to credit card practices in a number of significant respects.[6]

2. Issues on Which the CFPB Seeks Public Comment for Its Review

In connection with its pending Review, the CFPB seeks information from members of the public about how the credit card market is functioning. The CFPB seeks comments on the experiences of consumers and credit card issuers in the credit card market and on the overall health of the credit card market, as outlined in section 502(a) and in (1) through (7) below. While the CFPB identifies specific topics of interest below, the CFPB also wants to be alerted to and understand the information that consumers, credit card issuers, industry analysts, consumer groups, and other interested persons believe is most relevant to the CFPB's review of the credit card market, so this list of subjects should not be viewed as exhaustive. Commenters are encouraged to address any other aspects of the consumer credit card market that they believe would be of interest or concern to the CFPB.

Please feel free to comment generally or respond to any or all of the questions below but please indicate in your comments on which topic areas or questions you are commenting:

(1) The Terms of Credit Card Agreements and the Practices of Credit Card Issuers

a. How have the substantive terms and conditions of credit card agreements or the length and complexity of such agreements changed over the past two years?

b. How have issuers changed their pricing, marketing, underwriting, or other practices?

c. How are the terms of, and practices related to, major supplementary credit card features (such as credit card rewards, deferred interest promotions, balance transfers, and cash advances) evolving? What are the terms of, practices related to, and prevalence of emerging supplementary credit card features (such as credit card installment plans)?

d. How have issuers' marketing practices changed since the CFPB reported on the credit card market in 2021? Has this impacted consumers' ability to comparison shop? If so, in what ways?

e. What practices of credit card issuers may uniquely affect special populations (such as servicemembers and their dependents, low- and moderate-income consumers, older Americans, and students)? What are the effects of protections specific to special populations (for example, the Servicemembers Civil Relief Act or the Military Lending Act)? How are these changing and what, if any, trends are evolving?

f. How have practices related to collecting on delinquent and charged-off credit card debt changed over the past two years?

g. Has the use of electronic communication (*e.g.,* email or SMS) by creditors and debt collectors in connection with credit card debt grown or otherwise evolved? If so, in what ways?

h. How are the terms of, and practices related to, partnerships between credit card issuers and merchant partners (such as hospitality, airline, healthcare, and/or retail companies) evolving?

(2) The Effectiveness of Disclosure of Terms, Fees, and Other Expenses of Credit Card Plans

a. How effective are current disclosures of rates, fees, and other cost terms of credit card accounts in conveying to consumers the costs of credit card plans?

b. What further improvements in disclosure, if any, would benefit consumers and what costs would card issuers or others incur in providing such disclosures?

c. How well are current credit card disclosure rules and practices adapted to the digital environment? What adaptations to credit card disclosure regimes in the digital environment would better serve consumers or reduce industry compliance burden?

(3) The Adequacy of Protections Against Unfair, Deceptive, or Abusive Acts or Practices Relating to Credit Card Plans

a. What unfair, deceptive, or abusive acts and practices exist in the credit card market? How prevalent are these acts and practices and what effect do they have? With regard to any unfair, deceptive, or abusive acts and practices that exist in the credit card market, how might any such conduct be prevented and at what cost?

(4) The Cost and Availability of Consumer Credit Cards

a. How have the cost and availability of consumer credit cards (including with respect to non-prime borrowers) changed since the CFPB reported on the credit card market in 2021? What is responsible for changes (or absence of changes) in cost and availability? Has the impact of the CARD Act on cost and availability changed over the past two years?

b. How, if at all, are the characteristics of consumers with lower credit scores changing? How are groups of consumers in different score tiers faring in the market? How do other factors relating to consumer demographics or financial lives affect consumers' ability to successfully obtain and use credit cards?

(5) The Safety and Soundness of Credit Card Issuers

a. What, if any, safety and soundness risks related to the credit cycle are present or growing in this market, and which entities are disproportionately affected by these risks? Has the impact of the CARD Act on safety and soundness changed over the past two years?

b. How have current dynamics related to funding sources (such as asset-backed securities or deposits) for credit card receivables affected issuers' profitability and lending operations? What changes, if any, in capital markets for credit cards have there been since the last biennial report? How do capital requirements for different types of institutions affect competition in the credit card market or consumer's access to and cost of credit? How might these trends positively or negatively impact consumers?

(6) The Use of Risk-Based Pricing for Consumer Credit Cards

a. How has the use of risk-based pricing for consumer credit cards changed since the CFPB reported on the credit card market in 2021? What has driven those changes or lack of changes? Has the impact of the CARD Act on risk-based pricing changed over the past two years?

b. How have CARD Act provisions relating to risk-based pricing impacted (positively or negatively) the evolution of practices in this market?

[4] The CARD Act's provisions took effect in three stages: August 2009, February 2010, and October 2011.

[5] Public Law 111–24, 123 Stat. 1734 (2009).

[6] *See* CARD Act Report at 10–13, *available at http://files.consumerfinance.gov/f/201309_cfpb_card-act-report.pdf.*

(7) Consumer Credit Card Product Innovation and Competition

a. How has credit card product innovation changed since the CFPB reported on the credit card market in 2021? What has driven those changes or lack of changes? Has the impact of the CARD Act on product innovation changed over the past two years?

b. How is competition in the consumer credit card market changing? How has the CARD Act (positively or negatively) impacted competition between credit card issuers? How, if at all, do these changes and impacts relate to the cost or availability of consumer credit cards?

c. What barriers to entry, if any, exist in the consumer credit market? What obstacles may smaller financial institutions face when launching a credit card product? How are these impediments changing and what, if any, trends are evolving? To what extent are financial institutions adopting ''credit card-as-a-service'' offerings? How might these changes affect competition, promote innovation, or introduce risk, if at all?

d. How have broader innovations in finance, such as (but not limited to) new products and entrants offering unique features (like rewards redemption for cryptocurrency, environmental causes, and other categories beyond cash-back or points), evolving digital tools, greater availability of and new applications for consumer data, and new technological tools (like machine learning), impacted the consumer credit card market, either directly or indirectly? In what ways do CARD Act provisions encourage or discourage innovation? In what ways do innovations increase or decrease the impact of certain CARD Act provisions, or change the nature of those impacts?

e. How do innovations by firms offering other consumer financial products and services (such as buy-now-pay-later credit, mobile payments, or non-card point-of-sale loans) compete with credit cards, and to what extent do consumers view them as effective alternatives to or substitutes for credit cards?

Rohit Chopra,

Director, Consumer Financial Protection Bureau.

[FR Doc. 2023–01722 Filed 1–26–23; 8:45 am]

BILLING CODE 4810–AM–P

CONSUMER PRODUCT SAFETY COMMISSION

Sunshine Act Meeting

TIME AND DATE: Wednesday, January 25, 2023; 11:30 a.m.

PLACE: The meeting will be held remotely.

STATUS: Commission Meeting—Closed to the Public.

MATTERS TO BE CONSIDERED: *Briefing Matter.*

CONTACT PERSON FOR MORE INFORMATION: Alberta E. Mills, Office of the Secretary, U.S. Consumer Product Safety Commission, 4330 East West Highway, Bethesda, MD 20814, 301–504–7479 (Office) or 240–863–8938 (Cell).

Dated: January 24, 2023.

Alberta E. Mills,

Commission Secretary.

[FR Doc. 2023–01770 Filed 1–25–23; 11:15 am]

BILLING CODE 6355–01–P

CORPORATION FOR NATIONAL AND COMMUNITY SERVICE

Agency Information Collection Activities; Submission to the Office of Management and Budget for Review and Approval; Comment Request; NCCC Project Sponsor Survey

AGENCY: Corporation for National and Community Service.

ACTION: Notice of Information Collection; request for comment.

SUMMARY: The Corporation for National and Community Service, operating as AmeriCorps, has submitted a public information collection request (ICR) entitled NCCC Project Sponsor Survey for review and approval in accordance with the Paperwork Reduction Act.

DATES: Written comments must be submitted to the individual and office listed in the **ADDRESSES** section by February 27, 2023.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Copies of this ICR, with applicable supporting documentation, may be obtained by calling the Corporation for National and Community Service, Michael Ketover, at 202–873–4574 or by email to *mketover@cns.gov.*

SUPPLEMENTARY INFORMATION: The OMB is particularly interested in comments which:

- Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of CNCS, including whether the information will have practical utility;
- Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions;
- Propose ways to enhance the quality, utility, and clarity of the information to be collected; and
- Propose ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Comments

A 60-day Notice requesting public comment was published in the **Federal Register** on November 15th, 2022 at Vol. FR 68470. This comment period ended January, 16, 2023. No public comments were received from this Notice.

Title of Collection: NCCC Project Sponsor Survey.

OMB Control Number: 3045–0190. Type of Review: Renewal.

Respondents/Affected Public: Businesses and Organizations.

Total Estimated Number of Annual Responses: 300.

Total Estimated Number of Annual Burden Hours: 99.

Abstract: The AmeriCorps NCCC Project Sponsor Survey is completed by organizations who have sponsored an AmeriCorps NCCC team. The information requested in the survey is used by AmeriCorps staff to collect feedback from project sponsors. AmeriCorps seeks to renew the current information collection without revisions. AmeriCorps also seeks to continue using the current application until the revised application is approved by OMB. The current application is due to expire on January 31, 2023.

Ken Goodson,

Director, AmeriCorps NCCC.

[FR Doc. 2023–01678 Filed 1–26–23; 8:45 am]

BILLING CODE 6050–28–P

DEPARTMENT OF DEFENSE

Office of the Secretary

Reserve Forces Policy Board; Notice of Federal Advisory Committee Meeting

AGENCY: Under Secretary of Defense for Personnel and Readiness, Department of Defense (DoD).

ACTION: Notice of Federal Advisory Committee meeting.

SUMMARY: The DoD is publishing this notice to announce that the following Federal Advisory Committee meeting of the Reserve Forces Policy Board (RFPB) will take place.

DATES: The RFPB will hold an open meeting to the public Wednesday, February 15, 2023 from 8:30 a.m. to 4:30 p.m.

ADDRESSES: The RFPB meeting address is the Pentagon Library and Conference Center, Room B7, Arlington, VA.

FOR FURTHER INFORMATION CONTACT: Colonel Rich Sudder at *richard.m.sudder.mil@mail.mil* (Email). Mailing address is Reserve Forces Policy Board, 5109 Leesburg Pike, Suite 501, Falls Church, VA 22041. Website: *https://rfpb.defense.gov/*. The most up-to-date changes to the meeting agenda can be found on the website.

SUPPLEMENTARY INFORMATION: This meeting is being held under the provisions of the Federal Advisory Committee Act (FACA) of 1972 (5 U.S.C. Appendix, as amended), the Government in the Sunshine Act of 1976 (5 U.S.C. 552b, as amended), and 41 CFR 102–3.140 and 102–3.150.

Purpose of the Meeting: The purpose of the meeting is to obtain, review and evaluate information related to strategies, policies, and practices designed to improve and enhance the capabilities, efficiency, and effectiveness of the Reserve Components.

Agenda: The RFPB will hold an open meeting to the public Wednesday, February 15, 2023 from 8:30 a.m. to 4:30 p.m. The meeting will focus on discussions with: the Secretary of Defense (invited) will address key National Defense Strategy (NDS) challenges facing our Nation, and the priorities for the Total Force integrating the Reserve Component to defend a contested Homeland; the Deputy Under Secretary of Defense for Personnel and Readiness will discuss the Under Secretary of Defense for Personnel and Readiness guidance with its effects on the Reserve Component's policies and programs and his views on key Reserve challenges in supporting the Total Force in a contested Homeland; the RFPB Military Executive will discuss the proposed recommendation for a Total Force Policy and present it for a Board vote; the Deputy Assistant Secretary for Military Personnel Policy will provide current status on Reserve Component recruiting & retention data, initiatives, and the future outlook of the Reserve Component; the Director of Personnel, Headquarters U.S. Air Force Reserve will provide an update on the Space Force personnel and potential for the formation of a Reserve and National Guard Space component; the RFPB Subcommittee Break-Out Sessions with the Subcommittee for Integration of Total Force Personnel Policy, the Subcommittee for the Reserve Components' Role in Homeland Defense and Support to Civil Authorities, and the Subcommittee for Total Force Integration will conduct discussions on subcommittees' priorities and focus areas received from this meeting's discussions and other areas where the Board can best provide support to the taskings of the Secretary of Defense and the Sponsor, USD P&R, involving the Reserve Component; the Senior Enlisted Advisor to the Chairman of the Joint Chiefs of Staff will discuss the current status of the Services' recruiting and retention efforts, current and emerging personnel issues, and topics pertaining to Total Force Policy; the U.S. Navy, U.S. Army, U.S. Air Force Under Secretaries and Assistant Commandant of the U.S. Marine Corps will discuss their respective Service's priorities related to personnel issues, recruiting and retention initiatives, and topics pertaining to the Total Force Policy; the RFPB Subcommittee chairs of the Subcommittee for Integration of Total Force Personnel Policy, the Subcommittee for the Reserve Components' Role in Homeland Defense and Support to Civil Authorities, and the Subcommittee for Total Force Integration will conduct discussions on subcommittee priorities and focus areas received from the meeting's discussions and areas where the Board can best provide recommended support to the taskings of the Secretary of Defense and the Sponsor, USD P&R, involving the Reserve Component; and will conclude with the Chairman's closing remarks.

Meeting Accessibility: Pursuant to 5 U.S.C. 552b, as amended and 41 CFR 102–3.140 through 102–3.165, and subject to the availability of space, the meeting is open to the public from 8:30 a.m. to 4:30 p.m. Seating is based on a first-come, first-served basis. All members of the public who wish to attend the public meeting must contact Colonel Rich Sudder, the Assistant Designated Federal Officer, no later than 12:00 p.m. on Monday, February 13, 2023, as listed in the **FOR FURTHER INFORMATION CONTACT** section.

Written Statements: Pursuant to 41 CFR 102–3.105(j) and 102–3.140 and section 10(a)(3) of the FACA, interested persons may submit written statements to the RFPB at any time about its approved agenda or at any time on the Board's mission. Written statements should be submitted to the RFPB's Designated Federal Officer at the address or facsimile number listed in the **FOR FURTHER INFORMATION CONTACT** section. If statements pertain to a specific topic being discussed at the planned meeting, then these statements must be submitted no later than five (5) business days prior to the meeting in question. Written statements received after this date may not be provided to or considered by the RFPB until its next meeting. The Designated Federal Officer will review all timely submitted written statements and provide copies to all the committee members before the meeting that is the subject of this notice. Please note that since the RFPB operates under the provisions of the FACA, all submitted comments and public presentations will be treated as public documents and will be made available for public inspection, including, but not limited to being posted on the RFPB's website.

Dated: January 24, 2023.

Aaron T. Siegel,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 2023–01721 Filed 1–26–23; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Office of the Secretary

Revised Non-Foreign Overseas Per Diem Rates

AGENCY: Defense Human Resources Activity, Department of Defense (DoD).

ACTION: Notice of revised per diem rates in non-foreign areas outside the continental U.S.

SUMMARY: Defense Human Resources Activity publishes this Civilian Personnel Per Diem Bulletin Number 322. Bulletin Number 322 lists current per diem rates prescribed for reimbursement of subsistence expenses while on official Government travel to Alaska, Hawaii, the Commonwealth of Puerto Rico, and the possessions of the United States. The Fiscal Year (FY) 2023 lodging and meal rate review for Hawaii

and Guam resulted in rate changes for multiple locations.

DATES: The updated rates take effect February 1, 2023.

FOR FURTHER INFORMATION CONTACT: Mr. Scott Laws, (571) 372–1282, or *david.s.laws2.civ@mail.mil.*

SUPPLEMENTARY INFORMATION: This document notifies the public of revisions in per diem rates prescribed by the Per Diem, Travel, and Transportation Allowance Committee for travel to non-foreign areas outside the continental United States. The FY 2023 lodging and meal rate review for Hawaii and Guam resulted in rate changes for multiple locations. Bulletin Number 322 is published in the **Federal Register** to ensure that Government travelers outside the Department of Defense are notified of revisions to the current reimbursement rates.

If you believe the lodging, meal or incidental allowance rate for a locality listed in the following table is insufficient, you may request a rate review for that location. For more information about how to request a review, please see the Defense Travel Management Office's Per Diem Rate Review Frequently Asked Questions (FAQ) page at *https://www.travel.dod.mil/Travel-Transportation-Rates/Per-Diem/.*

Dated: January 20, 2023.

Aaron T. Siegel,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

State or territory	Locality	Season start	Season end	Lodging	M&IE	Total per diem	Effective date
ALASKA	[OTHER]	01/01	12/31	193	121	314	11/01/2022
ALASKA	ADAK	01/01	12/31	193	121	314	11/01/2022
ALASKA	ANCHORAGE	01/01	12/31	229	145	374	11/01/2022
ALASKA	BARROW	05/01	08/31	301	129	430	11/01/2022
ALASKA	BARROW	09/01	04/30	266	129	395	11/01/2022
ALASKA	BARTER ISLAND LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	BETHEL	01/01	12/31	219	101	320	11/01/2022
ALASKA	BETTLES	01/01	12/31	193	121	*314	11/01/2022
ALASKA	CAPE LISBURNE LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	CAPE NEWENHAM LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	CAPE ROMANZOF LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	CLEAR AB	01/01	12/31	193	121	314	11/01/2022
ALASKA	COLD BAY	01/01	12/31	193	121	314	11/01/2022
ALASKA	COLD BAY LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	COLDFOOT	01/01	12/31	249	93	342	11/01/2022
ALASKA	COPPER CENTER	01/01	12/31	193	121	314	11/01/2022
ALASKA	CORDOVA	01/01	12/31	174	106	280	11/01/2022
ALASKA	CRAIG	05/01	09/30	139	94	233	11/01/2022
ALASKA	CRAIG	10/01	04/30	109	94	203	11/01/2022
ALASKA	DEADHORSE	01/01	12/31	193	121	*314	11/01/2022
ALASKA	DELTA JUNCTION	01/01	12/31	193	106	299	11/01/2022
ALASKA	DENALI NATIONAL PARK	05/01	09/30	189	118	307	11/01/2022
ALASKA	DENALI NATIONAL PARK	10/01	04/30	99	118	217	11/01/2022
ALASKA	DILLINGHAM	01/01	12/31	320	113	433	11/01/2022
ALASKA	DUTCH HARBOR–UNALASKA	01/01	12/31	154	129	283	11/01/2022
ALASKA	EARECKSON AIR STATION	01/01	12/31	146	74	220	11/01/2022
ALASKA	EIELSON AFB	05/16	09/30	204	108	312	11/01/2022
ALASKA	EIELSON AFB	10/01	05/15	129	108	237	11/01/2022
ALASKA	ELFIN COVE	01/01	12/31	193	121	314	11/01/2022
ALASKA	ELMENDORF AFB	01/01	12/31	229	145	374	11/01/2022
ALASKA	FAIRBANKS	05/16	09/30	204	108	312	11/01/2022
ALASKA	FAIRBANKS	10/01	05/15	129	108	237	11/01/2022
ALASKA	FORT YUKON LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	FT. GREELY	01/01	12/31	193	106	299	11/01/2022
ALASKA	FT. RICHARDSON	01/01	12/31	229	145	374	11/01/2022
ALASKA	FT. WAINWRIGHT	05/16	09/30	204	108	312	11/01/2022
ALASKA	FT. WAINWRIGHT	10/01	05/15	129	108	237	11/01/2022
ALASKA	GAMBELL	01/01	12/31	193	121	314	11/01/2022
ALASKA	GLENNALLEN	01/01	12/31	193	121	314	11/01/2022
ALASKA	HAINES	05/01	09/30	184	113	297	11/01/2022
ALASKA	HAINES	10/01	04/30	159	113	272	11/01/2022
ALASKA	HEALY	05/01	09/30	189	118	307	11/01/2022
ALASKA	HEALY	10/01	04/30	99	118	217	11/01/2022
ALASKA	HOMER	05/01	09/30	210	124	334	11/01/2022
ALASKA	HOMER	10/01	04/30	129	124	253	11/01/2022
ALASKA	JB ELMENDORF-RICHARDSON	01/01	12/31	229	145	374	11/01/2022
ALASKA	JUNEAU	02/01	09/30	249	118	367	11/01/2022
ALASKA	JUNEAU	10/01	01/31	189	118	307	11/01/2022
ALASKA	KAKTOVIK	01/01	12/31	193	121	*314	11/01/2022
ALASKA	KAVIK CAMP	01/01	12/31	193	121	*314	11/01/2022
ALASKA	KENAI-SOLDOTNA	05/01	09/30	171	113	284	11/01/2022
ALASKA	KENAI-SOLDOTNA	10/01	04/30	129	113	242	11/01/2022
ALASKA	KENNICOTT	01/01	12/31	193	121	314	11/01/2022
ALASKA	KETCHIKAN	05/01	09/30	250	118	368	11/01/2022
ALASKA	KETCHIKAN	10/01	04/30	160	118	278	11/01/2022
ALASKA	KING SALMON	01/01	12/31	193	121	314	11/01/2022
ALASKA	KING SALMON LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	KLAWOCK	05/01	09/30	139	94	233	11/01/2022
ALASKA	KLAWOCK	10/01	04/30	109	94	203	11/01/2022
ALASKA	KODIAK	03/01	09/30	223	109	332	11/01/2022
ALASKA	KODIAK	10/01	02/28	121	109	230	11/01/2022
ALASKA	KOTZEBUE	01/01	12/31	193	121	314	11/01/2022
ALASKA	KULIS AGS	01/01	12/31	229	145	374	11/01/2022
ALASKA	MCCARTHY	01/01	12/31	193	121	314	11/01/2022
ALASKA	MCGRATH	01/01	12/31	193	121	*314	11/01/2022

State or territory	Locality	Season start	Season end	Lodging	M&IE	Total per diem	Effective date
ALASKA	MURPHY DOME	05/16	09/30	204	108	312	11/01/2022
ALASKA	MURPHY DOME	10/01	05/15	129	108	237	11/01/2022
ALASKA	NOME	05/01	08/31	250	118	368	11/01/2022
ALASKA	NOME	09/01	04/30	242	118	360	11/01/2022
ALASKA	NOSC ANCHORAGE	01/01	12/31	229	145	374	11/01/2022
ALASKA	NUIQSUT	01/01	12/31	193	121	*314	11/01/2022
ALASKA	OLIKTOK LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	PALMER	01/01	12/31	196	131	327	11/01/2022
ALASKA	PETERSBURG	01/01	12/31	130	108	238	11/01/2022
ALASKA	POINT BARROW LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	POINT HOPE	01/01	12/31	193	121	*314	11/01/2022
ALASKA	POINT LONELY LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	PORT ALEXANDER	01/01	12/31	193	121	*314	11/01/2022
ALASKA	PORT ALSWORTH	01/01	12/31	193	121	314	11/01/2022
ALASKA	PRUDHOE BAY	01/01	12/31	193	121	*314	11/01/2022
ALASKA	SELDOVIA	05/01	09/30	210	124	334	11/01/2022
ALASKA	SELDOVIA	10/01	04/30	129	124	253	11/01/2022
ALASKA	SEWARD	04/01	09/30	284	164	448	11/01/2022
ALASKA	SEWARD	10/01	03/31	129	164	293	11/01/2022
ALASKA	SITKA-MT. EDGECUMBE	04/01	09/30	245	116	361	11/01/2022
ALASKA	SITKA-MT. EDGECUMBE	10/01	03/31	199	116	315	11/01/2022
ALASKA	SKAGWAY	05/01	09/30	250	118	368	11/01/2022
ALASKA	SKAGWAY	10/01	04/30	160	118	278	11/01/2022
ALASKA	SLANA	01/01	12/31	193	121	314	11/01/2022
ALASKA	SPARREVOHN LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	SPRUCE CAPE	03/01	09/30	223	109	332	11/01/2022
ALASKA	SPRUCE CAPE	10/01	02/28	121	109	230	11/01/2022
ALASKA	ST. GEORGE	01/01	12/31	193	121	314	11/01/2022
ALASKA	TALKEETNA	01/01	12/31	193	123	316	11/01/2022
ALASKA	TANANA	05/01	08/31	250	118	368	11/01/2022
ALASKA	TANANA	09/01	04/30	242	118	360	11/01/2022
ALASKA	TATALINA LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	TIN CITY LRRS	01/01	12/31	193	121	314	11/01/2022
ALASKA	TOK	01/01	12/31	105	113	218	11/01/2022
ALASKA	VALDEZ	05/16	09/15	230	110	340	11/01/2022
ALASKA	VALDEZ	09/16	05/15	105	110	215	11/01/2022
ALASKA	WAINWRIGHT	01/01	12/31	295	77	372	11/01/2022
ALASKA	WASILLA	06/01	09/30	216	104	320	11/01/2022
ALASKA	WASILLA	10/01	05/31	108	104	212	11/01/2022
ALASKA	WRANGELL	05/01	09/30	250	118	368	11/01/2022
ALASKA	WRANGELL	10/01	04/30	160	118	278	11/01/2022
ALASKA	YAKUTAT	06/01	09/30	350	111	461	11/01/2022
ALASKA	YAKUTAT	10/01	05/31	150	111	261	11/01/2022
AMERICAN SAMOA	AMERICAN SAMOA	01/01	12/31	139	86	225	07/01/2019
AMERICAN SAMOA	PAGO PAGO	01/01	12/31	139	86	225	07/01/2019
GUAM	GUAM (INCL ALL MIL INSTAL)	01/01	12/31	159	124	283	02/01/2023
GUAM	JOINT REGION MARIANAS (ANDERSEN).	01/01	12/31	159	124	283	02/01/2023
GUAM	JOINT REGION MARIANAS (NAVAL BASE).	01/01	12/31	159	124	283	02/01/2023
GUAM	TAMUNING	01/01	12/31	159	124	283	02/01/2023
HAWAII	[OTHER]	01/01	12/31	229	157	386	02/01/2023
HAWAII	CAMP H M SMITH	01/01	12/31	202	157	359	02/01/2023
HAWAII	CNI NAVMAG PEARL HARBOR-HICKAM.	01/01	12/31	202	157	359	02/01/2023
HAWAII	FT. DERUSSEY	01/01	12/31	202	157	359	02/01/2023
HAWAII	FT. SHAFTER	01/01	12/31	202	157	359	02/01/2023
HAWAII	HICKAM AFB	01/01	12/31	202	157	359	02/01/2023
HAWAII	HONOLULU	01/01	12/31	202	157	359	02/01/2023
HAWAII	ISLE OF HAWAII: HILO	01/01	12/31	199	146	345	02/01/2023
HAWAII	ISLE OF HAWAII: LOCATIONS OTHER THAN HILO.	01/01	12/31	229	173	402	02/01/2023
HAWAII	ISLE OF KAUAI	01/01	12/31	325	165	490	02/01/2023
HAWAII	ISLE OF LANAI	01/01	12/31	229	157	386	02/01/2023
HAWAII	ISLE OF MAUI	01/01	12/31	354	153	507	02/01/2023
HAWAII	ISLE OF MOLOKAI	01/01	12/31	229	157	386	02/01/2023
HAWAII	ISLE OF OAHU	01/01	12/31	202	157	359	02/01/2023
HAWAII	JB PEARL HARBOR-HICKAM	01/01	12/31	202	157	359	02/01/2023
HAWAII	KAPOLEI	01/01	12/31	202	157	359	02/01/2023
HAWAII	KEKAHA PACIFIC MISSILE RANGE FAC.	01/01	12/31	325	165	490	02/01/2023
HAWAII	KILAUEA MILITARY CAMP	01/01	12/31	199	146	345	02/01/2023
HAWAII	LIHUE	01/01	12/31	325	165	490	02/01/2023
HAWAII	MCB HAWAII	01/01	12/31	202	157	359	02/01/2023
HAWAII	NCTAMS PAC WAHIAWA	01/01	12/31	202	157	359	02/01/2023
HAWAII	NOSC PEARL HARBOR	01/01	12/31	202	157	359	02/01/2023
HAWAII	PEARL HARBOR	01/01	12/31	202	157	359	02/01/2023
HAWAII	PMRF BARKING SANDS	01/01	12/31	325	165	490	02/01/2023
HAWAII	SCHOFIELD BARRACKS	01/01	12/31	202	157	359	02/01/2023
HAWAII	TRIPLER ARMY MEDICAL CENTER.	01/01	12/31	202	157	359	02/01/2023
HAWAII	WHEELER ARMY AIRFIELD	01/01	12/31	202	157	359	02/01/2023
MIDWAY ISLANDS	MIDWAY ISLANDS	01/01	12/31	125	81	206	01/01/2021

State or territory	Locality	Season start	Season end	Lodging	M&IE	Total per diem	Effective date
NORTHERN MARIANA ISLANDS	ROTA	01/01	12/31	130	114	244	04/01/2022
NORTHERN MARIANA ISLANDS	SAIPAN	01/01	12/31	161	113	274	04/01/2022
NORTHERN MARIANA ISLANDS	TINIAN	01/01	12/31	125	93	218	04/01/2022
PUERTO RICO	[OTHER]	01/01	12/31	159	100	259	05/01/2021
PUERTO RICO	AGUADILLA	01/01	12/31	149	90	239	05/01/2021
PUERTO RICO	BAYAMON	12/01	05/31	195	115	310	05/01/2021
PUERTO RICO	BAYAMON	06/01	11/30	167	115	282	05/01/2021
PUERTO RICO	CAROLINA	12/01	05/31	195	115	310	05/01/2021
PUERTO RICO	CAROLINA	06/01	11/30	167	115	282	05/01/2021
PUERTO RICO	CEIBA	01/01	12/31	159	110	269	05/01/2021
PUERTO RICO	CULEBRA	01/01	12/31	159	105	264	05/01/2021
PUERTO RICO	FAJARDO [INCL ROOSEVELT RDS NAVSTAT].	01/01	12/31	159	110	269	05/01/2021
PUERTO RICO	FT. BUCHANAN [INCL GSA SVC CTR, GUAYNABO].	12/01	05/31	195	115	310	05/01/2021
PUERTO RICO	FT. BUCHANAN [INCL GSA SVC CTR, GUAYNABO].	06/01	11/30	167	115	282	05/01/2021
PUERTO RICO	HUMACAO	01/01	12/31	159	110	269	05/01/2021
PUERTO RICO	LUIS MUNOZ MARIN IAP AGS	12/01	05/31	195	115	310	05/01/2021
PUERTO RICO	LUIS MUNOZ MARIN IAP AGS	06/01	11/30	167	115	282	05/01/2021
PUERTO RICO	LUQUILLO	01/01	12/31	159	110	269	05/01/2021
PUERTO RICO	MAYAGUEZ	01/01	12/31	109	94	203	05/01/2021
PUERTO RICO	PONCE	01/01	12/31	149	130	279	05/01/2021
PUERTO RICO	RIO GRANDE	01/01	12/31	169	85	254	05/01/2021
PUERTO RICO	SABANA SECA [INCL ALL MILITARY].	12/01	05/31	195	115	310	05/01/2021
PUERTO RICO	SABANA SECA [INCL ALL MILITARY].	06/01	11/30	167	115	282	05/01/2021
PUERTO RICO	SAN JUAN & NAV RES STA	12/01	05/31	195	115	310	05/01/2021
PUERTO RICO	SAN JUAN & NAV RES STA	06/01	11/30	167	115	282	05/01/2021
PUERTO RICO	VIEQUES	01/01	12/31	159	94	253	05/01/2021
VIRGIN ISLANDS (U.S.)	ST. CROIX	12/15	04/14	299	120	419	04/01/2022
VIRGIN ISLANDS (U.S.)	ST. CROIX	04/15	12/14	247	120	367	04/01/2022
VIRGIN ISLANDS (U.S.)	ST. JOHN	12/04	04/30	230	123	353	04/01/2022
VIRGIN ISLANDS (U.S.)	ST. JOHN	05/01	12/03	170	123	293	04/01/2022
VIRGIN ISLANDS (U.S.)	ST. THOMAS	04/15	12/15	249	118	367	04/01/2022
VIRGIN ISLANDS (U.S.)	ST. THOMAS	12/16	04/14	339	118	457	04/01/2022
WAKE ISLAND	WAKE ISLAND	01/01	12/31	129	70	199	01/01/2021

*Where meals are included in the lodging rate, a traveler is only allowed a meal rate on the first and last day of travel.

[FR Doc. 2023–01530 Filed 1–26–23; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Office of the Secretary

Defense Innovation Board, Notice of Federal Advisory Committee Meeting

AGENCY: Under Secretary of Defense for Research and Engineering, Department of Defense (DoD).

ACTION: Notice of Federal Advisory Committee meeting.

SUMMARY: The DoD is publishing this notice to announce that the following Federal Advisory Committee meeting of the Defense Innovation Board (DIB) will take place.

DATES: Closed DIB sessions, Tuesday, January 31, 2023 from 3:00 p.m. to 5:00 p.m.; Wednesday, February 1, 2023 from 8:30 a.m. to 10:30 a.m. and 12:30 p.m. to 5:00 p.m. Open DIB session, Wednesday, February 1, 2023 from 10:45 a.m. to 12:00 p.m.

ADDRESSES: The closed portions of the DIB meeting on January 31, 2023 and on February 1, 2023, will take place in 3E188 at the Pentagon in Washington, DC. The open portion of the DIB meeting on February 1, 2023, will take place in 3C146 and be accessible to the public virtually.

FOR FURTHER INFORMATION CONTACT: Ms. Colleen Laughlin, the Designated Federal Officer (DFO) at (571) 372–7344 (voice) or *osd.innovation@mail.mil.* Mailing address is Defense Innovation Board, 4800 Mark Center Drive, Suite 16F09–02, Alexandria, VA 22350–3600. Website: *https://innovation.defense.gov.* The most up-to-date changes to the meeting agenda and link to the virtual meeting can be found on the website.

SUPPLEMENTARY INFORMATION: This meeting is being held under the provisions of the Federal Advisory Committee Act (FACA) (title 5 United States Code [U.S.C.] chapter 10), the Government in the Sunshine Act (5 U.S.C. 552b), and 41 Code of Federal Regulations (CFR) 102–3.140 and 102–3.150.

Due to circumstances beyond the control of the Designated Federal Officer, the Defense Innovation Board was unable to provide public notification required by 41 CFR 102–3.150(a) concerning its January 31 through February 1, 2023 meeting. Accordingly, the Advisory Committee Management Officer for the Department of Defense, pursuant to 41 CFR 102–3.150(b), waives the 15-calendar day notification requirement.

Purpose of Meeting: The mission of the DIB is to provide the Secretary of Defense, Deputy Secretary of Defense, and Under Secretary of Defense for Research & Engineering (USD(R&E)) independent advice and strategic insights on the emerging and disruptive technologies and their impact on national security, adoption of commercial sector innovation best practices, and how to leverage the U.S. innovation ecosystem and align structures, processes, and human capital practices to accelerate and scale innovation adoption, foster a culture of innovation and an experimentation mindset, and enable the Department to build enduring advantages. The DIB focuses on innovation-related issues and topics raised by the Secretary of Defense, the Deputy Secretary of Defense, or the USD(R&E). The objective of this DIB meeting is to obtain, review, and evaluate information related to the DIB's mission and studies.

Agenda: The DIB meeting will begin with a closed session on January 31, 2023 from 3:00 p.m. to 5:00 p.m. The

DIB will reconvene on February 1, 2023, for closed sessions from 8:30 a.m. to 10:30 a.m. The DIB will convene for its open session, from 10:45 a.m. to 12:00 p.m. Following adjournment of the open session, the DIB will reconvene for closed sessions from 12:30 p.m. to 5:00 p.m. Eastern Time. During the closed sessions, the DIB members will participate in classified briefs and discussions on matters related to: S&T Threat Overview—the threats to national security posed by adversaries as it relates to science and technology (S&T); the Global Investment Capital Environment; The Innovation Ecosystem & Pain Points—strategic implications of DoD's innovation ecosystem, the valley of death, and innovation pain points; USAF Designing the Capabilities and Force of the Future—U.S. Air Force future force design and capabilities; Opportunities & Challenges Engaging the Commercial Sector—opportunities and challenges engaging the commercial sector and non-traditional companies; Experimentation to Acquisition—Lessons Learned from Prototypes to Programs—Service innovation initiatives related to acquisition and deployment of capabilities and workforce required to address future threats; National Military Command Center. During the open session, following the DIB DFO's and the Chair's remarks, members will receive an update on the National Defense Science & Technology Strategy Review Task Force and the Strategic Investment Capital Task Force, and receive briefs from the Office of Strategic Capital and U.S. Air Force. Following these briefs and DIB discussions, the DFO will read public comments, offer the DIB closing remarks, and adjourn the open session. The latest version of the agenda can be found on the DIB's website at: *https://innovation.defense.gov.*

Meeting Accessibility: In accordance with section 1009(d) of the FACA and 41 CFR 102–3.155, the DoD has determined that parts of the DIB meeting will be closed to the public on January 31, 2023 from 3:00 p.m. to 5:00 p.m. and on February 1, 2023 from 8:30 a.m. to 10:30 a.m. and 12:30 p.m. to 5:00 p.m. Specifically, the USD(R&E), in consultation with the DoD Office of General Counsel, has determined in writing that these portions of the meeting will be closed to the public because the DIB will consider matters covered by 5 U.S.C. 552b(c)(1). The determination is based on the classified nature of discussions related to national security. Such classified material is so intertwined with the unclassified material that it cannot reasonably be segregated into separate discussions without defeating the effectiveness and meaning of the overall meeting. To permit these portions of the meeting to be open to the public would preclude discussion of such matters and would greatly diminish the ultimate utility of the DIB's recommendations to the Secretary of Defense, Deputy Secretary of Defense, and USD(R&E).

Pursuant to Federal statutes and regulations (the FACA and 41 CFR 102–3.140 through 102–3.165), the meeting will be accessible to the public virtually on February 1, 2023 from 10:45 a.m. to 12:00 p.m. Members of the public wishing to attend the meeting virtually should register on the DIB's website listed in this notice no later than January 30, 2023. Members of the media should RSVP to the Office of the Assistant to the Secretary of Defense (Public Affairs), at *osd.pentagon.pa.list.dpo-atl@mail.mil.*

Written Statements: Pursuant to 41 CFR 102–3.105(j) and 102–3.140 and section 1009(a)(3) of the FACA, the public or interested organizations may submit written comments or statements to the DIB in response to the stated agenda of the meeting or in regard to its mission. Written comments or statements should be submitted to Ms. Colleen Laughlin, the DFO, via email to *osd.innovation@mail.mil.* Comments or statements must include the author's name, title or affiliation, address, and daytime phone number. The DFO must receive written comments or statements being submitted in response to the agenda set forth in this notice by 5:00 p.m. on Friday, January 27, 2023 to be considered by the DIB. The DFO will review all timely submitted written comments or statements with the DIB Chair and ensure the comments are provided to all members before the meeting. Written comments or statements received after this date may not be provided to the DIB until its next scheduled meeting. Please note that all submitted comments and statements will be treated as public documents and will be made available for public inspection, including, but not limited to, being posted on the DIB's website

Dated: January 24, 2023.

Aaron T. Siegel,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 2023–01676 Filed 1–26–23; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF EDUCATION

Notice of Open Meeting

AGENCY: National Advisory Committee on Institutional Quality and Integrity (NACIQI or Committee), Office of Postsecondary Education, Department of Education.

ACTION: Announcement of an open meeting.

SUMMARY: This notice sets forth the agenda, time, and instructions to access or participate in the February 28–March 2, 2023, hybrid meeting of NACIQI, and provides information to members of the public regarding the meeting, including requesting to make written or oral comments. Committee members will meet in-person while accrediting agency representatives and public attendees will participate virtually. The notice of this meeting is required under section 10(a)(2) of the Federal Advisory Committee Act (FACA) and section 114(d)(1)(B) of the Higher Education Act (HEA) of 1965, as amended.

ADDRESSES: Potomac Center Plaza, 10th Floor Auditorium, 550 12th Street SW, Washington, DC 20024 [Only NACIQI members and Department of Education staff will participate in the meeting at this address].

DATES: The hybrid NACIQI meeting will be held on February 28–March 2, 2023. On February 28 and March 1, the meeting will be held from 9:00 a.m. to 5:30 p.m. Eastern Standard Time. On March 2, the meeting will be held from 9:00 a.m. to 2:00 p.m. Eastern Time.

FOR FURTHER INFORMATION CONTACT: George Alan Smith, Executive Director and Designated Federal Official (DFO), NACIQI, U.S. Department of Education, 400 Maryland Avenue SW, Room 2C–159, Washington, DC 20202, telephone: (202) 453–7757, or email: *George.Alan.Smith@ed.gov.*

SUPPLEMENTARY INFORMATION:

Statutory Authority and Function: NACIQI is established under Section 114 of the HEA (20 U.S.C. 1011c). NACIQI advises the Secretary of Education with respect to:

- The establishment and enforcement of the standards of accrediting agencies or associations under subpart 2, part H, Title IV of the HEA, as amended;
- The recognition of specific accrediting agencies or associations;
- The preparation and publication of the list of nationally recognized accrediting agencies and associations;
- The eligibility and certification process for institutions of higher education under Title IV of the HEA, together with recommendations for improvement in such process;

• The relationship between (1) accreditation of institutions of higher education and the certification and eligibility of such institutions, and (2) State licensing responsibilities with respect to such institutions; and

• Any other advisory function relating to accreditation and institutional eligibility that the Secretary of Education may prescribe by regulation.

Meeting Agenda

The purpose of the meeting is to conduct a review of the following applications for renewal of recognition and compliance reports, in addition to discussing relevant policy issues and electing a new chairperson and a new vice-chairperson for the Committee:

Applications for Renewal of Recognition

1. Accreditation Commission for Education in Nursing, Inc. Scope of recognition: Accreditation of nursing education programs and schools, both postsecondary and higher degree, which offer a certificate, diploma, or a recognized professional degree, including clinical doctorate, masters, baccalaureate, associate, diploma, and practical nursing programs in the United States and its territories, including those offered via distance education.

2. Accreditation Commission for Midwifery Education. Scope of recognition: The accreditation and preaccreditation of basic certificate, basic graduate nurse-midwifery, direct entry midwifery, and pre-certification nurse-midwifery education programs, including those programs that offer distance education.

3. American Physical Therapy Association, Commission on Accreditation in Physical Therapy Education. Scope of recognition: The accreditation and preaccreditation (''Candidate for Accreditation'') in the United States of physical therapist education programs leading to the first professional degree at the master's or doctoral level and physical therapist assistant education programs at the associate degree level and for its accreditation of such programs offered via distance education.

4. Higher Learning Commission. Scope of recognition: The accreditation and preaccreditation (''Candidate for Accreditation'') of degree-granting institutions of higher education in the United States, including the tribal institutions, and the accreditation of programs offered via distance education and correspondence education within these institutions. This recognition extends to the Institutional Actions Council jointly with the Board of Trustees of the Commission for decisions on cases for continued accreditation or reaffirmation, and continued candidacy, and to the Appeals Body jointly with the Board of Trustees of the Commission for decisions related to initial candidacy or accreditation or reaffirmation of accreditation.

5. Middle States Commission on Higher Education. Scope of recognition: The accreditation and preaccreditation (''Candidacy status'') of institutions of higher education in Delaware, the District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Puerto Rico, and the U.S. Virgin Islands, and any other geographic areas in which the Commission elects to conduct accrediting activities within the United States including distance and correspondence education programs offered at those institutions.

6. New England Commission of Higher Education. Scope of recognition: The accreditation and preaccreditation (''Candidacy status'') of institutions of higher education in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont that award bachelor's, master's, and/or doctoral degrees and associate degree-granting institutions in those states that include degrees in liberal arts or general studies among their offerings, including the accreditation of programs offered via distance education within these institutions. Jointly with the Commission, this recognition extends to its Executive Committee and also to the Appeals Body for decisions related to the appeal of denial or withdrawal of candidacy; probation; and denial or withdrawal of accreditation.

7. Western Association of Schools and Colleges, Senior College and University Commission. Scope of recognition: The accreditation and preaccreditation (''Candidate for Accreditation'') of institutions of higher education in the United States that offer the baccalaureate degree or above, including distance education programs offered at those institutions.

Compliance Reports

1. New York State Board of Regents, State Education Department, Office of the Professions (Nursing Education). The compliance report relates to findings of noncompliance with the Department's criteria for recognition of state agencies for approval of nurse education, set forth in a **Federal Register** notice published on January 16, 1969. 34 FR 587, 644–645 (January 16, 1969). The Senior Department official's (SDO) decision letter, dated October 28, 2020, is available under NACIQI meeting date 07/29/2020 at *https://surveys.ope.ed.gov/erecognition/#/public-documents.*

2. Maryland Board of Nursing. The compliance report relates to findings of noncompliance with the Department's criteria for recognition of state agencies for approval of nurse education, set forth in a **Federal Register** notice published on January 16, 1969. 34 FR 587, 644–645 (January 16, 1969). The Acting Secretary's Order, dated January 19, 2021, is available under NACIQI meeting date 02/27/2020 at *https://surveys.ope.ed.gov/erecognition/#/public-documents.*

Committee Chairperson and Vice-Chairperson Elections

The DFO will facilitate the election of a new chairperson and a new vice-chairperson for the Committee.

Administration Policy Update

A representative from the Administration will share an update on the Administration's higher education policy priorities.

Policy Discussion

The NACIQI Accreditation Dashboard Subcommittee will provide a progress report.

Instructions for Accessing the Meeting

Registration

Committee members will meet in-person while agency representatives and public attendees will participate virtually. You may register for the meeting on your computer using the link below. After you register, you will receive a confirmation email containing personalized participation links for each day of the three-day meeting.

Registration Address

https://2023NACIQIWINTER.eventbrite.com.

Public Comment

Submission of requests to make an oral comment regarding a specific accrediting agency under review, or to make an oral comment or written statement regarding other issues within the scope of NACIQI's authority:

Opportunity to submit a written statement regarding a specific accrediting agency under review was solicited by a previous **Federal Register** notice published on December 15, 2021 (86 FR 71251; Document Number 2021–27095). The period for submission of such statements is now closed. Additional written statements regarding a specific accrediting agency or state approval agency under review will not

be accepted at this time. However, members of the public may submit written statements regarding other issues within the scope of NACIQI's authority for consideration by NACIQI in the manner described below.

Members of the public may make oral comments regarding a specific accrediting agency under review and/or other agenda topics. Oral comments may not exceed three minutes. Oral comments about an agency's recognition when a compliance report has been required by the Senior Department Official or the Secretary must relate to the criteria for recognition cited in the Senior Department Official's letter that requested the report, or in the Secretary's appeal decision, if any. Oral comments about an agency seeking expansion of scope must be directed to the agency's ability to serve as a recognized accrediting agency with respect to the kinds of institutions or programs requested to be added. Oral comments about the renewal of an agency's recognition must relate to its compliance with the criteria for the Recognition of Accrediting Agencies, which are available at *www.ed.gov/admins/finaid/accred/index.html.*

Written statements and oral comments concerning NACIQI's work outside of a specific accrediting agency under review must be limited to matters within the scope of NACIQI's authority as outlined under Section 114 of the HEA (20 U.S.C. 1011c).

Instructions on Requesting To Make Public Comment

To request to make oral comments of three minutes or less during the February 28–March 2, 2023, meeting, please follow either Method One or Method Two below. To submit a written statement to NACIQI concerning its work outside a specific accrediting agency under review, please follow Method One.

Method One: Submit a request by email to the *ThirdPartyComments@ed.gov* mailbox. Please do not send material directly to NACIQI members. Written statements to NACIQI concerning its work outside of a specific accrediting agency under review and requests to make oral comment must be received by February 21, 2023, and include the subject line ''Oral Comment Request: (agency name),'' ''Oral Comment Request: (subject)'' or ''Written Statement: (subject).'' The email must include the name(s), title, organization/affiliation, mailing address, email address, and telephone number, of the person(s) submitting a written statement or requesting to speak. All individuals submitting an advance request in accordance with this notice will be afforded an opportunity to speak.

Method Two (Only available to those seeking to make oral comments): Submit a request by email on February 28, 2023, between 7:45 a.m.–8:45 a.m. Eastern Standard Time to the *ThirdPartyComments@ed.gov* mailbox. The email must include the subject on which the requestor wishes to comment, in addition to his or her name, title, organization or affiliation, mailing address, email address, and telephone number. If you intend to make your comments by dialing into the meeting rather than using a computer, please be sure to include that information in your email request. A total of up to fifteen minutes for each agenda item will be allotted for oral commenters who register on February 28, 2023, between 7:45 a.m. and 8:45 a.m. Eastern Standard Time. Individuals will be selected on a first-come, first-served basis. If selected, each commenter may not exceed three minutes.

Access to Records of the Meeting: The Department will post the official report of the meeting on the NACIQI website *https://sites.ed.gov/naciqi/archive-of-meetings/* within 90 days after the meeting. In addition, pursuant to the FACA, the public may request to inspect records of the meeting at 400 Maryland Avenue SW, Washington, DC, by sending an email message to *aslrecordsmanager@ed.gov* or by calling (202) 453–7415 to schedule an appointment. Senior Department Official's (as defined in 34 CFR 602.3) decisions, pursuant to 34 CFR 602.36, associated with all NACIQI meetings can be found at the following website: *https://surveys.ope.ed.gov/erecognition/#/public-documents.*

Reasonable Accommodations: The dial-in information and weblink access to the meeting are accessible to individuals with disabilities. If you will need an auxiliary aid or service to participate in the meeting (*e.g.,* interpreting service, assistive listening device, or materials in an alternate format), notify the contact person listed in this notice at least two weeks before the scheduled meeting date. Although we will attempt to meet a request received after that date, we may not be able to make available the requested auxiliary aid or service because of insufficient time to arrange it.

Electronic Access to This Document: The official version of this document is the document published in the **Federal Register**. Free internet access to the official edition of the **Federal Register** and the Code of Federal Regulations is available via the Federal Digital System at: *www.gpo.gov/fdsys.* At this site you can view this document, as well as all other documents of the Department published in the **Federal Register**, in text or Adobe Portable Document Format (PDF). To use PDF, you must have Adobe Acrobat Reader, which is available free at the site. You also may access documents of the Department published in the **Federal Register** by using the article search feature at: *www.federalregister.gov.* Specifically, through the advanced search feature at this site, you can limit your search to documents published by the Department.

Authority: Section 114 of the HEA of 1964, as amended (20 U.S.C. 1011c).

Annmarie Weisman,

Deputy Assistant Secretary for Policy, Planning and Innovation, Office of Postsecondary Education.

[FR Doc. 2023–01632 Filed 1–26–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF EDUCATION

[Docket No.: ED–2022–SCC–0138]

Agency Information Collection Activities; Submission to the Office of Management and Budget for Review and Approval; Comment Request; Early Childhood Longitudinal Study, Kindergarten Class of 2023–24 (ECLS–K:2024) Kindergarten and First-Grade National Data Collection and Transfer School Recruitment

AGENCY: National Center for Education Statistics, Department of Education (ED).

ACTION: Notice.

SUMMARY: In accordance with the Paperwork Reduction Act (PRA) of 1995, the Department is proposing a revision of a currently approved information collection request (ICR).

DATES: Interested persons are invited to submit comments on or before February 27, 2023.

ADDRESSES: Written comments and recommendations for proposed information collection requests should be submitted within 30 days of publication of this notice. Click on this link *www.reginfo.gov/public/do/PRAMain* to access the site. Find this information collection request (ICR) by selecting ''Department of Education'' under ''Currently Under Review,'' then check the ''Only Show ICR for Public Comment'' checkbox. *Reginfo.gov* provides two links to view documents related to this information collection request. Information collection forms and instructions may be found by

clicking on the ''View Information Collection (IC) List'' link. Supporting statements and other supporting documentation may be found by clicking on the ''View Supporting Statement and Other Documents'' link.

FOR FURTHER INFORMATION CONTACT: For specific questions related to collection activities, please contact Carrie Clarady, 202–245–6347.

SUPPLEMENTARY INFORMATION: The Department is especially interested in public comment addressing the following issues: (1) is this collection necessary to the proper functions of the Department; (2) will this information be processed and used in a timely manner; (3) is the estimate of burden accurate; (4) how might the Department enhance the quality, utility, and clarity of the information to be collected; and (5) how might the Department minimize the burden of this collection on the respondents, including through the use of information technology. Please note that written comments received in response to this notice will be considered public records.

Title of Collection: Early Childhood Longitudinal Study, Kindergarten Class of 2023–24 (ECLS–K:2024) Kindergarten and First-Grade National Data Collection and Transfer School Recruitment.

OMB Control Number: 1850–0750.

Type of Review: A revision of a currently approved ICR.

Respondents/Affected Public: Individuals and Households.

Total Estimated Number of Annual Responses: 159,964.

Total Estimated Number of Annual Burden Hours: 110,186.

Abstract: The Early Childhood Longitudinal Study (ECLS) program, conducted by the National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES) of the U.S. Department of Education (ED), draws together information from multiple sources to provide rich, descriptive data on child development, early learning, and school progress. The ECLS program studies deliver national data on children's status at birth and at various points thereafter; children's transitions to nonparental care, early care and education programs, and school; and children's experiences and growth through the elementary grades. The Early Childhood Longitudinal Study, Kindergarten Class of 2023–24 (ECLS–K:2024) is the fourth cohort in the series of early childhood longitudinal studies. The study will advance research in child development and early learning by providing a detailed and comprehensive source of current information on children's early learning and development, transitions into kindergarten and beyond, and progress through school. The ECLS–K:2024 will provide data about the population of children who will be kindergartners in the 2023–24 school year, focusing on children's early school experiences continuing through the fifth grade, and will include collection of data from parents, teachers, and school administrators, as well as direct child assessments.

The ECLS–K:2024 K–1 field test (OMB #1850–0750 v.19–25) is currently ongoing. This current request is to conduct the ECLS–K:2024 national kindergarten and first-grade data collection activities, as well as transfer district and school recruitment. There are two phases of the kindergarten data collection. The first, the fall kindergarten round, will occur from September through November 2023, followed by an additional round, the spring kindergarten round, conducted from March through June 2024. Data collection covered under the current clearance request will then occur again in the spring of 2025, when most of the sampled students are in first grade. Prior to each of these data collection rounds are advance school contact periods, during which schools will be contacted to complete tasks in preparation for the upcoming in-person school visit.

The current submission includes survey instruments, respondent materials, and specifications for the MyECLS website for the two kindergarten rounds and the first-grade round, as well as the recruitment of transfer districts and schools. Some of these materials were previously submitted in the request to conduct the K–1 field test (OMB #1850–0750 v.24 and v.25) and have been updated to reflect additional NCES decisions and the tasks and procedures that will be followed for national data collections. However, many of the survey instruments, respondent materials, and MyECLS website specifications will undergo further revision based on the results of the K–1 field test, available in early 2023. In addition, the spring kindergarten materials are expected to be revised further in response to the national fall kindergarten field experiences, and the spring first-grade materials are expected to be revised further in response to experiences in both national kindergarten rounds. Further, the spring surveys submitted at this time have several known errors and issues (*e.g.,* items collecting respondent and household members' genders have not yet been updated), with needed updates forthcoming in future revision requests. All revised materials, as well as the translated materials, will be included in future revision requests including a 30D public comment period. The first of these revision requests (OMB #1850–0750 v.27) is planned for submission in April 2023.

Dated: January 24, 2023.

Stephanie Valentine,

PRA Coordinator, Strategic Collections and Clearance, Governance and Strategy Division, Office of Chief Data Officer, Office of Planning, Evaluation and Policy Development.

[FR Doc. 2023–01698 Filed 1–26–23; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF ENERGY

Activation Energy: DOE's National Laboratories as Catalysts of Regional Innovation

AGENCY: Office of Science, Office of Technology Transitions, Department of Energy.

ACTION: Request for information (RFI).

SUMMARY: The Department of Energy (DOE) Office of Science and the Office of Technology Transitions invite interested parties to provide input on place-based innovation opportunities that support the DOE mission.

DATES: Responses to this RFI must be received by March 28, 2023.

ADDRESSES: DOE is using the *www.regulations.gov* system for the submission and posting of public comments in this proceeding. All comments in response to this RFI are therefore to be submitted electronically through *www.regulations.gov,* via the web form accessed by following the ''Submit a Formal Comment'' link near the top right of the **Federal Register** web page for this document.

FOR FURTHER INFORMATION CONTACT: Requests for additional information may be submitted to Charles Russomanno, *Charles.Russomanno@hq.doe.gov,* (202) 378–7815, Susannah Howieson, *Susannah.Howieson@science.gov,* (202) 586–5121, Erik Hadland, *Erik.Hadland@science.doe.gov,* (240) 425–8125, or Margaux Murali, *Margaux.Murali@hq.doe.gov,* (202) 586–3698.

SUPPLEMENTARY INFORMATION:

Motivation

DOE is exploring opportunities to strengthen place-based innovation activities leveraging the DOE National Laboratories and Sites.[1]

[1] DOE Laboratories and sites are Ames Laboratory, Argonne National Laboratory, Bettis

Continued

Background

Federally funded research and development (R&D) has catalyzed innovation that has driven economic growth in the form of new businesses, more jobs, increased wages, higher standards of living, and environmental sustainability. However, growth has been primarily localized in certain United States (U.S.) metropolitan regions that have become flourishing innovation ecosystems,[2] Elements of a thriving innovation ecosystem include, but are not limited to: [3]

- *Talent:* An educated and skilled workforce, as well as training programs to create and sustain this talent.
- *Infrastructure:* For research, commercial, industrial, and residential purposes—inclusive of physical spaces/facilities, utilities, transportation (including quality roadways and ready access to airports), and other features required for residential, industrial, and commercial purposes.
- *Technology:* Accessible scientific and technical knowledge throughout the research, development, demonstration, and deployment (RDD&D) continuum for commercialization and manufacturing.
- *Capital:* Access to financial resources (*i.e.,* venture capital, private equity, angel investors, etc.) and technical resources (*i.e.,* scientific and manufacturing equipment).
- *Social Capital:* Local networking to incentivize and support the existence, development, and growth of innovation programs and companies.
- *Policy:* Local and regional policies and incentives that support innovation-driven enterprises, economic development, and planning within a regional innovation center.
- *Collaboration with Industry:* Mutually beneficial partnerships between public and private sectors to facilitate the exchange of knowledge, accelerate the commercialization of technologies, promote workforce development, and increase awareness of promising research, as well as provide directions for new research needs.
- *Community:* Structure that supports the development, accessibility, inclusivity, environmental sustainability, and engagement with the local community in an equitable way.

Place-based innovation initiatives can be used to cultivate innovation ecosystems in regions that have yet to realize benefits from the innovation renaissance of the past few decades. Building on existing research institutions, industrial infrastructure, concentrations of workforce skills, and connections to regional philanthropic and other civil society institutions, DOE can contribute to supporting localized economic growth models which will promote new regional innovation ecosystems. DOE seeks to stimulate innovation in regions surrounding the National Laboratories and Sites by:

- Providing key RDD&D to accelerate commercialization of breakthrough technologies;
- Driving development in the industrial and technology sectors of the future, such as innovations in advanced manufacturing, and supply chains, among others;
- Fostering sustainable and equitable economic growth in underinvested regions of the U.S.;
- Creating long-term high paying jobs in existing and new industries;
- Facilitating engagement and partnership with local and regional communities adjacent to DOE Laboratories and Sites; and
- Training and educating both the current and future diverse, equitable, and inclusive workforce.

Innovation ecosystems anchored around DOE National Laboratories and Sites will directly support DOE's missions, including advancing new and emerging clean energy technologies, combatting the effects of climate change, developing technologies to support our nation's security, cleaning up of legacy nuclear waste, and developing a technically skilled workforce.

Purpose

DOE is seeking input from all stakeholders about opportunities for place-based innovation activities that leverage research institutions—particularly the National Laboratories and Sites—to catalyze innovation ecosystems, contribute to DOE's mission in energy, environment, and national security and ensure our nation's vibrant economic future. The information received in response to this RFI will inform, and be considered by, the DOE in program planning and development. This is solely a request for information and not a Funding Opportunity Announcement (FOA), prize, or other solicitation.

Request for Responses

The objective of this RFI is to identify both opportunities and challenges for developing place-based innovation ecosystems anchored by DOE National Laboratories and Sites. DOE is interested in hearing about potential new activities, as well as ongoing activities that would benefit from additional support. Information related, but not limited, to the following questions is requested:

Part A—Regional Characteristics

- What makes your region competitive or unique for innovation?
- What are your region's top three areas of technical expertise or attributes that are relevant to DOE's missions?
- What untapped potential exists in your region?
- What are the top three barriers to maximizing/growing your region's innovation ecosystem?
- What key areas of investment could be leveraged to realize untapped opportunities in your region?

Part B—Place-Based Innovation Activity

B.1: Existing Activities: Describe the Existing Place-Based Innovation Activity in Your Region

- How does the activity connect to the immediate region or other specific location?
- How does your activity engage with local/regional partners (*e.g.,* Federal laboratories, industry, academia, financing/investment, community

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and Knolls Atomic Power Laboratories, Brookhaven National Laboratory, Fermi National Accelerator Kansas City National Security Campus, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, National Energy Technology Laboratory and Albany Research Center, National Renewable Energy Laboratory, Nevada National Security Site, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Pantex Plant, Princeton Plasma Physics Laboratory, Savannah River National Laboratory, Sandia National Laboratory, SLAC National Accelerator Laboratory, Thomas Jefferson National Accelerator Facility, and Y–12 National Security Complex.

[2] Gruber, J., & Johnson, S. (2019). Jump-starting America: How breakthrough science can revive economic growth and the American dream; Atkinson, R., Muro, M., & Whiton, J. (2019). The Case for Growth Centers. The Brookings Institution & Information Technology and Innovation Foundation.

[3] Kauffman F Bell-Masterson, Jordan and Stangler, Dane, Measuring an Entrepreneurial Ecosystem (March 2015). Available at SSRN: *https://ssrn.com/abstract=2580336* or *http://dx.doi.org/10.2139/ssrn.2580336;* Evolution of the Industrial Innovation Ecosystem of Resource-Based Cities (RBCs): A Case Study of Shanxi Province, China, Jun Yao, Huajing Li 1,*, Di Shang and Luyang Ding, 2021., *https://www.mdpi.com/2071-1050/13/20/11350/pdf;* MIT's Stakeholder Framework for Building and Accelerating Innovation Ecosystems, Budden, P, Murray, F., 2019, *https://innovation.mit.edu/assets/MIT-Stakeholder-Framework_Innovation-Ecosystems.pdf;* An MIT Framework for Innovation Ecosystem Policy, Budden, P, Murray, F, 2018, *https://innovation.mit.edu/assets/Framework-Ecosystem-Policy_Oct18.pdf;* Kauffman Foundation, Universities and Entrepreneurial Ecosystems, *https://www.kauffmanfellows.org/journal_posts/universities-and-entrepreneurial-ecosystems-stanford-silicon-valley-success;* ''What are the key components of an entrepreneurial ecosystem in a developing economy? A longitudinal empirical study on technology business incubators in China'', Xiangfei Yuana, Haijing Haob, Chenghua Guan, Alex Pentland, *https://arxiv.org/pdf/2103.08131.*

organizations, local and tribal governments, etc.)?

- Are there any DOE National Laboratories or Sites currently involved? If so, how?
- How does the activity contribute to one or more of the aforementioned key elements of an innovation ecosystem?
- How does the activity foster belonging, accessibility, justice, equity, diversity, and inclusion?
- What are the challenges for existing innovation activities in your region?
- How was this innovation activity initiated/funded?

B.2: Potential Activities: Describe Potential New or Expanded Place-Based Innovation Activities in Your Region

- How would the new or expanded activity connect to the immediate region or other specific location?
- How would your new or expanded activity engage with local/regional partners (*e.g.,* Federal laboratories, industry, academia, funding/investment, community organizations, local and tribal governments, etc.)?
- How would the new or expanded activity contribute to one or more of the aforementioned key elements of an innovation ecosystem?
- How would the new or expanded activity foster belonging, accessibility, justice, equity, diversity, and inclusion?
- What are the potential benefits of the new or expanded activity for your region?
- What are the potential challenges for new innovation activities in your region?
- What level of support would be required to facilitate the new or expanded activity?
- What are potential sources of support for this expanded or new activity?

Confidential Business Information. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email two well-marked copies: one copy of the document marked ''confidential'' including all the information believed to be confidential, and one copy of the document marked ''non-confidential'' with the information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Signing Authority

This document of the Department of Energy was signed on November 10, 2022, by Dr. Geraldine L. Richmond, Under Secretary for Science and Innovation, pursuant to delegated authority from the Secretary of Energy. The document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on January 20, 2023.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

[FR Doc. 2023–01440 Filed 1–26–23; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

[Docket No. 15–96–LNG]

Change In Control; Port Arthur LNG, LLC

AGENCY: Office of Fossil Energy and Carbon Management, Department of Energy.

ACTION: Notice of change in control.

SUMMARY: The Office of Fossil Energy and Carbon Management (FECM) (formerly the Office of Fossil Energy) of the Department of Energy (DOE) gives notice of receipt of a Statement of Change in Control (Statement) filed by Port Arthur LNG, LLC (PALNG) on December 21, 2022. The Statement describes a change in PALNG's upstream ownership. The Statement was filed under the Natural Gas Act (NGA).

DATES: Protests, motions to intervene, or notices of intervention, as applicable, and written comments are to be filed electronically as detailed in the Public Comment Procedures section no later than 4:30 p.m., Eastern time, February 13, 2023.

ADDRESSES: *Electronic Filing by email: fergas@hq.doe.gov.*

Although DOE has routinely accepted public comment submissions through a variety of mechanisms, including postal mail and hand delivery/courier, DOE has found it necessary to make temporary modifications to the comment submission process in light of the ongoing Covid–19 pandemic. DOE is currently accepting only electronic submissions at this time. If a commenter finds that this change poses an undue hardship, please contact Office of Resource Sustainability staff at (202) 586–4749 or (202) 586–7893 to discuss the need for alternative arrangements. Once the Covid–19 pandemic health emergency is resolved, DOE anticipates resuming all of its regular options for public comment submission, including postal mail and hand delivery/courier.

FOR FURTHER INFORMATION CONTACT:

Jennifer Wade or Peri Ulrey, U.S. Department of Energy (FE–34), Office of Regulation, Analysis, and Engagement, Office of Resource Sustainability, Office of Fossil Energy and Carbon Management, Forrestal Building, Room 3E–042, 1000 Independence Avenue SW, Washington, DC 20585, (202) 586–4749 or (202) 586–7893, *jennifer.wade@hq.doe.gov* or *peri.ulrey@hq.doe.gov*

Cassandra Bernstein, U.S. Department of Energy (GC–76), Office of the Assistant General Counsel for Energy Delivery and Resilience, Forrestal Building, Room 6D–033, 1000 Independence Avenue SW, Washington, DC 20585, (202) 586–9793, *cassandra.bernstein@hq.doe.gov*

SUPPLEMENTARY INFORMATION:

Summary of Change in Control

PALNG states that, on November 22, 2022, Sempra PALNG Holdings, LLC (Sempra PALNG Member) (a wholly-owned subsidiary of Sempra Infrastructure Partners, LP (SI Partners) and the indirect upstream owner of PALNG) and ConocoPhillips Port Arthur LNG LLC (COP–PALNG Member) (a wholly-owned subsidiary of ConocoPhillips Company (COP)) entered into an equity purchase and sale agreement (Transaction) whereby COP–PALNG Member will purchase from Sempra PALNG Member a non-controlling 30 percent equity interest in Port Arthur Liquefaction Holdings, LLC (PA Liquefaction Holdings). PA Liquefaction Holdings directly holds 100 percent of the equity interest in PALNG. PALNG states that, following consummation of the Transaction, SI Partners will continue to maintain control of PALNG as the indirect 70 percent majority owner, with COP having certain minority protections as the indirect 30 percent minority owner. PALNG further states that the Transaction is expected to close in the first quarter of 2023.

A chart illustrating the ownership structure of PALNG before and after the Transaction is attached to the Statement as Exhibit A and B, respectively. Additional details can be found in the

Statement, posted on the DOE website at: *www.energy.gov/sites/default/files/2022-12/PALNG%20-%20Statement%20of%20Change%20in%20Control%2012.21.2022.pdf.*

DOE Evaluation

DOE will review the Statement in accordance with its Procedures for Changes in Control Affecting Applications and Authorizations to Import or Export Natural Gas (CIC Procedures).[1] Consistent with the CIC Procedures, this notice addresses PALNG's existing authorization to export liquefied natural gas (LNG) to non-free trade agreement (non-FTA) countries, granted in DOE/FE Order No. 4372, as amended.[2] If no interested person protests the change in control and DOE takes no action on its own motion, the proposed change in control will be deemed granted 30 days after publication in the **Federal Register**. If one or more protests are submitted, DOE will review any motions to intervene, protests, and answers, and will issue a determination as to whether the proposed change in control has been demonstrated to render the underlying authorizations inconsistent with the public interest.

Public Comment Procedures

Interested persons will be provided 15 days from the date of publication of this notice in the **Federal Register** to move to intervene, protest, and answer PALNG's Statement.[3] Protests, motions to intervene, notices of intervention, and written comments are invited in response to this notice only as to the change in control described in the Statement. All protests, comments, motions to intervene, or notices of intervention must meet the requirements specified by DOE's regulations in 10 CFR part 590, including the service requirements.

As noted, DOE is only accepting electronic submissions at this time. Please email the filing to *fergas@hq.doe.gov.* All filings must include a reference to ''Docket No. 15–96–LNG'' in the title line, or ''Port Arthur LNG, LLC Change in Control'' in the title line.

Please Note: Please include all related documents and attachments (*e.g.,* exhibits) in the original email correspondence. Please do not include any active hyperlinks or password protection in any of the documents or attachments related to the filing. All electronic filings submitted to DOE must follow these guidelines to ensure that all documents are filed in a timely manner.

The Statement, and any filed protests, motions to intervene, notices of intervention, and comments will be available electronically on the DOE website at: *www.energy.gov/fecm/regulation.*

Signed in Washington, DC, on January 22, 2023.

Amy R. Sweeney,

Director, Office of Regulation, Analysis, and Engagement, Office of Resource Sustainability.

[FR Doc. 2023–01638 Filed 1–26–23; 8:45 am]

BILLING CODE 6450–01–P

[1] 79 FR 65541 (Nov. 5, 2014).

[2] PALNG's Statement also applies to its existing authorization to export LNG to FTA countries in Docket Nos. 15–53–LNG and 18–162–LNG, but DOE will respond to that portion of the filing separately pursuant to the CIC Procedures, 79 FR 65542.

[3] Intervention, if granted, would constitute intervention only in the change in control portion of these proceedings, as described herein.

DEPARTMENT OF ENERGY

Agency Information Collection Request

AGENCY: U.S. Department of Energy.

ACTION: Notice of request for comments.

SUMMARY: The Department of Energy (DOE) invites public comment on a proposed collection of information that DOE plans to submit to the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1995. The information collection described in this notice is currently part of DOE's Environment, Safety, and Health collection under OMB Control Number 1910–0300. The DOE office (Office of Enterprise Assessments) that administers the information collection described herein differs from the DOE office (Office of Environment, Health, Safety and Security) that administers the other collections under OMB Control Number 1910–0300. DOE is seeking a separate OMB control number for this collection.

DATES: Comments regarding this proposed information collection must be received on or before February 27, 2023. If you anticipate that you will be submitting comments, but find it difficult to do so within the period of time allowed by this notice, please advise the OMB Desk Officer of your intention to make a submission as soon as possible. The Desk Officer may be telephoned at (202) 881–8585.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Requests for additional information or copies of the information collection instrument and instructions should be directed to Felecia Briggs at *Felecia.Briggs@hq.doe.gov* or (301) 903–8803.

SUPPLEMENTARY INFORMATION:

Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology.

This information collection request contains:

(1) *OMB No.:* 1910–NEW.

(2) *Information Collection Request Titled:* DOE Noncompliance Tracking System (NTS).

(3) *Type of Review:* New.

(4) *Purpose:* The DOE Noncompliance Tracking System (NTS) is used by DOE contractors to report potential nuclear safety and worker safety and health regulatory noncompliances to DOE as described in 10 CFR part 820, *Procedural Rules for DOE Nuclear Activities,* and 10 CFR part 851, *Worker Safety and Health Program.* DOE uses this information to monitor contractor compliance with safety requirements in lieu of an onsite inspection program.

(5) *Annual Estimated Number of Respondents:* 30.

(6) *Annual Estimated Number of Total Responses:* 210.

(7) *Annual Estimated Number of Burden Hours:* 2,520.

(8) *Annual Estimated Reporting and Recordkeeping Cost Burden:* $186,480.

Statutory Authority

DOE Noncompliance Tracking System (NTS): 10 CFR part 820; 10 CFR part 851.

Signing Authority

This document of the Department of Energy was signed on January 23, 2023, by John E. Dupuy, Director, Office of Enterprise Assessments, pursuant to

delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on January 24, 2023.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

[FR Doc. 2023–01639 Filed 1–26–23; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. ID–4068–003]

Walker, Kevin E.; Notice of Filing

Take notice that on January 20, 2023, Kevin E. Walker submitted for filing, application for authority to hold interlocking positions, pursuant to section 305(b) of the Federal Power Act, 16 U.S.C. 825d(b) and part 45.8 of the Federal Energy Regulatory Commission's (Commission) Rules of Practice and Procedure, 18 CFR part 45.8.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

In addition to publishing the full text of this document in the **Federal Register**, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the internet through the Commission's Home Page (*http://www.ferc.gov*) using the ''eLibrary'' link. Enter the docket number excluding the last three digits in the docket number field to access the document. At this time, the Commission has suspended access to the Commission's Public Reference Room, due to the proclamation declaring a National Emergency concerning the Novel Coronavirus Disease (COVID–19), issued by the President on March 13, 2020. For assistance, contact the Federal Energy Regulatory Commission at *FERCOnlineSupport@ferc.gov* or call toll-free, (886) 208–3676 or TYY, (202) 502–8659.

The Commission strongly encourages electronic filings of comments, protests and interventions in lieu of paper using the ''eFiling'' link at *http://www.ferc.gov.* Persons unable to file electronically may mail similar pleadings to the Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426. Hand delivered submissions in docketed proceedings should be delivered to Health and Human Services, 12225 Wilkins Avenue, Rockville, Maryland 20852.

Comment Date: 5:00 p.m. Eastern Time on February 10, 2023.

Dated: January 23, 2023.

Kimberly D. Bose,

Secretary.

[FR Doc. 2023–01659 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. ID–6672–006]

Fisfis, David T.; Notice of Filing

Take notice that on January 20, 2023, David T. Fisfis submitted for filing, application for authority to hold interlocking positions, pursuant to section 305(b) of the Federal Power Act, 16 U.S.C. 825d(b) and part 45.8 of the Federal Energy Regulatory Commission's (Commission) Rules of Practice and Procedure, 18 CFR part 45.8.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

In addition to publishing the full text of this document in the **Federal Register**, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the internet through the Commission's Home Page (*http://www.ferc.gov*) using the ''eLibrary'' link. Enter the docket number excluding the last three digits in the docket number field to access the document. At this time, the Commission has suspended access to the Commission's Public Reference Room, due to the proclamation declaring a National Emergency concerning the Novel Coronavirus Disease (COVID–19), issued by the President on March 13, 2020. For assistance, contact the Federal Energy Regulatory Commission at *FERCOnlineSupport@ferc.gov* or call toll-free, (886) 208–3676 or TYY, (202) 502–8659.

The Commission strongly encourages electronic filings of comments, protests and interventions in lieu of paper using the ''eFiling'' link at *http://www.ferc.gov.* Persons unable to file electronically may mail similar pleadings to the Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426. Hand delivered submissions in docketed proceedings should be delivered to Health and Human Services, 12225 Wilkins Avenue, Rockville, Maryland 20852.

Comment Date: 5:00 p.m. Eastern Time on February 10, 2023.

Dated: January 23, 2023.

Kimberly D. Bose,

Secretary.

[FR Doc. 2023–01658 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. ID–9675–000]

Ankrum, Matthew S.; Notice of Filing

Take notice that on January 20, 2023, Matthew S. Ankrum submitted for filing, application for authority to hold interlocking positions, pursuant to section 305(b) of the Federal Power Act, 16 U.S.C. 825d(b) and Part 45.8 of the Federal Energy Regulatory Commission's (Commission) Rules of

Practice and Procedure, 18 CFR part 45.8.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

In addition to publishing the full text of this document in the **Federal Register**, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the internet through the Commission's Home Page (*http://www.ferc.gov*) using the ''eLibrary'' link. Enter the docket number excluding the last three digits in the docket number field to access the document. At this time, the Commission has suspended access to the Commission's Public Reference Room, due to the proclamation declaring a National Emergency concerning the Novel Coronavirus Disease (COVID–19), issued by the President on March 13, 2020. For assistance, contact the Federal Energy Regulatory Commission at *FERCOnlineSupport@ferc.gov* or call toll-free, (886) 208–3676 or TYY, (202) 502–8659.

The Commission strongly encourages electronic filings of comments, protests and interventions in lieu of paper using the ''eFiling'' link at *http://www.ferc.gov.* Persons unable to file electronically may mail similar pleadings to the Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426. Hand delivered submissions in docketed proceedings should be delivered to Health and Human Services, 12225 Wilkins Avenue, Rockville, Maryland 20852.

Comment Date: 5:00 p.m. Eastern Time on February 10, 2023.

Dated: January 23, 2023.

Kimberly D. Bose,

Secretary.

[FR Doc. 2023–01662 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. CP23–37–000]

MountainWest Overthrust Pipeline, LLC; Notice of Request Under Blanket Authorization and Establishing Intervention and Protest Deadline

Take notice that January 13, 2023, MountainWest Overthrust Pipeline, LLC (Overthrust) filed a prior notice request for authorization, in accordance with 18 CFR 157.205, 157.208 and 157.211 of the Federal Energy Regulatory Commission's (Commission) regulations under the Natural Gas Act and Overthrust's blanket certificate issued in Docket No. CP82–493–000 to construct, own, operate, and maintain a new delivery point on the Overthrust pipeline system, located in Sweetwater County, Wyoming. Specifically, Overthrust proposes to construct and operate a tap, delivery lateral and meter station, known as the Carbonate Tap meter allocation point (MAP), located near the Solvay chemicals plant facility located approximately 15 miles west of Green River, Wyoming. The project would allow for the delivery 47,000 Dekatherms per day (Dth/d) of natural gas to Solvay from Overthrust's mainline system. Overthrust estimates that the cost of the project will be about $7.2 million, all as more fully set forth in the application which is on file with the Commission and open for public inspection.

In addition to publishing the full text of this document in the **Federal Register**, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the internet through the Commission's Home Page (*http://ferc.gov*) using the ''eLibrary'' link. Enter the docket number excluding the last three digits in the docket number field to access the document. At this time, the Commission has suspended access to the Commission's Public Reference Room, due to the proclamation declaring a National Emergency concerning the Novel Coronavirus Disease (COVID–19), issued by the President on March 13, 2020. For assistance, contact the Federal Energy Regulatory Commission at *FERCOnlineSupport@ferc.gov* or call toll-free, (886) 208–3676 or TYY, (202) 502–8659.

Any questions concerning this application should be directed to Stewart Merrick, Vice President, Legal and Regulatory, MountainWest Pipeline, LLC, 333 South State St., P.O. Box 45922, Salt Lake City, UT 84145 at (801) 324–2509; or email at *stewart.merrick@mwpipe.com.*

Pursuant to Section 157.9 of the Commission's Rules of Practice and Procedure,[1] within 90 days of this Notice the Commission staff will either: complete its environmental review and place it into the Commission's public record (eLibrary) for this proceeding; or issue a Notice of Schedule for Environmental Review. If a Notice of Schedule for Environmental Review is issued, it will indicate, among other milestones, the anticipated date for the Commission staff's issuance of the final environmental impact statement (FEIS) or environmental assessment (EA) for this proposal. The filing of an EA in the Commission's public record for this proceeding or the issuance of a Notice of Schedule for Environmental Review will serve to notify federal and state agencies of the timing for the completion of all necessary reviews, and the subsequent need to complete all federal authorizations within 90 days of the date of issuance of the Commission staff's FEIS or EA.

Public Participation

There are three ways to become involved in the Commission's review of this project: you can file a protest to the project, you can file a motion to intervene in the proceeding, and you can file comments on the project. There is no fee or cost for filing protests, motions to intervene, or comments. The deadline for filing protests, motions to intervene, and comments is 5:00 p.m. Eastern Time on March 24, 2023. How to file protests, motions to intervene, and comments is explained below.

Protests

Pursuant to section 157.205 of the Commission's regulations under the NGA,[2] any person [3] or the Commission's staff may file a protest to the request. If no protest is filed within the time allowed or if a protest is filed and then withdrawn within 30 days after the allowed time for filing a protest, the proposed activity shall be deemed to be authorized effective the day after the time allowed for protest. If a protest is filed and not withdrawn within 30 days after the time allowed for filing a protest, the instant request for authorization will be considered by the Commission.

Protests must comply with the requirements specified in section

[1] 18 CFR (Code of Federal Regulations) 157.9.

[2] 18 CFR 157.205.

[3] Persons include individuals, organizations, businesses, municipalities, and other entities. 18 CFR 385.102(d).

157.205(e) of the Commission's regulations,[4] and must be submitted by the protest deadline, which is March 24, 2023. A protest may also serve as a motion to intervene so long as the protestor states it also seeks to be an intervenor.

Interventions

Any person has the option to file a motion to intervene in this proceeding. Only intervenors have the right to request rehearing of Commission orders issued in this proceeding and to subsequently challenge the Commission's orders in the U.S. Circuit Courts of Appeal.

To intervene, you must submit a motion to intervene to the Commission in accordance with Rule 214 of the Commission's Rules of Practice and Procedure [5] and the regulations under the NGA [6] by the intervention deadline for the project, which is March 24, 2023. As described further in Rule 214, your motion to intervene must state, to the extent known, your position regarding the proceeding, as well as your interest in the proceeding. For an individual, this could include your status as a landowner, ratepayer, resident of an impacted community, or recreationist. You do not need to have property directly impacted by the project in order to intervene. For more information about motions to intervene, refer to the FERC website at *https://www.ferc.gov/how-guides.*

All timely, unopposed motions to intervene are automatically granted by operation of Rule 214(c)(1). Motions to intervene that are filed after the intervention deadline are untimely and may be denied. Any late-filed motion to intervene must show good cause for being late and must explain why the time limitation should be waived and provide justification by reference to factors set forth in Rule 214(d) of the Commission's Rules and Regulations. A person obtaining party status will be placed on the service list maintained by the Secretary of the Commission and will receive copies (paper or electronic) of all documents filed by the applicant and by all other parties.

Comments

Any person wishing to comment on the project may do so. The Commission considers all comments received about the project in determining the appropriate action to be taken. To ensure that your comments are timely and properly recorded, please submit your comments on or before March 24, 2023. The filing of a comment alone will not serve to make the filer a party to the proceeding. To become a party, you must intervene in the proceeding.

How To File Protests, Interventions, and Comments

There are two ways to submit protests, motions to intervene, and comments. In both instances, please reference the Project docket number CP23–37–000 in your submission.

(1) You may file your protest, motion to intervene, and comments by using the Commission's eFiling feature, which is located on the Commission's website (*www.ferc.gov*) under the link to Documents and Filings. New eFiling users must first create an account by clicking on ''eRegister.'' You will be asked to select the type of filing you are making; first select ''General'' and then select ''Protest'', ''Intervention'', or ''Comment on a Filing''; or [7]

(2) You can file a paper copy of your submission by mailing it to the address below. Your submission must reference the Project docket number CP23–37–000.

To mail via USPS, use the following address: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426.

To send via any other courier, use the following address: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 12225 Wilkins Avenue, Rockville, Maryland 20852.

The Commission encourages electronic filing of submissions (option 1 above) and has eFiling staff available to assist you at (202) 502–8258 or *FERCOnlineSupport@ferc.gov.*

Protests and motions to intervene must be served to the applicant by mail to: Stewart Merrick, Vice President, Legal and Regulatory MountainWest Pipeline, LLC, 333 South State St., P.O. Box 45922, Salt Lake City, UT 84145 or by email (with a link to the document) at *stewart.merrick@mwpipe.com.* Any subsequent submissions by an intervenor must be served on the applicant and all other parties to the proceeding. Contact information for parties can be downloaded from the service list at the eService link on FERC Online.

Tracking the Proceeding

Throughout the proceeding, additional information about the project will be available from the Commission's Office of External Affairs, at (866) 208–FERC, or on the FERC website at *www.ferc.gov* using the ''eLibrary'' link as described above. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. For more information and to register, go to *https://www.ferc.gov/ferc-online/overview.*

Dated: January 23, 2023.

Kimberly D. Bose,

Secretary.

[FR Doc. 2023–01660 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

[4] 18 CFR 157.205(e).

[5] 18 CFR 385.214.

[6] 18 CFR 157.10.

[7] Additionally, you may file your comments electronically by using the eComment feature, which is located on the Commission's website at *www.ferc.gov* under the link to Documents and Filings. Using eComment is an easy method for interested persons to submit brief, text-only comments on a project.

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Combined Notice of Filings #1

Take notice that the Commission received the following Complaints and Compliance filings in EL Dockets:

Docket Numbers: EL23–24–000.

Applicants: CXA La Paloma, LLC v. *California Independent System Operator Corporation.*

Description: Complaint of CXA La Paloma, LLC v. *California Independent System Operator Corporation.*

Filed Date: 1/23/23.

Accession Number: 20230123–5080.

Comment Date: 5 p.m. ET 2/22/23.

Take notice that the Commission received the following electric rate filings:

Docket Numbers: ER22–2719–002.

Applicants: PPL Electric Utilities Corporation, PJM Interconnection, L.L.C.

Description: Tariff Amendment: PPL Electric Utilities Corporation submits tariff filing per 35.17(b): PPL Electric submits Response to Second Request for Information in ER22–2719 to be effective 1/31/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5091.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–158–002.

Applicants: Public Service Company of Colorado.

Description: Compliance filing: Final Order_SCC_Attachment B and C to be effective 12/31/9998.

Filed Date: 1/23/23.

Accession Number: 20230123–5097.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–159–002.

Applicants: Public Service Company of Colorado.

Description: Compliance filing: Final Order_SCC_Joint Op. Agreement to be effective 1/23/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5095.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–161–002.

Applicants: Public Service Company of Colorado.

Description: Compliance filing: Final Order_SCC_cost-based services to be effective 1/1/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5096.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–162–002.

Applicants: Public Service Company of Colorado.

Description: Compliance filing: Final Order_SCC_Sched. 4 and 9 to be effective 1/23/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5093.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–574–001.

Applicants: Oakland Power Company LLC.

Description: Tariff Amendment: Oakland Power Motion for Deferral of Commission Action to be effective 12/31/9998.

Filed Date: 1/23/23.

Accession Number: 20230123–5071.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–918–000.

Applicants: PJM Interconnection, L.L.C.

Description: § 205(d) Rate Filing: Revisions to the Transmission Constraint Penalty Factor Rules to be effective 3/22/2023.

Filed Date: 1/20/23.

Accession Number: 20230120–5203.

Comment Date: 5 p.m. ET 2/10/23.

Docket Numbers: ER23–919–000.

Applicants: Tampa Electric Company.

Description: § 205(d) Rate Filing: Section 205 Filing—Updating OATT Administrator Contact Information to be effective 1/23/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5001.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–920–000.

Applicants: Meadow Lake Solar Park LLC.

Description: Compliance filing: Notice of Non-Material Change in Status and MBR Tariff Revisions to be effective 3/25/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5067.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–921–000.

Applicants: Black Mesa Energy, LLC.

Description: Baseline eTariff Filing: Black Mesa Energy, LLC—MBR Application to be effective 3/25/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5104.

Comment Date: 5 p.m. ET 2/13/23.

Docket Numbers: ER23–922–000.

Applicants: Duke Energy Progress, LLC.

Description: § 205(d) Rate Filing: DEP-Powells Creek A&R ASOA SA No. 365 to be effective 3/27/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5117.

Comment Date: 5 p.m. ET 2/13/23.

The filings are accessible in the Commission's eLibrary system (*https://elibrary.ferc.gov/idmws/search/fercgensearch.asp*) by querying the docket number.

Any person desiring to intervene or protest in any of the above proceedings must file in accordance with Rules 211 and 214 of the Commission's Regulations (18 CFR 385.211 and 385.214) on or before 5:00 p.m. Eastern time on the specified comment date. Protests may be considered, but intervention is necessary to become a party to the proceeding.

eFiling is encouraged. More detailed information relating to filing requirements, interventions, protests, service, and qualifying facilities filings can be found at: *http://www.ferc.gov/docs-filing/efiling/filing-req.pdf.* For other information, call (866) 208–3676 (toll free). For TTY, call (202) 502–8659.

Dated: January 23, 2023.

Debbie-Anne A. Reese,

Deputy Secretary.

[FR Doc. 2023–01652 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Project No. 5223–039]

Packaging Corporation of America; Notice of Intent To File License Application, Filing of Pre-Application Document, Approving Use of the Traditional Licensing Process

a. *Type of Filing:* Notice of Intent to File License Application and Request to Use the Traditional Licensing Process.

b. *Project No.:* 5223–039.

c. *Date Filed:* November 23, 2022.

d. *Submitted By:* Packaging Corporation of America (Packaging Corp.).

e. *Name of Project:* International Falls Hydroelectric Project.

f. *Location:* The project is located on the Rainy River in Koochiching and St. Louis Counties, Minnesota. The project includes an unknown quantity of federal land within Voyageurs National Park.

g. *Filed Pursuant to:* 18 CFR 5.3 of the Commission's regulations.

h. *Potential Applicant Contact:* Ethan Croatt, Packaging Corporation of America, 400 2nd Street, International Falls, MN 56649; (218) 838–6801; email—*EthanCroatt@packagingcorp.com.*

i. *FERC Contact:* Nicholas Ettema at (312) 596–4447; or email at *nicholas.ettema@ferc.gov.*

j. Packaging Corp. filed its request to use the Traditional Licensing Process on November 23, 2022. Packaging Corp. provided public notice of its request on November 25, 2022. In a letter dated January 23, 2023, the Director of the Division of Hydropower Licensing (Director) approved Packaging Corp.'s request to use the Traditional Licensing Process. The Director also approved Packaging Corp.'s request to waive regulations at 18 CFR 16.8(b)(3) with regard to the timing of a project site visit. An opportunity for a project site visit must occur no later than July 31, 2023.

k. With this notice, we are initiating informal consultation with the U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act and the joint agency regulations thereunder at 50 CFR part 402. We are also initiating consultation with the Minnesota State Historic Preservation Officer, as required by section 106, National Historic Preservation Act, and the implementing regulations of the Advisory Council on Historic Preservation at 36 CFR 800.2.

l. With this notice, we are designating Packaging Corp. as the Commission's non-federal representative for carrying out informal consultation pursuant to section 7 of the Endangered Species Act and consultation pursuant to section 106 of the National Historic Preservation Act.

m. Packaging Corp. filed a Pre-Application Document (PAD; including a proposed process plan and schedule) with the Commission, pursuant to 18 CFR 5.6 of the Commission's regulations.

n. A copy of the PAD may be viewed on the Commission's website (*http://www.ferc.gov*), using the ''eLibrary'' link. Enter the docket number, excluding the last three digits in the docket number field, to access the document. For assistance, contact FERC Online Support at *FERCOnlineSupport@ferc.gov,* (866) 208–3676 (toll free), or (202) 502–8659 (TTY).

o. The licensee states its unequivocal intent to submit an application for a subsequent license for Project No. 5223. Pursuant to 18 CFR 16.8, 16.9, and 16.10, each application for a new license and any competing license applications must be filed with the Commission at least 24 months prior to the expiration of the existing license. All applications for license for this project must be filed by November 30, 2025.

p. Register online at *http://www.ferc.gov/docs-filing/esubscription.asp* to be notified via email of new filing and issuances related to this or other pending projects. For assistance, contact FERC Online Support.

Dated: January 23, 2023.

Kimberly D. Bose,

Secretary.

[FR Doc. 2023–01661 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Project Nos. 10675–021, 10676–027, 10677–024, and 10678–026]

Central Rivers Power MA, LLC; Notice of Availability of Environmental Assessment

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's (Commission or FERC) regulations, 18 Code of Federal Regulations (CFR) part 380, Commission staff reviewed Central Rivers Power MA, LLC's application to amend the terms and conditions for the exemptions from licensing for the Dwight Project No. 10675, Red Bridge Project No. 10676, Putts Bridge Project No. 10677, and Indian Orchard Project No. 10678 and have prepared an Environmental Assessment (EA). The U.S. Fish and Wildlife Service and the Massachusetts Division of Fish and Wildlife have provided updated terms and conditions for the exemptions that modify operation of the projects. Primarily the updated terms and conditions stipulate operation of the projects in a run-of-river mode, with revised bypass flow releases. The projects are located on the Chicopee River in Hampden County, Massachusetts, and do not occupy federal lands.

The EA contains Commission staff's analysis of the potential environmental effects of the proposed amendment, and concludes that it would not constitute a major federal action that would significantly affect the quality of the human environment.

The Commission provides all interested persons with an opportunity to view and/or print the EA via the internet through the Commission's Home Page (*http://www.ferc.gov*) using the ''eLibrary'' link. Enter the docket number, excluding the last three digits in the docket number field, to access the document. For assistance, contact FERC Online Support at *FERCOnlineSupport@ferc.gov* or toll-free at (866) 208–3676, or for TTY, (202) 502–8659.

You may also register online at *https://ferconline.ferc.gov/eSubscription.aspx* to be notified via email of new filings and issuances related to this or other pending projects. For assistance, contact FERC Online Support.

Any comments should be filed within 30 days from the date of this notice. The Commission strongly encourages electronic filing. Please file comments using the Commission's eFiling system at *https://ferconline.ferc.gov/eFiling.aspx.* Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at *https://ferconline.ferc.gov/QuickComment.aspx.* You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support. In lieu of electronic filings, you may submit a paper copy. Submissions sent via the U.S. Postal Service must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. The first page of any filing should include docket numbers P–10675–021, P–10676–027, P–10677–024, and P–10678–026.

For further information, contact Rebecca Martin at 202–502–6012 or *Rebecca.Martin@ferc.gov.*

Dated: January 23, 2023.

Kimberly D. Bose,

Secretary.

[FR Doc. 2023–01663 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Combined Notice of Filings

Take notice that the Commission has received the following Natural Gas Pipeline Rate and Refund Report filings:

Filings Instituting Proceedings

Docket Numbers: RP23–367–000.

Applicants: Monroe Gas Storage Company, LLC.

Description: § 4(d) Rate Filing: Monroe Gas Storage Company, LLC Revisions to FERC Gas Tariff to be effective 2/21/2023.

Filed Date: 1/20/23.

Accession Number: 20230120–5168.

Comment Date: 5 p.m. ET 2/1/23.

Docket Numbers: RP23–368–000.

Applicants: Sierrita Gas Pipeline LLC.

Description: § 4(d) Rate Filing: 2023 Jan Quarterly FL&U Filing to be effective 3/1/2023.

Filed Date: 1/23/23.

Accession Number: 20230123–5055.

Comment Date: 5 p.m. ET 2/6/23.

Any person desiring to intervene or protest in any of the above proceedings must file in accordance with Rules 211 and 214 of the Commission's Regulations (18 CFR 385.211 and 385.214) on or before 5:00 p.m. Eastern time on the specified comment date. Protests may be considered, but intervention is necessary to become a party to the proceeding.

The filings are accessible in the Commission's eLibrary system (*https://elibrary.ferc.gov/idmws/search/fercgensearch.asp*) by querying the docket number.

eFiling is encouraged. More detailed information relating to filing requirements, interventions, protests, service, and qualifying facilities filings can be found at: *http://www.ferc.gov/docs-filing/efiling/filing-req.pdf.* For other information, call (866) 208–3676 (toll free). For TTY, call (202) 502–8659.

Dated: January 23, 2023.

Debbie-Anne A. Reese,

Deputy Secretary.

[FR Doc. 2023–01653 Filed 1–26–23; 8:45 am]

BILLING CODE 6717–01–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OPP–2022–0223; FRL–10138–02–OCSPP]

Chlorpyrifos; Amendment to Provisions for Disposition of Existing Stocks

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: On August 31, 2022, EPA announced its order for the cancellations for 16 chlorpyrifos products (including the products listed in Table 1 of Unit II.) pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which were voluntarily requested by the registrants and accepted by the Agency. The Agency is issuing this notice to amend the existing stocks provisions in that order, specifically for the products listed in this document.

ADDRESSES: The docket for this action, identified under docket identification (ID) number EPA–HQ–OPP–2022–0223, is available online at *https://www.regulations.gov.* Additional instructions on visiting the docket, along with more information about dockets generally, is available at *https://www.epa.gov/dockets.*

FOR FURTHER INFORMATION CONTACT: Patricia Biggio, Pesticide Re-Evaluation Division (7508P), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460–0001; telephone number: 202–566–0700; email address: *OPPChlorpyrifosInquiries@epa.gov.*

SUPPLEMENTARY INFORMATION:

I. General Information

Does this action apply to me?

This action is directed to the public in general and may be of interest to a wide range of stakeholders including environmental, human health, and agricultural advocates; the chemical industry; pesticide users; and members of the public interested in the sale, distribution, or use of pesticides. Since others also may be interested, the Agency has not attempted to describe all the specific entities that may be affected by this action.

II. What action is the Agency taking?

Existing stocks are those stocks of registered pesticide products that are currently in the United States and that were packaged, labeled, and released for shipment prior to the effective date of the cancellation action. The provisions for disposition of existing stocks laid out in Unit IV. of the *Cancellation Order for Certain Chlorpyrifos Registrations* (87 FR 53471, August 31, 2022 (FRL–10138–01–OCSPP)) are as follows: ''Because chlorpyrifos tolerances have been revoked and use of chlorpyrifos renders food adulterated all sale, distribution, and use of the chlorpyrifos products identified in Table 1 of Unit I. is prohibited, except for export consistent with FIFRA section 17 (7 U.S.C. 136o), or for proper disposal.'' It was recently called to the Agency's attention that the cancelled products identified in the August 31, 2022 order (Table 1), were registered for only non-food uses or had labels which did not include food uses.

TABLE 1—CHLORPYRIFOS PRODUCT REGISTRATIONS WITH REVISED PROVISIONS FOR EXISTING STOCKS

EPA registration No.	Product name	Company
499–405	Whitmire PT 1920 Total Release Insecticide	BASF.
499–367	Whitmire PT 275 DUR–O–CAP Microencapsulated Chlorpyrifos	BASF.

TABLE 2—REGISTRANTS WITH REVISED PROVISIONS FOR EXISTING STOCKS

EPA company No.	Company name and address
499	BASF Corporation, 26 Davis Drive, P.O. Box 13528, Research Triangle Park, NC 27709–3528.

Pesticide products containing chlorpyrifos that are registered for only non-food uses were not impacted by the tolerance revocation, and thus the same reasons for prohibiting sale, distribution, and use do not apply. Therefore, EPA is amending the cancellation order to provide different existing stocks language for the products listed in Table 1 and for the registrant in Table 2.

III. Provisions for Disposition of Existing Stocks

Existing stocks are those stocks of registered pesticide products that are currently in the United States and that were packaged, labeled, and released for shipment prior to the effective date of the cancellation action. At this time, the Agency has identified no significant potential risk concerns associated with the products identified in Table 1 of Unit II. Therefore, EPA is allowing the registrant listed in Table 2 of Unit II. to sell and distribute existing stocks of these products for one year after publication of the August 31, 2022. Cancellation Order in the **Federal Register** (87 FR 53471). As such, the registrant may sell the products in Table 1 until August 31, 2023. Thereafter, registrant listed in Table 2 of Unit II. will be prohibited from selling or distributing the pesticide products identified in Table 1 of Unit II., except for export consistent with FIFRA section 17 (7 U.S.C. 136o) or for proper disposal.

Persons other than registrants will generally be allowed to sell, distribute, or use existing stocks until such stocks are exhausted, provided that such sale, distribution, or use is consistent with the terms of the previously approved labeling on, or that accompanied, the canceled products.

List of Subjects in 40 CFR Part 180

Environmental protection, Pesticides and pests, Cancellation.

Dated: January 23, 2023.

Mary Elissa Reaves,

Director, Pesticide Re-Evaluation Division, Office of Pesticide Programs.

[FR Doc. 2023–01655 Filed 1–26–23; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OPP–2017–0720; FRL–10524–01–OCSPP]

Pesticide Registration Review; Pesticide Dockets Opened for Review and Comment; Notice of Availability

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: This notice announces the availability of the EPA's preliminary work plans for the following chemicals: abscisic acid, *Bacillus thuringiensis* Cry1Ac in MON 87701 soybean, fluensulfone. With this document, the EPA is opening the public comment period for registration review for these chemicals.

DATES: Comments must be received on or before March 28, 2023.

ADDRESSES: Submit your comments, identified by docket identification (ID) number EPA–HQ–OPP–2017–0720, through the *Federal eRulemaking Portal* at *https://www.regulations.gov*. Follow the online instructions for submitting comments. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Additional instructions on commenting and visiting the docket, along with more information about dockets generally, is available at *https://www.epa.gov/dockets.*

FOR FURTHER INFORMATION CONTACT:

For pesticide specific information, contact: The Chemical Review Manager for the pesticide of interest identified in Table 1 in Unit IV.

For general questions on the registration review program, contact: Melanie Biscoe, Pesticide Re-Evaluation Division (7508P), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460–0001; telephone number: (202) 566–0701; email address: *biscoe.melanie@epa.gov.*

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

This action is directed to the public in general and may be of interest to a wide range of stakeholders including environmental, human health, farm worker, and agricultural advocates; the chemical industry; pesticide users; and members of the public interested in the sale, distribution, or use of pesticides. Since others also may be interested, the agency has not attempted to describe all the specific entities that may be affected by this action. If you have any questions regarding the applicability of this action to a particular entity, consult the Chemical Review Manager identified in Table 1 in Unit IV.

B. What should I consider as I prepare my comments for the EPA?

1. *Submitting CBI.* Do not submit this information to the EPA through *regulations.gov* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD–ROM that you mail to the EPA, mark the outside of the disk or CD–ROM as CBI and then identify electronically within the disk or CD–ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

2. *Tips for preparing your comments.* When preparing and submitting your comments, see the commenting tips at *https://www.epa.gov/dockets/commenting-epa-dockets.*

3. *Environmental justice.* EPA seeks to achieve environmental justice, the fair treatment and meaningful involvement of any group, including minority and/or low-income populations, in the development, implementation, and enforcement of environmental laws, regulations, and policies. To help address potential environmental justice issues, the Agency seeks information on any groups or segments of the population who, as a result of their location, cultural practices, or other factors, may have atypical or disproportionately high and adverse human health impacts or environmental effects from exposure to the pesticides discussed in this document, compared to the general population.

II. Background

Registration review is the EPA's periodic review of pesticide registrations to ensure that each pesticide continues to satisfy the statutory standard for registration, that is, the pesticide can perform its intended function without unreasonable adverse effects on human health or the environment. Registration review dockets contain information that will assist the public in understanding the types of information and issues that the agency may consider during the course of registration reviews. As part of the registration review process, the Agency has completed preliminary workplans for all pesticides listed in Table 1 in Unit IV. Through this program, the EPA is ensuring that each pesticide's registration is based on current scientific and other knowledge, including its effects on human health and the environment.

III. Authority

The EPA is conducting its registration review of the chemicals listed in Table 1 in Unit IV pursuant to section 3(g) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Procedural Regulations for Registration Review at 40 CFR part 155, subpart C. Section 3(g) of FIFRA provides, among other things, that the registrations of pesticides are to be reviewed every 15 years. Under FIFRA, a pesticide product may be registered or remain registered only if it meets the statutory standard for registration given in FIFRA section 3(c)(5) (7 U.S.C. 136a(c)(5)). When used in accordance with widespread and commonly recognized practice, the pesticide product must perform its intended function without unreasonable adverse effects on the environment; that is, without any unreasonable risk to man or the environment, or a human dietary risk from residues that result from the use of a pesticide in or on food.

IV. Registration Reviews

A. What action is the Agency taking?

A pesticide's registration review begins when the agency establishes a docket for the pesticide's registration review case and opens the docket for public review and comment. Pursuant to 40 CFR 155.50, this notice announces the availability of the EPA's preliminary work plans for the pesticides shown in Table 1 and opens a 60-day public comment period on the work plans.

TABLE 1—PRELIMINARY WORK PLANS BEING MADE AVAILABLE FOR PUBLIC COMMENT

Registration review case name and No.	Docket ID No.	Chemical review manager and contact information
Abscisic Acid Case Number 6310	EPA–HQ–OPP–2022–0784	Andrew Queen, *queen.andrew@epa.gov,* (202) 566–1539.
Bacillus thuringiensis Cry1Ac in MON 87701 Soybean Case Number 6600.	EPA–HQ–OPP–2022–0543	Michael Glikes, *glikes.michael@epa.gov,* (703) 231–6499.
Fluensulfone Case Number 7464	EPA–HQ–OPP–2022–0438	Kelsi Grogan, *grogan.kelsi@epa.gov,* (202) 566–2228.

B. Docket Content

The registration review docket contains information that the agency may consider in the course of the registration review. The agency may include information from its files including, but not limited to, the following information:

- An overview of the registration review case status.
- A list of current product registrations and registrants.
- **Federal Register** notices regarding any pending registration actions.
- **Federal Register** notices regarding current or pending tolerances.
- Risk assessments.
- Bibliographies concerning current registrations.
- Summaries of incident data.
- Any other pertinent data or information.

Each docket contains a document summarizing what the agency currently knows about the pesticide case and a preliminary work plan for anticipated data and assessment needs. Additional documents provide more detailed information. During this public comment period, the agency is asking that interested persons identify any additional information they believe the agency should consider during the registration reviews of these pesticides. The agency identifies in each docket the areas where public comment is specifically requested, though comment in any area is welcome.

The registration review final rule at 40 CFR 155.50(b) provides for a minimum 60-day public comment period on all preliminary registration review work plans. This comment period is intended to provide an opportunity for public input and a mechanism for initiating any necessary changes to a pesticide's workplan. All comments should be submitted using the methods in **ADDRESSES** and must be received by the EPA on or before the closing date. These comments will become part of the docket for the pesticides included in Table 1 in Unit IV. Comments received after the close of the comment period will be marked ''late.'' The EPA is not required to consider these late comments.

The agency will carefully consider all comments received by the closing date and may provide a ''Response to Comments Memorandum'' in the docket. The final registration review work plan will explain the effect that any comments had on the final work plan and provide the agency's response to significant comments.

Background on the registration review program is provided at: *https://www.epa.gov/pesticide-reevaluation.*

Authority: 7 U.S.C. 136 *et seq.*

Dated: January 23, 2023.

Mary Elissa Reaves,

Director, Pesticide Re-Evaluation Division, Office of Pesticide Programs.

[FR Doc. 2023–01712 Filed 1–26–23; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OAR–2007–1182; FRL–10234–01–OAR]

Proposed Information Collection Request; Comment Request; Emissions Certification and Compliance Requirements for Nonroad Compression-Ignition Engines and On-Highway Heavy Duty Engines (Revision)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Environmental Protection Agency is planning to submit an information collection requests (ICRs) ''Emissions Certification and Compliance Requirements for Nonroad Compression-ignition Engines and On-highway Heavy Duty Engines (Revision),'' (EPA ICR No. 1684.20, OMB Control No. 2060–0287) to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*). Before doing so, EPA is soliciting public comments on specific aspects of the proposed information collections as described below. This is a proposed extension of the ICR, which is currently approved through March 31, 2023. An Agency may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number.

DATES: Comments must be submitted on or before March 28, 2023.

ADDRESSES: Submit your comments, referencing the Docket ID Number EPA–HQ–OAR–2007–1182, online using *www.regulations.gov* (our preferred method), by email to *a-and-r-Docket@epa.gov* or by mail to: EPA Docket Center, Environmental Protection Agency, Mail Code 28221T, 1200 Pennsylvania Ave. NW, Washington, DC 20460.

EPA's policy is that all comments received will be included in the public docket without change including any personal information provided, unless the comment includes profanity, threats, information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute.

FOR FURTHER INFORMATION CONTACT: Ms. Nydia Y. Reyes-Morales, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Mail Code 6405A, Washington, DC 20460; telephone number: 202–343–9264; email address: *reyes-morales.nydia@epa.gov.*

SUPPLEMENTARY INFORMATION: Supporting documents which explain in detail the information that the EPA will be collecting are available in the public docket for this ICR. The docket can be viewed online at *www.regulations.gov* or in person at the EPA Docket Center, EPA West, Room 3334, 1301 Constitution Ave. NW, Washington, DC. The telephone number for the Docket Center is 202–566–1744. For additional information about EPA's public docket, visit *http://www.epa.gov/dockets.*

Pursuant to section 3506(c)(2)(A) of the Paperwork Reduction Act, EPA is soliciting comments and information to enable it to: (i) evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the Agency, including whether the information will have practical utility; (ii) evaluate the accuracy of the Agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (iii) enhance the quality, utility, and clarity of the information to be collected; and (iv) minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses. EPA will consider the comments received and amend the ICR as appropriate. The final ICR package will then be submitted to OMB for review and approval. At that time, EPA will issue another **Federal Register** notice to announce the submission of the ICR to OMB and the opportunity to submit additional comments to OMB.

Abstract: For this ICR, EPA is seeking a revision to an existing package with a three-year extension.

Title II of the Clean Air Act, (42 U.S.C. 7521 *et seq.;* CAA), charges the Environmental Protection Agency (EPA) with issuing certificates of conformity for those engines and vehicles that comply with applicable emission requirements. Such a certificate must be issued before those products may be legally introduced into commerce. To

apply for a certificate of conformity, manufacturers are required to submit descriptions of their planned production, detailed descriptions of emission control systems and test data. This information is organized by ''families,'' groups of engines/vehicles expected to have similar emission characteristics.

The emission values achieved during certification testing may also be used in the Averaging, Banking, and Trading (ABT) Program. The program allows engine manufacturers to bank credits for engine families that emit below the standard and use the credits to certify engine families that emit above the standard. They may also trade banked credits with other manufacturers. Participation in the ABT program is voluntary.

The CAA also mandates EPA to verify that manufacturers have successfully translated their certified prototypes into mass produced engines; and that these engines comply with emission standards throughout their useful lives. EPA verifies this through 'Compliance Programs' which include Production Line Testing (PLT), In-use Testing and Selective Enforcement Audits, (SEAs). Not all programs apply to all industries included in this ICR. PLT, which only applies to marine engines, is a self-audit program that allows engine manufacturers to monitor their products' emissions profile with statistical certainty and minimize the cost of correcting errors through early detection. In-use testing allows manufacturers and EPA to verify compliance with emission standards throughout an engine family's useful life. Through SEAs, EPA verifies that test data submitted by engine manufacturers is reliable and testing is performed according to EPA regulations.

Under the Transition Program for Equipment Manufacturers (TPEM), NRCI equipment manufacturers were able to delay compliance with Tier 4 standards for up to seven years as long as they comply with certain limitations. The program, which has ended, sought to ease the impact of new emission standards on equipment manufacturers as they often need to redesign their products to accommodate changes in engine design. Although TPEM is no longer available, EPA keeping reporting forms for the duration of this collection.

There are varying recordkeeping and labeling requirements under all programs.

The information requested is collected by the Compliance Division (CD), Office of Transportation and Air Quality, Office of Air and Radiation, EPA. CD uses this information to issue certificates of conformity and ensure that manufacturers comply with applicable regulations and the CAA. Some HD data is also used by the National Highway Traffic Safety Administration (NHTSA) to implement their programs under 49 U.S.C. 32902. EPA's and NHTSA's Office of Enforcement and Compliance Assurance and the Department of Justice may use the information for enforcement purposes. Most of the information is collected in electronic format and stored in CD's databases.

Manufacturers may assert a claim of confidentiality over information provided to EPA. Confidentiality is granted in accordance with the Freedom of Information Act and EPA regulations at 40 CFR part 2. Non-confidential information may be disclosed on OTAQ's website or upon request under the Freedom of Information Act to trade associations, environmental groups, and the public.

Form Numbers: Most of the information in this request is collected electronically through EPA's Engines and Vehicles Compliance Information System (EV–CIS). EV–CIS uses webforms to collect most certification and some compliance data. Data related some programs is collected through Excel-based templates that are then uploaded into different components of EV–CIS. Table 2 lists the forms currently used in this collection in addition to EPA's database for engine and vehicle certification (EV–CIS). Some forms, such as the notification and application forms related to TPEM and TPEM hardship relief will be discontinued as those programs have expired. EPA is working on amendments to the PLT Report for Marine CI forms and the Replacement Engine Exemption Report to reflect recent regulatory changes.

TABLE 2—FORMS RELATED TO ICR 1684.20

Form	No.
HD/NR Engine Manufacturer Annual Production Report	5900–90
AB&T Report for Nonroad Compression Ignition Engines	5900–125
AB&T Report for Heavy-duty On-highway Engines	5900–134
AB&T Report for Locomotives	5900–274
AB&T Report for Marine Compression-ignition Engines	5900–125
PLT Report for Marine CI CumSum	5900–297
PLT Report for Marine CI Non-CumSum	5900–298
PLT Report for Locomotives	5900–135
Locomotive Installation Audit Report	5900–273
In-use Testing for Locomotives	5900–93
In-use Testing for Non-Road Engines	5900–93
Replacement Engine Exemption Report	6900–5414
TPEM Equipment Manufacturer Notification	5900–242
TPEM Equipment Manufacturer Report	5900–240
TPEM Engine Manufacturer Report	5900–241
TPEM Importers Notification	In process
TPEM Importers Annual Report	In process
TPEM Bond Worksheet	5900–239
TPEM Hardship Relief Application Questionnaire	5900–465
TPEM Hardship Relief Prescreening Questionnaire	6900–02
DF Carry-across Comparison Sheet	TBD
§ 1065 Lab Audit Checklist	TBD

Respondents/affected entities: Entities potentially affected by this action are manufacturers of engines, equipment, and vehicles in the nonroad compression ignition (CI), marine CI, locomotives and medium- and heavy-

duty on-highway industries. There are some requirements for marine CI vessel owners and operators and owners of HD truck fleets.

Respondent's obligation to respond: Regulated manufacturers must respond to this collection if they wish to sell their products in the U.S., as prescribed by section 206(a) of the CAA (42 U.S.C. 7521). Participation in some programs such as ABT is voluntary, but once a manufacturer has elected to participate, it must submit the required information.

Estimated number of respondents: 2,823 (total).

Frequency of response: Quarterly, Annually, On Occasion, depending on the type of response.

Total estimated burden: 167,333 hours per year. Burden is defined at 5 CFR 1320.03(b).

Total estimated cost: $31,192,402 (per year), includes an estimated $18,976,585 annualized capital or maintenance and operational costs.

Changes in the Estimates: EPA expects that the total estimated respondent burden will remain fairly consistent with the burden currently identified in the OMB Inventory of Approved ICR Burdens. Expected changes to the estimates come from the end of TPEM for all power categories (decrease) and the DF validation exercise (increase). However, EPA is evaluating information that may lead to a change in the estimates.

Byron Bunker,

Director, Compliance Division, Office of Transportation and Air Quality, Office of Air and Radiation.

[FR Doc. 2023–01631 Filed 1–26–23; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL OP–OFA–054]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information 202–564–5632 or *https://www.epa.gov/nepa.*

Weekly receipt of Environmental Impact Statements (EIS) Filed January 13, 2023 10 a.m. EST Through January 23, 2023 10 a.m. EST Pursuant to 40 CFR 1506.9.

Notice: Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/search.*

EIS No. 20230009, Draft, FERC, LA, CP2 LNG and CP Express Project, Comment Period Ends: 03/13/2023, Contact: Office of External Affairs 866–208–3372.

EIS No. 20230011, Final, FERC, PA, Valley Connector Expansion Project, Review Period Ends: 02/27/2023, Contact: Office of External Affairs 866–208–3372.

EIS No. 20230012, Draft, GSA, AZ, Expansion and Modernization of the Raul Hector Castro Land Port of Entry and Proposed Commercial Land Port of Entry in Douglas, Arizona, Comment Period Ends: 03/13/2023, Contact: Osmahn Kadri 415–760–9239.

Dated: January 23, 2023.

Cindy S. Barger,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2023–01651 Filed 1–26–23; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–10593–01–OA]

Request for Nominations to the EPA Clean Air Scientific Advisory Committee (CASAC)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The U.S. Environmental Protection Agency (EPA) invites nominations of scientific experts to be considered for appointment to the Clean Air Scientific Advisory Committee (CASAC).

DATES: Nominations should be submitted in time to arrive no later than February 27, 2023.

FOR FURTHER INFORMATION CONTACT: For further information about the CASAC membership appointment process and schedule, please contact Mr. Aaron Yeow, DFO, by telephone at 202–564–2050 or by email at *yeow.aaron@epa.gov.*

SUPPLEMENTARY INFORMATION: The CASAC is a chartered Federal Advisory Committee, established pursuant to the Clean Air Act (CAA) Amendments of 1977, codified at 42 U.S.C. 7409(d)(2), to review air quality criteria and National Ambient Air Quality Standards (NAAQS) and recommend to the EPA Administrator any new NAAQS and revisions of existing criteria and standards as may be appropriate. The CASAC shall also: advise the EPA Administrator of areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS; describe the research efforts necessary to provide the required information; advise the EPA Administrator on the relative contribution to air pollution concentrations of natural as well as anthropogenic activity; and advise the EPA Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such NAAQS. Members of the CASAC constitute a distinguished body of non-EPA scientists and engineers who are nationally and internationally recognized experts in their respective fields. Members are appointed by the EPA Administrator and serve for a two to three-year term as Special Government Employees who provide independent expert advice to the agency. Additional information is available at *https://casac.epa.gov.*

Expertise Sought for CASAC: As required under the CAA section 109(d), the CASAC is composed of seven members, with at least one member of the National Academy of Sciences, one physician, and one person representing state air pollution control agencies. The SAB Staff Office is seeking nominations of experts to serve on the CASAC to fulfill the statutory requirement of representing state air pollution control agencies. These scientists should have expertise in one or more of the following disciplines: air quality, biostatistics, ecology, environmental engineering, epidemiology, exposure assessment, medicine, risk assessment, and toxicology. The SAB Staff Office is especially interested in scientists with expertise described above who have knowledge and experience *relating to criteria pollutants* (*carbon monoxide, lead, nitrogen oxides, ozone, particulate matter, and sulfur oxides*).

Selection Criteria for the CASAC

Nominees are selected based on their individual qualifications. Curriculum vitae should reflect the following:

—Demonstrated scientific credentials and disciplinary expertise in relevant fields;

—Willingness to commit time to the committee and demonstrated ability to work constructively and effectively on committees;

—Background and experiences that would help members contribute to the diversity of perspectives on the committee, *e.g.,* geographical, economic, social, cultural, educational backgrounds, professional affiliations, and other considerations;

—For the committee as a whole, consideration of the collective breadth and depth of scientific expertise; and a balance of scientific perspectives is important.

As the committee undertakes specific advisory activities, the SAB Staff Office will consider two additional criteria for each new activity: absence of financial conflicts of interest and absence of an appearance of a loss of impartiality.

How to Submit Nominations: Any interested person or organization may nominate qualified persons to be considered for appointment to this advisory committee. Individuals may self-nominate. Nominations should be submitted in electronic format (preferred) using the online nomination form under the ''Nomination of Experts'' category at the bottom of the CASAC home page at *https://casac.epa.gov.* To be considered, all nominations should include the information requested below. EPA values and welcomes diversity. All qualified candidates are encouraged to apply regardless of sex, race, disability or ethnicity.

The following information should be provided on the nomination form: contact information for the person making the nomination; contact information for the nominee; and the disciplinary and specific areas of expertise of the nominee. Nominees will be contacted and asked to provide additional information, including a *curriculum vitae* and biographical sketch (indicating current position, educational background, research activities, sources of research funding for the last two years, and recent service on other national advisory committees or national professional organizations). To help the agency evaluate the effectiveness of its outreach efforts, please indicate how you learned of this nomination opportunity. Persons having questions about the nomination process or the public comment process described below, or who are unable to submit nominations through the CASAC website, should contact the DFO, as identified above. The DFO will acknowledge receipt of nominations and will invite the nominee to provide any additional information that the nominee feels would be useful in considering the nomination, such as availability to participate as a member of the committee; how the nominee's background, skills and experience would contribute to the diversity of the committee; and any questions the nominee has regarding membership. The names and biosketches of qualified nominees identified by respondents to this **Federal Register** notice, and additional experts identified by the SAB Staff Office, will be posted in a List of Candidates on the CASAC website at *https://casac.epa.gov.* Public comments on each List of Candidates will be accepted for 21 days from the date the list is posted. The public will be requested to provide relevant information or other documentation on nominees that the SAB Staff Office should consider in evaluating candidates.

Candidates may be asked to submit the ''Confidential Financial Disclosure Form for Special Government Employees Serving on Federal Advisory Committees at the U.S. Environmental Protection Agency'' (EPA Form 3110–48). This confidential form is required for Special Government Employees (SGEs) and allows EPA to determine whether there is a statutory conflict between that person's public responsibilities as an SGE and private interests and activities, or the appearance of a loss of impartiality, as defined by Federal regulation. The form may be viewed and downloaded through the ''Ethics Requirements for Advisors'' link on the CASAC home page at *https://casac.epa.gov.* This form should not be submitted as part of a nomination.

V Khanna Johnston,

Deputy Director, EPA Science Advisory Staff Office.

[FR Doc. 2023–01725 Filed 1–26–23; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

[FR ID 123514]

Open Commission Meeting Thursday, January 26, 2023

January 19, 2023.

The Federal Communications Commission will hold an Open Meeting on the subjects listed below on Thursday, January 26, 2023, which is scheduled to commence at 10:30 a.m. in the Commission Meeting Room of the Federal Communications Commission, 45 L Street NE, Washington, DC. While attendance at the Open Meeting is available to the public, the FCC headquarters building is not open access and all guests must check in with and be screened by FCC security at the main entrance on L Street. Attendees at the Open Meeting will not be required to have an appointment but must otherwise comply with protocols outlined at: *www.fcc.gov/visit.* Open Meetings are streamed live at: *www.fcc.gov/live* and on the FCC's YouTube channel.

Item No.	Bureau	Subject
1	Public Safety & Homeland Security	*Title:* Ensuring the Reliability and Resiliency of the 988 Suicide & Crisis Lifeline (PS Docket No. 23–5), New Part 4 of the Commission's Rules Concerning Disruptions to Communications (PS Docket No. 15–80); Implementation of the National Suicide Hotline Improvement Act of 2018 (WC Docket No. 18–336). *Summary:* The Commission will consider a Notice of Proposed Rulemaking that would consider establishing reporting and notice requirements for service outages potentially affecting the 988 Suicide & Crisis Lifeline.
2	Wireline Competition	*Title:* Promoting Telehealth and Telemedicine in Rural America (WC Docket 17–310). *Summary:* The Commission will consider an Order on Reconsideration, Second Report and Order, Order, and Second Further Notice of Proposed Rulemaking which would rescind rules requiring support for the Rural Health Care Telecommunications Program to be calculated using a database, improve processes for invoicing and program caps, and propose additional enhancements to calculations of support and a mechanism to allow the participation of newly-eligible health care providers.
3	Media	*Title:* Restricted Adjudicatory Matter. *Summary:* The Commission will consider a restricted adjudicatory matter.
4	Enforcement	*Title:* Enforcement Bureau Action. *Summary:* The Commission will consider an enforcement action.

* * * * *

The meeting will be webcast at: *www.fcc.gov/live.* Open captioning will be provided as well as a text only version on the FCC website. Other reasonable accommodations for people with disabilities are available upon request. In your request, include a description of the accommodation you will need and a way we can contact you if we need more information. Last minute requests will be accepted but may be impossible to fill. Send an email to: *fcc504@fcc.gov* or call the Consumer & Governmental Affairs Bureau at 202–418–0530.

Press Access—Members of the news media are welcome to attend the meeting and will be provided reserved seating on a first-come, first-served basis. Following the meeting, the Chairwoman may hold a news conference in which she will take questions from credentialed members of the press in attendance. Also, senior policy and legal staff will be made available to the press in attendance for questions related to the items on the meeting agenda. Commissioners may also choose to hold press conferences. Press may also direct questions to the Office of Media Relations (OMR): *MediaRelations@fcc.gov.* Questions about credentialing should be directed to OMR.

Additional information concerning this meeting may be obtained from the Office of Media Relations, (202) 418–0500. Audio/Video coverage of the meeting will be broadcast live with open captioning over the internet from the FCC Live web page at *www.fcc.gov/live.*

Federal Communications Commission.

Marlene Dortch,

Secretary.

[FR Doc. 2023–01604 Filed 1–26–23; 8:45 am]

BILLING CODE 6712–01–P

FEDERAL DEPOSIT INSURANCE CORPORATION

[OMB No. 3064–0122]

Agency Information Collection Activities: Proposed Collection Renewal; Comment Request

AGENCY: Federal Deposit Insurance Corporation (FDIC).

ACTION: Notice and request for comment.

SUMMARY: The FDIC, as part of its obligations under the Paperwork Reduction Act of 1995, invites the general public and other Federal agencies to take this opportunity to comment on the request to renew the existing information collection described below (OMB Control No. 3064–0122). The notice of the proposed renewal for this information collection was previously published in the **Federal Register** on October 19, 2022, allowing for a 60-day comment period.

DATES: Comments must be submitted on or before February 27, 2023.

ADDRESSES: Interested parties are invited to submit written comments to the FDIC by any of the following methods:

- *Agency Website: https://www.fdic.gov/resources/regulations/federal-register-publications/.*
- *Email: comments@fdic.gov.* Include the name and number of the collection in the subject line of the message.
- *Mail:* Manny Cabeza (202–898–3767), Regulatory Counsel, MB–3128, Federal Deposit Insurance Corporation, 550 17th Street NW, Washington, DC 20429.
- *Hand Delivery:* Comments may be hand-delivered to the guard station at the rear of the 17th Street NW building (located on F Street NW), on business days between 7:00 a.m. and 5:00 p.m.

Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Manny Cabeza, Regulatory Counsel, 202–898–3767, *mcabeza@fdic.gov,* MB–3128, Federal Deposit Insurance Corporation, 550 17th Street NW, Washington, DC 20429.

SUPPLEMENTARY INFORMATION:

Proposal to renew the following currently approved collection of information:

1. *Title:* Forms Relating to FDIC Outside Counsel, Legal Support and Expert Services Programs.

OMB Number: 3064–0122.

Affected Public: Entities providing legal and expert services to the FDIC.

Burden Estimate:

SUMMARY OF ESTIMATED ANNUAL BURDEN

[OMB No. 3064–0122]

Information collection (obligation to respond)	Type of burden (frequency of response)	Number of respondents	Number of responses per respondent	Time per response (HH:MM)	Annual burden (hours)
1. Non-Litigation Budget Form, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	2	1	00:30	1
2. Amended Litigation Budget, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	4	1	00:30	2
3. Amended Non-Litigation Budget, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	1	1	00:30	1
4. Litigation Budget, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	6	1	00:30	3
5. Representations and Certifications for Legal Contractors, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	10	1	00:45	8
6. Expert invoice for Fees and Expenses (EIF&E), 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	2	1	00:30	1

SUMMARY OF ESTIMATED ANNUAL BURDEN—Continued

[OMB No. 3064–0122]

Information collection (obligation to respond)	Type of burden (frequency of response)	Number of respondents	Number of responses per respondent	Time per response (HH:MM)	Annual burden (hours)
7. Legal Support Services (LSS) Provider Invoice for Fees and Expenses (IF&E), 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	2	1	00:30	1
8. Agreement for Services (Expert Legal Support Services (LSS) Provider Amendment, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	3	1	01:00	3
9. Agreement for Services (expert or Legal Support Services Provider) Provider Rate Schedule, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	6	1	01:00	6
10. Legal Services Agreement (LSA) Amendment, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	8	1	01:00	8
11. Expert budget, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	2	1	00:30	1
12. Representations and Certifications for Experts and Legal Support Services Providers, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	5	1	01:00	5
13. Outside Counsel Legal Services Agreement Rate Schedule, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	10	1	01:00	10
14. Legal Invoice for Fees and Expenses, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	3	1	01:00	3
15. Firm Travel Voucher, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	3	1	01:00	3
16. Oral Representations and Certifications for Expert Legal Support Services, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	1	1	00:30	1
17. Legal Support Services (LSS) Provider Budget Form, 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	6	1	00:30	3
18. Legal Service Agreement (LSA), 12 CFR 361 and 12 CFR 366 (Mandatory).	Reporting (On Occasion)	15	1	00:15	4
Total Annual Burden (Hours):					64

Source: FDIC.

General Description of Collection: The information collected enables the FDIC to ensure that all individuals, businesses and firms seeking to provide legal support services to the FDIC meet the eligibility requirements established by Congress. The information is also used to manage and monitor payments to contractors, document contract amendments, expiration dates, billable individuals, minority law firms, and to ensure that law firms, experts, and other legal support services providers comply with statutory and regulatory requirements. This collection consists of 18 forms. The decrease of 843 hours is entirely the result of the reduction in the estimated number of annual respondents as a result of a revised methodology.

Request for Comment: Comments are invited on: (a) Whether the collection of information is necessary for the proper performance of the FDIC's functions, including whether the information has practical utility; (b) the accuracy of the estimates of the burden of the information collection, including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology. All comments will become a matter of public record.

Federal Deposit Insurance Corporation.

Dated at Washington, DC, on January 23, 2023.

James P. Sheesley,

Assistant Executive Secretary.

[FR Doc. 2023–01600 Filed 1–26–23; 8:45 am]

BILLING CODE 6714–01–P

FEDERAL MARITIME COMMISSION

Sunshine Act Meetings; Correction

AGENCY: Federal Maritime Commission

ACTION: Notice; correction.

SUMMARY: The Federal Maritime Commission published a document in the **Federal Register** of January 19, 2023, concerning the Sunshine Act Meetings for our January 25, 2023, Commission Meeting. The January 19,

2023, document contained an incorrect agenda item #1.

FOR FURTHER INFORMATION CONTACT: William Cody, 202–523–5725.

SUPPLEMENTARY INFORMATION:

Correction

In the **Federal Register** of January 19, 2023, FR Doc. 2023–01086, on page 3413, item #1; titled ''1. Commissioner Bentzel, Update on Maritime Transportation Data Initiative'' should be removed. Further, item #2, and item #3; titled ''2. Staff Briefing on Ocean Shipping Reform Act of 2022'' and ''3. Staff Briefing, Economic and Competition Update'' should be renumbered as item #1 ''1. Staff Briefing on Ocean Shipping Reform Act of 2022'' and item #2 titled ''2. Staff Briefing, Economic and Competition Update''.

Dated: January 24, 2023.

William Cody,

Secretary.

[FR Doc. 2023–01717 Filed 1–25–23; 4:15 pm]

BILLING CODE 6730–02–P

FEDERAL RESERVE SYSTEM

Agency Information Collection Activities: Announcement of Board Approval Under Delegated Authority and Submission to OMB

AGENCY: Board of Governors of the Federal Reserve System.

SUMMARY: The Board of Governors of the Federal Reserve System (Board) is adopting a proposal to extend for three years, without revision, the Payments Research Survey (FR 3067; OMB No. 7100–0355).

FOR FURTHER INFORMATION CONTACT: Federal Reserve Board Clearance Officer—Nuha Elmaghrabi—Office of the Chief Data Officer, Board of Governors of the Federal Reserve System, *nuha.elmaghrabi@frb.gov,* (202) 452–3884.

Office of Management and Budget (OMB) Desk Officer for the Federal Reserve Board, Office of Information and Regulatory Affairs, Office of Management and Budget, New Executive Office Building, Room 10235, 725 17th Street NW, Washington, DC 20503, or by fax to (202) 395–6974.

SUPPLEMENTARY INFORMATION: On June 15, 1984, OMB delegated to the Board authority under the Paperwork Reduction Act (PRA) to approve and assign OMB control numbers to collections of information conducted or sponsored by the Board. Board-approved collections of information are incorporated into the official OMB inventory of currently approved collections of information. The OMB inventory, as well as copies of the PRA Submission, supporting statements (which contain more detailed information about the information collections and burden estimates than this notice), and approved collection of information instrument(s) are available at *https://www.reginfo.gov/public/do/PRAMain.* These documents are also available on the Federal Reserve Board's public website at *https://www.federalreserve.gov/apps/reportingforms/home/review* or may be requested from the agency clearance officer, whose name appears above.

Final Approval Under OMB Delegated Authority of the Extension for Three Years, Without Revision, of the Following Information Collection

Collection title: Payments Research Survey.

Collection identifier: FR 3067.

OMB control number: 7100–0355.

General description of collection: The FR 3067 is a series of surveys used to conduct research related to the Federal Reserve System's role in the payments system, including supervisory, regulatory, fiscal, or operational responsibilities. The survey topics are time-sensitive and the questions of interest vary with the focus of the survey. Because the relevant questions may change with each survey, there is no fixed reporting form. For each survey, the Board prepares questions of specific topical interest and then determines the relevant target group to contact.

Frequency: As needed.

Respondents: Private sector, individual consumers or households, and state and local government agencies.

Total estimated number of respondents: 10,000.

Total estimated annual burden hours: 30,000.

Current actions: On September 15, 2022, the Board published a notice in the **Federal Register** (87 FR 56677) requesting public comment for 60 days on the extension, without revision, of the FR 3067. The comment period for this notice expired on November 14, 2022. The Board did not receive any comments.

Board of Governors of the Federal Reserve System, January 23, 2023.

Michele Taylor Fennell,

Deputy Associate Secretary of the Board.

[FR Doc. 2023–01647 Filed 1–26–23; 8:45 am]

BILLING CODE 6210–01–P

FEDERAL RESERVE SYSTEM

Proposed Agency Information Collection Activities; Comment Request

AGENCY: Board of Governors of the Federal Reserve System.

ACTION: Notice, request for comment.

SUMMARY: The Board of Governors of the Federal Reserve System (Board) invites comment on a proposal to extend for three years, without revision, the Filings Related to the Gramm-Leach-Bliley Act (FR 4010, FR 4011, FR 4012, FR 4017, FR 4019, FR 4023; OMB No. 7100–0292).

DATES: Comments must be submitted on or before March 28, 2023.

ADDRESSES: You may submit comments, identified by FR 4010, FR 4011, FR 4012, FR 4017, FR 4019, or FR 4023, by any of the following methods:

- *Agency Website: https://www.federalreserve.gov/.* Follow the instructions for submitting comments at *https://www.federalreserve.gov/apps/foia/proposedregs.aspx.*
- *Email: regs.comments@federalreserve.gov.* Include the OMB number or FR number in the subject line of the message.
- *Fax:* (202) 452–3819 or (202) 452–3102.
- *Mail:* Federal Reserve Board of Governors, Attn: Ann E. Misback, Secretary of the Board, Mailstop M–4775, 2001 C St. NW, Washington, DC 20551.

All public comments are available from the Board's website at *https://www.federalreserve.gov/apps/foia/proposedregs.aspx* as submitted, unless modified for technical reasons or to remove personally identifiable information at the commenter's request. Accordingly, comments will not be edited to remove any confidential business information, identifying information, or contact information. Public comments may also be viewed electronically or in paper in Room M–4365A, 2001 C St. NW, Washington, DC 20551, between 9:00 a.m. and 5:00 p.m. on weekdays, except for Federal holidays. For security reasons, the Board requires that visitors make an appointment to inspect comments. You may do so by calling (202) 452–3684. Upon arrival, visitors will be required to present valid government-issued photo identification and to submit to security screening in order to inspect and photocopy comments.

Additionally, commenters may send a copy of their comments to the Office of Management and Budget (OMB) Desk Officer for the Federal Reserve Board,

Office of Information and Regulatory Affairs, Office of Management and Budget, New Executive Office Building, Room 10235, 725 17th Street NW, Washington, DC 20503, or by fax to (202) 395–6974.

FOR FURTHER INFORMATION CONTACT: Federal Reserve Board Clearance Officer—Nuha Elmaghrabi—Office of the Chief Data Officer, Board of Governors of the Federal Reserve System, *nuha.elmaghrabi@frb.gov,* (202) 452–3884.

SUPPLEMENTARY INFORMATION: On June 15, 1984, OMB delegated to the Board authority under the Paperwork Reduction Act (PRA) to approve and assign OMB control numbers to collections of information conducted or sponsored by the Board. In exercising this delegated authority, the Board is directed to take every reasonable step to solicit comment. In determining whether to approve a collection of information, the Board will consider all comments received from the public and other agencies.

During the comment period for this proposal, a copy of the proposed PRA OMB submission, including the draft reporting form and instructions, supporting statement (which contains more detail about the information collection and burden estimates than this notice), and other documentation, will be made available on the Board's public website at *https://www.federalreserve.gov/apps/reportingforms/home/review* or may be requested from the agency clearance officer, whose name appears above. Final versions of these documents will be made available at *https://www.reginfo.gov/public/do/PRAMain,* if approved.

Request for Comment on Information Collection Proposal

The Board invites public comment on the following information collections, which are being reviewed under authority delegated by the OMB under the PRA. Comments are invited on the following:

a. Whether the proposed collections of information are necessary for the proper performance of the Board's functions, including whether the information has practical utility;

b. The accuracy of the Board's estimate of the burden of the proposed information collections, including the validity of the methodology and assumptions used;

c. Ways to enhance the quality, utility, and clarity of the information to be collected;

d. Ways to minimize the burden of information collection on respondents, including through the use of automated collection techniques or other forms of information technology; and

e. Estimates of capital or startup costs and costs of operation, maintenance, and purchase of services to provide information.

At the end of the comment period, the comments and recommendations received will be analyzed to determine the extent to which the Board should modify the proposal.

Proposal Under OMB Delegated Authority To Extend for Three Years, Without Revision, the Following Information Collections

Collection title: Filings Related to the Gramm-Leach-Bliley Act.

Collection identifiers: FR 4010, FR 4011, FR 4012, FR 4017, FR 4019, FR 4023.

OMB control number: 7100–0292.

General description of collection: The reporting and recordkeeping requirements in this collection, which are related to amendments made by the Gramm-Leach-Bliley Act to the Bank Holding Company Act of 1956 and the Federal Reserve Act, are composed of the following parts:

- Declarations to Become a Financial Holding Company (FR 4010)
- Requests for Determinations and Interpretations Regarding Activities Financial in Nature (FR 4011)
- Notices of Failure to Meet Capital or Management Requirements (FR 4012)
- Notices by State Member Banks to Invest in Financial Subsidiaries (FR 4017)
- Regulatory Relief Requests Associated with Merchant Banking Activities (FR 4019)
- Recordkeeping Requirements Associated with Merchant Banking Activities (FR 4023)

There are no formal reporting forms for these information collections (the FR designations are for internal purposes only). In each case, the information required to be filed is described in the Board's regulations. The reporting and recordkeeping requirements are necessary to enable to the Board to determine eligibility, provide appropriate determinations and interpretations, stay appraised of financial conditions, and asses that certain activities are done in accordance with the applicable regulatory requirements.

Frequency: On occasion.

Respondents: Bank holding companies, savings and loan holding companies, foreign banks, and state member banks, as well as other interested parties with respect to the FR 4011.

Total estimated number of respondents: 87.

Total estimated annual burden hours: 1,698.[1]

Board of Governors of the Federal Reserve System, January 23, 2023.

Michele Taylor Fennell,

Deputy Associate Secretary of the Board.

[FR Doc. 2023–01643 Filed 1–26–23; 8:45 am]

BILLING CODE 6210–01–P

FEDERAL RESERVE SYSTEM

Agency Information Collection Activities: Announcement of Board Approval Under Delegated Authority and Submission to OMB

AGENCY: Board of Governors of the Federal Reserve System.

SUMMARY: The Board of Governors of the Federal Reserve System (Board) is adopting a proposal to extend for three years, without revision, the Notice of Branch Closure (FR 4031; OMB No. 7100–0264).

FOR FURTHER INFORMATION CONTACT: Federal Reserve Board Clearance Officer—Nuha Elmaghrabi—Office of the Chief Data Officer, Board of Governors of the Federal Reserve System, *nuha.elmaghrabi@frb.gov,* (202) 452–3884.

Office of Management and Budget (OMB) Desk Officer for the Federal Reserve Board, Office of Information and Regulatory Affairs, Office of Management and Budget, New Executive Office Building, Room 10235, 725 17th Street NW, Washington, DC 20503, or by fax to (202) 395–6974.

SUPPLEMENTARY INFORMATION: On June 15, 1984, OMB delegated to the Board authority under the Paperwork Reduction Act (PRA) to approve and assign OMB control numbers to collections of information conducted or sponsored by the Board. Board-approved collections of information are incorporated into the official OMB inventory of currently approved collections of information. The OMB inventory, as well as copies of the PRA Submission, supporting statements (which contain more detailed information about the information collections and burden estimates than this notice), and approved collection of information instrument(s) are available

[1] More detailed information regarding this collection, including more detailed burden estimates, can be found in the OMB Supporting Statement posted at *https://www.federalreserve.gov/apps/reportingforms/home/review.* On the page displayed at the link, you can find the OMB Supporting Statement by referencing the collection identifier, FR 4010, FR 4011, FR 4012, FR 4017, FR 4019, or FR 4023.

at *https://www.reginfo.gov/public/do/PRAMain.* These documents are also available on the Federal Reserve Board's public website at *https://www.federalreserve.gov/apps/reportingforms/home/review* or may be requested from the agency clearance officer, whose name appears above.

Final Approval Under OMB Delegated Authority of the Extension for Three Years, Without Revision, of the Following Information Collection

Collection title: Notice of Branch Closure.

Collection identifier: FR 4031.

OMB control number: 7100–0264.

General description of collection: The reporting, recordkeeping, and disclosure requirements regarding the closing of any branch of an insured depository institution are contained in section 42 of the Federal Deposit Insurance Act, as supplemented by an interagency policy statement on branch closings. The Board uses the information in the FR 4031 to fulfill its statutory obligation to supervise state member banks (SMBs).

Frequency: Annually.

Respondents: SMBs.

Total estimated number of respondents: 103.

Total estimated annual burden hours: 317.[1]

Current actions: On October 13, 2022, the Board published a notice in the **Federal Register** (87 FR 62100) requesting public comment for 60 days on the extension, without revision, of the FR 4031. The comment period for this notice expired on December 12, 2022. The Board did not receive any comments. The extension without revision will be implemented as proposed.

Board of Governors of the Federal Reserve System, January 23, 2023.

Michele Taylor Fennell,

Deputy Associate Secretary of the Board.

[FR Doc. 2023–01646 Filed 1–26–23; 8:45 am]

BILLING CODE 6210–01–P

FEDERAL RESERVE SYSTEM

Agency Information Collection Activities: Announcement of Board Approval Under Delegated Authority and Submission to OMB

AGENCY: Board of Governors of the Federal Reserve System.

SUMMARY: The Board of Governors of the Federal Reserve System (Board) is adopting a proposal to extend for three years, with revision the Consumer Satisfaction Questionnaire (FR 1379a), Federal Reserve Consumer Help—Consumer Survey (FR 1379b), Consumer Complaint Form (FR 1379c), and Interagency Appraisal Complaint Form (FR 1379d) (collectively FR 1379; OMB No. 7100–0135).

FOR FURTHER INFORMATION CONTACT: Federal Reserve Board Clearance Officer—Nuha Elmaghrabi—Office of the Chief Data Officer, Board of Governors of the Federal Reserve System, *nuha.elmaghrabi@frb.gov,* (202) 452–3884.

Office of Management and Budget (OMB) Desk Officer for the Federal Reserve Board, Office of Information and Regulatory Affairs, Office of Management and Budget, New Executive Office Building, Room 10235, 725 17th Street NW, Washington, DC 20503, or by fax to (202) 395–6974.

SUPPLEMENTARY INFORMATION: On June 15, 1984, OMB delegated to the Board authority under the Paperwork Reduction Act (PRA) to approve and assign OMB control numbers to collections of information conducted or sponsored by the Board. Board-approved collections of information are incorporated into the official OMB inventory of currently approved collections of information. The OMB inventory, as well as copies of the PRA Submission, supporting statements (which contain more detailed information about the information collections and burden estimates than this notice), and approved collection of information instrument(s) are available at *https://www.reginfo.gov/public/do/PRAMain.* These documents are also available on the Federal Reserve Board's public website at *https://www.federalreserve.gov/apps/reportingforms/home/review* or may be requested from the agency clearance officer, whose name appears above.

Final Approval Under OMB Delegated Authority of the Extension for Three Years, With Revision, of the Following Information Collection

Collection title: Consumer Satisfaction Questionnaire, Federal Reserve Consumer Help—Consumer Survey, Consumer Complaint Form, and Interagency Appraisal Complaint Form.

Collection identifiers: FR 1379a, FR 1379b, FR 1379c, and FR 1379d.

OMB control number: 7100–0135.

Effective Date: February 27, 2023.

General description of collection: The FR 1379a is sent to consumers who have filed complaints with the Federal Reserve against state member banks or other financial institutions supervised by the Board. The information is used to assess the satisfaction of the consumers with the Federal Reserve's handling of, and written response to, their complaints at the conclusion of an investigation. The FR 1379b is a survey sent to consumers who contact the Federal Reserve Consumer Help (FRCH) desk to file a complaint or inquiry. The information is used to determine whether consumers are satisfied with the way the FRCH handled their complaint. The FR 1379c form addresses the burden associated with consumers electronically submitting a complaint against a financial institution to the FRCH. The FR 1379d form collects information about complaints regarding a regulated institution's non-compliance with the appraisal independence standards and the Uniform Standards of Professional Appraisal Practice, including complaints from appraisers, individuals, and other entities.

Frequency: Event generated.

Respondents: The FR 1379 panel comprises appraisers, individuals, and other entities.

Total estimated number of respondents: 11,856.

Total estimated change in burden: (167).

Total estimated annual burden hours: 1,977.[1]

Current actions: On October 13, 2022, the Board published a notice in the **Federal Register** (87 FR 62104) requesting public comment for 60 days on the extension, with revision, of the FR 1379. The comment period for this notice expired on December 12, 2022. The Board did not receive any comments. The revisions will be implemented as proposed.

Board of Governors of the Federal Reserve System, January 23, 2023.

Michele Taylor Fennell,

Deputy Associate Secretary of the Board.

[FR Doc. 2023–01641 Filed 1–26–23; 8:45 am]

BILLING CODE 6210–01–P

[1] More detailed information regarding this collection, including more detailed burden estimates, can be found in the OMB Supporting Statement posted at *https://www.federalreserve.gov/apps/reportingforms/home/review.* On the page displayed at the link, you can find the OMB Supporting Statement by referencing the collection identifier, FR 4031.

[1] More detailed information regarding this collection, including more detailed burden estimates, can be found in the OMB Supporting Statement posted at *https://www.federalreserve.gov/apps/reportingforms/home/review.* On the page displayed at the link, you can find the OMB Supporting Statement by referencing the collection identifier, FR 1379.

FEDERAL RESERVE SYSTEM

Proposed Agency Information Collection Activities; Comment Request

AGENCY: Board of Governors of the Federal Reserve System.

ACTION: Notice, request for comment.

SUMMARY: The Board of Governors of the Federal Reserve System (Board) invites comment on a proposal to extend for three years, without revision, Notification of Nonfinancial Data Processing Activities (FR 4021; OMB No. 7100–0306).

DATES: Comments must be submitted on or before March 28, 2023.

ADDRESSES: You may submit comments, identified by FR 4021, by any of the following methods:

- *Agency Website: https://www.federalreserve.gov/.* Follow the instructions for submitting comments at *https://www.federalreserve.gov/apps/foia/proposedregs.aspx.*
- *Email: regs.comments@federalreserve.gov.* Include the OMB number or FR number in the subject line of the message.
- *Fax:* (202) 452–3819 or (202) 452–3102.
- *Mail:* Federal Reserve Board of Governors, Attn: Ann E. Misback, Secretary of the Board, Mailstop M–4775, 2001 C St NW, Washington, DC 20551.

All public comments are available from the Board's website at *https://www.federalreserve.gov/apps/foia/proposedregs.aspx* as submitted, unless modified for technical reasons or to remove personally identifiable information at the commenter's request. Accordingly, comments will not be edited to remove any confidential business information, identifying information, or contact information. Public comments may also be viewed electronically or in paper in Room M–4365A, 2001 C St NW, Washington, DC 20551, between 9:00 a.m. and 5:00 p.m. on weekdays, except for Federal holidays. For security reasons, the Board requires that visitors make an appointment to inspect comments. You may do so by calling (202) 452–3684. Upon arrival, visitors will be required to present valid government-issued photo identification and to submit to security screening in order to inspect and photocopy comments.

Additionally, commenters may send a copy of their comments to the Office of Management and Budget (OMB) Desk Officer for the Federal Reserve Board, Office of Information and Regulatory Affairs, Office of Management and Budget, New Executive Office Building, Room 10235, 725 17th Street NW, Washington, DC 20503, or by fax to (202) 395–6974.

FOR FURTHER INFORMATION CONTACT: Federal Reserve Board Clearance Officer—Nuha Elmaghrabi—Office of the Chief Data Officer, Board of Governors of the Federal Reserve System, *nuha.elmaghrabi@frb.gov,* (202) 452–3884.

SUPPLEMENTARY INFORMATION: On June 15, 1984, OMB delegated to the Board authority under the Paperwork Reduction Act (PRA) to approve and assign OMB control numbers to collections of information conducted or sponsored by the Board. In exercising this delegated authority, the Board is directed to take every reasonable step to solicit comment. In determining whether to approve a collection of information, the Board will consider all comments received from the public and other agencies.

During the comment period for this proposal, a copy of the proposed PRA OMB submission, including the draft reporting form and instructions, supporting statement (which contains more detail about the information collection and burden estimates than this notice), and other documentation, will be made available on the Board's public website at *https://www.federalreserve.gov/apps/reportingforms/home/review* or may be requested from the agency clearance officer, whose name appears above. Final versions of these documents will be made available at *https://www.reginfo.gov/public/do/PRAMain,* if approved.

Request for Comment on Information Collection Proposal

The Board invites public comment on the following information collection, which is being reviewed under authority delegated by the OMB under the PRA. Comments are invited on the following:

a. Whether the proposed collection of information is necessary for the proper performance of the Board's functions, including whether the information has practical utility;

b. The accuracy of the Board's estimate of the burden of the proposed information collection, including the validity of the methodology and assumptions used;

c. Ways to enhance the quality, utility, and clarity of the information to be collected;

d. Ways to minimize the burden of information collection on respondents, including through the use of automated collection techniques or other forms of information technology; and

e. Estimates of capital or startup costs and costs of operation, maintenance, and purchase of services to provide information.

At the end of the comment period, the comments and recommendations received will be analyzed to determine the extent to which the Board should modify the proposal.

Proposal Under OMB Delegated Authority To Extend for Three Years, Without Revision, the Following Information Collection

Collection title: Notification of Nonfinancial Data Processing Activities.

Collection identifier: FR 4021.

OMB control number: 7100–0306.

General description of collection: Generally, a bank holding company (BHC) may, directly or through a subsidiary, engage in data processing activities if, among other requirements, the company or subsidiary earns not more than 49 percent of its data processing revenue from nonfinancial data processing activities. However, the Board has stated that a BHC may file with the Board a request for permission to administer this 49 percent revenue limit on a business-line or multiple-entity basis, rather than on a company-by-company basis. The FR 4021 information collection consists of this filing for prior approval.

Frequency: As needed.

Respondents: BHCs.

Total estimated number of respondents: 1.

Total estimated annual burden hours: 2.[1]

Board of Governors of the Federal Reserve System, January 24, 2023.

Michele Taylor Fennell,

Deputy Associate Secretary of the Board.

[FR Doc. 2023–01640 Filed 1–26–23; 8:45 am]

BILLING CODE 6210–01–P

FEDERAL RESERVE SYSTEM

Proposed Agency Information Collection Activities; Comment Request

AGENCY: Board of Governors of the Federal Reserve System.

ACTION: Notice, request for comment.

[1] More detailed information regarding this collection, including more detailed burden estimates, can be found in the OMB Supporting Statement posted at *https://www.federalreserve.gov/apps/reportingforms/home/review.* On the page displayed at the link, you can find the OMB Supporting Statement by referencing the collection identifier, FR 4021.

SUMMARY: The Board of Governors of the Federal Reserve System (Board) invites comment on a proposal to extend for three years, with revision, the Registration of Mortgage Loan Originators (CFPB G; OMB No. 7100–0328).

DATES: Comments must be submitted on or before March 28, 2023.

ADDRESSES: You may submit comments, identified by CFPB G, by any of the following methods:

- *Agency Website: https://www.federalreserve.gov/.* Follow the instructions for submitting comments at *https://www.federalreserve.gov/apps/foia/proposedregs.aspx.*
- *Email: regs.comments@federalreserve.gov.* Include the OMB number or FR number in the subject line of the message.
- *Fax:* (202) 452–3819 or (202) 452–3102.
- *Mail:* Federal Reserve Board of Governors, Attn: Ann E. Misback, Secretary of the Board, Mailstop M–4775, 2001 C St NW, Washington, DC 20551.

All public comments are available from the Board's website at *https://www.federalreserve.gov/apps/foia/proposedregs.aspx* as submitted, unless modified for technical reasons or to remove personally identifiable information at the commenter's request. Accordingly, comments will not be edited to remove any confidential business information, identifying information, or contact information. Public comments may also be viewed electronically or in paper in Room M–4365A, 2001 C St NW, Washington, DC 20551, between 9:00 a.m. and 5:00 p.m. on weekdays, except for Federal holidays. For security reasons, the Board requires that visitors make an appointment to inspect comments. You may do so by calling (202) 452–3684. Upon arrival, visitors will be required to present valid government-issued photo identification and to submit to security screening in order to inspect and photocopy comments.

Additionally, commenters may send a copy of their comments to the Office of Management and Budget (OMB) Desk Officer for the Federal Reserve Board, Office of Information and Regulatory Affairs, Office of Management and Budget, New Executive Office Building, Room 10235, 725 17th Street NW, Washington, DC 20503, or by fax to (202) 395–6974.

FOR FURTHER INFORMATION CONTACT: Federal Reserve Board Clearance Officer—Nuha Elmaghrabi—Office of the Chief Data Officer, Board of Governors of the Federal Reserve System, *nuha.elmaghrabi@frb.gov,* (202) 452–3884.

SUPPLEMENTARY INFORMATION: On June 15, 1984, OMB delegated to the Board authority under the Paperwork Reduction Act (PRA) to approve and assign OMB control numbers to collections of information conducted or sponsored by the Board. In exercising this delegated authority, the Board is directed to take every reasonable step to solicit comment. In determining whether to approve a collection of information, the Board will consider all comments received from the public and other agencies.

During the comment period for this proposal, a copy of the proposed PRA OMB submission, including the draft reporting form and instructions, supporting statement (which contains more detail about the information collection and burden estimates than this notice), and other documentation, will be made available on the Board's public website at *https://www.federalreserve.gov/apps/reportingforms/home/review* or may be requested from the agency clearance officer, whose name appears above. Final versions of these documents will be made available at *https://www.reginfo.gov/public/do/PRAMain,* if approved.

Request for Comment on Information Collection Proposal

The Board invites public comment on the following information collection, which is being reviewed under authority delegated by the OMB under the PRA. Comments are invited on the following:

a. Whether the proposed collection of information is necessary for the proper performance of the Board's functions, including whether the information has practical utility;

b. The accuracy of the Board's estimate of the burden of the proposed information collection, including the validity of the methodology and assumptions used;

c. Ways to enhance the quality, utility, and clarity of the information to be collected;

d. Ways to minimize the burden of information collection on respondents, including through the use of automated collection techniques or other forms of information technology; and

e. Estimates of capital or startup costs and costs of operation, maintenance, and purchase of services to provide information.

At the end of the comment period, the comments and recommendations received will be analyzed to determine the extent to which the Board should modify the proposal.

Proposal Under OMB Delegated Authority To Extend for Three Years, With Revision, the Following Information Collection

Collection title: Registration of Mortgage Loan Originators.

Collection identifier: CFPB G.

OMB control number: 7100–0328.

General description of collection: In accordance with the Secure and Fair Enforcement for Mortgage Licensing Act (SAFE Act), the Consumer Financial Protection Bureau's (CFPB) Regulation G requires residential mortgage loan originators (MLOs) to register with the Nationwide Multistate Licensing System (NMLS),[1] maintain this registration, obtain a unique identifier, and disclose to consumers upon request and through the NMLS their unique identifier and the MLO's employment history and publicly adjudicated disciplinary and enforcement actions. The CFPB's regulation also requires the institutions employing MLOs to adopt and follow written policies and procedures to ensure that their employees comply with these requirements and to conduct annual independent compliance tests.

Proposed revisions: The Board proposes to revise the CFPB G by updating its burden estimation methodology, including certain hourly burden estimates, in order to more accurately capture associated banking organization disclosure and recordkeeping burden. These revisions would be effective immediately.

First, the Board is proposing to account for Section 1007.103(e) banking organization disclosure of registration information requirements burden separately from Section 1007.104 banking organization recordkeeping requirements burden. The Board has determined that it is more accurate to reflect the information collection burden associated with Section 1007.103(e) requirements as disclosure requirements instead of as recordkeeping requirements, as was done previously.

Next, the Board is proposing to revise the average annual estimated hourly burden per banking organization (for both banking organizations already subject to these requirements and banking organizations newly subject to these requirements) associated with Section 1007.103(e) disclosure of registration information to 3.7 hours.

Additionally, the Board is proposing to revise the average annual estimated

[1] *https://mortgage.nationwidelicensingsystem.org/Pages/default.aspx.*

hourly burden per banking organization already subject to Section 1007.104 recordkeeping requirements to 7.0 hours and to revise the average annual estimated hourly burden per banking organization newly subject to Section 1007.104 recordkeeping requirements to 114.3 hours. This represents a change from the Board's existing methodology, which estimates that the combined Section 1007.103(e) and Section 1007.104 average annual estimated hourly burden for all banking organizations is 118.0 hours. The Board is proposing this change to reflect that the limited number of new banking organization respondents would incur a higher one-time burden to implement the requirements, whereas the majority of banking organization respondents that have already implemented the requirements would incur a much lower ongoing burden.

Finally, the Board has determined that it is more accurate to reflect the information collection burden associated with Section 1007.105 requirements as disclosure requirements instead of as recordkeeping requirements, as was done previously. The disclosures associated with Section 1007.105—disclosure of unique identifier—are primarily electronic and produce *de minimis* burden. Therefore, the Board is proposing to not estimate any associated burden for these disclosures.

Frequency: Annually.

Respondents: The Board's CFPB G panel comprises state member banks (SMBs) with $10 billion or less in total assets that are not affiliates of insured depository institutions with total assets of more than $10 billion; subsidiaries of such SMBs that are not functionally regulated within the meaning of section 5(c)(5) of the Bank Holding Company Act of 1956; branches and agencies of foreign banks (other than federal branches, federal agencies, and insured state branches of foreign banks); commercial lending companies owned or controlled by foreign banks (collectively, banking organizations); and the employees of these banking organizations who act as residential MLOs.

Total estimated number of respondents: 17,467.

Total estimated change in burden: (63,951).

Total estimated annual burden hours: 23,366.[2]

[2] More detailed information regarding this collection, including more detailed burden estimates, can be found in the OMB Supporting Statement posted at *https://www.federalreserve.gov/apps/reportingforms/home/review.* On the page displayed at the link, you can find the OMB Supporting Statement by referencing the collection identifier, CFPB G.

Board of Governors of the Federal Reserve System, January 23, 2023.

Michele Taylor Fennell,

Deputy Associate Secretary of the Board.

[FR Doc. 2023–01642 Filed 1–26–23; 8:45 am]

BILLING CODE 6210–01–P

GENERAL SERVICES ADMINISTRATION

[Notice–PBS–2023–01; Docket No. 2023–0002; Sequence No. 3]

Draft Environmental Impact Statement and Draft Finding of No Practicable Alternative for the Expansion and Modernization of the Raul Hector Castro Land Port of Entry and Proposed Commercial Land Port of Entry in Douglas, Arizona

AGENCY: Public Buildings Service (PBS), General Services Administration (GSA).

ACTION: Notice of availability; public notice of Draft Finding of No Practicable Alternative (FONPA); announcement of meeting.

SUMMARY: This notice announces the availability of the Draft Environmental Impact Statement (DEIS), which examines the potential environmental impacts from the expansion and modernization of the Raul Hector Castro (RHC) Land Port of Entry (LPOE) in Douglas, Arizona, and construction of a new Commercial LPOE to address various operational, capacity, and safety issues associated with the existing facility. The existing RHC LPOE is owned and managed by GSA and is operated by the U.S. Department of Homeland Security's Customs and Border Protection (CBP). The DEIS describes the purpose and need for the project; alternatives considered; the existing environment that could be affected; the potential impacts resulting from each of the alternatives; and proposed best management practices and/or mitigation measures. The DEIS also includes the Draft Finding of No Practicable Alternative (FONPA), which provides a floodplain assessment and statement of findings as a result of construction in a floodplain at the RHC LPOE.

DATES: *Meeting Date*—A public meeting will be held on Wednesday, February 22nd from 4 p.m. to 6 p.m., MST. The meeting will be held in the Douglas Visitor Center, where interested parties are invited to join and provide verbal or written comments on the DEIS and Draft FONPA.

Public Comments – The public comment period begins with the publication of this NOA in the **Federal Register**. Please submit public comments on or before March 13th, 2023. After the comment period, GSA will prepare the Final EIS.

ADDRESSES:

Meeting Location—A public meeting will be held at the Douglas Visitor Center, 345 16th St, Douglas, AZ 85607.

Public Comments—In addition to verbal and written comments provided at the public meeting, members of the public may also submit comments by one of the following methods:

- *Email: Osmahn.Kadri@gsa.gov.* Please include '*RHC LPOE EIS*' in the subject line of the message.
- *Mail:* ATTN: Osmahn Kadri, RHC LPOE EIS; U.S. General Services Administration, c/o Potomac-Hudson Engineering, Inc., 77 Upper Rock Circle, Suite 302, Rockville MD 20850.

FOR FURTHER INFORMATION CONTACT: Osmahn Kadri, NEPA Project Manager, GSA at 415–522–3617 or *Osmahn.Kadri@gsa.gov.* Please also call the number if special assistance is needed to attend and participate in the public meeting.

SUPPLEMENTARY INFORMATION:

Background

The RHC LPOE is a full-service, multi-modal port, where CBP currently inspects commercially-owned vehicles (COVs), privately-owned vehicles (POVs), and pedestrians at the U.S.-Mexico border in Douglas, Arizona. The current facilities at the RHC LPOE no longer function adequately given the site constraints, steady increase in traffic, and outdated facilities and technologies. The interaction between COVs, POVs, and pedestrian traffic is also a concern at the RHC LPOE. Inadequate pathways and separations between traffic types cause safety and security issues for CBP officers and the general public. As downtown Douglas is located just north of the RHC LPOE, traffic congestion and trucks hauling hazardous materials through the city are also a concern in the community.

The purpose of the project is for GSA to support CBP's mission by bringing the RHC LPOE operations in line with current land port design standards and operational requirements of CBP while addressing existing operational deficiencies. The project is needed to: improve capacity and functionality of the LPOE to meet future demand while maintaining the capability to meet border security initiatives; ensure the safety and security for workers and users of the LPOE; and improve traffic

congestion and safety for the City of Douglas.

The Proposed Action would comprise of: (1) construction of a new commercial port facility dedicated to COVs, located approximately 5 miles west of the existing RHC LPOE; and (2) expansion and modernization of existing RHC LPOE facilities to serve as a noncommercial facility for POVs and pedestrians. Expansion and modernization of existing RHC LPOE facilities would require a multi-phase construction plan to ensure that operations are continuous and that safety and security of the RHC LPOE are maintained. Action alternatives were analyzed that consider both sequential and concurrent construction at both sites.

Both action alternatives would take place within 100-year and 500-year floodplains at the existing RHC LPOE. In compliance with Executive Order 11988 (Floodplain Management), GSA prepared a Draft FONPA addressing potential impacts on floodplains, which is included in the DEIS for public review and comment. As described in the DEIS, GSA would follow regulatory compliance (*e.g.,* measures outlined in the Arizona Stormwater General Construction Permit) and incorporate design standards at the RHC LPOE to minimize impacts to floodplains.

Public Comment Period

The views and comments of the public are necessary in helping GSA in its decision-making process with impacts to environmental, cultural, and economic impacts. The meeting will be an informal open house, where visitors may speak with GSA representatives, receive information, and provide written comments. *No formal presentation will be provided.* All comments received, written or verbal, will be considered equally and will become part of the public record. Further information on the project, including an electronic copy of the DEIS, may also be found online at the following websites: *https://www.gsa.gov/about-us/regions/welcome-to-the-pacific-rim-region-9/land-ports-of-entry/douglas-commercial-land-port-of-entry* and *https://www.gsa.gov/about-us/regions/welcome-to-the-pacific-rim-region-9/land-ports-of-entry/raul-hector-castro-land-port-of-entry.*

Russell Larson,

Director, Portfolio Management Division, Pacific Rim Region, Public Buildings Service.

[FR Doc. 2023–01549 Filed 1–26–23; 8:45 am]

BILLING CODE 6820–YF–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[30Day–23–1291]

Agency Forms Undergoing Paperwork Reduction Act Review

In accordance with the Paperwork Reduction Act of 1995, the Centers for Disease Control and Prevention (CDC) has submitted the information collection request titled Generic Information Collection Request for Cognitive Testing and Pilot Testing for the National Center for Chronic Disease Prevention and Health Promotion, to the Office of Management and Budget (OMB) for review and approval. CDC previously published a Proposed Data Collection Submitted for Public Comment and Recommendations notice on August 26, 2022, to obtain comments from the public and affected agencies. CDC did not receive comments related to the previous notice. This notice serves to allow an additional 30 days for public and affected agency comments.

CDC will accept all comments for this proposed information collection project. The Office of Management and Budget is particularly interested in comments that:

(a) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(b) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(c) Enhance the quality, utility, and clarity of the information to be collected;

(d) Minimize the burden of the collection of information on those who are to respond, including, through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses; and

(e) Assess information collection costs.

To request additional information on the proposed project or to obtain a copy of the information collection plan and instruments, call (404) 639–7570. Comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function. Direct written comments and/or suggestions regarding the items contained in this notice to the Attention: CDC Desk Officer, Office of Management and Budget, 725 17th Street NW, Washington, DC 20503 or by fax to (202) 395–5806. Provide written comments within 30 days of notice publication.

Proposed Project

Generic Information Collection Request for Cognitive Testing and Pilot Testing for the NCCDPHP (OMB Control No. 0920–1291, Exp. 3/31/2023)—Revision—National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), Centers for Disease Control and Prevention (CDC).

Background and Brief Description

CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) established a Generic Clearance to support information collection for cognitive testing and pilot testing activities. Information collections that support the Behavioral Risk Factor Surveillance System (BRFSS) and other NCCDPHP programs are expected to be the major focus of activity under this Generic. Additional information collections may also be considered for submission through this Generic Clearance if they are relevant to BRFSS and NCCDPHP programs or collaborations.

Cognitive testing and pilot testing are methodological procedures conducted to prepare for a large scale or key information collection. Cognitive and pilot testing activities are designed to improve information quality and the efficiency of information collection by addressing issues such as the use of new or existing survey questions, question formatting, survey protocols, data collection software systems and other related processes.

Cognitive testing is a technique used to clarify the meaning of survey questions and/or the response options for questions. Cognitive testing contributes to the understanding of the validity and reliability of questions used for a variety of public health purposes, and is conducted early in the process of considering questions for use in a survey or other information collection activity. This type of testing is usually conducted in a controlled setting, such as an office setting. Respondents participate in a discussion or interview with a trained interviewer and may respond individually or as members of focus groups.

Questions may undergo cognitive testing because they have not been used in previous surveys; for example, questions related to the emergence of a new public health concern (such as e-cigarettes). In addition, testing may be conducted on previously used questions to assess their use in a different information collection mode; for example, testing might be conducted to convert questions developed for a paper survey to an interview format or an electronic survey format; or testing might be conducted to identify issues specific to a subpopulation or language translation. Respondents are asked to review questions and/or surveys to discuss their impressions of the items under consideration, the questions, the response set, individual words within the question, or the focus of the questionnaire itself. Incentives may be offered to respondents who participate in the in-person phase of cognitive testing since these activities involve additional burden and inconvenience.

Pilot testing is used to determine whether methods or modes of data collection (such as phone or mail surveys, in-person interviews or online data collection) are appropriate and efficient ways of collecting data. Pilot testing may include testing of changes in sampling or contacting potential respondents.

The majority of participants in cognitive and pilot testing activities are expected to be adults ≤ 18 years of age. Information may be collected during the recruitment process to assist in the selection of respondents. Respondents may be recruited to take part in testing through online or newspaper advertisements. If the participants are not recruited to be present at a physical location, they may be called and recruited by telephone.

Cognitive and pilot testing are efficient means of identifying problems with questions and procedures prior to implementation of data collection. Thus, they are cost effective approaches to providing evidence on survey questionnaire performance. A consequence of cognitive and pilot testing is to maintain high levels of participation in the information collection process itself.

Initial response and burden estimates are based on anticipated information collection needs for the Generic Information Collection Request for Cognitive Testing and Pilot Testing for the National Center for Chronic Disease Prevention and Health Promotion, with an additional allocation for a variety of NCCDPHP programs and collaborators. Each information collection activity conducted through this Generic will be submitted to OMB for approval in a project-specific information collection request that describes its purpose and methods.

Participation in cognitive and pilot testing is voluntary, but respondents will be encouraged to participate by explanations of the need for their input in the introduction of each survey. CDC requests OMB approval for an estimated 35,850 annual burden hours. There are no costs to respondents other than their time.

ESTIMATED ANNUALIZED BURDEN HOURS

Type of respondent	Form name	Number of respondents	Number of responses per respondent	Average burden per response (in hours)
General U.S. Population or Selected Subpopulation Screening for Pilot Testing.	Screening for Cognitive testing	2,500	1	15/60
	Screening for Pilot Testing	40,000	1	15/60
	Cognitive Testing in Person	1,500	1	60/60
	Cognitive Testing by Phone	1,500	1	45/60
	Cognitive Testing by ABS/Mail/Web	600	1	60/60
	Pilot Testing in Person	1,000	1	30/60
	Pilot Testing by Phone	3000	1	30/60
	Pilot Testing by ABS/Mail/Web	40,000	1	30/60

Jeffrey M. Zirger,

Lead, Information Collection Review Office, Office of Scientific Integrity, Office of Science, Centers for Disease Control and Prevention.

[FR Doc. 2023–01668 Filed 1–26–23; 8:45 am]

BILLING CODE 4163–18–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[Docket No. CDC–2022–0137]

Proposed Update to the CDC Framework for Program Evaluation in Public Health; Extension of Comment Period

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS).

ACTION: Request for information and extension of comment period.

SUMMARY: The Centers for Disease Control and Prevention (CDC), within the Department of Health and Human Services (HHS), announces the extension of the comment period for the update to the CDC Framework for Program Evaluation in Public Health (CDC Evaluation Framework) and associated resources (*e.g.,* checklists, self-study guide).

DATES: Written comments must be received on or before February 17, 2023. Comments received after February 17, 2023, will not be considered.

ADDRESSES: You may submit comments, identified by Docket No. CDC–2022–0137 by either of the methods listed below. Do not submit comments by email. CDC does not accept comments by email.

- *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.
- *Mail:* Centers for Disease Control and Prevention, Program Performance and Evaluation Office, 1600 Clifton Road NE, Mailstop H21–10, Atlanta, GA 30329–4027.

Instructions: All submissions received must include the agency name and Docket Number. All relevant comments received will be posted without change to *http://regulations.gov,* including any personal information provided. For access to the docket to read background documents or comments received, go to *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Daniel Kidder, CDC Chief Evaluation Officer, Centers for Disease Control and Prevention, Program Performance and Evaluation Office, 1600 Clifton Road NE, Mailstop H21–10, Atlanta, GA

30329–4027; Telephone: 404–639–6270; Email: *CDCeval@cdc.gov.*

SUPPLEMENTARY INFORMATION: On November 29, 2022, CDC published a notice requesting public comment and suggestions to update the CDC Evaluation Framework (87 FR 73311). The comment period was scheduled to close on January 30, 2023. CDC has received requests from the public to extend the comment period. With this notice, CDC is extending the comment period through February 17, 2023, to accommodate those requests. Comments received after February 17, 2023, will not be considered.

Background

The flexibility and simplicity of the CDC Evaluation Framework have led to its wide adoption and use beyond CDC and public health. The CDC Evaluation Framework has guided CDC and other evaluators over two decades, as evidenced by more than 300 citations in peer-reviewed articles and use in projects reaching more than 50 countries on six continents. However, evaluation has evolved since publication of the framework in 1999;[1] therefore, CDC seeks to update the framework to align with changes in evaluation, public health, and federal policies and practices.

The comments from this request for information, along with input gathered through other mechanisms (*e.g.,* townhall with CDC, interviews with key federal evaluators, surveys with federal evaluation staff and leaders), will help identify how the framework may have been adapted and used in different settings, what aspects of the framework have been useful, any challenges in using the framework across different contexts, and gaps that may need to be addressed. CDC is gathering input from a variety of audiences, such as federal evaluators, CDC staff, and CDC funded partners. Feedback from these sources will be considered in determining priority areas to update and revise in the CDC Evaluation Framework to continue its valuable use and service to the evaluation field and public health. The relevant feedback along with tools, evidence, and resources in the field and literature will also be considered in determining whether to update, revise, or create new content for the CDC Evaluation Framework and supporting resources (*e.g.,* checklists, tools).

[1] Centers for Disease Control and Prevention. Framework for program evaluation in public health. *MMWR* 1999;48 (No. RR–11).

Request for Information

Interested persons or organizations are invited to submit written views, information, and recommendations. CDC invites comments specifically on the following questions, along with suggestions for improving the CDC Evaluation Framework:

1. How has the current CDC Evaluation Framework assisted or not assisted the public health community in planning and conducting high-quality program evaluations? What specifically helped or did not help?

2. Which contexts has the current CDC Evaluation Framework worked well for and for which contexts has it not worked well? What specifically did or did not work and why?

3. How does the current CDC Evaluation Framework promote or inhibit the conduct of evaluations that are culturally responsive and address health equity? What opportunities for improvement exist?

Please be clear and specific in the comments so that CDC can consider the feedback provided in determining whether to change or keep specific aspects of the CDC Evaluation Framework. The CDC Evaluation Framework and associated resources can be found here in the Supporting Materials tab of the docket and at *https://www.cdc.gov/evaluation/framework/index.htm.*

Please note that comments received, including attachments and other supporting materials, are part of the public record and are subject to public disclosure. Comments will be posted on *https://www.regulations.gov.* Therefore, do not include any information in your comment or supporting materials that you consider confidential or inappropriate for public disclosure. If you include your name, contact information, or other information that identifies you in the body of your comments, that information will be on public display. CDC will review all submissions and may choose to redact, or withhold submissions containing private or proprietary information such as Social Security numbers, medical information, inappropriate language, or duplicate/near duplicate examples of a mass-mail campaign.

Tiffany Brown,

Acting Executive Secretary, Centers for Disease Control and Prevention.

[FR Doc. 2023–01695 Filed 1–26–23; 8:45 am]

BILLING CODE 4163–18–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

Notice of Extension of Temporary Suspension of Dogs Entering the United States From Countries With a High Risk of Rabies

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS).

ACTION: Notice.

SUMMARY: The Centers for Disease Control and Prevention (CDC), within the Department of Health and Human Services (HHS), announces an extension of the current temporary suspension of the importation into the United States of dogs from high-risk rabies-enzootic countries (high-risk countries). This suspension includes dogs that have been in any high-risk countries during the previous six months.

DATES: The extension of the temporary suspension of the importation of dogs into the United States from high-risk countries will be implemented on February 1, 2023, when the current suspension expires, and will remain in effect through July 31, 2023.

FOR FURTHER INFORMATION CONTACT: Ashley C. Altenburger, J.D., Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, 1600 Clifton Road NE, MS H16–4, Atlanta, GA 30329. Telephone: 1–800–232–4636. For information regarding CDC regulations for the importation of dogs: Dr. Emily Pieracci, D.V.M., Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, 1600 Clifton Road NE, MS H16–4, Atlanta, GA 30329. Telephone: 1–800–232–4636.

SUPPLEMENTARY INFORMATION: CDC is extending, but not modifying, the terms of the current temporary suspension. A suspension remains necessary to protect the public's health against the reintroduction of the dog-maintained rabies virus variant (DMRVV) into the United States. There is a continued threat posed by unvaccinated or inadequately vaccinated dogs from high-risk countries due to various factors. These include insufficient veterinary controls in high-risk countries to prevent the export of inadequately vaccinated dogs, and veterinary supply chain and workforce capacity shortages that have persisted since the global COVID–19 pandemic. These factors result in challenges to efforts to ensure dogs imported into the United States do not pose a public health threat. CDC

anticipates that these factors are likely to continue through July 31, 2023.

I. Background and Authority

Rabies, one of the deadliest zoonotic diseases, accounts for an estimated 59,000 human deaths globally each year.[1] This equates to one human death every nine minutes.[2] DMRVV is responsible for 98 percent of these deaths.[2] The rabies virus can infect any mammal, and once clinical signs appear, the disease is almost always fatal.[3] In September 2007, at the Inaugural World Rabies Day Symposium, CDC declared the United States to be free of DMRVV.[4] However, DMRVV is still a serious public health threat in the more than 100 countries where it remains enzootic. Preventing the entry of animals infected with DMRVV into the United States is a public health priority.

Under section 361 of the Public Health Service Act (PHS Act) (42 U.S.C. 264), the Secretary of Health and Human Services may make and enforce such regulations as in the Secretary's judgment are necessary to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the United States and from one state or possession into any other state or possession.[5] Such regulations may provide for inspection, fumigation, disinfection, sanitation, pest extermination, destruction of animals or articles found to be sources of dangerous infection to human beings, and other measures. Under section 362 of the PHS Act (42 U.S.C. 265), the Secretary, and by delegation the Director of CDC (CDC Director),[6] may prohibit entries and imports from foreign countries into the United States ''in whole or in part'' if there is a serious risk of introducing communicable disease and when required in the interest of public health.

Under 42 CFR 71.51, all dogs admitted into the United States must be accompanied by a valid rabies vaccination certificate,[7] unless the dogs' owners or importers submit satisfactory evidence that dogs under six months of age have not been in a high-risk country or dogs older than six months have not been in a high-risk country for the six months before arrival.[8] CDC maintains a publicly available list of high-risk countries [9] and provides guidance for dog entry requirements based on the dog's country of origin.

CDC subject matter experts review publicly available data and conduct an annual assessment to determine which countries have high risk of DMRVV.[10] This assessment considers the following factors: presence or prevalence of domestically acquired cases of DMRVV in humans and animals; efforts towards control of DMRVV in dogs (such as dog vaccination coverage, dog population management, and existence and enforcement of legal codes to limit rabies transmission in dogs); and the quality of rabies surveillance systems, rate of testing, and laboratory capacity. If data are not available, the most conservative determination is applied, and the country is not considered to have a robust rabies control program. If a country has provided additional substantial data to support a DMRVV-free or low-risk status, CDC can review that information and re-assess the country's status.

Under 42 CFR 71.51(e), dogs may be subject to ''additional requirements as may be deemed necessary'' or ''to exclusion if coming from areas which the [CDC] Director has determined to have high rates of rabies.'' Based on the previously described criteria, CDC determined that high-risk countries constitute areas that have high rates of DMRVV, and dogs imported from these countries are thus subject to additional requirements and/or exclusion.[11]

Under 42 CFR 71.63, CDC may also temporarily suspend the entry of animals, articles, or things from designated foreign countries and places into the United States when it determines there exists in a foreign country a communicable disease that threatens the public health of the United States and the entry of imports from that country increases the risk that the communicable disease may be introduced. When such a suspension is issued, CDC designates the period of time or conditions under which imports into the United States are suspended. CDC likewise determined that DMRVV exists in countries designated as high-risk countries and that, if reintroduced into the United States, DMRVV would threaten the public health of the United States.

Based on these legal authorities and determinations, on June 16, 2021,[12] CDC announced a temporary suspension of the importation of dogs from high-risk countries into the United States (86 FR 32041) (the temporary suspension). The temporary suspension went into effect on July 14, 2021. CDC issued the temporary suspension to protect the public health against the reintroduction of DMRVV into the United States at a time when resources were being diverted to the agency-wide response to the global COVID–19 pandemic.

At the time the temporary suspension was issued, CDC noted an increase in importers circumventing dog import regulations. Despite a decrease in international travel volumes due to the global COVID–19 pandemic, there was a 52 percent increase in dogs ineligible for entry in 2020 as compared to 2018 and 2019. Additionally, four rabid dogs were imported into the United States between 2015 and 2021.

The limited availability of public health resources due to the unprecedented global response to the COVID–19 pandemic resulted in reduced capacity at the Federal, state, and local levels to address the increased risk of the reintroduction of DMRVV. For these reasons, CDC implemented a temporary suspension prohibiting the

[1] World Health Organization (2018). *WHO Expert Consultation on Rabies* (WHO Technical Report Series 1012). Retrieved from *https://www.who.int/publications/i/item/WHO-TRS-1012.*

[2] *Id.*

[3] Fooks, A.R., Banyard, A.C., Horton, D.L., Johnson, N., McElhinney, L.M., and Jackson, A.C. (2014) Current status of rabies and prospects for elimination. *Lancet, 384(9951),* 1389–1399. doi: 10.1016/S0140–6736(13)62707–5.

[4] Velasco-Villa, A., Mauldin, M., Shi, M., Escobar, L., Gallardo-Romero, N., Damon, I., Emerson, G. (2017) The history of rabies in the Western Hemisphere. *Antiviral Res,* 146, 221–232. doi:10.1016/j.antiviral.2017.03.013.

[5] Although the statute assigns authority to the Surgeon General, all statutory powers and functions of the Surgeon General were transferred to the Secretary of HHS in 1966, 31 FR 8855, 80 Stat. 1610 (June 25, 1966), *see also* Public Law 96–88, 509(b), October 17, 1979, 93 Stat. 695 (codified at 20 U.S.C. 3508(b)). The Secretary has retained these authorities despite the reestablishment of the Office of the Surgeon General in 1987.

[6] See 42 CFR 71.51(e), 71.63.

[7] Centers for Disease Control and Prevention (2022). What is a valid rabies vaccination certificate? Retrieved from *https://www.cdc.gov/importation/bringing-an-animal-into-the-united-states/vaccine-certificate.html.*

[8] Centers for Disease Control and Prevention (2019). Guidance Regarding Agency Interpretation of ''Rabies-Free'' as It Relates to the Importation of Dogs Into the United States. **Federal Register**, Vol. 84,724–730. Retrieved from *https://www.federalregister.gov/documents/2019/01/31/2019-00506/guidance-regarding-agency-interpretation-of-rabies-free-as-it-relates-to-the-importation-of-dogs.*

[9] Centers for Disease Control and Prevention (2022). What is a valid rabies vaccination certificate? Retrieved from *https://www.cdc.gov/importation/bringing-an-animal-into-the-united-states/rabies-vaccine.html.*

[10] Henry RE, Blanton JD, Angelo KM, Pieracci EG, Stauffer K, Jentes ES, Allen J, Glynn M, Brown CM, Friedman CR, Wallace R. A country classification system to inform rabies prevention guidelines and regulations. *J Travel Med.* 2022 Jul 14;29(4):taac046. doi: 10.1093/jtm/taac046. PMID: 35348741.

[11] Henry RE, Blanton JD, Angelo KM, Pieracci EG, Stauffer K, Jentes ES, Allen J, Glynn M, Brown CM, Friedman CR, Wallace R. A country classification system to inform rabies prevention guidelines and regulations. *J Travel Med.* 2022 Jul 14;29(4):taac046. doi: 10.1093/jtm/taac046. PMID: 35348741.

[12] Temporary Suspension of Dogs Entering the United States from High-Risk Rabies Countries. **Federal Register,** 86 FR 32041, June 16, 2021.

importation of dogs from high-risk countries for rabies in July 2021. In addition, CDC implemented a *CDC Dog Import Permit* [13] [(OMB Control Number 0920–0134 Foreign Quarantine Regulations (exp. 12/31/2022), or as revised] during the temporary suspension to verify the documentation of imported dogs before they are flown to the United States.

On June 10, 2022, CDC modified and extended the temporary suspension through January 31, 2023.[14] Per the **Federal Register** notice announcing the extension and modification of the temporary suspension, all categories of importers are currently eligible to import dogs from high-risk countries. Commercially imported dogs are required to enter the United States at a port of entry with a live animal care facility [15] with a Facilities Information and Resource Management System (FIRMS) code issued by U.S. Customs and Border Protection (CBP). CDC also expanded the list of the approved ports of entry to include 18 airports [16] with a CDC quarantine station for importers with a valid U.S.-issued rabies vaccination certificate or a *CDC Dog Import Permit.*

Prior to modifying and extending the temporary suspension on June 10, 2022, CDC also evaluated the latest scientific information on rabies serologic titer test results. Based on this evaluation, CDC reduced the waiting period requirement, which is the number of days between when a dog's sample is taken for a serologic titer test and when the dog can be imported into the United States, from 90 days to 45 days.

Lastly, the June 10, 2022, extension and modification of the temporary suspension allowed importers whose dogs are at least six months old, have a microchip, and have a valid U.S.-issued rabies vaccination certificate to enter the United States without a *CDC Dog Import Permit* at one of the 18 airports with a CDC quarantine station provided the dog appears healthy upon arrival. CDC made this change because of the reliability of the United States' rabies vaccine supply and to ease the burden on these importers.

At this time, CDC is extending the temporary suspension through July 31, 2023, because of the continued risk for the reintroduction of DMRVV into the United States. This extension is based on the disruption of rabies vaccination campaigns globally that occurred due to the COVID–19 pandemic. Since CDC anticipates the timeline needed for global vaccination campaigns to recover will extend through July 31, 2023, the risk of a rabid dog being imported into the United States is increased during that time. Additionally, constraints on the global veterinary workforce capacity and veterinary supply chain shortages that were exacerbated by the COVID–19 pandemic have led to delayed or disrupted care for dogs, which increases the likelihood dogs imported into the United States may pose a public health threat.[17] [18] [19] [20] Federal, state and local public health partners continue to respond to the global COVID–19 pandemic, which remains a Public Health Emergency of International Concern according to the World Health Organization (WHO) [21] and a U.S. public health emergency per the HHS declaration.[22] An imported rabid dog would potentially divert limited public health resources away from other critical ongoing public health responses.

CDC will regularly review the terms of this notice to ensure that the terms remain necessary and that importers are not overly burdened while the public health of the United States remains protected from the reintroduction of DMRVV. In conducting this review, CDC will consider high-risk countries' rabies control programs, the latest scientific data, and international recommendations for rabies control. Additionally, CDC previously announced that it is developing a proposed rule that will outline requirements regarding an importation system to reduce fraud and improve the U.S. government's ability to verify U.S. entry requirements and mitigate the introduction of dogs infected with rabies and other communicable diseases of public health concern.[23] Development of this proposed rule is ongoing.

II. Public Health Rationale

A. Dog Importation Into the United States

The United States was declared DMRVV-free in 2007. Importing dogs from high-risk countries involves a significant public health risk. The importation of just one dog infected with DMRVV risks re-introduction of the virus into the United States, resulting in a potential public health risk with consequent monetary cost and potential loss of human and animal life.[24] [25] [26] DMRVV has been highly successful at adapting to new host species, particularly wildlife.[27] One DMRVV-infected dog could result in transmission to humans, domestic pets, or wildlife. In 2019, the importation of a single dog with rabies cost more than $400,000 for the public health investigations and rabies post-exposure prophylaxis (PEP) of exposed persons.[28] [29] To mitigate the risk of importing dogs with DMRVV, CDC requires compliance with its public health entry requirements.

Although the U.S. Government does not track the total number of dogs imported each year, it is estimated that approximately 1 million dogs are imported into the United States annually, of which 100,000 dogs are

[14] 87 FR 33158 (June 1, 2022).

[15] *https://www.cdc.gov/importation/bringing-an-animal-into-the-united-states/approved-care-facilities.html.*

[16] The 18 approved ports of entry are: Anchorage (ANC), Atlanta (ATL), Boston (BOS), Chicago (ORD), Dallas (DFW), Detroit (DTW), Honolulu (HNL), Houston (IAH), Los Angeles (LAX), Miami (MIA), Minneapolis (MSP), New York (JFK), Newark (EWR), Philadelphia (PHL), San Francisco (SFO), San Juan (SJU), Seattle (SEA), and Washington DC (IAD).

[17] *https://www.theatlantic.com/health/archive/2022/07/not-enough-veterinarians-animals/661497/.*

[18] *https://www.agcanada.com/2021/07/is-the-veterinarian-shortage-real-or-regional#:~:text=A%20perceived%20global%20shortage%20of%20veterinarians%20is%20creating,for%20the%20quality%20of%20care%20they%20can%20offer.*

[19] *https://www.thebusinessresearchcompany.com/report/companion-animal-veterinary-vaccines-global-market-report.*

[20] *https://7news.com.au/lifestyle/pets/aussie-dog-owners-warned-of-national-vaccine-shortage-as-deadly-bacterial-disease-spreads-c-8568550.*

[21] *https://www.who.int/europe/news/item/19-10-2022-statement-on-the-thirteenth-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-coronavirus-disease-(covid-19)-pandemic.*

[22] *https://aspr.hhs.gov/legal/PHE/Pages/covid19-13Oct2022.aspx.*

[23] See *https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202204&RIN=0920-AA82.*

[24] World Bank (2012). People, Pathogens and Our Planet: The Economics of One Health. Retrieved from *https://openknowledge.worldbank.org/handle/10986/11892.*

[25] Raybern, C., Zaldivar, A., Tubach, S., Ahmed, F., Moore, S., Kintner, C., Garrison, I. (2020) Rabies in a dog imported from Egypt-Kansas, 2019. *Morbidity and Mortality Weekly Report,* 69(38), 1374–1377. Retrieved from *https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6938a5-H.pdf.*

[26] Jeon, S., Cleaton, J., Meltzer, M., Kahn, E., Pieracci, E., Blanton, J., Wallace, R. (2019). Determining the post-elimination level of vaccination needed to prevent re-establishment of dog rabies. *PLoS Neglected Tropical Diseases,* 13(12). *https://doi.org/10.1371/journal.pntd.0007869.*

[27] Velasco-Villa, A., Mauldin, M., Shi, M., Escobar, L., Gallardo-Romero, N., Damon, I., Emerson, G. (2017). The history of rabies in the Western Hemisphere. *Antiviral Research,* 146, 221–232.doi:10.1016/j.antiviral.2017.03.013.

[28] Raybern, C., Zaldivar, A., Tubach, S., Ahmed, F., Moore, S., Kintner, C., Garrison, I. (2020) Rabies in a dog imported from Egypt-Kansas, 2019. *Morbidity and Mortality Weekly Report,* 69(38), 1374–1377. Retrieved from *https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6938a5-H.pdf.*

[29] Centers for Disease Control and Prevention (2022). Rabies Postexposure Prophylaxis. Retrieved from *https://www.cdc.gov/rabies/medical_care/index.html.*

from high-risk countries.[30] This estimate was based on information provided by airlines, CBP staff, and a study conducted at a U.S.-Mexico land border crossing.[31]

CBP does record, by country, the number of dogs imported with formal entry under Harmonized Tariff Schedule (HTS) code 0106199120 and HTS description: Other live animals, other, dogs. The total number of dogs imported into the United States from all countries under this HTS category varied from 25,232 in 2018 to 58,540 in 2020. The number of dogs from high-risk countries under this HTS category averaged 16,390 per year and varied from 9,966 to 24,031 over this three-year period. The number of dogs reported under this HTS category does not include dogs imported as checked baggage, hand-carried in airplane cabins, or crossing at land borders without formal entry. Thus, the number underestimates the true number of dogs imported into the United States.

Since 2015, there have been four known rabid dogs imported into the United States. All four dogs were imported by rescue organizations for the purposes of adoption. These four cases, discussed below, highlight the immense public health resources required to investigate, respond to, and mitigate the public health threat posed by the importation of a rabid dog.

In 2015, a rabid dog was part of a group of eight dogs and 27 cats imported from Egypt by a rescue group. The dog had an unhealed leg fracture and began showing signs of rabies four days after arrival. Following the rabies diagnosis, the rescue workers in Egypt admitted that the dog's rabies vaccination certificate had been intentionally falsified to evade CDC entry requirements.[32] Eighteen people were recommended to receive rabies PEP, seven dogs underwent a six-month quarantine, and eight additional dogs housed in the same home as the rabid dog had to receive rabies booster vaccinations and undergo a 45-day monitoring period.

In 2017, a ''flight parent'' (a person typically solicited through social media, often not affiliated with the rescue organization, and usually compensated with an airline ticket) imported four dogs on behalf of a rescue organization. One of the dogs appeared agitated at the airport and bit the flight parent prior to the flight. A U.S. veterinarian examined the dog one day after its arrival and then euthanized and tested the dog for rabies. A post-mortem rabies test showed that the dog was positive for the virus. Public health officials recommended that at least four people receive rabies PEP, and the remaining three dogs underwent quarantine periods ranging from 30 days to six months. An investigation revealed the possibility of falsified rabies vaccination documentation presented on entry to the United States.[33]

In 2019, a rescue group imported 26 dogs, all of which had rabies vaccination certificates and serologic documentation, indicating the development of rabies antibodies (in response to immunization), based on results from an Egyptian Government-affiliated rabies laboratory. However, one dog developed signs of rabies three weeks after arrival and had to be euthanized. The dog tested positive for rabies. Forty-four people received PEP, and the 25 dogs imported on the same flight underwent re-vaccination and quarantines of four to six months. An additional 12 dogs had contact with the rabid dog and had to be re-vaccinated and undergo quarantine periods ranging from 45 days to six months based on their previous vaccination status.[34]

On June 10, 2021, shortly before CDC published the temporary suspension, 33 dogs were imported into the United States from Azerbaijan by a rescue organization. All dogs had rabies vaccination certificates that appeared valid upon arrival in the United States. One dog developed signs of rabies three days after arrival and was euthanized. CDC confirmed the dog was infected with a variant of DMRVV known to circulate in the Caucus Mountain region of Azerbaijan. The remaining rescue animals exposed to the rabid dog during travel were dispersed across nine states, leading to what is believed to be the largest, multi-state, imported rabid dog investigation in U.S. history.[35]

Eighteen people received PEP to prevent rabies as a result of exposure to this one rabid dog. Post-vaccination serologic monitoring of the remaining dogs and the public health investigation revealed that improper vaccination practices by the veterinarian in Azerbaijan likely contributed to the inadequate vaccination response documented in 48 percent of the imported animals, including the rabid dog.[36] The 33 exposed animals were placed in quarantine periods ranging from 45 days to six months based on individual serologic titer test results and local jurisdictional requirements.[37]

CDC estimates that costs for public health investigations and subsequent cost of care for people exposed to rabid dogs range from $220,897 to $521,828 per importation event, as summarized in an economic analysis found on CDC's website.[38] [39] [40] This cost estimate does not account for the worst-case outcomes, which include: (1) transmission of rabies to a person who dies from the disease; and (2) ongoing transmission to other domestic animals and wildlife species in the United States. A previous campaign to eliminate domestic dog-coyote rabies virus variant jointly with gray fox (Texas fox) rabies virus variant in Texas over the period from 1995 through 2003 cost $34 million,[41] [42] or $48 million in

[30] Centers for Disease Control and Prevention (2019). Guidance Regarding Agency Interpretation of ''Rabies-Free'' as It Relates to the Importation of Dogs Into the United States. **Federal Register**, Vol. 84, 724–730. Retrieved from *https://www.federalregister.gov/documents/2019/01/31/2019-00506/guidance-regarding-agency-interpretation-of-rabies-free-as-it-relates-to-the-importation-of-dogs.*

[31] McQuiston, J.H., Wilson, T., Harris, S., Bacon, R.M., Shapiro, S., Trevino, J., Marano, N. (2008.) Importation of dogs into the United States: risks from rabies and other zoonotic diseases. *Zoonoses Public Health,* 55(8–10), 421–6. doi:10.1111/j.1863–2378.2008.01117.

[32] Sinclair J., Wallace, R., Gruszynski K., Bibbs Freeman, M., Campbell, C., Semple, S., Murphy, J. (2015). Rabies in a dog imported from Egypt with a falsified rabies vaccination certificate—Virginia. *Morbidity and Mortality Weekly Report,* 64, 1359–62. doi:10.15585/mmwr.mm6449a2.

[33] Hercules, Y., Bryant, N., Wallace, R., Nelson, R., Palumbo, G., Williams, J., Brown, C. (2018). Rabies in a dog imported from Egypt—Connecticut, 2017. *Morbidity and Mortality Weekly Report* 67, 1388–91. doi:10.15585/mmwr.mm6750a3.

[34] Raybern, C., Zaldivar, A., Tubach, S., Ahmed, F., Moore, S., Kintner, C., Garrison, I. (2020) Rabies in a dog imported from Egypt-Kansas, 2019. *Morbidity and Mortality Weekly Report,* 69(38), 1374–1377. Retrieved from *https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6938a5-H.pdf.*

[35] Whitehill F, Bonaparte S, Hartloge C, et al. Rabies in a Dog Imported from Azerbaijan-Pennsylvania, 2021. *MMWR Morb Mortal Wkly Rep* 2022; 71: 686–689.

[36] Centers for Disease Control and Prevention (2021). CDC responds to a case of rabies in an imported dog. Retrieved from *https://www.cdc.gov/worldrabiesday/disease-detectives/rabies-imported-dog.html.*

[37] Whitehill F, Bonaparte S, Hartloge C, et al. Rabies in a Dog Imported from Azerbaijan-Pennsylvania, 2021. *MMWR Morb Mortal Wkly Rep* 2022; 71: 686–689.

[38] Raybern, C., Zaldivar, A., Tubach, S., Ahmed, F., Moore, S., Kintner, C., Garrison, I. (2020) Rabies in a dog imported from Egypt-Kansas, 2019. *MMWR Morb Mort Wkly Rep,* 69(38), 1374–1377. Retrieved from *https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6938a5-H.pdf.*

[39] Centers for Disease Control and Prevention (2019). Guidance Regarding Agency Interpretation of ''Rabies-Free'' as It Relates to the Importation of Dogs Into the United States. **Federal Register**, Vol. 84, 724–730. Retrieved from *https://www.federalregister.gov/documents/2019/01/31/2019-00506/guidance-regarding-agency-interpretation-of-rabies-free-as-it-relates-to-the-importation-of-dogs.*

[40] *https://www.cdc.gov/importation/bringing-an-animal-into-the-united-states/vaccine-certificate.html.*

[41] Thomas, S., Wilson, P., Moore, G., Oertli, E., Hicks, B., Rohde, R., Johnston, D. (2005). Evaluation of oral rabies vaccination programs for control of rabies epizootics in coyotes and gray foxes: 1995–

Continued

2020 U.S. dollars. Re-establishment of DMRVV into the United States could result in costly efforts over several years to eliminate the virus again.

B. Ongoing COVID–19 Response Activities

Since January 2020, public health resources globally have been dedicated to responding to the COVID–19 pandemic, which remains a public health emergency as declared by the HHS Secretary and a Public Health Emergency of International Concern as declared by WHO. This context caused a lapse in canine rabies vaccination efforts in high-risk countries.[43] [44] In the United States, the public health response to combatting the emergence of SARS–CoV–2 variants has required sustained Federal, state, and local public health resources.

The importation of a rabid dog on June 10, 2021, diverted public health resources from CDC, the U.S. Department of Agriculture (USDA), and nine states away from critical COVID–19 response activities. Any increase in the number of dogs with inadequate or falsified rabies vaccination certificates arriving in the United States increases the likelihood of a DMRVV-importation event and threatens the diversion of critical public health resources.[45]

C. Insufficient Canine Vaccination Rates and Veterinary Controls in High-Risk Countries To Prevent the Export of Inadequately Vaccinated Dogs

Historically, approximately 60 to 70 percent of CDC's dog entry denials (or about 200 cases annually) have been based on fraudulent, incomplete, or inaccurate paperwork.[46] This number is less than one percent of dog importations. However, between January and December 2020 (*i.e.,* during the global COVID–19 pandemic), CDC documented more than 450 instances of incomplete, inadequate, or fraudulent rabies vaccination certificates for dogs arriving from high-risk countries. This number increased for the first six months of 2021, during which time CDC documented more than 560 instances of incomplete, inadequate, or fraudulent rabies vaccination certificates for dogs arriving from high-risk countries.[47] These cases resulted in dogs being denied entry into the United States and ultimately returned to their country of origin.

During the global COVID–19 pandemic, canine rabies vaccination campaigns were suspended in many high-risk countries, which resulted in an increase in canine and human rabies cases.[48] [49] The pause in canine vaccination campaigns and the delay in re-establishing pre-COVID rabies vaccination rates in dogs in many high-risk countries, combined with insufficient veterinary controls in place to prevent the exportation of inadequately vaccinated dogs with fraudulent rabies vaccination certificates, presents a significant public health risk.

A survey of global, regional, national, and local rabies working partners from the network of the United Against Rabies Forum [50] and rabies practitioners found that the global COVID–19 pandemic impacted rabies control efforts in many high-risk countries during 2020. The study authors reported that dog vaccinations were administered as planned in just four percent of the countries for which data were available. Around half of respondents reported that funds for rabies control were diverted to global COVID–19 activities. However, even in countries where funds were not diverted, it was reported that funding for rabies control was insufficient and unpredictable even before the global COVID–19 pandemic. Among respondents who reported diversion of rabies control funds to global COVID–19 responses, they reported that animal rabies vaccines and dog vaccination campaigns were often the first rabies control activities to be cut.[51]

Additionally, there are global veterinary workforce capacity and veterinary supply chain shortages, exacerbated by the COVID–19 pandemic, that have led to delayed or disrupted care for dogs (and other pets) globally. The lack of veterinarians, veterinary technicians, and other animal care staff who are available to provide care for dogs prior to travel, combined with a lack of veterinary supplies such as drugs and vaccines, increase the likelihood dogs imported into the United States may pose a public health threat.[52] [53] [54] [55]

D. Potentially Unsafe Conditions for Dogs Arriving From High-Risk Countries Without Appropriate Rabies Vaccination Certificates

Prior to the implementation of the suspension, dogs arriving from high-risk countries without appropriate rabies vaccination certificates were denied entry and returned to the country of origin on the next available flight.[56] Airlines were required to house dogs awaiting return to their country of origin

2003. *Journal of the American Veterinary Medicine Association,* 227(5), 785–92. doi: 10.2460/javma.2005.227.785.

[42] Sterner, R., Meltzer, M., Shwiff, S., Slate, D. (2009). Tactics and Economics of Wildlife Oral Rabies Vaccination, Canada and the United States. *Emerging Infectious Diseases,* 15(8), 1176–1184. doi: 10.3201/eid1508.081061.

[43] Kunkel, A., Jeon, S., Joseph, H., Dilius, P., Crowdis, K., Meltzer, M., Wallace, R. (2021). The urgency of resuming disrupted dog rabies vaccination campaigns: a modeling and cost-effectiveness analysis. *Scientific Reports,* 11, 12476. doi:10.1038/s41598–021–92067–5.

[44] Raynor, B., Díaz, E., Shinnick, J., Zegarra, E., Monroy, Y., Mena. C., . . . Castillo-Neyra, R.(2021). The impact of the COVID–19 pandemic on rabies reemergence in Latin America: The case of Arequipa, Peru. *PLoS Neglected Tropical Diseases,* 15(5), e0009414. doi:10.1371/journal.pntd.0009414.

[45] Pieracci, E., Williams, C., Wallace, R., Kalapura, C., Brown, C. U.S. dog importations during the COVID–19 pandemic: Do we have an erupting problem? *PLoS ONE,* 16(9), e0254287. doi: 10.1371/journal.pone.0254287.

[46] Centers for Disease Control and Prevention (2021). Quarantine Activity Reporting System (version 4.9.8.8.2.2A). Dog Importation data, 2010–2019. Accessed 1 October 2022.

[47] Pieracci, E., Williams, C., Wallace, R., Kalapura, C., Brown, C. U.S. dog importations during the COVID–19 pandemic: Do we have an erupting problem? *PLoS ONE,* 16(9), e0254287. doi: 10.1371/journal.pone.0254287.

[48] Kunkel, A., Jeon, S., Joseph, H., Dilius, P., Crowdis, K., Meltzer, M., Wallace, R. (2021). The urgency of resuming disrupted dog rabies vaccination campaigns: a modeling and cost-effectiveness analysis. *Scientific Reports,* 11, 12476. doi:10.1038/s41598–021–92067–5.

[49] Raynor, B., Díaz, E., Shinnick, J., Zegarra, E., Monroy, Y., Mena. C., . . . Castillo-Neyra, R.(2021). The impact of the COVID–19 pandemic on rabies reemergence in Latin America: The case of Arequipa, Peru. *PLoS Neglected Tropical Diseases,* 15(5), e0009414. doi:10.1371/journal.pntd.0009414.

[50] A forum supported by the Food and Agriculture Organization of the United Nations, the World Organisation for Animal Health, and the World Health Organization (the Tripartite), which takes a multi-sectoral, One Health approach bringing together governments, vaccine producers, researchers, non-governmental organizations and development partners to end human deaths from dog-mediated rabies.

[51] Nadal D, Abela-Ridder B, Beeching S, Cleaveland S, Cronin K, Steenson R and Hampson K (2022). The Impact of the First Year of the COVID–19 Pandemic on Canine Rabies Control Efforts: A Mixed-Methods Study of Observations About the Present and Lessons for the Future. *Front Trop Dis* 3:866811.doi: 10.3389/fitd.2022.866811.

[52] *https://www.theatlantic.com/health/archive/2022/07/not-enough-veterinarians-animals/661497/.*

[53] *https://www.agcanada.com/2021/07/is-the-veterinarian-shortage-real-or-regional#:~:text=A%20perceived%20global%20shortage%20of%20veterinarians%20is%20creating,for%20the%20quality%20of%20care%20they%20can%20offer.*

[54] *https://www.thebusinessresearchcompany.com/report/companion-animal-veterinary-vaccines-global-market-report.*

[55] *https://7news.com.au/lifestyle/pets/aussie-dog-owners-warned-of-national-vaccine-shortage-as-deadly-bacterial-disease-spreads-c-8568550.*

[56] Centers for Disease Control and Prevention (2019). Guidance Regarding Agency Interpretation of ''Rabies-Free'' as It Relates to the Importation of Dogs Into the United States. **Federal Register**, Vol. 84 724–730. Retrieved from *https://www.federalregister.gov/documents/2019/01/31/2019-00506/guidance-regarding-agency-interpretation-of-rabies-free-as-it-relates-to-the-importation-of-dogs.*

at a facility that meets the USDA's Animal Welfare Act standards, preferably a live animal care facility with an active custodial bond and a FIRMS code issued by CBP. If a live animal care facility with a CBP-issued FIRMS code was not available, the airline was required, at a minimum, to provide accommodation meeting the USDA's Animal Welfare Act standards.[57]

Some airlines housed dogs in cargo warehouses that created an unsafe environment for dogs due to the prolonged periods of time between flights, inadequate cooling and heating, poor cleaning and sanitization of crates, and inability to physically separate the animals from areas of the warehouse where other equipment, machinery, and goods are used and stored. Cargo warehouse staff who are not trained to house, clean, and care for live animals with appropriate personal protective equipment were at risk of bites, scratches, and exposures to potentially infectious bodily fluids from dogs left in cargo warehouses.

During 2020, due to the global COVID–19 pandemic, there were fewer international flights worldwide,[58] [59] resulting in delayed returns for dogs denied entry. While international flights in 2022 increased compared to 2020–2021, the number of flights remained somewhat below pre-pandemic levels with uncertainty regarding how quickly international passenger traffic will fully recover to pre-pandemic levels.[60] In August 2020, a dog denied entry based on falsified rabies vaccination certificates later died while in the custody of an airline at Chicago O'Hare International Airport. Despite CDC's request to find appropriate housing at a local kennel or veterinary clinic, the airline left the dog, along with 17 other dogs, in a cargo warehouse without food and water for more than 48 hours.[61]

While costs associated with housing, caring for, and returning dogs are the responsibility of the importer (or airline if the importer abandons the dog), some importers and airlines are reluctant to pay these costs, requiring the U.S. Government to find appropriate interim housing facilities and veterinary care. The cost for housing, care, and returning improperly vaccinated dogs ranges between $1,000 and $4,000 per dog, depending on the location and time required until the next available return flight. Because there is no reimbursement system in place, and seeking reimbursement is administratively challenging, the U.S. Government is left to bear these costs when airlines and importers do not. From May through December 2020, CDC spent more than 3,000 personnel-hours at an estimated cost of $270,000 to respond to the attempted importation of unvaccinated or inadequately vaccinated dogs from high-risk countries. The time spent represented a substantial increase from previous years due to (1) the increase in dogs with inadequate documentation; and (2) the additional time spent identifying interim accommodations for the dogs because of the reduced outbound international flight schedules due to the pandemic.

During 2020, CDC observed a 52 percent increase (from an average of 300 to 450) in the number of dogs ineligible for entry compared to 2018 and 2019.[62] The trend continued in the first half of 2021 when there was a 24 percent increase (from 450 to 560) in the number of dogs ineligible for entry compared to the whole of 2020.[63] From January 1, 2021, to July 13, 2021, prior to CDC's suspension taking effect, there were 16 sick dogs and 18 dead dogs reported to CDC upon arrival in the United States. From July 14, 2021, when the suspension was implemented, to September 30, 2022, CDC has denied entry to 145 dogs, and eight sick dogs and 26 deaths have been reported to CDC. This substantial decrease in the number of dogs denied entry since the implementation of the suspension and limited number of sick and dead dogs arriving in the United States has resulted in an estimated $55,000 to $190,000 in cost savings to importers and $3,400 to $170,000 in cost savings to Federal and state public health and animal health agencies when comparing the two periods.

During the timeframe of the current suspension, the number of dogs denied entry and the number of sick and dead dogs has substantially decreased despite the increased communicable disease risk due to disruptions to vaccination programs in high-risk countries and veterinary supply chain and staffing shortages worldwide. This constitutes strong evidence that the suspension has been effective at preventing the importation of dogs that present a communicable disease risk that would otherwise require significant U.S. resources to address. There was an increasing number of dogs denied entry in 2020 and 2021, prior to the suspension, and there were fewer international flights in 2020 and 2021 compared to 2022.[64] If the increase in number of flights in 2022 corresponded with numbers of dogs denied entry per flight in 2021 and 2022, lifting the suspension at this time could result in a return to pre-suspension or greater numbers of dogs denied entry along with an associated large increase of sick, dead, or inadequately vaccinated dogs arriving in the United States that could quickly overwhelm already strained public health and veterinary healthcare systems.

Since there remains an elevated level of risk of a rabid dog being imported into the United States compared to before the global COVID–19 pandemic and because responding to imports of potentially rabid dogs or dogs with other communicable illnesses of public health concern requires significant veterinary and public health resources, lifting the suspension would be unwarranted at this time.

Instead, CDC is extending the temporary suspension for dogs arriving into the United States from high-risk countries. Given that the conditions for dog importations under the suspension have prevented the reintroduction of DMRVV into the United States and have decreased the number of issues with imported dogs (suspected fraudulent

[57] U.S. Department of Agriculture (2020). Animal Welfare Regulations; Part 3, Subpart A: Transportation Standards. Sections 3.14–3.20. Retrieved from *https://www.aphis.usda.gov/animal_welfare/downloads/AC_BlueBook_AWA_508_comp_version.pdf.*

[58] Josephs, L. (2020). American Airlines cutting international summer schedule by 60% as coronavirus drives down demand. *CNBC.* Retrieved from *https://www.cnbc.com/2020/04/02/coronavirus-update-american-airlines-cuts-summer-international-flights-by-60percent-as-demand-suffers.html.*

[59] American Airlines (2020). American Airlines announces additional schedule changes in response to customer demand related to COVID–19. *American Airlines Newsroom.* Retrieved from *https://news.aa.com/news/news-details/2020/American-Airlines-Announces-Additional-Schedule-Changes-in-Response-to-Customer-Demand-Related-to-COVID-19-031420-OPS-DIS-03/default.aspx.*

[60] International Civil Aviation Organization (2022). Effects of novel coronavirus (COVID–19) on civil aviation: economic impact analysis. Retrieved from *https://www.icao.int/sustainability/Documents/Covid-19/ICAO_coronavirus_Econ_Impact.pdf.*

[61] CBS Broadcasting (2020). Dog dies at O'Hare Airport warehouse, 17 others saved after being left without food or water for 3 days. *CBS Chicago.* Retrieved from *https://www.cbsnews.com/chicago/news/dog-dies-at-ohare-airport-warehouse-17-others-saved-after-being-left-without-food-or-water-for-3-days.*

[62] Pieracci, E., Williams, C., Wallace, R., Kalapura, C., Brown, C. U.S. dog importations during the COVID–19 pandemic: Do we have an erupting problem? *PLoS ONE,* 16(9), e0254287. doi: 10.1371/journal.pone.0254287.

[63] Centers for Disease Control and Prevention. Quarantine Activity Reporting System (version 4.9.8.8.2.2A). Dog Importation data, January 1, 2021–July 14, 2021. Accessed: 04 January 2022.

[64] U.S. Bureau of Transportation Statistics. (2022) August 2022 U.S. Airline Traffic Data. *https://www.bts.gov/newsroom/august-2022-us-airline-traffic-data.*

documentation, dogs abandoned by importers, sick and dead dogs arriving in the United States) compared to the period prior to the suspension, maintaining the current requirements for dog importation should not result in an increased need for veterinary and public health resources to address dog importation issues.

III. Conditions for Dog Importation Under the July 10, 2021, Temporary Suspension

During the temporary suspension of dogs arriving from countries at high risk for dog rabies, eligible importers, including owners of service dogs, U.S. and foreign-government personnel, and persons permanently relocating to the United States, could apply to import their personally owned pet dogs. People were also permitted to import dogs for science, education, exhibition, or bona fide law enforcement purposes. To receive a *CDC Dog Import Permit,* eligible importers had to provide a rabies vaccination certificate prior to the dog arriving in the United States that met the criteria outlined below, as well as rabies serologic titers from a CDC-approved laboratory if the dog was vaccinated outside the United States. Dogs were also required to be at least six months of age and have a microchip implanted prior to arrival in the United States.

For dogs arriving from high-risk countries, the rabies vaccination certificates had to include the following information to be considered complete and accurate:

- Name and address of owner;
- Breed, sex, date of birth (approximate age if date of birth unknown), color, markings, and other identifying information for the dog;
- Microchip number;
- Date of rabies vaccination and vaccine product information;
- Date the vaccination expires; and
- Name, license number, address, and signature of veterinarian who administered the vaccination.

For a rabies vaccine to be effective, a dog must be at least 12 weeks (84 days) of age at the time of administration. A dog's initial vaccine must also be administered at least four weeks (28 days) before arrival in the United States for the dog to be considered adequately vaccinated against rabies.

A. Extension of the Temporary Suspension Enacted June 10, 2022

On June 10, 2022, CDC extended and modified the temporary suspension to allow a pathway for all importers to import dogs into the United States utilizing one of the three options listed in sections IV–VII below. CDC is now extending the suspension through July 31, 2023. Although CDC is providing clarifying language to the entry requirements in section IV–VI below, it is not modifying the terms of the current suspension itself. CDC will be implementing the use of a standardized rabies vaccination form to reduce errors and omissions frequently documented on rabies vaccination certificates. This form will not require any new information to be submitted to CDC but will assist importers in ensuring the rabies vaccination form they submit includes all required information. This will help to reduce wait times for importers applying for CDC dog import permits.

IV. Conditions for Entry of U.S.-Vaccinated Dogs During the Extension

Through this notice, CDC is continuing the current requirements for entry of U.S.-vaccinated dogs. Dogs returning to the United States from high-risk countries with a valid U.S.-issued rabies vaccination certificate will be allowed to enter the United States without a *CDC Dog Import Permit,* if the dog:

- Is six-months of age or older;
- Has an ISO-compatible microchip;[65]
- Arrives at one of 18 CDC-approved ports of entry with CDC-staffed quarantine stations; and
- Has a valid U.S. rabies vaccination certificate documenting that the dog was vaccinated against rabies by a U.S.-licensed veterinarian in the United States on or after the date the dog was 12 weeks (84 days) of age and at least four weeks (28 days) before the date of arrival in the United States if it was the dog's first rabies vaccine. The rabies vaccination certificate must include:
  - Name and address of owner;
  - Breed, sex, date of birth (approximate age if date of birth unknown), color, markings, and other identifying information for the dog;
  - Microchip number;
  - Date of rabies vaccination and date next vaccine is due (*i.e.,* date the vaccination expires);
  - Vaccine manufacturer, product name, lot number and product expiration date; and
  - Name, license number, address, and signature of veterinarian who administered the vaccination.

U.S. veterinarians, at their option, may choose to include the above information on the *CDC Rabies Vaccination and Microchip Record (OMB No. 0920–1383)* for U.S.-vaccinated dogs prior to traveling outside the United States, but completion of the form is not required for a U.S.-vaccinated dog's re-entry into the United States if all other necessary information has been provided. The form is available for download online at: *www.cdc.gov/dogpermit.*

U.S.-vaccinated dogs with expired U.S. rabies vaccination certificates must meet the requirements for foreign-vaccinated dogs after being revaccinated prior to U.S. entry.

There is no limit on the number of U.S.-vaccinated dogs with valid U.S.-issued rabies vaccination certificates that an importer can import.

These requirements are consistent with CDC's practices as of December 1, 2021, and are a continuation of the terms of the modified temporary suspension announced in the June 2022 **Federal Register** notice (87 FR 33158, June 1, 2022).

V. Conditions for Entry of Foreign-Vaccinated Dogs With a CDC Dog Import Permit During the Extension

CDC is continuing to require foreign-vaccinated dogs to meet the terms of the modified temporary suspension published in the June 2022 **Federal Register** notice (87 FR 33158, June 1, 2022). Importers of personal pet dogs may receive up to two *CDC Dog Import Permits* (*i.e.,* permits for two dogs) during the suspension period. Commercial importers and personal pet owners who do not have serologic titer results for their dogs will also continue to have an alternate pathway for importation.

All importers of personal pet dogs (defined for the purpose of this notice as owners or importers attempting to import fewer than three dogs total during the suspension and not intended for resale, rescue, or adoption) from high-risk countries are eligible to apply for a *CDC Dog Import Permit.* Commercial dog importers (defined for the purpose of this notice as importing three or more dogs during the suspension or those being imported for resale, rescue, or adoption) are not eligible to apply for a *CDC Dog Import Permit* and their dogs must meet the requirements for entry outlined in Section VI below.

Foreign-vaccinated dogs arriving from high-risk countries with a valid *CDC Dog Import Permit* will be allowed to enter the United States if the dogs:

- Are six-months of age or older (photographs of the dog's teeth are required for age verification);
- Have an ISO-compatible microchip;

[65] *ISO* means international standards organization.

• Have a *CDC Rabies Vaccination and Microchip Record* ([approved under OMB Control Number 0920–1383 Importation Regulations (42 CFR 71 Subpart F) (exp. 1/31/2026, or as revised)]) completed by the veterinarian who administered the rabies vaccine. The record must state that the vaccine was administered on or after the date the dog was 12 weeks (84 days) of age. The record must be in English;

• Have serologic evidence of rabies vaccination (titer) from an approved rabies serology laboratory [66] (serologic titer results ≥0.5 IU/mL are required) with the sample collected at least 45 days prior to entry and no greater than 365 days before entry; and

• Arrive at one of the 18 CDC-approved ports of entry with CDC-staffed quarantine stations.

In order to reduce the time to review applications and issue *CDC Dog Import Permits,* CDC is requiring that importers of foreign-vaccinated dogs submit the rabies vaccination and microchip information via the form *CDC Rabies Vaccination and Microchip Record* (OMB No. 0920–1383). As of October 31, 2022, almost half of *CDC Dog Import Permit* applicants submitted an incomplete application with information pertaining to the rabies vaccination certificate constituting the majority of the missing information. Requiring importers to submit the *CDC Rabies Vaccination and Microchip Record* form will help ensure they submit all required information and will reduce the burden on importers by reducing the time it takes for them to receive a permit. Additionally, CDC has included a description on the form to clarify for veterinarians the information to which they are attesting when they sign the form on behalf of an importer. The form is available for download online at: *www.cdc.gov/dogpermit.*

To apply for a *CDC Dog Import Permit,* importers whose dogs meet the entry requirements listed above must submit the *Application for Special Exemption for a Permitted Dog Import,* [approved under OMB Control Number 0920–1383 Importation Regulations (42 CFR 71 Subpart F) (exp. 1/31/2026), or as revised]. The permit application is available online at *www.cdc.gov/dogpermit.*

The importer's application, with all supporting documentation, must be submitted at least 30 business days (*i.e.,* excluding weekends and U.S. federal holidays) before the date on which the dog will enter the United States. Importers may submit an application electronically at *www.cdc.gov/dogpermit.* An application cannot be made at the port of entry upon the dogs' arrival in the United States; dogs that arrive without a *CDC Dog Import Permit* will be returned to their country of departure on the next available flight or quarantined at the importer's expense at a CDC-approved animal care facility (if one is available at the port of entry where the dog arrived) pending availability and payment of all associated examination, vaccination, and quarantine fees upfront (see Section VI).

Within 10 days of arrival, foreign-vaccinated dogs with a *CDC Dog Import Permit* must receive a USDA-licensed rabies booster vaccination administered by a U.S. veterinarian.

VI. Conditions for Entry of Foreign-Vaccinated Dogs Without a CDC Dog Import Permit During the Extension

CDC is continuing the requirements of the temporary suspension published in the June 2022 **Federal Register** notice (87 FR 33158, June 1, 2022) that provide a pathway for commercial dog importers to import dogs. While importers of commercial shipments of dogs cannot apply for a *CDC Dog Import Permit,* a separate entry process, as outlined below, has been established. All commercial dog importers from high-risk countries may import dogs provided that the dogs, upon entering the United States, are examined, revaccinated, and have proof of an adequate titer from a CDC-approved laboratory upon arrival or are held in quarantine at a CDC-approved animal facility until they meet CDC entry requirements. Importers of personally owned pets may also choose to use this pathway in lieu of obtaining a *CDC Dog Import Permit.*

Foreign-vaccinated dogs without a valid *CDC Dog Import Permit* must meet all other entry requirements (sections VI–VII) prior to arrival and must also meet the following requirements:

• Dogs must enter at a port of entry with a CDC-approved animal facility; [67]

• Dogs must be six months of age or older at the time of entry;

• Dogs must have an ISO-compatible microchip; and

• Dogs must have a *CDC Rabies Vaccination and Microchip Record* [approved under OMB Control Number 0920–1383 Importation Regulations (42 CFR 71 Subpart F) (exp. 1/31/2026, or as revised)]) completed by the veterinarian who administered the rabies vaccine. The record must state that the vaccine was administered on or after the date the dog was 12 weeks (84 days) of age. The record must be in English;

• Importers must provide all required entry documents (*CDC Rabies Vaccination and Microchip Record,* serologic titer results if available, photos of dogs' teeth) to the CDC-approved animal care facility at least 10 days before the dogs' arrival;

• Importers must arrange for an examination date and time and reserve space with a CDC-approved animal facility;

• Importers must arrange for transportation by a CBP-bonded transporter (*i.e.,* provided by the airline carrier or a CDC-approved animal facility) to a CDC-approved animal facility immediately upon the dogs' arrival to the United States; and

• Dogs must undergo veterinary examination and revaccination against rabies at a CDC-approved animal facility upon arrival at the importer's expense.

In order to reduce the time for facility operators to review the documents required to request a reservation at a CDC-approved animal care facility, CDC is requiring that importers of foreign-vaccinated dogs submit the rabies vaccination and microchip information via the form *CDC Rabies Vaccination and Microchip Record.* Requiring importers to submit the *CDC Rabies Vaccination and Microchip Record (OMB NO. 0920–1383)* form will help ensure they submit all required information and will reduce the burden on importers and the CDC-approved animal care facilities by reducing the time it takes for facility operators to review all required documents. Additionally, CDC has included a description on the form to clarify for veterinarians that to which they are attesting when they sign the form for an importer.

Dogs must also be held at the CDC-approved animal facility until the following entry requirements are completed:

• Veterinary health examination by a USDA-accredited veterinarian for signs of illness, including zoonotic or foreign animal diseases. Suspected or confirmed zoonotic or foreign animal diseases must be reported to CDC, USDA, the state or territorial public health veterinarian, and the state or territorial veterinarian. The CDC-approved animal care facility must not release the dog without the written approval of CDC;

[66] Centers for Disease Control and Prevention (2022). Approved Rabies Serology Laboratories for Testing Dogs. Retrieved from *https://www.cdc.gov/importation/bringing-an-animal-into-the-united-states/approved-labs.html.*

[67] Centers for Disease Control and Prevention (2022). Bringing a dog into the United States. Retrieved from *www.cdc.gov/dogtravel.*

• Vaccination against rabies with a USDA-licensed rabies vaccine and administered by a USDA-accredited veterinarian;
• Confirmation of microchip number;
• Confirmation of age through dental examination by a USDA-accredited veterinarian; and
• Verification of adequate rabies titer from a CDC-approved laboratory.[68] Serologic titer results of ≥0.5IU/mL are required from a CDC-approved laboratory, with the sample collected at least 45 days prior to entry and no greater than 365 days before entry. Dogs that arrive without documentation of an adequate rabies titer from an approved laboratory must be housed at the CDC-approved animal facility for a 28-day quarantine at the expense of the importer following administration of the U.S. rabies vaccine in addition to meeting the criteria listed above. Dogs cannot be released from quarantine unless all requirements have been met.

Importers are responsible for all fees associated with the importation of dogs into the United States, including transportation, examination, vaccination, and quarantine fees.

Foreign-vaccinated dogs arriving without a *CDC Dog Import Permit* must enter the United States through a CDC-approved port of entry with a CDC-approved animal care facility. As of December 2022, these facilities are located at: Atlanta Hartsfield-Jackson International Airport, John F. Kennedy International Airport (New York), Los Angeles International Airport, Miami International Airport, and Washington Dulles International Airport (outside Washington, DC). Importers are responsible for reserving examination times and space at the CDC-approved animal care facility prior to arrival in the United States. Dogs that arrive at unapproved ports of entry or without reservations at a CDC-approved animal care facility will be denied entry and returned to the country of departure.

VII. Continued Conditions for All Dogs From High-Risk Countries During the Extension

Consistent with the terms of the original temporary suspension published in the June 2021 **Federal Register** notice (86 FR 32041, June 16, 2021), all dogs arriving from high-risk countries must be microchipped prior to arrival in the United States. The microchip can be administered in any country and does not need to be a U.S.-issued microchip. The microchip number must be listed on the rabies vaccination certificate. The microchip must be ISO-compatible.

Any dog from a high-risk country will be excluded from entering the United States and returned to its country of departure on the next available flight, regardless of carrier or route, if the dog arrives under any of the following circumstances:

• A dog arrives in the United States and does not meet the minimum pre-arrival requirements (*i.e.,* age greater than six months, microchip, and either valid U.S.-issued rabies vaccination certificate or complete and accurate *CDC Rabies Vaccination and Microchip Record*);
• A dog presented does not match the description of the animal listed on the permit (if required), U.S. rabies vaccination certificate, or *CDC Rabies Vaccination and Microchip Record;*
• A dog arrives at an unapproved port of entry;
• A dog arrives at an airport with a CDC-approved animal care facility without a reservation and no space at the facility is available; or
• Importer refuses transportation to, or receipt of or payment for services at, a CDC-approved animal care facility (if required). CDC may consider the dog abandoned and transfer custody of the dog to the airline carrier for final disposition.

The importer shall be financially responsible for all housing, care, and return costs. If an importer abandons a dog while it is at a CDC-approved animal care facility, the carrier shall become responsible for all costs associated with the care, housing, and return of the dog to the country of departure. In keeping with current practice, importers should continue to check with Federal, state, and local government officials regarding additional requirements of the final destination prior to entry or re-entry into the United States.

VIII. Additional Determinations Relating to This Notice

Pursuant to the terms of this notice, CDC is extending the temporary suspension for the importation of dogs from high-risk countries. This suspension includes dogs originating in DMRVV low-risk or DMRVV-free countries that have been in a high-risk country in the previous six months (not including animals transiting through high-risk countries).

To enter the United States, dogs imported from a high-risk country must meet certain entry requirements as described in Sections IV through VII of this notice.

TABLE 1—ENTRY CONDITIONS FOR DOGS UNDER EXTENDED SUSPENSION

Dogs with valid U.S. Rabies Vaccination certificate (RVC)	Dogs with valid *CDC Dog Import Permit* (fewer than three dogs being imported with titer)	Dogs with valid *CDC Rabies Vaccination and Microchip Record* without titer	Dogs with valid *CDC Rabies Vaccination and Microchip Record* with titer
At least six months of age	At least six months of age	At least six months of age	At least six months of age.
Microchip	Microchip	Microchip	Microchip.
Entry allowed at 18 ports of entry with CDC quarantine station.	Entry allowed at 18 ports of entry with CDC quarantine station with valid *CDC Dog Import Permit* issued prior to arrival.	Entry allowed at five ports of entry with CDC-approved animal care facility.	Entry allowed at five ports of entry with CDC-approved animal care facility.
Titer not needed	Serologic titer (≥0.5 IU/mL) from a CDC-approved laboratory. Titer drawn at least 45 days before entry and not more than 365 days before entry.	Not applicable*	Serologic titer (≥0.5 IU/mL) from a CDC-approved laboratory. Titer drawn at least 45 days before entry and not more than 365 days before entry.
No quarantine	No quarantine	28-day quarantine at CDC-approved animal care facility.	No quarantine.

[68] Approved laboratories can be found at: *www.cdc.gov/importation/bringing-an-animal-into-the-united-states/approved-labs.html.*

TABLE 1—ENTRY CONDITIONS FOR DOGS UNDER EXTENDED SUSPENSION—Continued

Dogs with valid U.S. Rabies Vaccination certificate (RVC)	Dogs with valid *CDC Dog Import Permit* (fewer than three dogs being imported with titer)	Dogs with valid *CDC Rabies Vaccination and Microchip Record* without titer	Dogs with valid *CDC Rabies Vaccination and Microchip Record* with titer
Veterinary exam, booster vaccination or quarantine not required unless the animal appears ill upon arrival.	Veterinary exam or quarantine not required with valid *CDC Dog Import Permit* unless the animal appears ill upon arrival. Booster vaccination is required within 10 days of arrival by U.S. veterinarian.	Veterinary examination, booster vaccination, and paperwork verification at CDC-approved animal care facility required upon arrival.	Veterinary examination, booster vaccination, and paperwork verification at CDC-approved animal care facility required upon arrival.

* This is an alternate pathway for importation in the event documentation of an adequate titer is not available upon arrival.

The suspension will continue to reduce the risk of importation of DMRVV, ensure public health safeguards are in place for the importation of dogs from high-risk countries, and preserve public health resources. The terms of the suspension allow for sufficient safeguards to mitigate the public health risk. The suspension will also allow CDC to continue to work with Federal, state, territorial and local partners, airlines, and other affected parties to consider options for a more streamlined and efficient dog importation process that will be safer for pets. Most importantly, it will ensure that U.S. public health remains protected.

Therefore, pursuant to 42 CFR 71.51(e) and 42 CFR 71.63, CDC hereby excludes the entry and suspends (subject to the terms and conditions outlined in this notice) the importation of dogs from high-risk countries, including dogs from DMRVV low-risk and DMRVV-free countries if the dogs have been present in a high-risk country in the previous six months.

Additionally, under 42 CFR 71.63, CDC continues to find that DMRVV exists in countries designated as high-risk countries and that, if reintroduced into the United States, DMRVV would threaten the public health of the United States. The continued entry of dogs from high-risk countries in the context of rabies vaccination campaign disruptions and veterinary supply and veterinary workforce shortages as a result of the global COVID–19 pandemic as well as the insufficient safeguards in place to prevent the exportation of inadequately vaccinated dogs from high-risk countries further increases the risk that DMRVV may be introduced, transmitted, or spread into the United States. CDC has coordinated in advance with other Federal agencies as necessary to implement and enforce this notice.

CDC further clarifies through this notice that there is no agency policy of using the ''least restrictive means'' (as that concept is typically understood and applied in cases involving interests protected by the U.S. Constitution) in regard to animal importations under 42 CFR part 71. ''The Due Process Clause of the Fourteenth Amendment imposes procedural constraints on governmental decisions that deprive individuals of liberty or property interests.'' *Nozzi* v. *Hous. Auth. of City of Los Angeles,* 806 F.3d 1178, 1190 (9th Cir. 2015). However, ''[d]ue process protections extend only to deprivations of protected interests.'' *Shinault* v. *Hawks,* 782 F.3d 1053, 1057 (9th Cir. 2015). Because individuals have no protected property or liberty interest in importing dogs into the United States, it is CDC's policy to not employ a constitutional analysis of ''least restrictive means'' in regard to animal imports under 42 CFR part 71. *See Ganadera Ind.* v. *Block,* 727 F.2d 1156, 1160 (D.C. Cir. 1984) (''no constitutionally-protected right to import into the United States''); *see also Arjay Assoc.* v. *Bush,* 891 F.2d. 894, 896 (Fed. Cir. 1989) (''It is beyond cavil that no one has a constitutional right to conduct foreign commerce in products excluded by Congress.'').

Notwithstanding, to the extent that any court determines that an analysis of ''least restrictive means'' is necessary, CDC finds and asserts that the measures contained in this notice constitute the least restrictive means of protecting the public's health from the reintroduction of DMRVV. Although a complete ban on all dog imports would arguably provide a greater level of public health protection, it would deprive individuals of the many benefits arising from dog imports including the companionship offered by pet dogs. Similarly, removing all restrictions at this time (as has been explained in this notice) would endanger the public's health and risk the reintroduction of DMRVV based on, among other things, the lack of veterinary controls in foreign countries. Accordingly, in establishing the terms and conditions of this notice, CDC has carefully balanced the need to protect the public's health against the potential burden on importers and determined that the measures in this notice constitute the least restrictive means.

This notice is not a legislative rule within the meaning of the Administrative Procedure Act (APA), but rather a notice of an exclusion and temporary suspension taken under the existing authority of 42 CFR 71.51(e) and 42 CFR 71.63, which were previously promulgated with full notice and comment. If this notice qualifies as a legislative rule under the APA, notice and comment and a delay in effective date are not required because there is good cause to dispense with prior public notice and the opportunity to comment on this notice. Considering the insufficient safeguards in place to prevent the exportation of inadequately vaccinated dogs from high-risk countries, and the risk of reintroduction of DMRVV from dogs being imported from high-risk countries, it would be impractical and contrary to the public's health, and by extension the public's interest, to delay the issuance and effective date of this notice. Notwithstanding, CDC is publishing this notice in advance of its effective date, to allow potential dog importers and other interested parties sufficient time to adjust their practices in accordance with the terms of this temporary suspension.

This temporary suspension will enter into effect on February 1, 2023, and remain in effect through July 31, 2023, unless modified or rescinded by the CDC Director based on public health or other considerations.

Dated: January 24, 2023.

Sherri Berger,

Chief of Staff, Centers for Disease Control and Prevention.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[30Day–23–0004]

Agency Forms Undergoing Paperwork Reduction Act Review

In accordance with the Paperwork Reduction Act of 1995, the Centers for Disease Control and Prevention (CDC) has submitted the information collection request titled ''National Disease Surveillance Program II. Disease Summaries'' to the Office of Management and Budget (OMB) for review and approval. CDC previously published a ''Proposed Data Collection Submitted for Public Comment and Recommendations'' notice on September 16, 2022 to obtain comments from the public and affected agencies. CDC received 2 comments related to the previous notice. This notice serves to allow an additional 30 days for public and affected agency comments.

CDC will accept all comments for this proposed information collection project. The Office of Management and Budget is particularly interested in comments that:

(a) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(b) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(c) Enhance the quality, utility, and clarity of the information to be collected;

(d) Minimize the burden of the collection of information on those who are to respond, including, through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses; and

(e) Assess information collection costs.

To request additional information on the proposed project or to obtain a copy of the information collection plan and instruments, call (404) 639–7570. Comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function. Direct written comments and/or suggestions regarding the items contained in this notice to the Attention: CDC Desk Officer, Office of Management and Budget, 725 17th Street NW, Washington, DC 20503 or by fax to (202) 395–5806. Provide written comments within 30 days of notice publication.

Proposed Project

National Disease Surveillance Program II. Disease Summaries (OMB Control No. 0920–0004)—Reinstatement—National Center for Immunization and Respiratory Diseases (NCIRD), Centers for Disease Control and Prevention (CDC).

Background and Brief Description

CDC requests a three year approval for the Reinstatement of the National Disease Surveillance Program II. Disease Summaries information collection. As with the previous approval, these data are essential for measuring trends in diseases, evaluating the effectiveness of current preventive strategies, and determining the need to modify current preventive measures. Diseases included in this surveillance program are Influenza Virus, Caliciviruses, Respiratory and Enteric Viruses, Arthropod-Borne Diseases, Parechoviruses and Enteroviruses. The proposed Reinstatement with Change includes eight influenza forms, Suspect Respiratory Virus Patient Form, Middle East Respiratory Syndrome Coronavirus (MERS) Patient Under Investigation (PUI) Form, Viral Gastroenteritis Outbreak Submission Form, National Respiratory and Enteric Virus Surveillance System (NREVSS) Laboratory Assessment, and National Enterovirus Surveillance Report. These forms have minor edits with minor burden change from last OMB approval. Additionally, CDC requests the use of four new forms, Aggregate case counts of persons exposed to Highly Pathogenic Avian Influenza (HPAI), Pediatric Hepatitis of Unknown Etiology Medical Record Abstraction Short Form, Pediatric Hepatitis of Unknown Etiology Medical Record Abstraction Form (CRF) and Arthropod (Vector)-Borne Diseases (Non-Human Data). The data from the new forms will enable rapid detection and characterization of outbreaks of known pathogens, as well as potential newly emerging viral pathogens.

The frequency of response for each form will depend on the disease and surveillance need. This represents an increase of 2,657 burden hours since last approval. This change in burden hours is attributed primarily to the discontinuation of previously approved forms, formatting changes to existing forms, and the addition of four new forms. The total burden estimate for all collection instruments in this reinstatement request is 27,458. There is no cost to respondents other than their time.

ESTIMATED ANNUALIZED BURDEN HOURS

Type of respondent	Form name	Number of respondents	Number of responses per respondent	Average burden per response (in hr)
Epidemiologist	Attachment E—WHO Collaborating center for Influenza—Influenza Virus Surveillance.	47	52	10/60
Epidemiologist	Attachment F—U.S. WHO Collaborating Laboratories Influenza Testing Methods Assessment.	113	1	10/60
Epidemiologist	Attachment H-US Outpatient Influenza-like Illness Surveillance Network (ILINet) Workfolder 55.20E.	1800	52	10/60
Epidemiologist	Attachment J—Influenza-Associated Pediatric Mortality—Case Report Form.	57	2	30/60
Epidemiologist	Attachment K—Human Infection with Novel Influenza A Virus Case Report Form.	57	2	30/60
Epidemiologist	Attachment M—Human Infection with Novel Influenza A Virus Severe Outcomes.	57	1	90/60
Epidemiologist	Attachment P—Novel Influenza A Virus Case Screening Form.	57	1	15/60

ESTIMATED ANNUALIZED BURDEN HOURS—Continued

Type of respondent	Form name	Number of respondents	Number of responses per respondent	Average burden per response (in hr)
Epidemiologist	Attachment T—Antiviral Resistant Influenza Infection Case Report Form.	57	3	30/60
Epidemiologist	Attachment U—National Respiratory & Enteric Virus Surveillance System (NREVSS) (55.83A, B, D) (electronic).	550	52	15/60
Epidemiologist	Attachment V—National Enterovirus Surveillance Report: (CDC 55.9) (electronic).	20	12	15/60
Epidemiologist	Attachment W—National Adenovirus Type Reporting System (NATRS).	13	4	15/60
Epidemiologist	Attachment X—Middle East Respiratory Syndrome (MERS) Patient Under Investigation (PUI) Short Form.	57	3	25/60
Epidemiologist	Attachment Y—Viral Gastroenteritis Outbreak Submission Form.	20	5	5/60
Epidemiologist	Attachment AA—Influenza Virus (Electronic, Year Round), PHLIP_HL7 messaging Data Elements.	57	52	5/60
Epidemiologist	Attachment BB—Influenza virus (electronic, year round) (PHIN–MS).	3	52	5/60
Epidemiologist	Attachment CC—Suspect Respiratory Virus Patient Form ...	10	5	30/60
Epidemiologist	Attachment EE, Aggregate counts of persons exposed to Highly Pathogenic Avian Influenza (HPAI).	52	52	10/60
Epidemiologist	Attachment FF, Pediatric Hepatitis of Unknown Etiology Medical Record Abstraction Short Form.	52	4	15/60
Epidemiologist	Attachment GG, Pediatric Hepatitis of Unknown Etiology Medical Record Abstraction Form (CRF).	52	2	45/60
Epidemiologist	Attachment HH, Arthropod (Vector)-Borne Diseases (Non-Human Data).	57	52	60/60

Jeffrey M. Zirger,

Lead, Information Collection Review Office, Office of Scientific Integrity, Office of Science, Centers for Disease Control and Prevention.

[FR Doc. 2023–01667 Filed 1–26–23; 8:45 am]

BILLING CODE 4163–18–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Medicare & Medicaid Services

[Document Identifier: CMS–10439 and CMS–10830]

Agency Information Collection Activities: Submission for OMB Review; Comment Request

AGENCY: Centers for Medicare & Medicaid Services, Health and Human Services (HHS).

ACTION: Notice.

SUMMARY: The Centers for Medicare & Medicaid Services (CMS) is announcing an opportunity for the public to comment on CMS' intention to collect information from the public. Under the Paperwork Reduction Act of 1995 (PRA), federal agencies are required to publish notice in the **Federal Register** concerning each proposed collection of information, including each proposed extension or reinstatement of an existing collection of information, and to allow a second opportunity for public comment on the notice. Interested persons are invited to send comments regarding the burden estimate or any other aspect of this collection of information, including the necessity and utility of the proposed information collection for the proper performance of the agency's functions, the accuracy of the estimated burden, ways to enhance the quality, utility, and clarity of the information to be collected, and the use of automated collection techniques or other forms of information technology to minimize the information collection burden.

DATES: Comments on the collection(s) of information must be received by the OMB desk officer by February 27, 2023.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain*. Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

To obtain copies of a supporting statement and any related forms for the proposed collection(s) summarized in this notice, please access the CMS PRA website by copying and pasting the following web address into your web browser: *https://www.cms.gov/Regulations-and-Guidance/Legislation/PaperworkReductionActof1995/PRA-Listing.*

FOR FURTHER INFORMATION CONTACT: William Parham at (410) 786–4669.

SUPPLEMENTARY INFORMATION: Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501–3520), federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information they conduct or sponsor. The term ''collection of information'' is defined in 44 U.S.C. 3502(3) and 5 CFR 1320.3(c) and includes agency requests or requirements that members of the public submit reports, keep records, or provide information to a third party. Section 3506(c)(2)(A) of the PRA (44 U.S.C. 3506(c)(2)(A)) requires federal agencies to publish a 30-day notice in the **Federal Register** concerning each proposed collection of information, including each proposed extension or reinstatement of an existing collection of information, before submitting the collection to OMB for approval. To comply with this requirement, CMS is publishing this notice that summarizes the following proposed collection(s) of information for public comment:

1. *Type of Information Collection Request:* Extension without change of a currently approved collection; *Title of Information Collection:* Data Collection to Support Eligibility Determinations for Small Businesses in the Small Business Health Options Program; *Use:* On March

23, 2010, the President signed into law H.R. 3590, the Patient Protection and Affordable Care Act, Public Law 111–148, as amended by the Health Care and Education Reconciliation Act of 2010, Public Law 111–152. The Patient Protection and Affordable Care Act (PPACA) expands access to health insurance coverage through improvements to the Medicaid and Children's Health Insurance (CHIP) programs, the establishment of Affordable Insurance Exchanges (Exchanges), and the coordination between Medicaid, CHIP, and Exchanges. Small business employers may participate in and provide health coverage through the Small Business Health Options Program (SHOP), so long as the small business employer obtains a positive eligibility determination from SHOP. Employers will work with SHOP-registered agents/brokers or Issuers offering Qualified Health Plans (QHPs) and Qualified Dental Plans (SADPs), to enroll in SHOP coverage and to select coverage options to offer their employees. SHOP Exchanges became operational on October 1, 2013.

HHS has developed a single, streamlined form that employers use to obtain a SHOP eligibility determination, which is included as an appendix to this Information Collection Request. 45 CFR 155.731 provides more detail about this ''single employer application,'' which is used to determine employer eligibility. Since publication of the last package, no updates have been made in regulation concerning what information should be collected on the single employer application to determine employer eligibility under 45 CFR 155.731. When an employer completes the SHOP Eligibility Determination Form, the form and its results are retained by SHOP for future use, if needed (*e.g.,* reconciliation with issuer records, SHOP employer appeals, etc.). *Form Number:* CMS–10439 (OMB control number 0938–1193); *Frequency:* Annually; *Affected Public:* Private Sector (business or other for-profits, not-for-profit institutions); *Number of Respondents:* 2,100; *Number of Responses:* 2,100; *Total Annual Hours:* 336. (For questions regarding this collection contact Elliot Klein at 410–786–0415).

2. *Type of Information Collection Request:* New collection (Request for a new OMB control number); *Title of Information Collection:* Data Collection to Support CMS Burden Reduction and Health Informatics Efforts; *Use:* CMS seeks to establish a generic clearance that will be used to permit quick turnaround data collection projects that support CMS efforts to infuse customer perspectives, apply innovative solutions, advance standards and information technology (IT) interoperability, advance health equity, and respond to emerging priorities. CMS will utilize a range of methodologies through this generic clearance including surveys, focus groups, stakeholder/key informant interviews, cognitive interviews, site visits, and usability testing. Data collected under this generic clearance will support CMS and OBRHI efforts to reduce the burden of CMS regulations, sub-regulations, and policies as well as increasing the use of digital health tools to improve the customer experience. Obtaining feedback from CMS stakeholders is a core component of OBRHI's work to assist CMS in improving service delivery. *Form number:* CMS–10830 (OMB control number: 0938–New); *Frequency:* Occasionally; *Affected Public:* Private Sector (Businesses or other for-profits and Not-for-profit institutions); *Number of Respondents:* 15,648; *Number of Responses:* 15,648; *Total Burden Hours:* 5,034. (For questions regarding this collection contact Réna McClain at 410–786–3975).

Dated: January 24, 2023.

William N. Parham, III,

Director, Paperwork Reduction Staff, Office of Strategic Operations and Regulatory Affairs.

[FR Doc. 2023–01713 Filed 1–26–23; 8:45 am]

BILLING CODE 4120–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Medicare & Medicaid Services

[Document Identifiers: CMS–10224 & CMS–10242]

Agency Information Collection Activities: Proposed Collection; Comment Request

AGENCY: Centers for Medicare & Medicaid Services, Health and Human Services (HHS).

ACTION: Notice.

SUMMARY: The Centers for Medicare & Medicaid Services (CMS) is announcing an opportunity for the public to comment on CMS' intention to collect information from the public. Under the Paperwork Reduction Act of 1995 (PRA), federal agencies are required to publish notice in the **Federal Register** concerning each proposed collection of information (including each proposed extension or reinstatement of an existing collection of information) and to allow 60 days for public comment on the proposed action. Interested persons are invited to send comments regarding our burden estimates or any other aspect of this collection of information, including the necessity and utility of the proposed information collection for the proper performance of the agency's functions, the accuracy of the estimated burden, ways to enhance the quality, utility, and clarity of the information to be collected, and the use of automated collection techniques or other forms of information technology to minimize the information collection burden.

DATES: Comments must be received by March 28, 2023.

ADDRESSES: When commenting, please reference the document identifier or OMB control number. To be assured consideration, comments and recommendations must be submitted in any one of the following ways:

1. *Electronically.* You may send your comments electronically to *http://www.regulations.gov.* Follow the instructions for ''Comment or Submission'' or ''More Search Options'' to find the information collection document(s) that are accepting comments.

2. *By regular mail.* You may mail written comments to the following address: CMS, Office of Strategic Operations and Regulatory Affairs, Division of Regulations Development, Attention: Document Identifier/OMB Control Number: ____, Room C4–26–05, 7500 Security Boulevard, Baltimore, Maryland 21244–1850.

To obtain copies of a supporting statement and any related forms for the proposed collection(s) summarized in this notice, please access the CMS PRA website by copying and pasting the following web address into your web browser: *https://www.cms.gov/Regulations-and-Guidance/Legislation/PaperworkReductionActof1995/PRA-Listing.*

FOR FURTHER INFORMATION CONTACT: William N. Parham at (410) 786–4669.

SUPPLEMENTARY INFORMATION:

Contents

This notice sets out a summary of the use and burden associated with the following information collections. More detailed information can be found in each collection's supporting statement and associated materials (see **ADDRESSES**).

CMS–10224 CMS HCPCS Modification to Code Set Form

CMS–10242 Emergency Ambulance Transports and Beneficiary Signature

Under the PRA (44 U.S.C. 3501–3520), federal agencies must obtain

approval from the Office of Management and Budget (OMB) for each collection of information they conduct or sponsor. The term ''collection of information'' is defined in 44 U.S.C. 3502(3) and 5 CFR 1320.3(c) and includes agency requests or requirements that members of the public submit reports, keep records, or provide information to a third party. Section 3506(c)(2)(A) of the PRA requires federal agencies to publish a 60-day notice in the **Federal Register** concerning each proposed collection of information, including each proposed extension or reinstatement of an existing collection of information, before submitting the collection to OMB for approval. To comply with this requirement, CMS is publishing this notice.

Information Collection

1. *Type of Information Collection Request:* Revision of a currently approved collection; *Title of Information Collection:* CMS HCPCS Modification to Code Set Form; *Use:* The Healthcare Common Procedure Coding System (HCPCS) Level II code set is one of the standard code sets used for this purpose. The HCPCS Level II code set, also referred to as alpha-numeric codes, is a standardized coding system that is used primarily to identify items, supplies, and services not included in the HCPCS Level I Current Procedural Terminology (CPT®) codes, such as ambulatory services and durable medical equipment, prosthetics, orthotics, and supplies when used in the home or outpatient setting as well as certain drugs and biologicals. Because Medicare and other insurers cover a variety of these services and supplies, HCPCS Level II codes were established for assignment by insurers to identify items on claims. HCPCS Level II classifies similar items or services that are medical in nature into categories for the purpose of efficient claims processing. For each alpha-numeric HCPCS code, there is descriptive terminology that identifies a category of like items.

As stated in 42 CFR Sec. 414.40(a) CMS establishes uniform national definitions of services, codes to represent services, and payment modifiers to the codes. The HCPCS code set has been maintained and distributed via modifications of codes, modifiers and descriptions, as a direct result of data received from applicants. Thus, information collected in the application is significant to code set maintenance. The HCPCS code set maintenance is an ongoing process, as changes are implemented and updated quarterly (for drug and biological products) and biannual (for non-drug and non-biological items or services); therefore, the process requires continual collection of information from applicants on a quarterly and bi-annual basis. As new technology evolves and new devices, drugs and supplies are introduced to the market, applicants submit applications to CMS requesting modifications to the HCPCS Level II code set. *Form Number:* CMS–10244 (OMB control number: 0938–1042); *Frequency:* Quarterly; *Affected Public:* Private sector, Business or other for-profit; *Number of Respondents:* 250; *Total Annual Responses:* 250; *Total Annual Hours:* 2,500. (For policy questions regarding this collection contact Sundus Ashar at 410–786–0750.)

2. *Type of Information Collection Request:* Extension of a currently approved collection; *Title of Information Collection:* Emergency Ambulance Transports and Beneficiary Signature; *Use:* The statutory authority requiring a beneficiary's signature on a claim submitted by a provider is located in section 1835(a) and in 1814(a) of the Social Security Act (the Act), for Part B and Part A services, respectively. The authority requiring a beneficiary's signature for supplier claims is implicit in sections 1842(b)(3)(B)(ii) and in 1848(g)(4) of the Act. Federal regulations at 42 CFR 424.32(a)(3) state that all claims must be signed by the beneficiary or on behalf of the Beneficiary (in accordance with 424.36). Section 424.36(a) states that the beneficiary's signature is required on a claim unless the beneficiary has died or the provisions of 424.36(b), (c), or (d) apply.

For emergency and nonemergency ambulance transport services, where the beneficiary is physically or mentally incapable of signing the claim (and the beneficiary's authorized representative is unavailable or unwilling to sign the claim), that it is impractical and infeasible to require an ambulance provider or supplier to later locate the beneficiary or the person authorized to sign on behalf of the beneficiary, before submitting the claim to Medicare for payment. Therefore, an exception was created to the beneficiary signature requirement with respect to emergency and nonemergency ambulance transport services, where the beneficiary is physically or mentally incapable of signing the claim, and if certain documentation requirements are met. Thus, we added subsection (6) to paragraph (b) of 42 CFR 424.36. The information required in this ICR is needed to help ensure that services were in fact rendered and were rendered as billed. *Form Number:* CMS–10242 (OMB control number: 0938–1049); *Frequency:* Occasionally; *Affected Public:* Private sector, Business or other for-profit, Not-for-profits institutions; *Number of Respondents:* 10,233; *Total Annual Responses:* 10,954,288; *Total Annual Hours:* 912,492. (For policy questions regarding this collection contact Sabrina Teferi at 678–491–0546.)

Dated: January 24, 2023.

William N. Parham, III,

Director, Paperwork Reduction Staff, Office of Strategic Operations and Regulatory Affairs.

[FR Doc. 2023–01718 Filed 1–26–23; 8:45 am]

BILLING CODE 4120–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Heart, Lung, and Blood Institute; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: Heart, Lung, and Blood Initial Review Group; Heart, Lung, and Blood Program Project Study Section.

Date: March 17, 2023.

Time: 11:00 a.m. to 4:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, 6705 Rockledge Drive, Bethesda, MD 20817 (Virtual Meeting).

Contact Person: Melissa H. Nagelin, Ph.D., Scientific Review Officer, Office of Scientific Review/DERA, National Heart, Lung, and Blood Institute, National Institutes of Health, 6705 Rockledge Drive, Room 208–R, Bethesda, MD 20892, (301) 827–7951, *nagelinmh2@nhlbi.nih.gov*.

(Catalogue of Federal Domestic Assistance Program Nos. 93.233, National Center for Sleep Disorders Research; 93.837, Heart and Vascular Diseases Research; 93.838, Lung Diseases Research; 93.839, Blood Diseases and Resources Research, National Institutes of Health, HHS)

Dated: January 23, 2023.

David W. Freeman,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01685 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Heart, Lung, and Blood Institute; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: Heart, Lung, and Blood Initial Review Group, NHLBI Mentored Patient-Oriented Research Study Section.

Date: March 2–3, 2023.

Time: 10:00 a.m. to 6:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, Rockledge II, 6705 Rockledge Drive, Bethesda, MD 20817 (Virtual Meeting).

Contact Person: Stephanie Johnson Webb, Ph.D., Scientific Review Officer, Office of Scientific Review/DERA, National Heart, Lung, and Blood Institute, National Institutes of Health, 6705 Rockledge Drive, Room 208–V, Bethesda, MD 20892, (301) 827–7992, *stephanie.webb@nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.233, National Center for Sleep Disorders Research; 93.837, Heart and Vascular Diseases Research; 93.838, Lung Diseases Research; 93.839, Blood 1Diseases and Resources Research, National Institutes of Health, HHS)

Dated: January 23, 2023.

David W Freeman,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01684 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Submission for OMB Review; 30-Day Comment Request; Generic Clearance for the Collection of Qualitative Feedback on Agency Service Delivery (NCI)

AGENCY: National Institutes of Health, HHS.

ACTION: Notice.

SUMMARY: In compliance with the Paperwork Reduction Act of 1995, the National Institutes of Health (NIH) has submitted to the Office of Management and Budget (OMB) a request for review and approval of the information collection listed below.

DATES: Comments regarding this information collection are best assured of having their full effect if received within 30 days of the date of this publication.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or using the search function.

FOR FURTHER INFORMATION CONTACT: To obtain a copy of the data collection plans and instruments, submit comments in writing, or request more information on the proposed project, contact: Diane Kreinbrink, Office of Management Policy and Compliance, National Cancer Institute, 9609 Medical Center Drive, Bethesda, MD 20892–9760 or call non-toll-free number (240) 276–5582 or Email your request, including your address to: *diane.kreinbrink@nih.gov.* Formal requests for additional plans and instruments must be requested in writing.

SUPPLEMENTARY INFORMATION: This proposed information collection was published in the **Federal Register** on October 12, 2022 (Vol. 87, No. 196, P. 61609) and allowed 60 days for public comment. No public comments were received. The purpose of this notice is to allow an additional 30 days for public comment. The National Cancer Institute (NCI), National Institutes of Health (NIH), may not conduct or sponsor, and the respondent is not required to respond to, an information collection that has been extended, revised, or implemented on or after October 1, 1995, unless it displays a currently valid Office of Management and Budget (OMB) control number.

In compliance with section 3507(a)(1)(D) of the Paperwork Reduction Act of 1995, NIH has submitted to OMB a request for review and approval of the information collection listed below.

Proposed Collection: Generic Clearance for the Collection of Qualitative Feedback on Agency Service Delivery (NCI), 0925–0642, Expiration Date 03/31/2023, EXTENSION, National Cancer Institute (NCI), National Institutes of Health (NIH).

Need and Use of Information Collection: This activity collects qualitative customer and stakeholder feedback efficiently and timely, per the Administration's commitment to improving service delivery. This generic provides information about the National Cancer Institute's customer or stakeholder perceptions, experiences, and expectations, provides an early warning of service issues, or focuses on areas where communication, training, or operations changes might improve product or service delivery. It also allows feedback to contribute directly to the improvement of program management. Feedback collected under this generic clearance provides valuable information but will not yield data that can be generalized to the overall population.

OMB approval is requested for 3 years. There are no costs to respondents other than their time. The total estimated annualized burden hours are 9,337 hours.

ESTIMATED ANNUALIZED BURDEN HOURS

Form name	Type of respondent	Number of respondents	Number of responses per respondent	Average burden per response (in hours)	Total annual burden hours
Surveys	Individuals	27,100	1	12/60	5,420

ESTIMATED ANNUALIZED BURDEN HOURS—Continued

Form name	Type of respondent	Number of respondents	Number of responses per respondent	Average burden per response (in hours)	Total annual burden hours
In-Depth Interviews (IDIs) or Small Discussion Groups.	Individuals	500	1	90/60	750
Focus Groups	Individuals	1000	1	90/60	1,500
Website or Software Usability Tests	Individuals	5000	1	20/60	1,667
Total			33,600		9,337

Dated: January 23, 2023.

Diane Kreinbrink,

Project Clearance Liaison, National Cancer Institute, National Institutes of Health.

[FR Doc. 2023–01598 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute on Alcohol Abuse and Alcoholism; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Institute on Alcohol Abuse and Alcoholism, NIAAA Special Emphasis Panel to Review Member Conflict applications and PAR 22–102 and 22–103.

Date: February 27, 2023.

Time: 11:00 a.m. to 1:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, 6700B Rockledge Drive, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Ranga Srinivas, Ph.D., Chief, Extramural Project Review Branch, National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, 6700B Rockledge Drive, Room 2114, Bethesda, MD 20892, (301) 451–2067 *srinivar@mail.nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.271, Alcohol Research Career Development Awards for Scientists and Clinicians; 93.272, Alcohol National Research Service Awards for Research Training; 93.273, Alcohol Research Programs; 93.891, Alcohol Research Center Grants; 93.701, ARRA Related Biomedical Research and Research Support Awards., National Institutes of Health, HHS)

Dated: January 24, 2023.

Melanie J. Pantoja,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01724 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Center For Scientific Review; Amended Notice of Meeting

Notice is hereby given of a change in the meeting of the Community Influences on Health Behavior Study Section, February 14, 2023, 9:30 a.m. to February 15, 2023, 6:00 p.m. The Westin Washington, DC City Center, 1400 M St. NW, Washington, DC which was published in the **Federal Register** on January 24, 2023, 88 FR 4194.

This meeting is being amended to change the name of the hotel from The Westin Washington, DC City Center Hotel, 1400 M Street NW, Washington, DC 20005 to the Doubletree Hotel Tysons, 1960 Chain Bridge Road, McLean, VA 22101. The meeting is closed to the public.

Dated: January 24, 2023.

David W Freeman,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01727 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Mental Health; Notice of Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended, notice is hereby given of a meeting of the National Advisory Mental Health Council.

The meeting will be open to the public as indicated below, with attendance limited to space available. Individuals who plan to attend as well as those who need special assistance, such as sign language interpretation or other reasonable accommodations, must notify the Contact Person listed below in advance of the meeting. The open session will be videocast and can be accessed from the NIH Videocasting and Podcasting website (*http://videocast.nih.gov/*).

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The intramural programs and projects as well as the grant applications and/or contract proposals and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications and/or contract proposals, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Advisory Mental Health Council.

Date: February 7–8, 2023.

Open: February 7, 2023, 12:30 p.m. to 4:30 p.m.

Agenda: Presentation of the NIMH Director's Report and discussion of NIMH programs.

Place: National Institutes of Health, Claude D. Pepper Building, 6th Floor, C-Wing, Conference Rooms F & G, 31 Center Drive, Bethesda, MD 20892.

Closed: February 8, 2023, 9:30 a.m. to 10:30 a.m.

Agenda: Presentation of MHBSC Report.

Place: National Institutes of Health, Claude D. Pepper Building, 6th Floor, C-Wing, Conference Rooms F & G, 31 Center Drive, Bethesda, MD 20892.

Closed: February 8, 2023, 11:30 a.m. to 4:00 p.m.

Agenda: To review and evaluate grant applications and/or proposals.

Place: National Institutes of Health, Claude D. Pepper Building, 6th Floor, C-Wing, Conference Rooms F & G, 31 Center Drive, Bethesda, MD 20892.

Contact Person: Tracy L. Waldeck, Ph.D., Director, Division of Extramural Activities, National Institute of Mental Health, NIH, DHHS Neuroscience Center, 6001 Executive Boulevard, Bethesda, MD 20892, (301) 480–6833, *tracy.waldeck@nih.gov.*

This notice is being published less than 15 days prior to the meeting due to scheduling conflicts.

Any member of the public interested in presenting oral comments to the committee must notify the Contact Person listed on this notice at least 10 days in advance of the meeting. Interested individuals and representatives of organizations may submit a letter of intent, a brief description of the organization represented, and a short description of the oral presentation. Only one representative of an organization may be allowed to present oral comments and if accepted by the committee, presentations may be limited to five minutes. Both printed and electronic copies are requested for the record. In addition, any interested person may file written comments with the committee by forwarding their statement to the Contact Person listed on this notice at least 10 days in advance of the meeting. The statement should include the name, address, telephone number and when applicable, the business or professional affiliation of the interested person.

In the interest of security, NIH has procedures at *https://www.nih.gov/about-nih/visitor-information/campus-access-security* for entrance into on-campus and off-campus facilities. All visitor vehicles, including taxicabs, hotel, and airport shuttles will be inspected before being allowed on campus. Visitors attending a meeting on campus or at an off-campus federal facility will be asked to show one form of identification (for example, a government-issued photo ID, driver's license, or passport) and to state the purpose of their visit.

Information is also available on the Institute's/Center's home page: *www.nimh.nih.gov/about/advisory-boards-and-groups/namhc/index.shtml,* where an agenda and any additional information for the meeting will be posted when available.

(Catalogue of Federal Domestic Assistance Program No. 93.242, Mental Health Research Grants, National Institutes of Health, HHS)

Dated: January 23, 2023.

Melanie J. Pantoja,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01677 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Heart, Lung, and Blood Institute; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: Heart, Lung, and Blood Initial Review Group; Clinical Trials Review Study Section.

Date: March 2–3, 2023.

Time: 10:00 a.m. to 5:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, 6705 Rockledge Drive, Bethesda, MD 20817 (Virtual Meeting).

Contact Person: Keary A Cope, Ph.D., Scientific Review Officer, Office of Scientific Review/DERA, National Heart, Lung, and Blood Institute, National Institutes of Health, 6705 Rockledge Drive, Room 209–A, Bethesda, MD 20892–7924, (301) 827–7912, *copeka@mail.nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.233, National Center for Sleep Disorders Research; 93.837, Heart and Vascular Diseases Research; 93.838, Lung Diseases Research; 93.839, Blood Diseases and Resources Research, National Institutes of Health, HHS)

Dated: January 23, 2023.

David W Freeman,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01674 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Heart, Lung, and Blood Institute; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: Heart, Lung, and Blood Initial Review Group; NHLBI Mentored Transition to Independence Study Section.

Date: March 9–10, 2023.

Time: 9:00 a.m. to 6:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, 6705 Rockledge Drive, Bethesda, MD 20817 (Virtual Meeting).

Contact Person: Giuseppe Pintucci, Ph.D., Scientific Review Officer, Office of Scientific Review/DERA, National Heart, Lung, and Blood Institute, National Institutes of Health, 6705 Rockledge Drive, Room 205–H, Bethesda, MD 20892, (301) 827–7969, *Pintuccig@nhlbi.nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.233, National Center for Sleep Disorders Research; 93.837, Heart and Vascular Diseases Research; 93.838, Lung Diseases Research; 93.839, Blood Diseases and Resources Research, National Institutes of Health, HHS)

Dated: January 23, 2023.

David W Freeman,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01675 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute on Drug Abuse; Notice of Closed Meetings

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended, notice is hereby given of the following meetings.

The meetings will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; NIH

Support for Conferences and Scientific Meetings.

Date: February 22, 2023.

Time: 12:00 p.m. to 4:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Ipolia R. Ramadan, Ph.D., Scientific Review Officer, Scientific Review Branch, Division of Extramural Research, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 827–4471, *ramadanir@mail.nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; Transformative Research on the Basic Mechanisms of Polysubstance use in Addiction.

Date: February 27, 2023.

Time: 10:00 a.m. to 6:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Sindhu Kizhakke Madathil, Ph.D., Scientific Review Officer, Scientific Review Branch, Division of Extramural Research, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 827–5702, *sindhu.kizhakkemadathil@nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; NIDA REI: Research on Neurocognitive Mechanisms Underlying the Impact of Structural Racism on the Substance Use Trajectory.

Date: March 2, 2023.

Time: 10:00 a.m. to 12:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Brian Stefan Wolff, Ph.D., Scientific Review Officer, Scientific Review Branch, Division of Extramural Research, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 480–1448, *brian.wolff@nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; Accelerating the Pace of Drug Abuse Research Using Existing Data.

Date: March 3, 2023.

Time: 11:00 a.m. to 5:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Li Rebekah Feng, Ph.D., Scientific Review Officer, Scientific Review Branch, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 827–7245, *rebekah.feng@nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; NIDA Centers Grant Program (P50) (P30).

Date: March 3, 2023.

Time: 11:00 a.m. to 4:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Jenny Raye Browning, Ph.D., Scientific Review Officer, Scientific Review Branch, Division of Extramural Research, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 443–4577, *jenny.browning@nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; NIDA Centers Grant Program (P50) (P30).

Date: March 6–7, 2023.

Time: 10:00 a.m. to 5:30 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Sheila Pirooznia, Ph.D., Scientific Review Officer, Scientific Review, Branch Division of Extramural Review, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 496–9350, *sheila.pirooznia@nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; Therapeutic Development of Psychoplastogenic Compounds for Substance Use Disorders.

Date: March 7, 2023.

Time: 1:00 p.m. to 5:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Brian Stefan Wolff, Ph.D., Scientific Review Officer, Scientific Review Branch, Division of Extramural Research, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 480–1448, *brian.wolff@nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; Device-Based Treatments for Substance Use Disorders.

Date: March 8, 2023.

Time: 11:30 a.m. to 12:30 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Preethy Nayar, Ph.D., Scientific Review Officer, Scientific Review Branch, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 443–4577, *nayarp2@csr.nih.gov.*

Name of Committee: National Institute on Drug Abuse Initial Review Group; Career Development Education and Training Study Section.

Date: March 9, 2023.

Time: 9:30 a.m. to 6:30 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Sindhu Kizhakke Madathil, Ph.D., Scientific Review Officer, Scientific Review Branch, Division of Extramural Research, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 827–5702, *sindhu.kizhakkemadathil@nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; Chemical Countermeasures Research Program (CCRP) Initiative: Basic Research on The Deleterious Effects of Acute Exposure to Ultra-Potent Synthetic (UPS) Opioids.

Date: March 9, 2023.

Time: 11:00 a.m. to 5:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Li Rebekah Feng, Ph.D., Scientific Review Officer, Scientific Review Branch, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, (301) 827–7245, *rebekah.feng@nih.gov.*

Name of Committee: National Institute on Drug Abuse Initial Review Group; Medication Development Research Study Section.

Date: March 15, 2023.

Time: 10:00 a.m. to 4:00 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Preethy Nayar, Ph.D., Scientific Review Officer, Scientific Review Branch, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021, Bethesda, MD 20892, 301–443–4577, *nayarp2@csr.nih.gov.*

Name of Committee: National Institute on Drug Abuse Special Emphasis Panel; NIDA REI: Racial Equity Visionary Award Program for Research on Substance Use and Racial Equity.

Date: March 16–17, 2023.

Time: 9:30 a.m. to 5:30 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, National Institute on Drug Abuse, 301 North Stonestreet Avenue, Bethesda, MD 20892 (Virtual Meeting).

Contact Person: Sheila Pirooznia, Ph.D., Scientific Review Officer, Scientific Review Branch, Division of Extramural Review, National Institute on Drug Abuse, NIH, 301 North Stonestreet Avenue, MSC 6021,

Bethesda, MD 20892, (301) 496–9350, *sheila.pirooznia@nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.277, Drug Abuse Scientist Development Award for Clinicians, Scientist Development Awards, and Research Scientist Awards; 93.278, Drug Abuse National Research Service Awards for Research Training; 93.279, Drug Abuse and Addiction Research Programs, National Institutes of Health, HHS)

Dated: January 23, 2023.

Tyeshia M. Roberson-Curtis,

Program Analyst, Office of Federal Advisory Committee Policy.

[FR Doc. 2023–01683 Filed 1–26–23; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Substance Abuse and Mental Health Services Administration

[Document Identifier: 0930–0092]

Agency Information Collection Request; 30-Day Public Comment Request

AGENCY: Substance Abuse and Mental Health Services Administration, Department of Health and Human Services.

ACTION: Notice.

SUMMARY: In compliance with the requirement of the Paperwork Reduction Act of 1995, the Department of Health and Human Services, Substance Abuse and Mental Health Services Administration is publishing the following summary of a proposed collection for public comment.

DATES: Comments on the ICR must be received on or before February 27, 2023.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: *Carlos.Graham@samhsa.hhs.gov* or call (240) 276–0361. When submitting comments or requesting information, please include the document identifier 0930–0092 and project title for reference.

SUPPLEMENTARY INFORMATION: Interested persons are invited to send comments regarding this burden estimate or any other aspect of this collection of information, including any of the following subjects: (1) The necessity and utility of the proposed information collection for the proper performance of the agency's functions; (2) the accuracy of the estimated burden; (3) ways to enhance the quality, utility, and clarity of the information to be collected; and (4) the use of automated collection techniques or other forms of information technology to minimize the information collection burden.

Title of the Collection: Confidentiality of Substance Use Disorder Patient Records, 42 CFR part 2.

Type of Collection: Extension.

OMB No. 0930–0092.

Abstract: The Substance Abuse and Mental Health Services Administration (SAMHSA) requests approval to extend this existing, approved collection without changing any collecting requirements. HHS also expects to obtain public comment through a Notice of Proposed Rulemaking (NPRM), which proposes modifications to 42 CFR part 2 that would affect the hourly burdens associated with the regulations. 87 FR 74216 (December 2, 2022). At the final rule stage, the Department intends to replace this existing, approved collection with an updated information collection reflecting changes in the rule and updated wage rates and regulated entity statistics.

Likely Respondents: Part 2 programs, qualified service organizations, patients with substance use disorders, and professional and trade associations of SUD treatment providers.

ESTIMATED ANNUALIZED BURDEN TABLE [1]

Part 2 provision	Annual number respondents (SUD programs)	Responses per respondent	Total responses (treatment admissions)	Average burden per response	Total burden hours	Average cost per response	Total hourly cost
DISCLOSURES							
2.22	13,585	122.10	1,658,729	0.20	331,746	$9.60	$15,923,798
2.31, 2.52, 2.53 elec. & paper disclosures	13,585	18.31	248,741	0.62	155,463	28.00	6,964,748
RECORDKEEPING							
2.36	13,585	195.80	2,659,943	0.033	87,778	1.60	4,255,909
2.51	13,585	2.00	27,170	0.167	4,537	7.47	202,960
Total			4,594,583		579,524		27,347,415

[1] The burden table reflects entries approved for the current ICR based on calculating the average cost per response and contains changes to the table published in the 60-day FEDERAL REGISTER Notice. *See* 87 FR 71341 (November 22, 2022), 87 FR 75058 (December 7, 2022) (correction issued), and 87 FR 76634 (December 15, 2022) (correction issued).

Carlos Graham,

PRA Reports Clearance Officer.

[FR Doc. 2023–01657 Filed 1–26–23; 8:45 am]

BILLING CODE 4162–20–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

[Docket No. USCG–2019–0882]

BNSF Railway Bridge Across the Missouri River Between Bismarck and Mandan, North Dakota; Record of Decision

AGENCY: Coast Guard, DHS.

ACTION: Notice of availability for a Record of Decision.

SUMMARY: The Coast Guard announces the availability of a Record of Decision (ROD) for the replacement of the BNSF Railway Bridge across the Missouri River between Bismarck and Mandan, North Dakota. This was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, and Council on Environmental Quality implementing regulations. The ROD, which concludes the Environmental Impact Statement (EIS) process for the project, explains the Coast Guard's decision, describes the alternatives considered, and discusses the plans for mitigation and monitoring. The Coast Guard's decision is to approve the location and plans for the replacement of the BNSF Railway Bridge using the applicant's preferred alternative: Construct a new bridge with 200-foot spans and piers, 20 feet upstream of the existing bridge, and remove the existing bridge. The Coast Guard is making the ROD available to the public in the docket for this notice.

DATES: Brian Dunn, Chief, Coast Guard Office of Bridge Programs, signed the ROD on December 22, 2022.

FOR FURTHER INFORMATION CONTACT: For information about this document call or email Rob McCaskey, Coast Guard District 8 Project Officer; telephone: 314–269–2381, or email: *HQS-SMB-CG-BRG@uscg.mil.*

SUPPLEMENTARY INFORMATION: On January 8, 2020, the Coast Guard published a notice of intent to prepare an Environmental Impact Statement (EIS) (85 FR 930). On June 7, 2021, we published a notice of availability for a draft EIS seeking public comments and announcing a virtual meeting (86 FR 30323) for the BNSF Railway Bridge across the Missouri River between the cities of Bismarck and Mandan, ND. On June 14, 2021, we published a notice of extension to the public comment period (86 FR 31509), which extended the comment period to July 26, 2021.

The notice of availability solicited substantive and relevant comments related to the draft EIS. On June 30, 2021, the Coast Guard held a virtual public meeting to receive written and oral comments on the draft EIS. Public comments yielded very few substantive changes. The Coast Guard published a notice of availability for the final EIS on October 28, 2022 (87 FR 65216).

The Coast Guard is making the ROD available to the public at: *https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Marine-Transportation-Systems-CG-5PW/Office-of-Bridge-Programs/PROJECTS/.*

This notice is issued under authority of NEPA, 42 U.S.C. 4321 *et seq.,* Council on Environmental Quality implementing regulations in 40 CFR parts 1500 through 1508, and 5 U.S.C. 552(a).

Dated: January 24, 2023.

Brian L. Dunn,

Chief, U.S. Coast Guard, Office of Bridge Programs.

[FR Doc. 2023–01736 Filed 1–25–23; 11:15 am]

BILLING CODE 9110–04–P

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

[Docket No. FR–7070–N–08; OMB Control No. 2503–0033]

30-Day Notice of Proposed Information Collection: Ginnie Mae Mortgage-Backed Securities Guide 5500.3, Revision 1

AGENCY: Office of Policy Development and Research, Chief Data Officer, HUD.

ACTION: Notice.

SUMMARY: HUD has submitted the proposed information collection requirement described below to the Office of Management and Budget (OMB) for review, in accordance with the Paperwork Reduction Act. The purpose of this notice is to allow for an additional 30 days of public comment.

DATES: *Comments Due Date:* February 27, 2023.

ADDRESSES: Interested persons are invited to submit comments regarding this proposal. Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/Start Printed Page 15501PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Anna Guido, Reports Management Officer, REE, Department of Housing and Urban Development, 451 7th Street SW, Washington, DC 20410; email Anna Guido at *Anna.P.Guido@hud.gov* telephone 202–402–5535 for Anna. HUD welcomes and is prepared to receive calls from individuals who are deaf or hard of hearing, as well as individuals with speech or communication disabilities. To learn more about how to make an accessible telephone call, please visit *https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs.* Copies of available documents submitted to OMB may be obtained from Ms. Guido.

SUPPLEMENTARY INFORMATION: This notice informs the public that HUD has submitted to OMB a request for approval of the information collection described in Section A. The **Federal Register** notice that solicited public comment on the information collection for a period of 60 days was published on June 8, 2022 at 87 FR 34896.

A. Overview of Information Collection

Title of Information Collection: Revision of a currently approved collection.

OMB Approval Number: 2503–0033.

Type of Request: Revisions of currently approved collection.

Form Number: HUD–11705; HUD–1106 and Appendix VI–22 are the only forms getting updated.

Description of the need for the information and proposed use: This is a revision of a currently approved collection. Number of Respondents: Currently there are approximately 423 Ginnie Mae approved Issuers that are actively doing business in our programs. Approximately 368 of them are managing an active portfolio. Explanation of change in burden hours: The most significant change comes with the change to the hourly cost per response given that three years have passed since the last submission, employee hourly wage has been recalculated to match current market standards.

- Addition of appendix VI–22/ Reporting and Feedback (RFS) Single Family Issuer Monthly Payment Default Status (PDS) Loan Level Reporting.
- File format change to form HUD 11705/Appendix III–6/Schedule of Subscribers and Ginnie Mae Guaranty Agreement from Single Family Flat File Layout that is currently submitted to Ginnie Mae to Extensible Markup Language (XML) format based on MISMO Version 3.3.

• File format change to form HUD 11706/Appendix III–7/Schedule of Pooled Mortgages from Single Family Flat File Layout that is currently submitted to Ginnie Mae to Extensible Markup Language (XML) format based on MISMO Version 3.3.

Respondents (describe):

Form	Appendix No.	Title	Number of respondents	Frequency of responses per year	Total annual responses	Hours per response	Total annual hours	Hourly cost per response	Estimated annual cost to respondents (issuers)
11700	II–1	Letter of Transmittal for Commitment Authority and/or Pool Numbers.	360.00	4.00	1,440.00	0.05	72.00	45.56	3,280.32
11701	I–1	Application for Approval Ginnie Mae Mortgage-Backed Securities Issuer.	15.00	1.00	15.00	3.00	45.00	45.56	2,050.20
11702	I–2	Resolution of Board of Directors and Certificate of Authorized Signatures.	423.00	1.00	423.00	0.80	338.40	45.56	15,417.50
11703–II	I–7	Master Agreement for Participation Accounting.	17.00	1.00	17.00	0.80	13.60	45.56	619.62
11704	II–2	Commitment to Guaranty Mortgage-Backed Securities.	360.00	4.00	1,440.00	0.05	72.00	45.56	3,280.32
11707	III–1	Master Servicing Agreement.	423.00	1.00	423.00	0.10	42.30	45.56	1,927.19
11709	III–2	Master Agreement for Servicer's Principal and Interest Custodial Account.	423.00	1.00	423.00	0.10	42.30	45.56	1,927.19
11715	III–4	Master Custodial Agreement.	423.00	1.00	423.00	0.12	50.76	45.56	2,312.63
11720	III–3	Master Agreement for Servicer's Escrow Custodial Account.	3,428.00	1.00	3,428.00	0.10	342.80	45.56	15,617.97
11732	III–22	Custodian's Certification for Construction Securities.	55.00	1.00	55.00	0.10	5.50	45.56	250.58
	VI–20	Electronic Submission of Issuers' Insurance and Annual Audited Financial Documents.	423.00	1.00	423.00	1.00	423.00	45.56	19,271.88
11750		Mortgage Bankers Financial Reporting Form.	360.00	4.00	1,440.00	0.60	864.00	45.56	39,363.84
11709–A	I–6	ACH Debit Authorization.	423.00	1.00	423.00	0.12	50.76	45.56	2,312.63
11710 D	VI–5	Issuer's Monthly Summary Reports.	360.00	12.00	4,320.00	0.08	345.60	45.56	15,745.54
	VI–21	HMBS issuer's Monthly Summary Report.	16.00	12.00	192.00	0.08	15.36	45.56	699.80
	III–13	Electronic Data Interchange System Agreement.	15.00	1.00	15.00	0.12	1.80	45.56	82.01
	I–4	Cross Default Agreement.	5.00	1.00	5.00	2.00	10.00	45.56	455.60
	VI–18	WHFIT Reporting	360.00	4.00	1,440.00	0.48	691.20	45.56	31,491.07
	III–29	System Access Forms	277.00	1.00	277.00	2.00	554.00	45.56	25,240.24
	VIII–1	Ginnie Mae Acknowledgement Agreement an Accompanying Documents Pledge of Servicing.	15.00	1.00	15.00	40.00	600.00	45.56	27,336.00
	VI–14	Multifamily Prepayment Penalty Record File Layout.	40.00	12.00	480.00	0.18	86.40	45.56	3,936.38
	VI–16	Quarterly Custodial Account Verification Record File Layout.	360.00	4.00	1,440.00	0.60	864.00	45.56	39,363.84
	VI–17	HMBS Issuer Pooling & Reporting Specification for Mortgage-Backed Securities Administration Agent.	16.00	12.00	192.00	4.00	768.00	45.56	34,990.08
	VI–19	Reporting and Feedback (RFS) Issuer Monthly Report of Pool and Loan Data.	361.00	12.00	4,332.00	4.00	17,328.00	45.56	789,463.68

Form	Appendix No.	Title	Number of respondents	Frequency of responses per year	Total annual responses	Hours per response	Total annual hours	Hourly cost per response	Estimated annual cost to respondents (issuers)
	VI–22	Reporting and Feedback (RFS) Single Family Payment Default Status (PDS) Loan Level Reporting.	306	12	3,672.00	0.20	734.4	45.56	33,459.26
The burden for the items listed below is based on volume and/or number of requests									
11705	III–6	Schedule of Subscribers and Ginnie Mae Guaranty Agreement.	366.00	12.00	4,392.00	0.03	131.76	45.56	6,002.99
11706	III–7	Schedule of Pooled Mortgages.	366.00	12.00	4,392.00	0.08	351.36	45.56	16,007.96
11705 H, 11706 H	III–28	Schedule of Subscribers and Ginnie Mae Guaranty Agreement—HMBS Pooling Import File Layout.	74.00	12.00	888.00	0.05	44.40	45.56	2,022.86
	V–5	Document Release Request.	3,181.00	1.00	3,181.00	0.05	159.05	45.56	7,246.32
	XI–6, XI–8, XI–9.	SSCRA Loan Eligibility Information Solders' and Sailors' Quarterly Reimbursement Request SSCRA Eligibility and Reimbursement Files.	1,350.00	4.00	5,400.00	0.12	648.00	45.56	29,522.88
11711A and 11711B.	III–5	Release of Security Interest and Certification and Agreement.	5,591.00	12.00	67,092.00	0.18	12,076.56	45.56	550,208.07
11714	VI–10	Issuer's Monthly Remittance Advice Issuer's Monthly Serial Note Remittance Advice.	3,975.00	12.00	47,700.00	0.10	4,770.00	45.56	217,321.20
11714SN	VI–11	Issuer's Monthly Remittance Advice Issuer's Monthly Serial Note Remittance Advice.	3,975.00	12.00	47,700.00	0.10	4,770.00	45.56	217,321.20
	VI–2	Letter for Loan Repurchase.	360.00	12.00	4,320.00	0.15	648.00	45.56	29,522.88
	III–21	Certification Requirements for the Pooling of Multifamily Mature Loan Program.	322.00	1.00	322.00	0.12	38.64	45.56	1,760.44
	VI–9	Request for Reimbursement of Mortgage Insurance Claim Costs for Multifamily Loans.	8.00	12.00	96.00	0.30	28.80	45.56	1,312.13
	VI–19	Reporting and Feedback (RFS) Single Family Issuer Monthly Payment Default Status (PDS) Loan Level Reporting.	306.00	12.00	3,672.00	0.10	367.20	45.56	16,891.20
	VIII–3	Assignment Agreements.	220.00	1.00	220.00	0.48	105.60	45.56	4,811.14
Total	.....	.....	.....	Varies	216,128.000	Varies	48,500.55	.....	$2,209,685.06

B. Solicitation of Public Comment

This notice is soliciting comments from members of the public and affected parties concerning the collection of information described in Section A on the following:

(1) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) The accuracy of the agency's estimate of the burden of the proposed collection of information;

(3) Ways to enhance the quality, utility, and clarity of the information to be collected; and

(4) Ways to minimize the burden of the collection of information on those who are to respond; including through the use of appropriate automated collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses.

(5) ways to minimize the burden of the collection of information on those who are to respond, including the use of automated collection techniques or other forms of information technology.

HUD encourages interested parties to submit comment in response to these questions.

C. Authority

Section 3507 of the Paperwork Reduction Act of 1995, 44 U.S.C. Chapter 35.

Anna Guido,

Department Reports Management Officer, Office of the Chief Information Officer.

[FR Doc. 2023–01700 Filed 1–26–23; 8:45 am]

BILLING CODE 4210–67–P

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

[Docket No. FR–7070–N–06; OMB Control No. 2535–0113]

30-Day Notice of Proposed Information Collection: Race and Ethnic Collection

AGENCY: Office of Policy Development and Research, Chief Data Officer, HUD.

ACTION: Notice.

SUMMARY: HUD has submitted the proposed information collection requirement described below to the Office of Management and Budget (OMB) for review, in accordance with the Paperwork Reduction Act. The purpose of this notice is to allow for an additional 30 days of public comment.

DATES: *Comments Due Date:* February 27, 2023.

ADDRESSES: Interested persons are invited to submit comments regarding this proposal. Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/StartPrinted Page15501PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Anna Guido, Reports Management Officer, REE, Department of Housing and Urban Development, 451 7th Street SW, Washington, DC 20410; email Anna Guido at *Anna.P.Guido@hud.gov* ; telephone 202–402–5535. HUD welcomes and is prepared to receive calls from individuals who are deaf or hard of hearing, as well as individuals with speech or communication disabilities. To learn more about how to make an accessible telephone call, please visit *https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs.* Copies of available documents submitted to OMB may be obtained from Ms. Guido.

SUPPLEMENTARY INFORMATION: This notice informs the public that HUD has submitted to OMB a request for approval of the information collection described in Section A. The **Federal Register** notice that solicited public comment on the information collection for a period of 60 days was published on September 27, 2022 at 87 FR 58524.

A. Overview of Information Collection

Title of Information Collection: Race and Ethnic Data Collection.

OMB Approval Number: 2535–0113.

Type of Request Revisions of currently approved collection.

Form Number: HUD–27061.

Description of the need for the information and proposed use: The information collected through HUD's standardized Form for the Collection of Race and Ethnic Data is required under 24 CFR—PART 1—Nondiscrimination in Federally Assisted Programs of the Department of Housing and Urban Development—Effectuation of the Title VI of the Civil Rights Act of 1964. HUD's Title VI regulations, specifically 24 CFR 1.6, require recipients of Federal financial assistance to maintain and submit racial and ethnic data so HUD may determine whether such programs comply with Title VI data collection requirements. HUD must offer individuals who are responding to agency data requests for race the option of selecting one or more of five racial categories. HUD must also treat ethnicity as a category separate from race. Title VI requires recipients of HUD funding to maintain records, make them available to responsible Department officials, and if requested, submit compliance reports. For example, HUD grant programs may request information during program monitoring and compliance reviews to ensure compliance with the nondiscrimination requirements of Title VI.

A draft HUD—27061 Race and Ethnic Data Reporting Form is available on HUD's website, *https://www.hud.gov/program_offices/administration/hudclips/forms/,* while HUD proceeds with seeking approval from OMB for this information collection.

Respondents:

Information collection	Number of respondents	Frequency of response	Responses per annum	Burden hour per response	Annual burden hours	Hourly cost per response	Annual cost
HUD–27061	14,375	1.2	17,250	0.50	$8,625.00	*$45.43	$391,833.75

*Median hourly rate for ''Project Management Specialists'' (occupation code 13–1082), May 2021 National Occupational Employment and Wage Estimates United States, *https://www.bls.gov/oes/current/oes_nat.htm#11-0000.*

B. Solicitation of Public Comment

This notice is soliciting comments from members of the public and affected parties concerning the collection of information described in Section A on the following:

(1) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) The accuracy of the agency's estimate of the burden of the proposed collection of information;

(3) Ways to enhance the quality, utility, and clarity of the information to be collected; and

(4) Ways to minimize the burden of the collection of information on those who are to respond; including through the use of appropriate automated collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses.

(5) ways to minimize the burden of the collection of information on those who are to respond, including the use of automated collection techniques or other forms of information technology.

HUD encourages interested parties to submit comment in response to these questions.

C. Authority

Section 3507 of the Paperwork Reduction Act of 1995, 44 U.S.C. Chapter 35.

Anna Guido,

Department Reports Management Officer, Office of the Chief Information Officer.

[FR Doc. 2023–01699 Filed 1–26–23; 8:45 am]

BILLING CODE 4210–67–P

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

[Docket No. FR–7070–N–03]

30-Day Notice of Proposed Information Collection: Lender Qualifications for Multifamily Accelerated Processing (MAP) Guide (MAP Guide, 4430.G), OMB Control No: 2502–0541

AGENCY: Office of Policy Development and Research, Chief Data Officer, HUD.

ACTION: Notice.

SUMMARY: HUD is seeking approval from the Office of Management and Budget (OMB) for the information collection described below. In accordance with the Paperwork Reduction Act, HUD is requesting comment from all interested parties on the proposed collection of information. The purpose of this notice is to allow for an additional 30 days of public comment.

DATES: *Comments Due Date:* February 27, 2023.

ADDRESSES: Interested persons are invited to submit comments regarding this proposal. Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *OIRA_submission@omb.eop.gov* or *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Colette Pollard, Reports Management Officer, REE, Department of Housing and Urban Development, 451 7th Street SW, Washington, DC 20410; email Colette Pollard at *Colette.Pollard@hud.gov* or telephone 202–402–3400. This is not a toll-free number. HUD welcomes and is prepared to receive calls from individuals who are deaf or hard of hearing, as well as individuals with speech and communication disabilities. To learn more about how to make an accessible telephone call, please visit *https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs.*

Copies of available documents submitted to OMB may be obtained from Ms. Pollard.

SUPPLEMENTARY INFORMATION: This notice informs the public that HUD is seeking approval from OMB for the information collection described in Section A.

The **Federal Register** notice that solicited public comment on the information collection for a period of 60 days was published on September 12, 2022 at 87 FR 55836.

A. Overview of Information Collection

Title of Information Collection: Lender Qualifications for Multifamily Accelerated Processing (MAP).

OMB Approval Number: 2502–0541.

OMB Expiration Date: December 31, 2023.

Type of Request: Revision of a currently approved collection.

Form Number: Guidebook 4430.G.

Description of the need for the information and proposed use: Multifamily Accelerated Processing (MAP) is designed to establish uniform national standards for Federal Housing Administration (FHA) approved lenders to prepare, process and submit loan applications for FHA multifamily mortgage insurance. The MAP Guide provides—in one volume with appendices—guidance for HUD staff, lenders, third party consultants, borrowers, and other industry participants. Topics include mortgage insurance program descriptions, borrower and lender eligibility requirements, application requirements, underwriting standards for all technical disciplines and construction loan administration requirements. The MAP Guide applies only to FHA multifamily mortgage insurance programs. Except to the extent lender monitoring or enforcement activities overlap, Section 232 and other programs administered by the Office of Healthcare Programs are not addressed by the MAP Guide.

HUD now proposes to amend the MAP Guide by deleting Appendices A.5.10 and A.5.11 and substituting therefore a new Appendix A.5.10 and renumbering the existing A.5.12 as A.5.11. The new Appendix A.5.10 describes a revised and significantly simplified and shortened methodology for calculation of the Statutory per unit maximum mortgage amount. The proposed new appendix, the deletions of the two existing appendices and the multiple conforming edits to other portions of the MAP Guide necessary to maintain consistent instruction are detailed in a proposed Mortgagee Letter 2022–##, which will be published following OMB approval of this amended collection. Soon thereafter, HUD will repost the amended MAP Guide with each of the edits completed as detailed in the Mortgagee Letter. The goal of MAP is to provide a consistent, expedited mortgage insurance application process at each HUD Multifamily Regional Center or Satellite Office. All MAP eligible projects must be submitted using MAP processing unless a waiver is granted to process under Traditional Application Processing (TAP). Such waiver approval authority is retained by HUD Headquarters' Director of Multifamily Production.

Respondents: FHA Approved MAP Lenders.

Estimated Number of Respondents: 86.

Estimated Number of Responses: 2,071.

Frequency of Response: Per each multifamily mortgage transaction.

Average Hours per Response: 24.08 hours.

Average # of Responses per Transaction: 4.93.

Total Estimated Burden: 132,172 hours for 1,114 transactions.

B. Solicitation of Public Comment

This notice is soliciting comments from members of the public and affected parties concerning the collection of information described in Section A on the following:

(1) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) The accuracy of the agency's estimate of the burden of the proposed collection of information;

(3) Ways to enhance the quality, utility, and clarity of the information to be collected; and

(4) Ways to minimize the burden of the collection of information on those who are to respond; including through the use of appropriate automated collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses.

(5) ways to minimize the burden of the collection of information on those who are respond, including the use of automated collection techniques or other forms of information technology.

HUD encourages interested parties to submit comment in response to these questions.

C. Authority

Section 3507 of the Paperwork Reduction Act of 1995, 44 U.S.C. chapter 35.

Colette Pollard,

Department Reports Management Officer, Office of Policy Development and Research, Chief Data Officer.

[FR Doc. 2023–01622 Filed 1–26–23; 8:45 am]

BILLING CODE 4210–67–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

[Docket No. FWS–R3–ES–2022–0147; FXES11140300000–234]

Draft Environmental Assessment and Proposed Habitat Conservation Plan; Receipt of an Application for an Incidental Take Permit, Crescent Wind Project; Hillsdale County, Michigan

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of availability; request for comment and information.

SUMMARY: We, the U.S. Fish and Wildlife Service, have received an application from Consumers Energy Company for an incidental take permit under the Endangered Species Act, for its Crescent Wind Project (project). If approved, the permit would authorize the incidental take of two endangered species, the Indiana bat and the northern long-eared bat. The applicant has prepared a habitat conservation plan in support of their application. We also announce the availability of a draft environmental assessment, which has been prepared in response to the permit application in accordance with the requirements of the National Environmental Policy Act. We invite comments from the public and Federal, Tribal, State, and local governments.

DATES: We will accept comments received or postmarked on or before February 27, 2023.

ADDRESSES: *Document availability:* Electronic copies of the documents this notice announces, along with public comments received, will be available online in Docket No. FWS–R3–ES–2022–0147 at *https://www.regulations.gov.*

Comment submission: Please specify whether your comment addresses the proposed habitat conservation plan, draft Environmental Assessment, any combination of the aforementioned documents, or other documents. You may submit written comments by one of the following methods:

- *Online: https://www.regulations.gov.* Search for and submit comments on Docket No. FWS–R3–ES–2022–0147.
- *By hard copy:* Submit comments by U.S. mail to Public Comments Processing, Attn: Docket No. FWS–R3–ES–2022–0147; U.S. Fish and Wildlife Service; 5275 Leesburg Pike, MS: PRB/3W; Falls Church, VA 22041–3803.

FOR FURTHER INFORMATION CONTACT: Scott Hicks, Field Supervisor, Michigan Ecological Services Field Office, by email at *scott_hicks@fws.gov,* or telephone at 517–351–6274; or Andrew Horton, Regional HCP Coordinator, Midwest Region, by email at *andrew_horton@fws.gov,* or telephone at 612–713–5337. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION: We, the U.S. Fish and Wildlife Service, have received an application from Consumers Energy Company for an incidental take permit (ITP) under the Endangered Species Act (ESA; 16 U.S.C. 1531 *et seq.*), for its Crescent Wind Project (project). If approved, the ITP would be for a 30-year period and would authorize the incidental take of two endangered species, the Indiana bat (*Myotis sodalis*), and northern long-eared bat (*Myotis septentrionalis*). The applicant has prepared a habitat conservation plan (HCP) that describes the actions and measures that the applicant would implement to avoid, minimize, and mitigate incidental take of the Indiana bat and northern long-eared bat. We also announce the availability of a draft environmental assessment (EA), which has been prepared in response to the permit application in accordance with the requirements of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*).

Background

Section 9 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), and its implementing regulations prohibit the ''take'' of animal species listed as endangered or threatened. ''Take'' is defined under the ESA as to ''harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect [listed animal species], or to attempt to engage in such conduct'' (16 U.S.C. 1538). However, under section 10(a) of the ESA, we may issue permits to authorize incidental take of listed species. ''Incidental take'' is defined by the ESA as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Regulations governing incidental take permits (ITP) for endangered and threatened species, respectively, are found in the Code of Federal Regulations at 50 CFR 17.22 and 50 CFR 17.32.

Applicant's Proposed Project

The applicant requests a 30-year ITP to take the federally endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*). The applicant determined that take is reasonably certain to occur incidental to operation of 60 wind turbines that have a total generating capacity of 166 megawatts and cover approximately 38,320 acres of private land. The proposed conservation strategy in the applicant's proposed HCP is designed to avoid, minimize, and mitigate the impacts of the covered activity on the covered species. The biological goals and objectives are to minimize potential take of Indiana bats and northern long-eared bats through on-site minimization measures, and to provide habitat conservation measures for Indiana bats and northern long-eared bats to offset any impacts from operations of the project. The HCP provides on-site avoidance and minimization measures, which include turbine operational adjustments and acoustic-activated curtailment technology that adjusts turbine operations when bats are detected acoustically near turbine blades. The authorized level of take from the project is 96 Indiana bats and 49 northern long-eared bats over the 30-year project duration. To offset the impacts of taking Indiana bats and northern long-eared bats, the applicant proposes to protect summer maternity habitat in Hillsdale County, Michigan, as well as known swarming/staging habitat for both species at an approved mitigation site in southern Indiana. The summer mitigation site is connected to habitat where both covered species were captured during preconstruction surveys for the Crescent Wind Project, and the swarming/staging site is located within a mile of Ray's Cave, a Priority 1 hibernaculum for Indiana bats, where bats from two southern Michigan maternity colonies have been observed during hibernation.

National Environmental Policy Act

Issuance of an ITP is a Federal action that triggers the need for compliance with NEPA. We prepared a draft EA that analyzes the environmental impacts on the human environment resulting from three alternatives: A no-action alternative, the proposed action, and a more restrictive alternative consisting of feathering below higher wind speeds that results in lower impacts to bats.

Next Steps

The Service will evaluate the permit application and the comments received to determine whether the application

meets the requirements of section 10(a) of the ESA. We will also conduct an intra-Service consultation pursuant to section 7 of the ESA to evaluate the effects of the proposed take. After considering the above findings, we will determine whether the permit issuance criteria of section 10(a)(l)(B) of the ESA have been met. If met, the Service will issue the requested ITP to the applicant.

Request for Public Comments

The Service invites comments and suggestions from all interested parties during a 30-day public comment period (see **DATES**). Information and comments regarding the following topics are requested:

1. The environmental effects that implementation of any alternative could have on the human environment;
2. Whether or not the significance of the impact on various aspects of the human environment has been adequately analyzed;
3. Any threats to the Indiana bat and the northern long-eared bat that may influence their populations over the life of the ITP that are not addressed in the proposed HCP or Environmental Assessment; and
4. Any other information pertinent to evaluating the effects of the proposed action on the human environment.

Availability of Public Comments

You may submit comments by one of the methods shown under **ADDRESSES**. We will post on *https://www.regulations.gov* all public comments and information received electronically or via hardcopy. All comments received, including names and addresses, will become part of the administrative record associated with this action. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can request in your comment that we withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public disclosure in their entirety.

Authority

We provide this notice under section 10(c) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and its implementing regulations (50 CFR 17.22) and the National Environmental Policy Act (42 U.S.C. 4371 *et seq.*) and its implementing regulations (40 CFR 1506.6; 43 CFR part 46).

Lori Nordstrom,

Assistant Regional Director, Ecological Services.

[FR Doc. 2023–01696 Filed 1–26–23; 8:45 am]

BILLING CODE 4333–15–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[L13100000.PP0000.LLHQ330000.234; OMB Control No. 1004–0132]

Agency Information Collection Activities; Geothermal Resource Leases and Unit Agreements

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice of Information Collection; request for comment.

SUMMARY: In accordance with the Paperwork Reduction Act of 1995, the Bureau of Land Management (BLM) proposes to renew an information collection.

DATES: Interested persons are invited to submit comments on or before March 28, 2023.

ADDRESSES: Send your written comments on this information collection request (ICR) by mail to Darrin King, Information Collection Clearance Officer, U.S. Department of the Interior, Bureau of Land Management, Attention PRA Office, 440 W 200 S #500, Salt Lake City, UT 84101; or by email to *BLM_HQ_PRA_Comments@blm.gov.* Please reference Office of Management and Budget (OMB) Control Number 1004–0132 in the subject line of your comments. Please note that the electronic submission of comments is recommended.

FOR FURTHER INFORMATION CONTACT: To request additional information about this ICR, contact Jennifer Spencer by email at *j35spenc@blm.gov,* or by telephone at (307) 775–6261, or Lorenzo Trimble, BLM National Geothermal Program Lead by email at *ltrimble@blm.gov,* or by telephone at (916) 978–4377. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States. You may also view the ICR at *http://www.reginfo.gov/public/do/PRAMain.*

SUPPLEMENTARY INFORMATION: In accordance with the Paperwork Reduction Act of 1995 (PRA, 44 U.S.C. 3501 *et seq.*) and 5 CFR 1320.8(d)(1), all information collections require approval under the PRA. We may not conduct or sponsor, and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

As part of our continuing effort to reduce paperwork and respondent burdens, we invite the public and other Federal agencies to comment on new, proposed, revised, and continuing collections of information. This helps us assess the impact of our information collection requirements and minimize the public's reporting burden. It also helps the public understand our information collection requirements and provide the requested data in the desired format.

We are especially interested in public comment addressing the following:

(1) Whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) The accuracy of our estimate of the burden for this collection of information, including the validity of the methodology and assumptions used;

(3) Ways to enhance the quality, utility, and clarity of the information to be collected; and

(4) How the agency might minimize the burden of the collection of information on those who are to respond, including the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of response.

Comments that you submit in response to this notice are a matter of public record. We will include or summarize each comment in our request to OMB to approve this ICR. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Abstract: The Bureau of Land Management (BLM) uses this

information to issue geothermal leases in BLM-managed lands, and in national forests and other lands managed by the U.S. Forest Service (USFS). This OMB Control Number is currently scheduled to expire on July 31, 2023. The BLM plans to request that OMB renew this OMB Control Number for an additional three years.

Title of Collection: Geothermal Resource Leases and Unit Agreements (43 CFR parts 3200 and 3280).

OMB Control Number: 1004–0132.

Form Numbers: 3200–9, 3203–1, 3260–2, 3260–3, 3260–4, and 3260–5.

Type of Review: Extension of a currently approved collection.

Respondents/Affected Public: Businesses that wish to participate in the exploration, development, production, and utilization of geothermal resources on BLM-managed public lands, and lands managed by other Federal surface-management agencies.

Total Estimated Number of Annual Respondents: 913.

Total Estimated Number of Annual Responses: 913.

Estimated Completion Time per Response: Varies from 1 to 40 hours, depending on activity.

Total Estimated Number of Annual Burden Hours: 5,409.

Respondent's Obligation: Required to obtain or retain a benefit.

Frequency of Collection: On occasion, except for Form 3260–5, Monthly Report of Geothermal Operations, which is filed once a month.

Total Estimated Annual Nonhour Burden Cost: $84,985.

An agency may not conduct or sponsor and, notwithstanding any other provision of law, a person is not required to respond to a collection of information unless it displays a currently valid OMB control number.

The authority for this action is the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

Darrin A. King,

Information Collection Clearance Officer.

[FR Doc. 2023–01720 Filed 1–26–23; 8:45 am]

BILLING CODE 4310–84–P

DEPARTMENT OF LABOR

Agency Information Collection Activities; Submission for OMB Review; Comment Request; Income and Eligibility Verification System Confidentiality

ACTION: Notice of availability; request for comments.

SUMMARY: The Department of Labor (DOL) is submitting this Employment and Training Administration (ETA)-sponsored information collection request (ICR) to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act of 1995 (PRA). Public comments on the ICR are invited.

DATES: The OMB will consider all written comments that the agency receives on or before February 27, 2023.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

Comments are invited on: (1) whether the collection of information is necessary for the proper performance of the functions of the Department, including whether the information will have practical utility; (2) if the information will be processed and used in a timely manner; (3) the accuracy of the agency's estimates of the burden and cost of the collection of information, including the validity of the methodology and assumptions used; (4) ways to enhance the quality, utility and clarity of the information collection; and (5) ways to minimize the burden of the collection of information on those who are to respond, including the use of automated collection techniques or other forms of information technology.

FOR FURTHER INFORMATION CONTACT: Mara Blumenthal by telephone at 202–693–8538, or by email at *DOL_PRA_PUBLIC@dol.gov.*

SUPPLEMENTARY INFORMATION: The Deficit Reduction Act of 1984 established an Income and Eligibility Verification System (IEVS) for the exchange of information for specific programs administered by state agencies. Under the statute, ETA issued a final rule regarding the Confidentiality and Disclosure of State Unemployment Compensation Information (71 FR 56842). This ICR contains recordkeeping requirements pursuant to regulations at 20 CFR part 603 subpart C, Mandatory Disclosure for Income and Eligibility Verification System (IEVS). For additional substantive information about this ICR, see the related notice published in the **Federal Register** on August 30, 2022 (87 FR 53011).

This information collection is subject to the PRA. A Federal agency generally cannot conduct or sponsor a collection of information, and the public is generally not required to respond to an information collection, unless the OMB approves it and displays a currently valid OMB Control Number. In addition, notwithstanding any other provisions of law, no person shall generally be subject to penalty for failing to comply with a collection of information that does not display a valid OMB Control Number. *See* 5 CFR 1320.5(a) and 1320.6.

DOL seeks PRA authorization for this information collection for three (3) years. OMB authorization for an ICR cannot be for more than three (3) years without renewal. The DOL notes that information collection requirements submitted to the OMB for existing ICRs receive a month-to-month extension while they undergo review.

Agency: DOL–ETA.

Title of Collection: Income and Eligibility Verification System Confidentiality.

OMB Control Number: 1205–0238.

Affected Public: State, Local, and Tribal Governments.

Total Estimated Number of Respondents: 53.

Total Estimated Number of Responses: 421,178.

Total Estimated Annual Time Burden: 10,749 hours.

Total Estimated Annual Other Costs Burden: $0.

(Authority: 44 U.S.C. 3507(a)(1)(D))

Dated: January 23, 2023.

Mara Blumenthal,

Senior PRA Analyst.

[FR Doc. 2023–01629 Filed 1–26–23; 8:45 am]

BILLING CODE 4510–FN–P

OFFICE OF MANAGEMENT AND BUDGET

Revised Strategic Plan on Statistics for Environmental-Economic Decisions

AGENCY: Office of Management and Budget.

ACTION: Notice.

SUMMARY: The Office of Management and Budget (OMB)—on behalf of the Interagency Policy Working Group on Statistics for Environmental-Economic Decisions (Working Group)—is announcing the availability of a finalized Strategic Plan on Statistics for Environmental-Economic Decisions, which was revised in response to public comments and other information received.

DATES: Work described in the Strategic Plan to develop natural capital accounts and environmental-economic statistics is ongoing at the time of publication and

is planned to continue through 2036, with regular updating of these statistics planned thereafter.

FOR FURTHER INFORMATION CONTACT: For additional information, contact: Andrew Stawasz, email: *NaturalCapitalAccounting@omb.eop.gov,* telephone: (202) 881–7051.

SUPPLEMENTARY INFORMATION: On August 22, 2022, OMB, on behalf the Working Group, issued ''Request for Information To Support the Development of a Strategic Plan on Statistics for Environmental-Economic Decisions.'' 87 FR 51450. The Working Group is co-chaired by OMB, the Office of Science and Technology Policy, and the Department of Commerce. The Request for Information announced the availability of a draft document entitled ''National Strategy to Develop Statistics for Environmental-Economic Decisions: A U.S. System of Natural Capital Accounting and Associated Environmental-Economic Statistics'' (Strategic Plan) and initiated a 60-day public comment period. Public comments received are available via *www.regulations.gov* under docket number OMB–2022–0009. The Working Group revised the Strategic Plan in response to comments and other information received and is now announcing the availability of the final Strategic Plan, available at *https://www.whitehouse.gov/wp-content/uploads/2023/01/Natural-Capital-Accounting-Strategy-final.pdf.*

Following the Administration's commitment to initiate natural capital accounts and environmental-economic statistics in April 2022, Statistics for Environmental-Economic Decisions makes five recommendations to Federal departments and agencies for how to develop and use natural capital accounts and environmental-economic statistics.

1. The natural capital accounts and environmental-economic statistics should be pragmatic and provide information to:

a. Guide sustainable development and macroeconomic decision making;

b. Support Federal decision making in programmatic, policy, and regulatory settings;

c. Provide structure and data that promote the competitiveness of U.S. businesses;

d. Support resilient state, territorial, Indigenous, Tribal, and local communities; and

e. Facilitate conservation and environmental policy.

2. The natural capital accounts and associated environmental-economic statistics should provide domestic comparability through time and advance international comparisons and harmonization in order to enable the United States to lead with respect to the development of global standards and implementation of those standards.

3. The natural capital accounts and associated environmental-economic statistics should be embedded in the broader U.S. economic statistical system, and guide the process of embedding with three sub-recommendations. Federal departments and agencies should:

a. Incorporate the internationally-agreed standards of the U.N. System of Environmental Economic Accounting to guide development of U.S. natural capital accounts, where those standards are relevant to the United States and robustly developed. This includes following the standard supply-use framework that structures national economic accounts;

b. Adhere to more than one, but a small number of, specific asset boundaries, connected to economic activities, in order to accommodate different applications and contexts and be inclusive of different uses and perspectives; and

c. Use rigorous and the best available economic science for monetizing the value of natural assets.

4. Federal departments and agencies should use a 15-year phased approach to transition from research grade environmental-economic statistics and natural capital accounts to core statistical products, and produce a single headline summary statistic, along with supporting products, tables and reports that provide information in physical and monetary units.

a. The phased approach is designed to enable new information to be available early in the process, facilitate the first pilot accounts appearing in 2023, provide for testing and development, while over the long term meeting high statistical standards and producing a durable and more comprehensive set of statistics to expand the national economic accounts.

b. The Strategic Plan recommends that natural capital accounts produce a new forward-looking headline measure focused on the change in wealth held in nature: Change in Natural Asset Wealth. Integrating this new measure with changes in GDP would provide a more complete and more useful view of U.S. economic progress. Pairing Change in Natural Asset Wealth with GDP would help society tell if today's consumption is being accomplished without compromising the future opportunities that nature provides.

c. The Strategic Plan also recommends the use of dashboards for biological and physical measures.

5. The Federal Government should apply existing authorities and make use of the substantial expertise within Federal departments and agencies, by coordinating across agencies, to develop and update the system of natural capital accounts and environmental-economic statistics in an efficient manner.

Richard L. Revesz,

Administrator, Office of Information and Regulatory Affairs.

[FR Doc. 2023–01608 Filed 1–26–23; 8:45 am]

BILLING CODE 3110–01–P

OFFICE OF MANAGEMENT AND BUDGET

Initial Proposals For Updating OMB's Race and Ethnicity Statistical Standards

AGENCY: Office of Information and Regulatory Affairs, Office of Management and Budget, Executive Office of the President.

ACTION: Notice and request for comments.

SUMMARY: The Office of Management and Budget (OMB) requests comments on the initial proposals from the Federal Interagency Technical Working Group on Race and Ethnicity Standards (Working Group) for revising OMB's 1997 Statistical Policy Directive No. 15: Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity (SPD 15).[1] Responses to this Notice will be shared with the Working Group and will help the Working Group develop their final recommendations to OMB and will also help OMB determine how to revise SPD 15 to improve the quality and usefulness of Federal race and ethnicity data.

DATES: Comments must be provided in writing to OMB no later than 75 days from the publication of this notice to ensure consideration during the final decision-making process.

ADDRESSES: Please submit comments via *http://www.regulations.gov,* a Federal website that allows the public to find, review, and submit comments on documents that agencies have published in the **Federal Register** and that are open for comment. Simply type ''OMB–2023–0001'' in the Comment or Submission search box, click Go, and

[1] 62 FR 58723 (Oct. 20, 1997), *available at https://www.govinfo.gov/content/pkg/FR-1997-10-30/pdf/97-28653.pdf.*

follow the instructions for submitting comments.

Comments submitted in response to this notice are subject to the Freedom of Information Act and may be made available to the public. For this reason, please do not include any information of a confidential nature, such as sensitive personal information or proprietary information. If you submit your email address, it will be automatically captured and included as part of the comment that is placed in the public docket. Please note that responses to this public comment request containing any routine notice about the confidentiality of the communication will be treated as public comments that may be made available to the public notwithstanding the inclusion of the routine notice.

Electronic Availability: This document is available on the internet at *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Bob Sivinski, Chair, Interagency Technical Working Group on Race and Ethnicity Standards, 1650 17th St. NW, Washington, DC 20500, email address: *Statistical_Directives@omb.eop.gov.*

SUPPLEMENTARY INFORMATION:

A. Background

Functions of the Chief Statistician of the United States: To operate efficiently and effectively, the Nation relies on the flow of objective, credible statistics to support the decisions of individuals, households, governments, businesses, and other organizations.

As part of its role as coordinator of the Federal statistical system under the Paperwork Reduction Act, OMB, through the Chief Statistician of the United States, must ensure the efficiency and effectiveness of the system as well as the integrity, objectivity, impartiality, utility, and confidentiality of information collected for statistical purposes. [2] This statute also charges OMB with developing and overseeing the implementation of Government-wide principles, policies, standards, and guidelines concerning the development, presentation, and dissemination of statistical information.[3]

OMB maintains a set of statistical policy directives to implement these requirements. OMB's established process for updating existing statistical policy directives includes technical evaluation of the current standard by an interagency working group composed of career Federal subject matter experts; additional technical research, testing, and analysis to close identified gaps; and solicitation and consideration of public comment on ways to improve the standard. The final decisions regarding any changes to the standards are made by OMB.

This **Federal Register** Notice is part of OMB's current review [4] of SPD 15. It requests comments on the initial proposals from the Federal Interagency Technical Working Group on Race and Ethnicity Standards (Working Group). Responses to this Notice will help the Working Group develop their final recommendations to OMB and will also help OMB determine how to revise SPD 15 to improve the quality and usefulness of Federal race and ethnicity data.

History of SPD 15: OMB initially developed SPD 15 in 1977, in cooperation with other Federal agencies, to provide consistent data on race and ethnicity (when aggregated to the minimum reporting categories) throughout the Federal Government, including the decennial census, household surveys, and Federal administrative forms (*e.g.,* benefit application forms). Initial development of this data standard stemmed in large part from Federal responsibilities to enforce civil rights laws. Since 1977, SPD 15 has been revised one time, resulting in the 1997 Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity.

The Goals of SPD 15: The goals of SPD 15 are to ensure the comparability of race and ethnicity across Federal datasets and to maximize the quality of that data by ensuring that the format, language, and procedures for collecting the data are consistent and based on rigorous evidence. To achieve these goals, SPD 15 provides a minimum set of categories that all Federal agencies must use if they intend to collect information on race and ethnicity, regardless of the collection mechanism (*e.g.,* Federal surveys versus program benefit applications).

The 1997 Standards (Current Standards): For data collected directly from respondents, the current standards require two separate race and ethnicity questions, with the ethnicity question collected first before the race question.

- For the question ''Are you Hispanic or Latino?'', the minimum reporting categories are:

1. *Hispanic or Latino:* A person of Cuban, Mexican, Puerto Rican, Cuban [5], South or Central American, or other Spanish culture or origin, regardless of race. The term, ''Spanish origin,'' can be used in addition to ''Hispanic or Latino.''

2. Not Hispanic or Latino

Note that Hispanic or Latino respondents may be of any race, and multiple responses to the ethnicity question are not permitted.

- For the question and instructions ''What is your race? <'Mark' or 'Select'> one or more'', the minimum reporting categories are:

1. *American Indian or Alaska Native:* A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.

2. *Asian:* A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

3. *Black or African American:* A person having origins in any of the black racial groups of Africa. Terms such as ''Haitian'' or ''Negro'' can be used in addition to ''Black or African American.''

4. *Native Hawaiian or Other Pacific Islander:* A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

5. *White:* A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

The 1997 revision of SPD15 gave respondents the opportunity to report multiple races.

Example Question Format: Based on the requirements in the current standards, Figure 1 illustrates how race and ethnicity questions typically appear on Federal surveys and forms that collect the minimally required categories directly from individuals.

[2] 44 U.S.C. 3504(e)(1).

[3] 44 U.S.C. 3504(e)(3).

[4] *See Reviewing and Revising Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity,* June 15, 2022, *https://www.whitehouse.gov/omb/briefing-room/2022/06/15/reviewing-and-revising-standards-for-maintaining-collecting-and-presenting-federal-data-on-race-and-ethnicity/.*

[5] SPD 15 currently lists ''Cuban'' two times.

Figure 1. 1997 SPD 15's Two-Questions Format for Self-Response

Self-Identification vs. Observed Race and Ethnicity: The 1997 standards emphasize that self-identification using separate race and ethnicity questions is the preferred means of obtaining information about an individual's race and ethnicity. However, 1997 standards allow using a combined race and ethnicity question format where observer identification is the only or most feasible collection mode.

Collection of More Detailed Data: The 1997 standards encourage the collection of more detailed information provided that any detailed groups can be aggregated to the minimum standard categories necessary to facilitate comparison of data generated from information collections of varying detail. For example, the Household Pulse Survey [6] conducted by the U.S. Census Bureau offers respondents several additional options for racial and ethnic identification that can be ''rolled up'' to the minimum categories in the standards.

How the 1997 Standards Define Race and Ethnicity: The categories developed represent a sociopolitical construct designed to be used in the self-reported or observed collection of data on the race and ethnicity of major broad population groups in this country and are not biologically or genetically based.

The 1997 standards' minimum categories do not identify or designate certain population groups as ''minority groups.'' Additionally, the standards state that these categories are not to be used for determining the eligibility of population groups for participation in any Federal programs.

Some Other Race: Under the 1997 standards, data collections by Federal agencies may not include a Some Other Race (SOR) response category unless required by statute. Since 2005, the decennial census and American Community Survey (ACS) are required by law [7] to include a SOR category, thereby adding a sixth minimum race category for these collections. The decennial census and ACS are the only information collections with a statutory requirement for the use of a SOR category.

B. The Current Review of SPD 15

The Need to Update SPD 15: OMB undertakes periodic reviews of its Federal statistical standards to ensure that they are keeping pace with changes in the population and evolving needs and uses for data. Federal race and ethnicity standards are inherently complex because they seek to capture dynamic and fluid sociopolitical constructs. Over the nearly 25 years since SPD 15 was revised there have been large societal, political, economic, and demographic shifts in the United States throughout this period, for example:

- Increasing racial and ethnic diversity;
- A growing number of people who identify as more than one race or ethnicity; and
- Changing immigration and migration patterns.

Federal Interagency Technical Working Group on Race and Ethnicity Standards: In 2022, OMB convened the Federal Interagency Technical Working Group on Race and Ethnicity Standards (Working Group).[8] Consistent with the established OMB process discussed above, the Working Group comprises Federal career staff who represent programs that collect or use race and ethnicity data. The agencies on the Interagency Council on Statistical Policy, *i.e.,* the 13 Principle Statistical Agencies; [9] and the 24 agencies enumerated by the Chief Financial

[6] *https://www2.census.gov/programs-surveys/demo/technical-documentation/hhp/Phase_36_Household_Pulse_Survey_ENGLISH.pdf.*

[7] *See* Science, State, Justice, Commerce, and Related Agencies Appropriations Act, 2006, Public Law 109–108, tit. II, 119 Stat. 2290, 2308–09 (2005), *available at https://www.congress.gov/bill/109th-congress/house-bill/2862.*

[8] OMB convened this group under its authorities in 44 U.S.C. 3504(e),

[9] *See* 44 U.S.C. 3504(e)(8).

Officers Act;[10] as well as one additional agency selected for its reliance on race and ethnicity data, the U.S. Equal Employment Opportunity Commission, were invited to nominate representatives to the Working Group.

OMB charged the Working Group with providing recommendations on topics including, but not limited to:

- Whether the minimum reporting categories should be changed and how to best address detailed race and ethnicity groups in the standards;
- Whether updates should be made to the question format, terminology, and wording of the questions, as well as the instructions for respondents and associated guidance; and
- Whether guidance for the collection and reporting of race and ethnicity data can be improved, including in instances when self-identification is not possible.

The Working Group assessed the work by the previous 2014–2018 Federal Interagency Working Group for Research on Race and Ethnicity,[11] existing Federal Government research,[12] experiences from the 2020 Census,[13] and the work of the Interagency Working Group on Equitable Data pursuant to Executive Order 13985.[14] Additionally, the Working Group is also relying on input from the public to help with identifying needs and uses for data. On August 30, OMB announced the start of virtual, bi-monthly listening sessions to hear directly from members of the public.[15] These listening sessions began in September 2022 and are expected to continue in 2023. Although most of these sessions did not take place in time to inform the initial proposals in this FRN, the information presented in the sessions is currently being assessed by the Working Group and will inform their work as they develop final recommendations for OMB. The major themes of the comments heard during the first several months of these listening sessions are described below.

Major Themes From Initial Public Listening Sessions

- Data Disaggregation for the Black or African American Population

- Presenters supported adding detailed categories for the Black or African American minimum reporting category to allow for identification for descendants of enslaved Americans, with most presenters requesting a new detailed category such as ''American Freedman'' or ''American Descendant of Slavery.''
- Disaggregated data could be used to allocate program or initiative benefits.

- Data Disaggregation for Race and Ethnicity, General

- Presenters supported collecting more granular data to better understand within-group disparities (*e.g.,* collecting disaggregated data for the Asian population, for example ''Japanese'', ''Hmong'', ''Cambodian'', allows for better understanding existing socio-economic and health disparities and determining specific community needs).
- Presenters suggested that including detailed racial and ethnic categories on questionnaires is more inclusive and allows respondents to report their identities more easily.

- Race and Ethnicity Questions Format

- Some presenters supported a combined race and ethnicity question stating that, for example, respondents do not understand a distinction between ''race'' and ''ethnicity'' and that the separate questions format has contributed to the rise of the ''Some Other Race'' population in the decennial census; additionally, some presenters showed their own research findings that a more successful design was a combined race and ethnicity question with descriptive options and allowing for multiple selections.
- Additional presenters advised against a combined race and ethnicity question, expressing concern that race data for the Hispanic or Latino population may be lost (*e.g.,* some presenters worry that the Black or African American population in Puerto Rico may only select ''Hispanic or Latino'' and not ''Black or African American'' in a combined question format, even with the instruction of ''Select all that apply'')

- Middle Eastern or North African Category

- Presenters advocated for the Middle Eastern or North African (MENA) population to be recognized and respected by becoming a new and distinct minimum reporting category because, for example, many in the MENA community do not share the same lived experience as White people with European ancestry, do not identify as White, and are not perceived as White by others.
- The addition of a distinct MENA minimum reporting category would recognize this community (*e.g.,* MENA population counts could be used to allocate needed resources).

- Collecting and Reporting Data for the Multiracial/Ethnic Population

- Presenters recommended that SPD 15 permit the reporting and tabulation of multiple Hispanic or Latino responses (*e.g.,* producing data from respondents who are both ''Cuban'' and ''Dominican,'' ''Mexican'' and ''Puerto Rican,'' etc).
- While some presenters advocated for a ''multiracial'' checkbox, other presenters opposed it expressing concern that detailed information about which specific racial and ethnic groups an individual identifies with may be lost.

Governing Principles of the Working Group: In the deliberations leading to the 1977 and the 1997 race and ethnicity standards, principles were established to guide interagency consideration. For this current review, the Working Group adopted the following principles to guide their work.

1. *Race and ethnicity are socio-political constructs.* For purposes of these standards, the race and ethnicity categories set forth are sociopolitical constructs and are not an attempt to define race and ethnicity biologically or genetically.

2. *Respect individuals.* Respect for individual dignity should guide the processes and methods for collecting data on race and ethnicity; respondent self-identification should be facilitated to the greatest extent possible.

3. *Clear concepts and terminology.* To the extent practicable, the concepts and terminology should reflect clear and generally understood definitions that can achieve broad public acceptance.

4. *Comprehensive categories.* The racial and ethnic categories should be comprehensive in coverage and produce

[10] *See* 31 U.S.C. 901(b).

[11] *See* Office of Mgmt. & Budget, Exec. Office of the President, Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, 81 R 67398 (Sept. 30, 2016), *available at https://www.federalregister.gov/documents/2016/09/30/2016-23672/standards-for-maintaining-collecting-andpresenting-federal-data-on-race-and-ethnicity;* Office of Mgmt. & Budget, Exec. Office of the President, Proposals From the Federal Interagency Working Group for Revision of the Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, 82 FR 12242 (Mar. 1, 2017), *available at https://www.federalregister.gov/documents/2017/03/01/2017-03973/proposals-from-the-federal-interagencyworking-group-for-revision-of-the-standards-for-maintaining.*

[12] *https://www.census.gov/programs-surveys/decennial-census/decade/2020/planning-management/plan/final-analysis/2015nct-race-ethnicity-analysis.html; https://wwwn.cdc.gov/qbank/report/Willson_2017_NCHS_MENA.pdf.*

[13] *https://www.census.gov/library/stories/2021/08/improved-race-ethnicity-measures-reveal-united-states-population-much-more-multiracial.html.*

[14] *https://www.whitehouse.gov/wp-content/uploads/2022/04/eo13985-vision-for-equitable-data.pdf.*

[15] *OMB Launches New Public Listening Sessions on Federal Race and Ethnicity Standards Revision,* August 30, 2022, *https://www.whitehouse.gov/omb/briefing-room/2022/08/30/omb-launches-new-public-listening-sessions-on-federal-race-and-ethnicity-standards-revision/.*

compatible, non-duplicated, exchangeable data across Federal agencies.

5. *Consider useful data aggregations.* Foremost consideration should be given to data aggregations by race and ethnicity that are useful for statistical analysis, program administration and assessment, and enforcement of existing laws and judicial decisions—bearing in mind that the standards are not intended to be used to establish eligibility for participation in any Federal program.

6. *Consider State/local government data needs.* While Federal needs for racial and ethnic data are of primary importance, consideration should also be given to needs at the State and local government levels, including American Indian tribal and Alaska Native village governments, as well as to general societal needs for these data.

7. *Standards set forth minimum categories.* The standards should set forth minimum categories; additional categories should be encouraged, provided they can be aggregated to the minimum categories. The number of minimum categories should be kept to a manageable size, as determined by statistical concerns and data needs.

8. *Consider operational feasibility.* A revised set of categories should be operationally feasible in terms of burden placed upon respondents and the cost to agencies and respondents to implement the revisions.

9. *Category changes are based on sound research.* Any changes in the categories should be based on sound methodological research and should include evaluations of the impact of any changes not only on the usefulness of the resulting data but also on the comparability of any new categories with the existing ones.

10. *Category revisions require a crosswalk.* Any revision to the categories should provide for a crosswalk at the time of adoption between the old and the new categories so that historical data series can be statistically adjusted and comparisons can be made.

11. *Changes are based upon an interagency collaborative effort.* Because of the many and varied needs, and strong interdependence, of Federal agencies for racial and ethnic data, any changes to the existing categories should be the product of an interagency collaborative effort.

12. *All racial and ethnic categories should adhere to public law.* All racial and ethnic categories, both established and potential, should be reviewed and constructed in a manner that adheres to public law.

C. Initial Proposals for Comment

OMB requests comments on these initial Working Group proposals. Note that these proposals are preliminary and do not reflect the settled opinions of the Working Group, the position of OMB, or the positions of the agencies participating on the Working Group. The Working Group will continue to deliberate, assess evidence, and take into consideration comments received from the public before making final recommendations for OMB's consideration.

1. *Collect race and ethnicity information using one combined question.* The Working Group proposes that SPD 15 move from the two separate questions format to a single combined question as the required design for self-reported race and ethnicity information collections. Employing a new combined question design may take significant time and resources for some surveys and information collections to implement. Flexibilities should be allowed for agencies dependent on aggregate data, data that are not self-reported, or data from non-Federal providers.

a. *Background:* Evidence suggests that the use of separate race and ethnicity questions confuses many respondents who instead understand race and ethnicity to be similar, or the same, concepts. For example, a large and increasing percentage of Hispanic or Latino respondents on the decennial census and American Community Survey (ACS) over the past several decades are either not reporting a race or are selecting Some Other Race (SOR); this is after responding to the ethnicity question, which SPD 15 requires to be collected first and separately. Decennial census and ACS research found that a combined race and ethnicity question reduces confusion and reduces SOR reporting by Hispanic or Latino respondents. However, less is known about the comparisons of separate questions versus combined question approaches for information collections without a SOR response option.

b. *OMB Requests Public Comment On:*

1a. Please provide links or references to relevant studies that examine or test any impacts of collecting race and ethnicity information using separate questions compared to a combined question.

1b. To what extent would a combined race and ethnicity question that allows for the selection of one or more categories impact people's ability to self-report all aspects of their identity?

1c. If a combined race and ethnicity question is implemented, what suggestions do you have for addressing challenges for data collection, processing, analysis, and reporting of data?

1d. What other challenges should we be aware of that respondents or agencies might face in converting their surveys and forms to a one question format from the current two-question format?

2. *Add ''Middle Eastern or North African'' (MENA) as a new minimum category.* The working Group proposes that ''Middle Eastern or North African'' be added to SPD 15 as a new minimum reporting category distinct from all other reporting categories. The definition of the current ''White'' reporting category would be edited to remove MENA from its definition.

a. *Background:* Currently in SPD 15, the ''White'' minimum category specifically includes in its definition those having origins in any of the original peoples of the Middle East or North Africa. Research suggests that many MENA respondents view their identity as distinct from White, and stakeholders have, for over 30 years, advocated for collecting MENA information separate from White.

The Working Group developed the following draft definition of a MENA minimum category to be inclusive of both Middle Eastern and North African populations and with the rationale of listing larger population groups in the U.S.: The category ''Middle Eastern or North African'' includes all individuals who identify with one or more nationalities or ethnic groups with origins in the Middle East and North Africa. Examples include, but are not limited to, Lebanese, Iranian, Egyptian, Syrian, Moroccan, and Israeli.

b. *OMB Requests Public Comment On:*

2a. Given the particular context of answering questionnaires in the U.S. (*e.g.,* decennial census, Federal surveys, public benefit forms), is the term ''Middle Eastern or North African (MENA)'' likely to continue to be understood and accepted by those in this community? Further, would the term be consistently understood and acceptable among those with different experiences, *i.e.,* those born in the U.S., those who immigrated but have lived for an extensive period of time in the U.S., and those who have more recently immigrated to the U.S.?

2b. Do these proposed nationality and ethnic group examples adequately represent the MENA category? If not, what characteristics or group examples would make the definition more representative?

2c. Would this proposed definition allow the generation of statistics necessary to track the experience and wellbeing of the MENA population?

3. *Require the collection of detailed race and ethnicity categories by default.* The Working Group proposes that SPD 15 require data collection on race and ethnicity at the detailed category levels, as specified by the example in *Figure 2*, unless an agency determines that the potential benefit of the detailed data would not justify the additional burden to the agency and the public or the additional risk to privacy or confidentiality. In those cases, agencies must at least use the SPD 15's minimum categories, as specified by the example in *Figure 3*. In any circumstance, agencies are encouraged to collect and provide more granular data than the minimum categories.

The example design in *Figure 2* represents one of potentially several options for establishing a consistent approach to collecting more detailed data, with the minimum categories disaggregated by country of origin. This example was chosen by the Working Group because it reflects the approach that performed best of the options tested by the Census Bureau prior to the 2020 Census. The country of origin options reflect the most common countries of origin in the U.S. for each minimum category. This example includes enhancements that reflect other Working Group initial proposals (*e.g.,* the category ''Native Hawaiian or Other Pacific Islander'' removes the word ''Other''). Refer to page 30 of *2020 Research and Testing: 2017 Census Test Report—Tribal Enrollment: https://www2.census.gov/programs-surveys/decennial/2020/program-management/census-tests/2017/2017-census-test-report_tribal-enrollment.pdf.*

Figure 2. Proposed Example for Self-Response Data Collections: Combined Question with Minimum and Detailed Categories

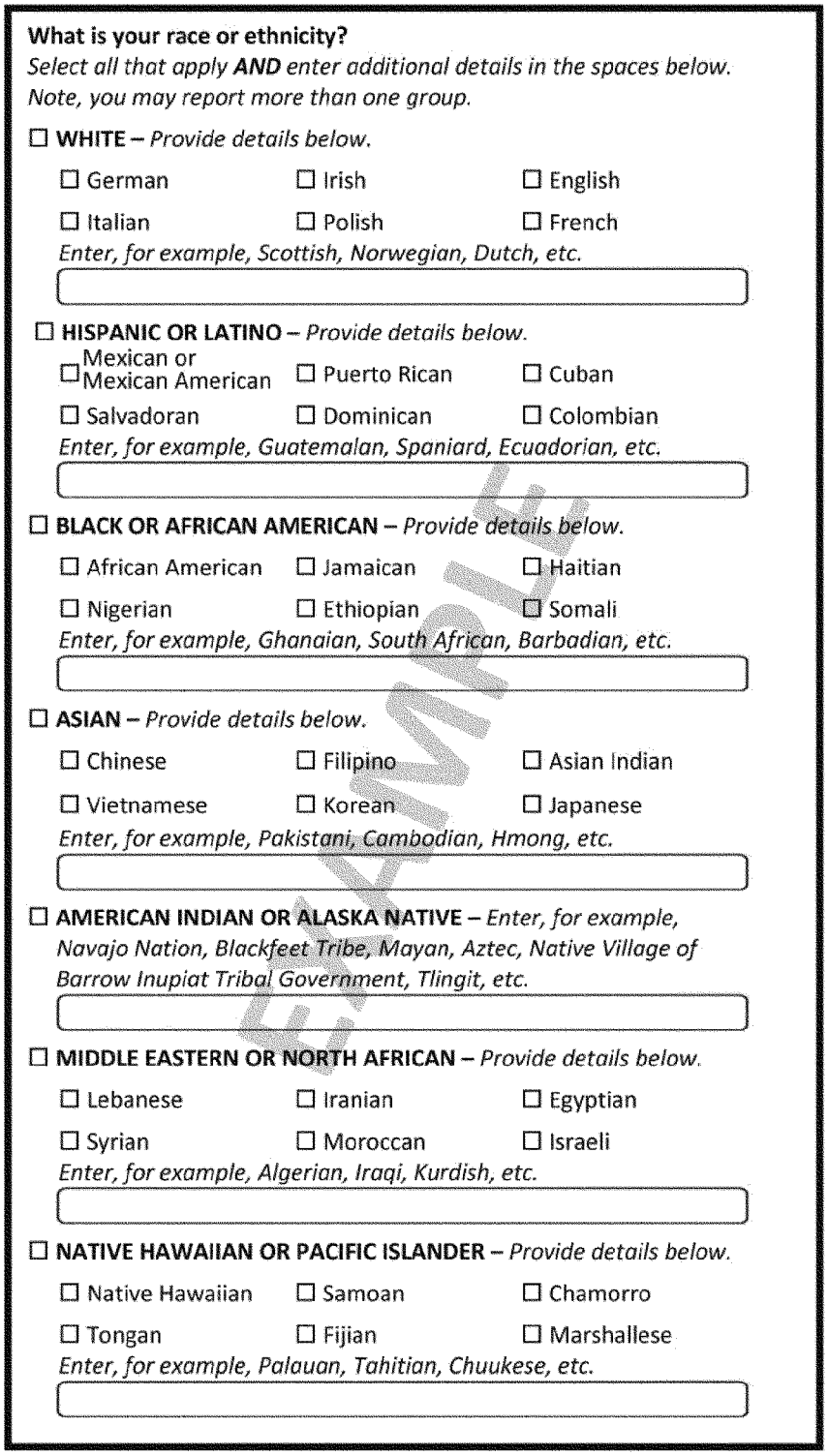

Figure 3. Proposed Example for Self-Response Data Collections: Combined Question with Minimum Categories

The example design in *Figure 3* represents the Working Group's proposed minimum categories, for use when more detailed collection is not feasible or justified. It incorporates other proposals from the Working Group to use a combined race and ethnicity question and to add a new minimum category for MENA.

a. *Background:* The minimum categories in SPD 15 contain heterogeneity, as evidenced by differences in a wide variety of outcomes for distinct groups within their definitions. The increasing demand for analysis that represents the diversity of the American public increases the need for race and ethnicity information disaggregated beyond—or more granular than—SPD 15's minimum categories. The collection of disaggregated information already occurs in many circumstances; for example, some current information collections use detailed checkboxes and/or write-in fields to collect detailed race and ethnicity data. *Figure 2* shows an example approach for collecting more detail beyond the minimum categories.

However, collecting data using only the minimum categories may be necessary when, for example, low response rates among population groups of interest lead to non-representative data, small sample sizes make estimates about disaggregated groups statistically unreliable, data is collected by proxy, or small cell sizes in data analyses and publications create privacy and confidentiality risks.

b. *OMB Requests Public Comment On:*

3a. Is the example design seen in *Figure 2* inclusive such that all individuals are represented?

3b. The example design seen in *Figure 2* collects additional detail primarily by country of origin. What other potential types of detail would create useful data or help respondents to identify themselves?

3c. Some Federal information collections are able to use open-ended write-in fields to collect detailed racial and ethnic responses, while some collections must use a residual closed-ended category (*e.g.,* ''Another Asian Group''). What are the impacts of using a closed-ended category without collecting further detail through open-ended written responses?

3d. What should agencies consider when weighing the benefits and burdens of collecting or providing more granular data than the minimum categories?

3e. Is it appropriate for agencies to collect detailed data even though those data may not be published or may require combining multiple years of data due to small sample sizes?

3f. What guidance should be included in SPD 15 or elsewhere to help agencies identify different collection and tabulation options for more disaggregated data than the minimum categories? Should the standards establish a preferred approach to collecting additional detail within the minimum categories, or encourage agencies to collect additional information while granting flexibility as to the kind of information and level of detail?

3g. Is the current ''default'' structure of the recommendation appropriate? Should SPD–15 pursue a more voluntary approach to the collection of disaggregated data, as opposed to having a default of collecting such data unless certain conditions are met?

3h. What techniques are recommended for collecting or providing detailed race and ethnicity data for categories with smaller population sizes within the U.S.?

4. *Update Terminology in SPD 15.* The working Group proposes that SPD 15 make the following changes in regards to terminology:

Terminologies Used Within Minimum Categories

- The Working Group proposes that SPD 15 remove:

—''Negro'' from the Black or African American definition
—''Far East'' from the Asian definition, replacing with ''East Asian''
—''Other'' from ''Native Hawaiian and Other Pacific Islander''
—The phrase ''who maintain tribal affiliation or community attachment'' in the American Indian or Alaska Native definition, making this minimum category's definition consistent with all minimum categories

- The Working Group proposes that SPD 15 correct ''Cuban'' being listed

twice in the minimum category definition for ''Hispanic or Latino.''

• The Working Group proposes that the American Indian or Alaska Native minimum category description be changed to: ''The category 'American Indian or Alaska Native' includes all individuals who identify with any of the original peoples of North, Central, and South America.''

''Majority/Minority''

• The Working Group proposes that SPD 15 discontinue use of the terms ''majority'' and ''minority.''

Question Stem and Instructions

• The Working Group proposes that if a combined race and ethnicity question is adopted, the question stem use ''race'' and ''ethnicity'' as part of the question, *i.e.,* ''What is < your/name's > race or ethnicity?''

• The Working Group proposes that the current instructions of ''Mark < X > one or more'' and ''Select < X > one or more'' be updated to ''Mark all that apply'' and ''Select all that apply.''

a. *Background:* The terminology used in SPD 15 should seek to ensure that all people are able to identify themselves within one or more of the minimum categories, that the minimum and detailed categories reflect meaningful and easy to understand distinctions, and that the language used is respectful of how people refer to themselves. In the current SPD 15 the minimum category definitions are internally inconsistent in their descriptions, and in some places use outdated or unclear terminology. Recent research shows inconsistent understanding and use of the terms ''majority'' and ''minority,'' and that the terms may be perceived by some as pejorative and not inclusive. Decennial census and ACS research suggests that some respondents are confused by the distinction between the terms ''race,'' ''ethnicity,'' and ''origin'' used in question stems. The research also suggests that some respondents stop reading the instructions ''mark one or more'' after the word ''one.''

b. *OMB Requests Public Comment On:*

4a. What term (such as ''transnational'') should be used to describe people who identify with groups that cross national borders (*e.g.,* ''Bantu,'' ''Hmong,'' or ''Roma'')?

1. If a combined race and ethnicity question is implemented, what term should be used for respondents who select more than one category? For example, is the preferred term ''multiracial,'' ''multiethnic,'' or something else?

2. Please refer to *Section D, Previously Tested Definitions of Minimum Categories.* Are these draft definitions:

i. Comprehensive in coverage of all racial and ethnic identities within the U.S.?

ii. Using equivalent criteria?

iii. Reflective of meaningful distinctions?

iv. Easy to understand?

v. Respectful of how people refer to themselves?

Please suggest any alternative language that you feel would improve the definitions.

4b. As seen in *Figure 2,* based on the Working Group's initial proposal, the question stem asks ''What is your race or ethnicity?'' Do you prefer a different question stem such as: ''What is your race and/or ethnicity?'', ''What is your race/ethnicity?'', ''How do you identify?'', etc.? If so, please explain.

5. *Guidance is necessary to implement SPD 15 revisions on Federal information collections.* The Working Group proposes that SPD 15 and its related documents be placed online in a central location and include implementation guidance on:

• The dates agencies must meet as they incorporate revisions to information collections,

• Statistical methods to connect data produced from previous and revised collection formats (*e.g.,* bridging between data collected via two questions without MENA and data collected via one question with MENA),

• Procedures for collecting, processing, and reporting detailed racial and ethnic categories,

• Approaches for collecting race and ethnicity information when self-identification is not possible, *i.e.,* data collected by a proxy or observation and/or by entities outside of SPD 15's purview (*e.g.,* State or local governments, hospitals, or schools),

• Approaches for reporting data for respondents who select more than one race or ethnicity. Specifically, guidance is needed on how to balance providing detailed information, for example by including all possible combinations of multiple responses, and providing a single category when needed (*e.g.,* ''multiracial''),

• Guidance on obtaining approval under the Paperwork Reduction Act [16] to revise existing race and ethnicity data collections, and

• Best practices for agencies to rely on when communicating SPD 15 revisions to stakeholders.

a. *Background:* It is a large undertaking for agencies to implement changes to censuses, surveys, and administrative forms that collect race and ethnicity data. Agencies need guidance to implement any potential SPD 15 revisions like those included in the Working Group's initial proposals.

b. *OMB Requests Public Comment On:*

5a. For data providers who collect race and ethnicity data that is then sent to a Federal agency, are there additional guidance needs that have not been addressed in the initial proposals?

5b. With the proposals to use a combined race and ethnicity question and to add MENA as a minimum category, what specific bridging concerns do Federal data users have? Please submit any research on bridging techniques that may be helpful to the Working Group. *Bridging refers to making data collected using one set of categories (e.g., two questions without MENA), consistent with data collected using a different set of categories (e.g., one question with MENA).*

5c. What guidance on bridging should be provided for agencies to implement potential revisions to SPD 15?

5d. How should race and ethnicity be collected when some method other than respondent self-identification is necessary (*e.g.,* by proxy or observation)?

5e. What guidance should be provided for the collection and reporting of race and ethnicity data in situations where self-identification is unavailable?

6. *Comments On Any Additional Topics and Future Research.*

6a. SPD 15 does not dictate the order in which the minimum categories should be displayed on Federal information collections. Agencies generally order alphabetically or by population size; however, both approaches have received criticism. What order, alphabetical or by population size, do you prefer and why? Or what alternative approach would you recommend?

6b. The current [17] minimum categories are termed:

• American Indian or Alaska Native
• Asian
• Black or African American
• Hispanic or Latino
• Native Hawaiian or Other Pacific Islander [18]
• White

Do you have suggestions for different terms for any of these categories?

[16] *https://www.reginfo.gov/public/reginfo/pra.pdf.*

[17] A similar question specifically related to Middle Eastern or North African is discussed earlier in Section C.

[18] An initial proposal of the Working Group, discussed earlier in Section C, is to remove ''Other'' from ''Native Hawaiian or Other Pacific Islander.''

6c. How can Federal surveys or forms collect data related to descent from enslaved peoples originally from the African continent? For example, when collecting and coding responses, what term best describes this population group (*e.g.,* is the preferred term ''American Descendants of Slavery,'' ''American Freedmen,'' or something else)? How should this group be defined? Should it be collected as a detailed group within the ''Black or African American'' minimum category, or through a separate question or other approach?

6d. The proposals in this FRN represent the Working Group's initial suggestions for revisions to SPD 15 to improve the accuracy and usefulness of Federal race and ethnicity data. The Working Group and OMB welcome comments and suggestions on any other ways that SPD 15 could be revised to produce more accurate and useful race and ethnicity data.

D. Previously Tested Definitions of Minimum Categories

- *American Indian or Alaska Native:* The category ''American Indian or Alaska Native'' includes all individuals who identify with any of the original peoples of North, Central, and South America. It includes people who identify as ''American Indian'' or ''Alaska Native'' and includes groups such as Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Tlingit, etc.
- *Asian:* The category ''Asian'' includes all individuals who identify with one or more nationalities or ethnic groups originating in East Asia, Southeast Asia, or the Indian subcontinent. Examples of these groups include, but are not limited to, Chinese, Filipino, Asian Indian, Vietnamese, Korean, and Japanese. The category also includes groups such as Pakistani, Cambodian, Hmong, Thai, Bengali, Mien, etc.
- *Black or African American:* The category ''Black or African American'' includes all individuals who identify with one or more nationalities or ethnic groups originating in any of the Black racial groups of Africa. Examples of these groups include, but are not limited to, African American, Jamaican, Haitian, Nigerian, Ethiopian, and Somali. The category also includes groups such as Ghanaian, South African, Barbadian, Kenyan, Liberian, Bahamian, etc.
- *Hispanic or Latino:* The category ''Hispanic or Latino'' includes all individuals who identify with one or more nationalities or ethnic groups originating in Mexico, Puerto Rico, Cuba, Central and South American, and other Spanish cultures. Examples of these groups include, but are not limited to, Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, and Colombian. The category also includes groups such as Guatemalan, Honduran, Spaniard, Ecuadorian, Peruvian, Venezuelan, etc.
- *Middle Eastern or North African:* The category ''Middle Eastern or North African'' includes all individuals who identify with one or more nationalities or ethnic groups originating in the Middle East or North Africa. Examples of these groups include, but are not limited to, Lebanese, Iranian, Egyptian, Syrian, Moroccan, and Israeli. The category also includes groups such as Algerian, Iraqi, Kurdish, Tunisian, Chaldean, Assyrian, etc.
- *Native Hawaiian or Pacific Islander:* The category ''Native Hawaiian or Pacific Islander'' includes all individuals who identify with one or more nationalities or ethnic groups originating in Hawaii, Guam, Samoa, or other Pacific Islands. Examples of these groups include, but are not limited to, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, and Marshallese. The category also includes groups such as Palauan, Tahitian, Chuukese, Pohnpeian, Saipanese, Yapese, etc.
- *White:* The category ''White'' includes all individualswho identify with one or more nationalities or ethnic groups originating in Europe. Examples of these groups include, but are not limited to, German, Irish, English, Italian, Polish, and French. The category also includes groups such as Scottish, Norwegian, Dutch, Slavic, Cajun, Roma, etc.

E. Conclusion

This Notice is a request for the public to comment on the initial proposals of the Working Group. None of the initial proposals have been adopted, and no interim decisions have been made concerning them. OMB can modify or reject any of the proposals, and OMB has the option of making no changes. The initial proposals are published in this Notice because OMB believes that they are worthy of public discussion and that OMB and the Working Group's further and continuing deliberations will benefit from obtaining the public's views on the proposals. OMB plans to complete revisions to SPD 15 no later than Summer 2024.

Richard L. Revesz,

Administrator, Office of Information and Regulatory Affairs.

[FR Doc. 2023–01635 Filed 1–26–23; 8:45 am]

BILLING CODE 3110–01–P

NATIONAL CREDIT UNION ADMINISTRATION

Submission for OMB Review; Comment Request

AGENCY: National Credit Union Administration (NCUA).

ACTION: Notice.

SUMMARY: The National Credit Union Administration (NCUA) will submit the following information collection requests to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995, on or after the date of publication of this notice.

DATES: Comments should be received on or before February 27, 2023 to be assured of consideration.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Copies of the submission may be obtained by contacting Sherie McArthur at (703) 518–6607, emailing *PRAComments@ncua.gov,* or viewing the entire information collection request at *www.reginfo.gov.*

SUPPLEMENTARY INFORMATION:

OMB Number: 3133–0098.

Type of Review: Extension of a currently approved collection.

Title: Advertising of Excess Insurance. 12 CFR part 740.3.

Abstract: Federally insured credit unions which offer or provide excess insurance coverage for their accounts must indicate the type and amount of such insurance, the name of the carrier and a statement that the carrier is not affiliated with the NCUSIF or the Federal government in all advertising that mentions account insurance. The disclosure requirements under § 740.3 are necessary to ensure that share account holders are aware that their accounts are insured by carriers other than the NCUA.

Estimated Total Annual Burden Hours: 291.

OMB Number: 3133–0130.

Type of Review: Extension of a currently approved collection.

Title: Written Reimbursement Policy, 12 CFR part 701.33.

Abstract: Federal Credit Unions (FCUs) may reimburse its board

members for reasonable and proper costs incurred in conducting their official responsibilities only if the reimbursement is in accordance with the written reimbursement policies and procedures established by the FCU's board of directors. Access to this plan, and documentation related to its implementation is necessary for NCUA examiners to verify compliance with this requirement.

Affected Public: Private Sector: Not-for-profit institutions.

Estimated Total Annual Burden Hours: 1,661.

OMB Number: 3133–0203.

Type of Review: Extension of a currently approved collection.

Title: IRPS 19–1 Guidance Regarding Prohibitions Imposed by Section 205(d) of the FCU Act (''Second Chance IRPS'').

Abstract: This information collection is required under Section 205(d) of the Federal Credit Union Act (FCU Act) to allow the National Credit Union Administration (NCUA) Board to make an informed decision whether to grant a waiver of the prohibition imposed by law under Section 205(d) of the FCU Act. Section 205(d) of the FCU Act prohibits a person who has been convicted of any criminal offense involving dishonesty or breach of trust, or who has entered into a pretrial diversion or similar program in connection with a prosecution for such offense, from participating in the affairs of a federally-insured credit union except with the prior written consent of the NCUA Board.

Affected Public: Private Sector: Not-for-profit institutions.

Estimated Total Annual Burden Hours: 3.

OMB Number: 3133–0108.

Type of Review: Extension currently approved collection.

Title: Monitoring Bank Secrecy Act Compliance.

Abstract: Section 748.2 of NCUA's regulations, directs credit unions to establish a Bank Secrecy Act (BSA) compliance program that maintains procedures designed to assure and monitor compliance with the requirement of 31 U.S.C., Chap. 53, Subchapter II (sec. 5301–5329), the Bank Secrecy Act (31 U.S.C. 5318(g)), and 31 CFR Chapter X (parts 1000–1099), Financial Crimes Enforcement Network, Department of the Treasury. Each federally insured credit union (FICU) must develop and provide for the continued administration of a BSA compliance program to assure and monitor compliance with the recordkeeping and recording requirements prescribed by the BSA. At a minimum, a compliance program shall provide for a system of internal controls, independent testing for compliance, designation of an individual responsible for coordinating and monitoring day-to-day compliance; and training. NCUA examiners review the program to determine whether the credit union's procedures comply with all BSA requirements.

Affected Public: Private Sector: Not-for-profit institutions.

Estimated Total Annual Burden Hours: 84,928.

OMB Number: 3133–0204.

Type of Review: Extension currently approved collection.

Abstract: Sections 106 and 202 of the Federal Credit Union Act require federally insured credit unions (FICU) to make financial reports to the NCUA. Section 741.6 prescribes the method in which FICUs must submit this information to NCUA. NCUA Form 4501A, Credit Union Profile, is used to obtain non-financial data relevant to regulation and supervision such as the names of senior management and volunteer officials, and are reported through NCUA's online portal, CU Online. The financial and statistical information is essential to NCUA in carrying out its responsibility for supervising federal credit unions. The information also enables NCUA to monitor all FICUs with National Credit Union Share Insurance Fund (NCUSIF) insured share accounts.

Affected Public: Private Sector: Not-for-profit institutions.

Estimated Total Annual Burden Hours: 42,248.

By Melane Conyers-Ausbrooks, Secretary of the Board, the National Credit Union Administration, on January 23, 2023.

Dated: January 24, 2023.

Sherie A. McArthur,

NCUA PRA Clearance Officer.

[FR Doc. 2023–01670 Filed 1–26–23; 8:45 am]

BILLING CODE 7535–01–P

NUCLEAR REGULATORY COMMISSION

[NRC–2023–0001]

Sunshine Act Meetings

TIME AND DATE: Weeks of January 30, February 6, 13, 20, 27, March 6, 2023. The schedule for Commission meetings is subject to change on short notice. The NRC Commission Meeting Schedule can be found on the internet at: *https://www.nrc.gov/public-involve/public-meetings/schedule.html.*

PLACE: The NRC provides reasonable accommodation to individuals with disabilities where appropriate. If you need a reasonable accommodation to participate in these public meetings or need this meeting notice or the transcript or other information from the public meetings in another format (*e.g.,* braille, large print), please notify Anne Silk, NRC Disability Program Specialist, at 301–287–0745, by videophone at 240–428–3217, or by email at *Anne.Silk@nrc.gov.* Determinations on requests for reasonable accommodation will be made on a case-by-case basis.

STATUS: Public and closed.

Members of the public may request to receive the information in these notices electronically. If you would like to be added to the distribution, please contact the Nuclear Regulatory Commission, Office of the Secretary, Washington, DC 20555, at 301–415–1969, or by email at *Wendy.Moore@nrc.gov* or *Tyesha.Bush@nrc.gov.*

MATTERS TO BE CONSIDERED:

Week of January 30, 2023

There are no meetings scheduled for the week of January 30, 2023.

Week of February 6, 2023—Tentative

Tuesday, February 7, 2023

10:00 a.m. Briefing on Security Issues (Closed Ex. 1)

Thursday, February 9, 2023

9:00 a.m. Advanced Reactor Licensing Under 10 CFR parts 50 and 52 (Public Meeting). (Contact: Omid Tabatabai: 301–415–6616)

Additional Information: The meeting will be held in the Commissioners' Conference Room, 11555 Rockville Pike, Rockville, Maryland. The public is invited to attend the Commission's meeting in person or watch live via webcast at the Web address—*https://video.nrc.gov/.*

Week of February 13, 2023—Tentative

There are no meetings scheduled for the week of February 13, 2023.

Week of February 20, 2023—Tentative

There are no meetings scheduled for the week of February 20, 2023.

Week of February 27, 2023—Tentative

There are no meetings scheduled for the week of February 27, 2023.

Week of March 6, 2023—Tentative

There are no meetings scheduled for the week of March 6, 2023.

CONTACT PERSON FOR MORE INFORMATION: For more information or to verify the status of meetings, contact Wesley Held

at 301–287–3591 or via email at *Wesley.Held@nrc.gov.*

The NRC is holding the meetings under the authority of the Government in the Sunshine Act, 5 U.S.C. 552b.

Dated: January 25, 2023.

For the Nuclear Regulatory Commission.

Wesley W. Held,

Policy Coordinator, Office of the Secretary.

[FR Doc. 2023–01789 Filed 1–25–23; 11:15 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[Docket Nos. 50–255–LT–2, 50–155–LT–2, 72–007–LT, 72–043–LT–2, ASLBP No. 22–974–01–LT–BD01]

Order; Amending Notice of Hearing

On January 19, 2023 this Board provided notice of an oral hearing in this proceeding to commence on February 8, 2023.[1] Due to the fact the testimony will focus on proprietary information regarding whether the companies satisfy financial qualification requirements for a license transfer under 10 CFR 50.33(f), the hearing will be closed to the public.

It is so *ordered*.

For the Atomic Safety And Licensing Board.

Dated: January 23, 2023.

Michael M. Gibson,

Presiding Officer, Administrative Judge.

[FR Doc. 2023–01565 Filed 1–26–23; 8:45 am]

BILLING CODE 7590–01–P

OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION

Senior Executive Service Performance Review Board Membership

AGENCY: Occupational Safety and Health Review Commission.

ACTION: Annual notice.

SUMMARY: Notice is given of the appointment of members to the Performance Review Board (PRB) of the Occupational Safety and Health Review Commission.

DATES: Membership is effective on January 27, 2023.

FOR FURTHER INFORMATION CONTACT: Linda M. Beard, Human Resources Specialist, U.S. Occupational Safety and Health Review Commission, 1120 20th Street NW, Washington, DC 20036, (202) 606–5393.

SUPPLEMENTARY INFORMATION: The Review Commission, as required by 5 U.S.C. 4314(c)(1) through (5), has established a Senior Executive Service PRB. The PRB reviews and evaluates the initial appraisal of a senior executive's performance by the supervisor and makes recommendations to the Chairman of the Review Commission regarding performance ratings, performance awards, and pay-for-performance adjustments. Members of the PRB serve for a period of 24 months. In the case of an appraisal of a career appointee, more than half of the members shall consist of career appointees, pursuant to 5 U.S.C. 4314(c)(5). The names and titles of the PRB members are as follows:

- Gisile Goethe, Director, Office of Resource Management, Federal Retirement Thrift Investment Board;
- Peggy A. Gartner, Deputy Office Head, Office of Information and Resource Management, National Science Foundation;
- Sara Snyder, Regional Director and Chief Administrative Judge, U.S. Merit Systems Protection Board.

Cynthia L. Attwood,

Chairman.

[FR Doc. 2023–01624 Filed 1–26–23; 8:45 am]

BILLING CODE 7600–01–P

OFFICE OF PERSONNEL MANAGEMENT

January 2023 Pay Schedules

AGENCY: Office of Personnel Management.

ACTION: Notice.

SUMMARY: The President adjusted the rates of basic pay and locality payments for certain Federal civilian employees effective in January 2023. The Executive order authorizes a 4.1 percent across-the-board increase for statutory pay systems and locality pay increases costing approximately 0.5 percent of basic payroll, reflecting an overall average pay increase of 4.6 percent. This notice serves as documentation for the public record.

FOR FURTHER INFORMATION CONTACT: Rebecca Abels, Pay and Leave, Employee Services, Office of Personnel Management; (202) 606–2858 or *pay-leave-policy@opm.gov.*

SUPPLEMENTARY INFORMATION: On December 23, 2022, the President signed Executive Order (E.O.) 14090 (87 FR 79985), which implemented pay adjustments for certain Federal civilian employees in January 2023. E.O. 14090 provides an overall average pay increase of 4.6 percent for the statutory pay systems. This is consistent with the President's alternative pay plan issued under 5 U.S.C. 5303(b) and 5304a on August 31, 2022. The pay rates in E.O. 14061 have been superseded.

The publication of this notice satisfies the requirement in Section 5(b) of E.O. 14090 that the Office of Personnel Management (OPM) publish appropriate notice of the 2023 locality payments in the **Federal Register**.

Schedule 1 of E.O. 14090 provides the rates for the 2023 General Schedule (GS) and reflects a 4.1 percent increase from 2022. Executive Order 14090 also includes the percentage amounts of the 2023 locality payments. (See Section 5 and Schedule 9 of Executive Order 14090.)

General Schedule employees receive locality payments under 5 U.S.C. 5304. Locality payments apply in the United States (as defined in 5 U.S.C. 5921(4)) and its territories and possessions. In 2023, locality payments ranging from 16.50 percent to 44.15 percent apply to GS employees in the 54 localities pay areas. The 2023 locality pay area definitions can be found at: *https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/2023/locality-pay-area-definitions/.*

The 2023 locality pay percentages became effective the first day of the first pay period beginning on or after January 1, 2023 (January 1, 2023). An employee's locality rate of pay is computed by increasing his or her scheduled annual rate of pay (as defined in 5 CFR 531.602) by the applicable locality pay percentage. (See 5 CFR 531.604 and 531.609.)

Executive Order 14090 establishes the new Executive Schedule (EX), which incorporates a 4.1 percent increase required under 5 U.S.C. 5318 (rounded to the nearest $100). By law, Executive Schedule officials are not authorized to receive locality payments.

Executive Order 14090 establishes the 2023 range of rates of basic pay for members of the Senior Executive Service (SES) under 5 U.S.C. 5382. The minimum rate of basic pay for the SES is $141,022 in 2023. The maximum rate of the SES rate range is $212,100 (level II of the Executive Schedule) for SES members who are covered by a certified SES performance appraisal system and $195,000 (level III of the Executive Schedule) for SES members who are not covered by a certified SES performance appraisal system.

The minimum rate of basic pay for the senior-level (SL) and scientific and professional (ST) rate range was increased by 4.1 percent ($141,022 in 2023), which is the amount of the

[1] Licensing Board Order (Providing Notice of Hearing) at 3 (Jan. 19, 2023) (unpublished).

across-the-board GS increase. The applicable maximum rate of the SL/ST rate range is $212,100 (level II of the Executive Schedule) for SL or ST employees who are covered by a certified SL/ST performance appraisal system and $195,000 (level III of the Executive Schedule) for SL or ST employees who are not covered by a certified SL/ST performance appraisal system. Agencies with certified performance appraisal systems for SES members and employees in SL and ST positions must also apply a higher aggregate limitation on pay—up to the Vice President's salary ($272,100 in 2023.)

Note that section 747 of division E of the Consolidated Appropriations Act, 2023 (Pub. L. 117–328, December 29, 2022), contains a provision that continues the freeze on the payable pay rates for the Vice President and certain senior political appointees at the rates of pay and applicable limitations on payable rates of pay in effect on December 31, 2022. The section 747 pay freeze is scheduled to end on the last day of the last pay period that begins in calendar year 2023 (January 13, 2024, for those on the standard biweekly pay period cycle). Future Congressional action will determine whether the pay freeze continues beyond that date. OPM guidance on the continued pay freeze for certain senior political officials can be found in CPM 2022–25 at *https://www.chcoc.gov/content/continued-pay-freeze-certain-senior-political-officials-7.*

Executive Order 14090 provides that the rates of basic pay for administrative law judges (ALJs) under 5 U.S.C. 5372 are increased by 4.1 percent (rounded to the nearest $100) in 2023. The rate of basic pay for AL–1 is $183,500 (equivalent to the rate for level IV of the Executive Schedule). The rate of basic pay for AL–2 is $178,900. The rates of basic pay for AL–3/A through 3/F range from $122,400 to $169,600.

The rates of basic pay for members of Contract Appeals Boards are calculated as a percentage of the rate for level IV of the Executive Schedule. (See 5 U.S.C. 5372a.) Therefore, these rates of basic pay are increased by 4.1 percent in 2023.

On November 30, 2022, OPM issued a memorandum on behalf of the President's Pay Agent (the Secretary of Labor and the Directors of the Office of Management and Budget and OPM) that continues GS locality payments for ALJs and certain other non-GS employee categories in 2023. By law, EX officials, SES members, employees in SL/ST positions, and employees in certain other equivalent pay systems are not authorized to receive locality payments. (Note: An exception applies to certain grandfathered SES, SL, and ST employees stationed in a nonforeign area on January 2, 2010. See CPM 2009–27 at *https://www.chcoc.gov/content/nonforeign-area-retirement-equity-assurance-act.*) The memo is available at *https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/2022/extension-of-locality-pay-memo-for-non-gs-employees-2023.pdf.*

On December 23, 2022, OPM issued a memorandum (CPM 2022–22) on the 2023 pay adjustments. (See *https://www.chcoc.gov/content/january-2023-pay-adjustments.*) The memorandum transmitted Executive Order 14090 and provided the 2023 salary tables, locality pay areas and percentages, and information on general pay administration matters and other related guidance. The ''2023 Salary Tables'' posted on OPM's website at *http://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/* are the official rates of pay for affected employees and are hereby incorporated as part of this notice.

U.S. Office of Personnel Management.

Stephen Hickman,

Federal Register Liaison.

[FR Doc. 2023–01672 Filed 1–26–23; 8:45 am]

BILLING CODE 6325–39–P

SECURITIES AND EXCHANGE COMMISSION

[SEC File No. 270–633, OMB Control No. 3235–0713]

Submission for OMB Review; Comment Request; Extension: Rule 15Fi–2

Upon Written Request, Copies Available From: Securities and Exchange Commission, Office of FOIA Services, 100 F Street NE, Washington, DC 20549–2736

Notice is hereby given that pursuant to the Paperwork Reduction Act of 1995 (''PRA'') (44 U.S.C. 3501 *et seq.*), the Securities and Exchange Commission (''Commission'') has submitted to the Office of Management and Budget (''OMB'') a request for approval of extension of the previously approved collection of information provided for in Rule 15Fi–2 (17 CFR 240.15Fi–2) under the Securities Exchange Act of 1934 (''Exchange Act'') (15 U.S.C. 78a *et seq.*).

Rule 15Fi–2 requires security-based swaps (''SBS'') dealers and major SBS participants (collectively, ''SBS Entities'') to provide to their counterparties a trade acknowledgment, to provide prompt verification of the terms provided in a trade acknowledgment of transactions from other SBS Entities, and to have written policies and procedures that are reasonably designed to obtain prompt verification of the terms provided in a trade acknowledgment. The Rule promotes the efficient operation of the SBS market and facilitates market participants' management of their SBS-related risk.

The Commission estimates that approximately 48 entities fit within the definition of SBS dealer, and zero entities fit within the definition of major SBS participant. Thus, we expect that approximately 48 entities will be required to register with the Commission as SBS Entities and will be subject to the trade acknowledgment provision and verification requirements of Rule 15Fi–2. The total estimated annual time burden of Rule 15Fi–2 is 22,848 hours.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information under the PRA unless it displays a currently valid OMB control number.

The public may view background documentation for this information collection at the following website: *www.reginfo.gov.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function. Written comments and recommendations for the proposed information collection should be sent by February 27, 2023 to (i) *www.reginfo.gov/public/do/PRAMain* and (ii) David Bottom, Director/Chief Information Officer, Securities and Exchange Commission, c/o John Pezzullo, 100 F Street NE, Washington, DC 20549, or by sending an email to: *PRA_Mailbox@sec.gov.*

Dated: January 23, 2023.

Sherry R. Haywood,

Assistant Secretary.

[FR Doc. 2023–01614 Filed 1–26–23; 8:45 am]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION

[SEC File No. 270–38, OMB Control No. 3235–0045]

Submission for OMB Review; Comment Request; Extension: Rule 19b–4 and Form 19b–4

Upon Written Request, Copies Available From: Securities and Exchange Commission, Office of FOIA Services, 100 F Street NE, Washington, DC 20549–2736

Notice is hereby given that pursuant to the Paperwork Reduction Act of 1995 (''PRA'') (44 U.S.C. 3501 *et seq.*), the Securities and Exchange Commission (''Commission'') has submitted to the Office of Management and Budget (''OMB'') a request for approval of extension of the of the previously approved collection of information provided for in Rule 19b–4 (17 CFR 240.19b–4), under the Securities Exchange Act of 1934 (''Act'') (15 U.S.C. 78a *et seq.*).

Section 19(b) of the Act (15 U.S.C. 78s(b)) requires each self-regulatory organization (''SRO'') to file with the Commission copies of any proposed rule, or any proposed change in, addition to, or deletion from the rules of such SRO. Rule 19b–4 implements the requirements of section 19(b) by requiring the SROs to file their proposed rule changes on Form 19b–4 and by clarifying which actions taken by SROs are subject to the filing requirement set forth in section 19(b). Rule 19b–4(n) requires a designated clearing agency to provide the Commission advance notice (''Advance Notice'') of any proposed change to its rules, procedures, or operations that could materially affect the nature or level of risks presented by such clearing agency. Rule 19b–4(o) requires a registered clearing agency to submit for a Commission determination any security-based swap, or any group, category, type, or class of security-based swaps it plans to accept for clearing (''Security-Based Swap Submission''), and provide notice to its members of such submissions.

The collection of information is designed to provide the Commission with the information necessary to determine, as required by the Act, whether the proposed rule change is consistent with the Act and the rules thereunder. The information is used to determine if the proposed rule change should be approved, disapproved, suspended, or if proceedings should be instituted to determine whether to approve or disapprove the proposed rule change.

The respondents to the collection of information are SROs (as defined by section 3(a)(26) of the Act)[1], including national securities exchanges, national securities associations, registered clearing agencies, notice registered securities future product exchanges, and the Municipal Securities Rulemaking Board.

In calendar year 2021, each respondent filed an average of approximately 34 proposed rule changes. Each filing takes approximately 32 hours to complete on average. Thus, the total annual reporting burden for filing proposed rule changes with the Commission is 50,048 hours (34 proposals per year × 46 SROs × 32 hours per filing) for the estimated future number of 46 SROs.[2] In addition to filing their proposed rule changes with the Commission, the respondents also are required to post each of their proposals on their respective websites, a process that takes approximately four hours to complete per proposal. Thus, the total annual reporting burden on respondents to post the proposals on their websites is 6,256 hours (34 proposals per year × 46 SROs × 4 hours per filing) for the estimated future number of 46 SROs. Further, the respondents are required to update their rulebooks, which they maintain on their websites, to reflect the changes that they make in each proposal they file. The total annual reporting burden for updating online rulebooks is 4,996 hours ((1,564 filings per year—293 withdrawn filings[3]—22 disapproved filings[4]) × 4 hours). Finally, a respondent is required to notify the Commission if it does not post a proposed rule change on its website on the same day that it filed the proposal with the Commission. The Commission estimates that SROs will fail to post proposed rule changes on their websites on the same day as the filing 16 times a year (across all SROs), and that each SRO will spend approximately one hour preparing and submitting such notice to the Commission, resulting in a total annual burden of 16 hours (16 notices × 1 hour per notice).

Designated clearing agencies have additional information collection burdens. As noted above, pursuant to Rule 19b–4(n), a designated clearing agency must file with the Commission an Advance Notice of any proposed change to its rules, procedures, or operations that could materially affect the nature or level of risks presented by such designated clearing agency. The Commission estimates, based on historical rulemaking data that each designated clearing agency submitting Advance Notices will each submit two Advance Notices per year, with each submission taking 90 hours to complete. The total annual reporting burden for filing Advance Notices is therefore 900 hours (5 designated clearing agencies × 2 Advance Notices per year × 90 hours per response).

Designated clearing agencies are required to post all Advance Notices to their websites, each of which takes approximately four hours to complete. For five Advance Notices, the total annual reporting burden for posting them to respondents' websites is 40 hours (5 designated clearing agencies × 2 Advance Notices per year × 4 hours per website posting). Respondents are required to update the postings of those Advance Notices that become effective, each of which takes approximately four hours to complete. The total annual reporting burden for updating Advance Notices on the respondents' websites is 40 hours (5 designated clearing agencies × 2 Advance Notices per year × 4 hours per website posting).

Pursuant to Rule 19b–4(n)(5), the respondents are also required to provide copies of all materials submitted to the Commission relating to an Advance Notice to the Board of Governors of the Federal Reserve System (''Board'') contemporaneously with such submission to the Commission, which is estimated to take two hours. The total annual reporting burden for designated clearing agencies to meet this requirement is 20 hours (5 designated clearing agencies × 2 Advance Notices per year × 2 hours per response).

The Commission estimates that three security-based swap clearing agencies will each submit 20 Security-Based Swap Submissions per year, with each submission taking 140 hours to complete resulting in a total annual reporting burden of 5,880 hours (3 respondent clearing agencies × 14 Security-Based Swap Submissions per year × 140 hours per response). Respondent clearing agencies are required to post all Security-Based Swap Submissions to their websites, each of which takes approximately four hours to complete. For 14 Security-Based Swap Submissions, the total annual reporting burden for posting them to the three respondents' websites is 168 hours (3 respondent clearing agencies × 14 Security-Based Swap Submissions per year × 4 hours per website posting). In addition, three clearing agencies that have not previously posted Security-Based Swap Submissions on their websites may need to update their existing websites to post such filings online. The Commission estimates that each of these three clearing agencies would spend

[1] 15 U.S.C. 78c(a)(26).

[2] Currently, there are 43 SROs, though not all of those SROs filed a proposed rule change in 2021. The Commission expects three additional respondents to register during the three-year period for which this Paperwork Reduction Act extension is applicable (one as a registered clearing agency and two as national securities exchanges), bringing the total number of respondents to 46.

[3] For 43 SROs, 274 withdrawn filings equal approximately 6.37 filings per SRO. For 46 SROs, the figure would increase to 293 withdrawn filings.

[4] For 43 SROs, 20 disapproved filings equal approximately 0.47 filings per SRO. For 46 SROs, the figure would increase to 22 disapproved filings.

approximately 15 hours updating their existing websites, resulting in a total one-time burden of 45 hours (3 respondent clearing agencies × 15 hours per website update) or 15 hours annualized over three years.

Respondent SROs will also have to provide training to staff members using the Electronic Form 19b–4 Filing System (''EFFS'') to submit Security-Based Swap Submissions, Advance Notices, and/or proposed rule changes electronically. The Commission estimates that two anticipated national securities exchanges and one anticipated clearing agency will spend approximately 60 hours training all staff members who will use EFFS to submit Security-Based Swap Submissions, Advance Notices, and/or proposed rule changes electronically, or 20 hours annualized over three years. The Commission also estimates that these newly-registered and anticipated SROs will have a one-time burden of 390 hours to draft and implement internal policies and procedures for using EFFS to make these submissions, or 130 hours annualized over three years. The Commission estimates that each of the 46 respondents will spend 10 hours each year training new compliance staff members and updating the training of existing compliance staff members to use EFFS, for a total annual burden of 460 hours (46 respondent SROs × 10 hours).

In connection with Security-Based Swap Submissions, counterparties may apply for a stay from a mandatory clearing requirement under Rule 3Ca–1. The Commission estimates that each clearing agency will submit five applications for stays from a clearing requirement per year and it will take approximately 18 hours to retrieve, review, and submit each application. Thus, the total annual reporting burden for the Rule 3Ca–1 stay of clearing requirement would be 270 hours (3 respondent clearing agencies × 5 stay of clearing applications per year × 18 hours to retrieve, review, and submit the stay of clearing information).

Based on the above, the total estimated annual response burden pursuant to Rule 19b–4 and Form 19b–4 is the sum of the total annual reporting burdens for filing proposed rule changes, Advance Notices, and Security-Based Swap Submissions; training staff to file such proposals; drafting, modifying, and implementing internal policies and procedures for filing such proposals; posting each proposal on the respondents' websites; updating websites to enable posting of proposals; updating the respondents' online rulebooks to reflect the proposals that became effective; submitting copies of Advance Notices to the Board; and applying for stays from clearing requirements, which is 69,259 hours.

Compliance with Rule 19b–4 is mandatory. Information received in response to Rule 19b–4 shall not be kept confidential; the information collected is public information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information under the PRA unless it displays a currently valid OMB control number.

The public may view background documentation for this information collection at the following website: *www.reginfo.gov*. Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function. Written comments and recommendations for the proposed information collection should be sent by February 27, 2023 to (i) *MBX.OMB.OIRA.SEC_desk_officer@omb.eop.gov* and (ii) David Bottom, Director/Chief Information Officer, Securities and Exchange Commission, c/o John Pezzullo, 100 F Street NE, Washington, DC 20549, or by sending an email to: *PRA_Mailbox@sec.gov.*

Dated: January 23, 2023.

Sherry R. Haywood,

Assistant Secretary.

[FR Doc. 2023–01613 Filed 1–26–23; 8:45 am]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–96735; File No. SR–NYSENAT–2023–04]

Self-Regulatory Organizations; NYSE National, Inc.; Notice of Filing and Immediate Effectiveness of Proposed Rule Change To Amend Rule 7.31(i)(2)

January 23, 2023.

Pursuant to section 19(b)(1) [1] of the Securities Exchange Act of 1934 (''Act'') [2] and Rule 19b–4 thereunder,[3] notice is hereby given that on January 19, 2023, NYSE National, Inc. (''NYSE National'' or the ''Exchange'') filed with the Securities and Exchange Commission (''Commission'') the proposed rule change as described in Items I and II below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to amend Rule 7.31(i)(2) to enhance the Exchange's existing Self Trade Prevention (''STP'') modifiers. The proposed rule change is available on the Exchange's website at *www.nyse.com,* at the principal office of the Exchange, and at the Commission's Public Reference Room.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the self-regulatory organization included statements concerning the purpose of, and basis for, the proposed rule change and discussed any comments it received on the proposed rule change. The text of those statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant parts of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and the Statutory Basis for, the Proposed Rule Change

1. Purpose

The Exchange proposes to amend Rule 7.31(i)(2) to enhance the Exchange's existing Self Trade Prevention (''STP'') modifiers. Specifically, the Exchange proposes to allow ETP Holders the option to apply STP modifiers to orders submitted not only from the same MPID, as the current rule provides, but also to orders submitted from (i) the same subidentifier of a particular MPID; (ii) other MPIDs associated with the same Client ID (as designated by the ETP Holder); and (iii) Affiliates of the ETP Holder.

Background

Currently, Rule 7.31(i)(2) offers optional anti-internalization functionality to ETP Holders in the form of STP modifiers that enable an ETP Holder to prevent two of its orders from executing against each other. Currently, ETP Holders can set the STP modifier to apply at the market participant identifier (''MPID'') level. The STP modifier on the order with the most recent time stamp controls the interaction between two orders marked with STP modifiers. STP functionality assists market participants by allowing

[1] 15 U.S.C. 78s(b)(1).

[2] 15 U.S.C. 78a.

[3] 17 CFR 240.19b–4.

firms to better prevent unintended executions with themselves and to reduce the potential for ''wash sales'' that may occur as a result of the velocity of trading in a high-speed marketplace. STP functionality also assists market participants in reducing trading costs from unwanted executions potentially resulting from the interaction of executable buy and sell trading interest from the same firm.

The Exchange notes that several equities exchanges—including IEX, Nasdaq, Nasdaq BX, Nasdaq Phlx, and MIAX Pearl Equities—have all recently amended their rules to provide additional levels at which orders may be grouped for the purposes of applying their anti-internalization rules. As such, the proposed changes herein are not novel and are familiar to market participants.[4]

Proposed Amendment

The Exchange proposes to amend the Rule 7.31(i)(2) in three ways, each of which would enhance ETP Holders' flexibility over the levels at which orders may be grouped for the purposes of applying the Exchange's existing STP modifiers.

First, the Exchange proposes to amend the rule to permit an ETP Holder to set the STP modifiers to apply at the level of a subidentifier of an MPID. This change would allow ETP Holders to prevent orders sent from the same subidentifier of a particular MPID from executing against each other, but permit orders sent from different subidentifiers of the same MPID to interact.[5]

Second, the Exchange proposes to amend Rule 7.31(i)(2) to permit an ETP Holder to set the STP modifiers to prevent orders from different MPIDs from executing against each other. The proposed amendment would address this by allowing ETP Holders to apply STP modifiers at the level of ''Client ID,'' which would be an identifier designated by the ETP Holder. As proposed, a Client ID would function similarly to an MPID in that it would be a unique identifier assigned to an ETP Holder. The Exchange believes that this proposed enhancement would provide ETP Holders with greater flexibility in how they instruct the Exchange to apply STP modifiers to their orders. The Exchange notes that it is not novel for an exchange to provide its members with multiple methods by which to designate anti-internalization instructions.[6]

Third, the Exchange proposes to amend Rule 7.31(i)(2) to permit ETP Holders to direct orders not to execute against orders entered across MPIDs associated with Affiliates of the ETP Holder that are also ETP Holders.[7] This change would expand the availability of the STP functionality to ETP Holders that have divided their business activities between separate corporate entities without disadvantaging them when compared to ETP Holders that operate their business activities within a single corporate entity.

The Exchange believes that these enhancements will all provide helpful flexibility for ETP Holders by expanding their ability to apply STP modifiers at multiple levels, including within a subidentifier of a single MPID, across multiple MPIDs of the same Client ID, and across multiple MPIDs of the ETP Holder and its Affiliates, in addition to at the MPID level as the current rule provides. These proposed changes would help ETP Holders better manage their order flow and prevent undesirable executions or the potential for ''wash sales'' that might otherwise occur.

To effect these changes, the Exchange proposes to amend the first sentence of Rule 7.31(i)(2) and add a new sentence as follows (proposed text italicized, deletions in brackets): ''Any incoming order to buy (sell) designated with an STP modifier will be prevented from trading with a resting order to sell (buy) also designated with an STP modifier and from *the same Client ID;* the same MPID *and, if specified, any subidentifier; or an Affiliate identifier (any such identifier, a ''Unique Identifier''). For purposes of this rule, the term ''Affiliate'' means any ETP Holder under 75% common ownership or control of that ETP Holder.*'' The Exchange further proposes to replace references to ''MPID'' in Rules 7.31(i)(2)(A)–(D) with the term ''Unique Identifier.''

While this proposal would expand how an ETP Holder can designate orders with an STP modifier, nothing in this proposal would make substantive changes to the STP modifiers themselves or how they would function with respect to two orders interacting within a relevant level.

The Exchange notes that, as with its current anti-internalization functionality, use of the proposed revised Rule 7.31(i)(2) will not alleviate or otherwise exempt ETP Holders from their best execution obligations. As such, ETP Holders using the proposed enhanced STP functionality will continue to be obligated to take appropriate steps to ensure that customer orders that do not execute because they were subject to anti-internalization ultimately receive the same price, or a better price, than they would have received had execution of the orders not been inhibited by anti-internalization.

Timing and Implementation

The Exchange anticipates that the technology changes required to implement this proposed rule change will become available on a rolling basis, beginning less than 30 days from the date of filing, to be completed by the end of the first quarter of 2023.

2. Statutory Basis

The Exchange believes that the proposed rule change is consistent with section 6(b) of the Act,[8] in general, and furthers the objectives of section 6(b)(5) of the Act,[9] in particular, because it is designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in regulating, clearing, settling, processing information with respect to, and facilitating transactions in securities, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest, and because it is not designed to permit unfair

[4] Several other equity exchanges recently amended their rules to allow affiliate grouping for their own anti-internalization functionality. *See, e.g.,* Securities Exchange Act Release Nos. 96187 (October 31, 2022), 87 FR 66764 (November 4, 2022) (SR–IEX–2022–08); 96156 (October 25, 2022), 87 FR 65633 (October 31, 2022) (SR–BX–2022–020); 96154 (October 25, 2022), 87 FR 65631 (October 31, 2022) (SR–Phlx–2022–43); 96069 (October 13, 2022), 87 FR 63558 (October 19, 2022) (SR–NASDAQ–2022–56, implemented by SR–NASSDAQ–2022–60); and 96334 (November 16, 2022), 87 FR 71368 (November 22, 2022) (SR–PEARL–2022–48).

[5] This functionality exists on the Exchange's affiliate exchange Arca Options, and as such is not novel and is familiar to market participants. *See* Arca Options Rule 6.62P–O(i)(2) (''An Aggressing Order or Aggressing Quote to buy (sell) designated with one of the STP modifiers in this paragraph will be prevented from trading with a resting order or quote to sell (buy) also designated with an STP modifier from the same MPID, and, if specified, any subidentifier of that MPID.'').

[6] *See, e.g.,* MIAX Pearl, LLC (''MIAX Pearl Equities'') Rule 2614(f) (specifying that Self-Trade Prevention Modifiers will be applicable to orders ''from the same MPID, Exchange member identifier, trading group identifier, or Equity Member Affiliate (any such identifier, a 'Unique Identifier')'').

[7] The proposed definition of ''Affiliate'' is identical to the one currently provided in the Exchange's Fee Schedule. *See* NYSE National, Inc. Schedule of Fees and Rebates, Section I.B(c) (''For purposes of this Schedule of Fees and Rebates, the term ''affiliate'' shall mean any ETP Holder under 75% common ownership or control of that ETP Holder.''). This 75% threshold is not novel. *See, e.g.,* Nasdaq PHLX LLC (''Nasdaq PHLX'') Equity 4, Rule 3307(c).

[8] 15 U.S.C. 78f(b).

[9] 15 U.S.C. 78f(b)(5).

discrimination between customers, issuers, brokers, or dealers.

Specifically, the Exchange believes that the proposed rule change will remove impediments to and perfect the mechanism of a free and open market and a national market system and is consistent with the protection of investors and the public interest because enhancing how ETP Holders may apply STP modifiers will provide ETP Holders with additional flexibility with respect to how they implement self-trade protections provided by the Exchange that may better support their trading strategies.

The Exchange believes that the proposed rule change does not unfairly discriminate among ETP Holders because the proposed STP protections will be available to all ETP Holders, and ETP Holders that prefer setting STP modifiers at the MPID level will still be able to do so. In addition, allowing ETP Holders to apply STP modifiers to trades submitted by their Affiliates that are also ETP Holders is intended to avoid disparate treatment of firms that have divided their various business activities between separate corporate entities as compared to firms that operate those business activities within a single corporate entity.

Finally, the Exchange notes that other equity exchanges recently amended their rules to allow affiliate grouping for their own anti-internalization functionality and similarly use a 75% threshold of common ownership for assessing whether such orders would be eligible for this enhancement.[10] Consequently, the Exchange does not believe that this change raises new or novel issues not already considered by the Commission.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. To the contrary, the proposal is designed to enhance the Exchange's competitiveness by providing additional flexibility over the levels at which orders may be grouped for STP purposes, thereby incentivizing ETP Holders to send orders to the Exchange and increase the liquidity available on the Exchange. The Exchange also notes that the proposed new STP grouping options, like the Exchange's current anti-internalization functionality, are completely optional and ETP Holders can determine whether to apply anti-internalization protections to orders submitted to the Exchange, and if so, at what level to apply those protections (*e.g.,* MPID, subidentifier, Client ID, or Affiliate level). The proposed rule change would also improve the Exchange's ability to compete with other exchanges that recently amended their rules to expand the groupings for their own anti-internalization functionality. There is no barrier to other national securities exchanges adopting similar anti-internalization groupings as those proposed herein.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

No written comments were solicited or received with respect to the proposed rule change.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Because the foregoing proposed rule change does not: (i) significantly affect the protection of investors or the public interest; (ii) impose any significant burden on competition; and (iii) become operative for 30 days after the date of the filing, or such shorter time as the Commission may designate if consistent with the protection of investors and the public interest, it has become effective pursuant to section 19(b)(3)(A) of the Act[11] and Rule 19b–4(f)(6)[12] thereunder.

A proposed rule change filed under Rule 19b–4(f)(6)[13] normally does not become operative prior to 30 days after the date of the filing. However, pursuant to Rule 19b–4(f)(6)(iii),[14] the Commission may designate a shorter time if such action is consistent with the protection of investors and the public interest. The Exchange has asked the Commission to waive the 30-day operative delay so that the proposed rule change may become operative upon filing. The Exchange requested the waiver because it would enable the Exchange to compete with other exchanges that have recently amended their rules to expand the levels at which orders may be grouped for STP purposes. The Exchange states that at least one such competitor exchange plans to introduce similar capabilities to market participants as early as January 9, 2023. The Exchange also states that it is currently working on technological solutions to meet this competition and to make similar offerings available to market participants as soon as possible. The Exchange expects to begin rolling out this functionality in less than 30 days from the date of filing, and thus requests waiver of the operative delay in order to promptly meet market competition. For these reasons, and because the proposed rule change does not raise any novel regulatory issues, the Commission believes that waiving the 30-day operative delay is consistent with the protection of investors and the public interest. Therefore, the Commission hereby waives the operative delay and designates the proposal operative upon filing.[15]

At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the Commission that such action is necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

Electronic Comments

- Use the Commission's internet comment form (*http://www.sec.gov/rules/sro.shtml*); or
- Send an email to *rule-comments@sec.gov.* Please include File Number SR–NYSENAT–2023–04 on the subject line.

Paper Comments

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549–1090.

All submissions should refer to File Number SR–NYSENAT–2023–04. This file number should be included on the subject line if email is used. To help the Commission process and review your

[10] *See supra* notes 4 and 7.

[11] 15 U.S.C. 78s(b)(3)(A).

[12] 17 CFR 240.19b–4(f)(6). In addition, Rule 19b–4(f)(6) requires a self-regulatory organization to give the Commission written notice of its intent to file the proposed rule change, along with a brief description and text of the proposed rule change, at least five business days prior to the date of filing of the proposed rule change, or such shorter time as designated by the Commission. The Exchange has satisfied this requirement.

[13] 17 CFR 240.19b–4(f)(6).

[14] 17 CFR 240.19b–4(f)(6)(iii).

[15] For purposes only of waiving the 30-day operative delay, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. *See* 15 U.S.C. 78c(f).

comments more efficiently, please use only one method. The Commission will post all comments on the Commission's internet website (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549, on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–NYSENAT–2023–04 and should be submitted on or before February 17, 2023.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[16]

Sherry R. Haywood,

Assistant Secretary.

[FR Doc. 2023–01628 Filed 1–26–23; 8:45 am]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–96734; File No. SR–NYSECHX–2023–04]

Self-Regulatory Organizations; NYSE Chicago, Inc.; Notice of Filing and Order Granting Accelerated Approval of a Proposed Rule Change To Add Violations of Article 6, Rule 13 to the List of Minor Rule Violations in Rule 10.9217

January 23, 2023.

Pursuant to section 19(b)(1)[1] of the Securities Exchange Act of 1934 (the ''Act'')[2] and Rule 19b–4 thereunder,[3] notice is hereby given that, on January 9, 2023, NYSE Chicago, Inc. (''NYSE Chicago'' or the ''Exchange'') filed with the Securities and Exchange Commission (the ''Commission'') the proposed rule change as described in Items I and II below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons and approving the proposal on an accelerated basis.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to add Article 6, Rule 13 (Registration Requirements) to the list of minor rule violations in Rule 10.9217. The proposed rule change is available on the Exchange's website at *www.nyse.com,* at the principal office of the Exchange, and at the Commission's Public Reference Room.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the self-regulatory organization included statements concerning the purpose of, and basis for, the proposed rule change and discussed any comments it received on the proposed rule change. The text of those statements may be examined at the places specified in Item III below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant parts of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and the Statutory Basis for, the Proposed Rule Change

1. Purpose

The Exchange proposes to add Article 6, Rule 13 (Registration Requirements) to the list of minor rule violations in Rule 10.9217.

Article 6, Rule 13, which was adopted in 2018,[4] sets forth the requirements for persons engaged in the investment banking or securities business of a Participant to be registered with the Exchange as a representative or principal in each category of registration appropriate to his or her functions and responsibilities as specified in Article 6, Rule 14.

The Exchange proposes to add Article 6, Rule 13 to the list of rules in Rule 10.9217 eligible for disposition pursuant to a fine under Rule 10.9216(b). Specifically, the Exchange proposes to add Article 6, Rule 13 to the ''List of Rule Violations and Fines Applicable Thereto'' as item 25 under current subsection (e), titled ''Reporting and Record Retention Violations.'' The substantially similar version of Article 6, Rule 13 was adopted by the Exchange's affiliate New York Stock Exchange LLC (''NYSE'') in 2018[5] and is currently eligible for minor rule fines under the NYSE's version of Rule 10.9217.[6] The Exchange believes that having the ability to issue a minor rule fine for failing to comply with the registration requirements of Article 6, Rule 13 would be consistent with and complement the Exchange's current ability to issue minor rule fines for other registration violations (*e.g.,* Registration and Approval of Participant Personnel (Article 6, Rule 2(a) & (b), Registration of Market Makers and Market Maker Authorized Traders (Article 16, Rules 1 and 3)). The Exchange further believes that the violations of the registration requirements are particularly suited to minor rule fines because minor fines provide a reasonable means of addressing violations that do not rise to the level of requiring formal disciplinary proceedings, while providing greater flexibility in handling certain violations.

The Exchange further proposes to add fine levels for violations of Article 6, Rule 13. The Exchange would add proposed first, second and third level fines for violations of Article 6, Rule 13 to the fine schedule of $250 for the first violation, $750 for the second violation and $1,500 for the third and subsequent violations. The proposed fine levels would be the same as those in current Rule 10.9217(f).13 and (f).21 for violations of Article 6, Rule 2(a) & (b) and Article 16, Rules 1 and 3, respectively.

The Exchange believes that the proposed change would strengthen the Exchange's ability to carry out its

[16] 17 CFR 200.30–3(a)(12).

[1] 15 U.S.C. 78s(b)(1).

[2] 15 U.S.C. 78a.

[3] 17 CFR 240.19b–4.

[4] *See* Securities Exchange Act Release No. 84896 (December 20, 2018), 83 FR 67376 (December 28, 2018) (SR–CHX–2018–07) (Notice of Filing and Immediate Effectiveness of Proposed Rule Change Regarding Qualification, Registration and Continuing Education Requirements Applicable to Participants).

[5] *See* Securities Exchange Act Release No. 84336 (October 2, 2018), 83 FR 50727 (October 9, 2018) (SR–NYSE–2018–44) (Notice of Filing and Immediate Effectiveness of Amendments To Rules Regarding Qualification, Registration and Continuing Education Applicable to Members and Member Organizations). The Exchange's other affiliates also adopted substantially similar versions of Article 6, Rule 13. *See* NYSE American LLC (''NYSE American'') Rule 2.1210; NYSE Arca, Inc. (''NYSE Arca'') Rule 2.1210; & NYSE National, Inc. (''NYSE National'') Rule 2.1210.

[6] *See* NYSE Rule 9217. The substantially similar versions of Article 6, Rule 13 are also eligible for minor rule fines under each affiliate's version of Rule 10.9217. *See* NYSE American Rule 9217; NYSE Arca Rule 10.9217(g)(13); & NYSE National Rule 10.9217(f).

oversight and enforcement responsibilities in cases where full disciplinary proceedings are unwarranted in view of the minor nature of the particular violation.

2. Statutory Basis

The proposed rule change is consistent with section 6(b) of the Act,[7] in general, and furthers the objectives of section 6(b)(5),[8] in particular, because it is designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in facilitating transactions in securities, to remove impediments to, and perfect the mechanism of, a free and open market and a national market system and, in general, to protect investors and the public interest.

Minor rule fines provide a meaningful sanction for minor or technical violations of rules when the conduct at issue does not warrant stronger, immediately reportable disciplinary sanctions. The inclusion of a rule in Rule 10.9217 does not minimize the importance of compliance with the rule, nor does it preclude the Exchange from choosing to pursue violations of eligible rules through formal disciplinary action if the nature of the violations or prior disciplinary history warrants more significant sanctions. Rather, the Exchange believes that the proposed rule change will strengthen the Exchange's ability to carry out its oversight and enforcement responsibilities in cases where full disciplinary proceedings are unwarranted in view of the minor nature of the particular violation. The option to impose a minor rule sanction gives the Exchange additional flexibility to administer its enforcement program in the most effective and efficient manner while still fully meeting the Exchange's remedial objectives in addressing violative conduct. The proposed rule change is thus designed to prevent fraudulent and manipulative acts and practices because it will provide the Exchange the ability to issue a minor rule fine for violations of the registration requirements set forth in Article 6, Rule 13 where a more formal disciplinary action may not be warranted or appropriate. In addition, the Exchange believes that adding rules based on the rules of its affiliate to the Exchange's minor rule plan would promote fairness and consistency in the marketplace by permitting the Exchange to issue a minor rule fine for violations of substantially similar rules that are already eligible for minor rule treatment, thereby harmonizing rules eligible for minor rule fines across affiliated exchanges.

The Exchange further believes that the proposed amendments to Rule 10.9217 are consistent with section 6(b)(6) of the Act,[9] which provides that members and persons associated with members shall be appropriately disciplined for violation of the provisions of the rules of the Act, the rules and regulations thereunder, and the rules of the exchange, by expulsion, suspension, limitation of activities, functions, and operations, fine, censure, being suspended or barred from being associated with a member, or any other fitting sanction. As noted, the proposed rule change would provide the Exchange ability to sanction minor or technical violations of proposed Article 6, Rule 13 pursuant to the Exchange's rules. Finally, the Exchange also believes that the proposed changes are designed to provide a fair procedure for the disciplining of members and persons associated with members, consistent with sections 6(b)(7) and 6(d) of the Act.[10] Rule 10.9217 does not preclude a member organization or covered person from contesting an alleged violation and receiving a hearing on the matter with procedural rights through a litigated disciplinary proceeding.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. The proposed change is not designed to address any competitive issue but rather to update the Exchange's rules to strengthen the Exchange's ability to carry out its oversight and enforcement functions and deter potential violative conduct and to align the Exchange's rule setting forth violations eligible for a minor rule fine more closely with that of its affiliates.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

No written comments were solicited or received with respect to the proposed rule change.

[7] 15 U.S.C. 78f(b).

[8] 15 U.S.C. 78f(b)(5).

[9] 15 U.S.C. 78f(b)(6).

[10] 15 U.S.C. 78f(b)(7) and 78f(d).

III. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

Electronic Comments

- Use the Commission's internet comment form (*http://www.sec.gov/rules/sro.shtml*); or
- Send an email to *rule-comments@sec.gov.* Please include File Number SR–NYSECHX–2023–04 on the subject line.

Paper Comments

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549–1090.

All submissions should refer to File Number SR–NYSECHX–2023–04. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's internet website (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549 on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–NYSECHX–2023–04 and should be submitted on or before February 17, 2023.

IV. Commission's Findings and Order Granting Accelerated Approval of Proposed Rule Change

The Commission finds that the proposed rule change is consistent with

the requirements of the Act and the rules and regulations thereunder applicable to a national securities exchange.[11] In particular, the Commission finds that the proposed rule change is consistent with section 6(b)(5) of the Act,[12] which requires that the rules of an exchange be designed to promote just and equitable principles of trade, to remove impediments and to perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest. The Commission also believes that the proposal is consistent with sections 6(b)(1) and 6(b)(6) of the Act [13] which require that the rules of an exchange enforce compliance with, and provide appropriate discipline for, violations of Commission and Exchange rules. Finally, the Commission finds that the proposal is consistent with the public interest, the protection of investors, or otherwise in furtherance of the purposes of the Act, as required by Rule 19d–1(c)(2) under the Act,[14] which governs minor rule violation plans.

As stated above, the Exchange proposes to add Article 6, Rule 13 (Registration Requirements), to the list of minor rule violations in Rule 10.9217, including in the fine schedule. The Commission believes that Rules 10.9216(b) and 10.9217 are an effective way to discipline a member for a minor violation of a rule. More specifically, the Commission believes that the proposed addition of Article 6, Rule 13 to the Exchange's list of current minor rule violations provides a reasonable means of addressing violations that do not rise to the level of requiring formal disciplinary proceedings, while providing greater flexibility in handling certain violations. The Commission also believes that amending the associated fine schedule is consistent with the Act because it may help the Exchange's ability to better carry out its oversight and enforcement responsibilities by levying appropriate fines for minor violations of the rules included in Rule 10.9217, including minor violations of Article 6, Rule 13.

In approving the proposed rule change, the Commission in no way minimizes the importance of compliance with the Exchange's rules and all other rules subject to fines under Rules 10.9216(b) and 10.9217. The Commission believes that a violation of any self-regulatory organization's rules, as well as Commission rules, is a serious matter. However, Rules 10.9216(b) and 10.9217 provide a reasonable means of addressing rule violations that may not rise to the level of requiring formal disciplinary proceedings, while providing greater flexibility in handling certain violations. The Commission expects that the Exchange will continue to conduct surveillance with due diligence and make a determination based on its findings, on a case-by-case basis, whether a fine of more or less than the recommended amount is appropriate for a violation under Rules 10.9216(b) and 10.9217 or whether a violation requires formal disciplinary action.

For the same reasons as discussed above, the Commission finds good cause, pursuant to section 19(b)(2) of the Act,[15] for approving the proposed rule change prior to the thirtieth day after the date of publication of the notice of the filing thereof in the **Federal Register**. The proposal will assist the Exchange in preventing fraudulent and manipulative practices by allowing the Exchange to adequately enforce compliance with, and provide appropriate discipline for, violations of Exchange rules. Moreover, the proposed changes raise no new or novel issues. Accordingly, the Commission believes that a full notice-and-comment period is not necessary before approving the proposal.

V. Conclusion

It is therefore ordered, pursuant to section 19(b)(2) of the Act [16] and Rule 19d–1(c)(2) thereunder,[17] that the proposed rule change (SR–NYSECHX–2023–04) be, and hereby is, approved on an accelerated basis.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[18]

Sherry R. Haywood,

Assistant Secretary.

[FR Doc. 2023–01627 Filed 1–26–23; 8:45 am]

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[11] In approving this proposed rule change, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. *See* 15 U.S.C. 78c(f).

[12] 15 U.S.C. 78f(b)(5).

[13] 15 U.S.C. 78f(b)(1) and 78f(b)(6).

[14] 17 CFR 240.19d–1(c)(2).

[15] 15 U.S.C. 78s(b)(2).

[16] 15 U.S.C. 78s(b)(2).

[17] 17 CFR 240.19d–1(c)(2).

[18] 17 CFR 200.30–3(a)(12).

SECURITIES AND EXCHANGE COMMISSION

[SEC File No. 270–396, OMB Control No. 3235–0452]

Submission for OMB Review; Comment Request; Extension: Notice of Exempt Preliminary Roll-Up Communication

Upon Written Request, Copies Available From: Securities and Exchange Commission, Office of FOIA Services, 100 F Street NE, Washington, DC 20549–2736

Notice is hereby given that, pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*), the Securities and Exchange Commission (''Commission'') has submitted to the Office of Management and Budget this request for extension of the previously approved collection of information discussed below.

Rule 14a–6(n) [17 CFR 240.14a–6(n)] under the Securities Exchange Act of 1934 (''Exchange Act'') (U.S.C. 78a *et seq.*) requires any person that engages in a proxy solicitation is subject to Exchange Act Rule 14a–2(b)(4) [17 CFR 240.14a–2(b)(4)] to file a Notice of Exempt Preliminary Roll-Up Communication (''Notice'') [17 CFR 240.14a–104] with the Commission. The Notice provides information regarding ownership interest and any potential conflicts of interest to be included in statements submitted by or on behalf of a person engaging in the solicitation. The Notice is filed on occasion and the information required is mandatory. All information is provided to the public upon request. We estimate the Notice takes approximately 0.25 hours per response and is filed by approximately 4 respondents for a total of one annual burden hour (0.25 hours per response × 4 responses).

An agency may conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid control number.

The public may view background documentation for this information collection at the following website: *www.reginfo.gov.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function. Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice by February 27, 2023 to (i) *www.reginfo.gov/public/do/PRAMain* and (ii) David Bottom, Director/Chief Information Officer, Securities and

Exchange Commission, c/o John Pezzullo, 100 F Street NE, Washington, DC 20549, or by sending an email to: *PRA_Mailbox@sec.gov.*

Dated: January 23, 2023.

Sherry R. Haywood,

Assistant Secretary.

[FR Doc. 2023–01615 Filed 1–26–23; 8:45 am]

BILLING CODE 8011–01–P

SMALL BUSINESS ADMINISTRATION

[Disaster Declaration #17757 and #17758; CALIFORNIA Disaster Number CA–00366]

Presidential Declaration Amendment of a Major Disaster for the State of California

AGENCY: Small Business Administration.

ACTION: Amendment 2.

SUMMARY: This is an amendment of the Presidential declaration of a major disaster for the State of California (FEMA–4683–DR), dated 01/14/2023.

Incident: Severe Winter Storms, Flooding, Landslides, and Mudslides.

Incident Period: 12/27/2022 and continuing.

DATES: Issued on 01/18/2023.

Physical Loan Application Deadline Date: 03/16/2023.

Economic Injury (EIDL) Loan Application Deadline Date: 10/16/2023.

ADDRESSES: Submit completed loan applications to: U.S. Small Business Administration, Processing and Disbursement Center, 14925 Kingsport Road, Fort Worth, TX 76155.

FOR FURTHER INFORMATION CONTACT: A. Escobar, Office of Disaster Assistance, U.S. Small Business Administration, 409 3rd Street SW, Suite 6050, Washington, DC 20416, (202) 205–6734.

SUPPLEMENTARY INFORMATION: The notice of the President's major disaster declaration for the State of California, dated 01/14/2023, is hereby amended to include the following areas as adversely affected by the disaster:

Primary Counties (Physical Damage and Economic Injury Loans): San Joaquin.

Contiguous Counties (Economic Injury Loans Only):

California: Alameda, Calaveras.

All other information in the original declaration remains unchanged.

(Catalog of Federal Domestic Assistance Number 59008)

Rafaela Monchek,

Acting Associate Administrator for Disaster Recovery and Resilience.

[FR Doc. 2023–01620 Filed 1–26–23; 8:45 am]

BILLING CODE 8026–09–P

SMALL BUSINESS ADMINISTRATION

Reporting and Recordkeeping Requirements Under OMB Review

AGENCY: Small Business Administration.

ACTION: 30-Day notice.

SUMMARY: The Small Business Administration (SBA) is seeking approval from the Office of Management and Budget (OMB) for the information collection described below. In accordance with the Paperwork Reduction Act and OMB procedures, SBA is publishing this notice to allow all interested member of the public an additional 30 days to provide comments on the proposed collection of information.

DATES: Submit comments on or before February 27, 2023.

ADDRESSES: Written comments and recommendations for this information collection request should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/*PRAMain. Find this particular information collection request by selecting ''Small Business Administration''; ''Currently Under Review,'' then select the ''Only Show ICR for Public Comment'' checkbox. This information collection can be identified by title and/or OMB Control Number.

FOR FURTHER INFORMATION CONTACT: You may obtain a copy of the information collection and supporting documents from the Agency Clearance Office at *Curtis.Rich@sba.gov;* (202) 205–7030, or from *www.reginfo.gov/public/do/PRAMain.*

SUPPLEMENTARY INFORMATION: SBA Forms 1405 and 1405A are used by Small Business Administration (SBA) examiners as part of their examination of licensed small business investment companies (SBICs). This information is collected from SBIC'S Stockholders and partners and provides independent third-party confirmation of an SBIC's representations concerning its owners. The information helps SBA to evaluate the SBIC'S with applicable laws and regulations concerning capital requirements.

Solicitation of Public Comments

Comments may be submitted on (a) whether the collection of information is necessary for the agency to properly perform its functions; (b) whether the burden estimates are accurate; (c) whether there are ways to minimize the burden, including through the use of automated techniques or other forms of information technology; and (d) whether there are ways to enhance the quality, utility, and clarity of the information.

OMB Control No.: 3245–0172.

Title: ''Stockholders' Confirmation (Corporation); Ownership Confirmation (Partnership)''.

Description of Respondents: Licensed small business investment companies (SBICs).

Estimated Number of Respondents: 600.

Estimated Annual Responses: 600.

Estimated Annual Hour Burden: 600.

Curtis Rich,

Agency Clearance Officer.

[FR Doc. 2023–01671 Filed 1–26–23; 8:45 am]

BILLING CODE 8026–09–P

SMALL BUSINESS ADMINISTRATION

[Disaster Declaration #17713 and #17714; SOUTH CAROLINA Disaster Number SC–00082]

Presidential Declaration Amendment of a Major Disaster for Public Assistance Only for the State of South Carolina

AGENCY: Small Business Administration.

ACTION: Amendment 1.

SUMMARY: This is an amendment of the Presidential declaration of a major disaster for Public Assistance Only for the State of South Carolina (FEMA–4677–DR), dated 11/21/2022.

Incident: Hurricane Ian.

Incident Period: 09/25/2022 through 10/04/2022.

DATES: Issued on 01/18/2023.

Physical Loan Application Deadline Date: Filing Period for Florence County ends 03/20/2023.

Economic Injury (EIDL) Loan Application Deadline Date: Filing Period for Florence County ends 10/18/2023.

ADDRESSES: Submit completed loan applications to: U.S. Small Business Administration, Processing and Disbursement Center, 14925 Kingsport Road, Fort Worth, TX 76155.

FOR FURTHER INFORMATION CONTACT: A. Escobar, Office of Disaster Assistance, U.S. Small Business Administration, 409 3rd Street SW, Suite 6050, Washington, DC 20416, (202) 205–6734.

SUPPLEMENTARY INFORMATION: The notice of the President's major disaster declaration for Private Non-Profit organizations in the State of South Carolina, dated 11/21/2022, is hereby amended to include Florence County. Please contact the SBA disaster assistance customer service center by email at *disastercustomerservice@sba.gov* or by phone at 1–800–659–2955 to request an application Applications

for physical damages may be filed until 03/20/2023 and applications for economic injury may be file until 10/18/2023.

All other information in the original declaration remains unchanged.

(Catalog of Federal Domestic Assistance Number 59008)

Rafaela Monchek,

Acting Associate Administrator for Disaster Recovery and Resilience.

[FR Doc. 2023–01610 Filed 1–26–23; 8:45 am]

BILLING CODE 8026–09–P

SMALL BUSINESS ADMINISTRATION

[Disaster Declaration #17759 and #17760; Alabama Disaster Number AL–00128]

Presidential Declaration Amendment of a Major Disaster for the State of Alabama

AGENCY: Small Business Administration.

ACTION: Amendment 1.

SUMMARY: This is an amendment of the Presidential declaration of a major disaster for the State of ALABAMA (FEMA–4684–DR), dated 01/15/2023.

Incident: Severe Storms, Straight-line Winds, and Tornadoes.

Incident Period: 01/12/2023.

DATES: Issued on 01/19/2023.

Physical Loan Application Deadline Date: 03/16/2023.

Economic Injury (EIDL) Loan Application Deadline Date: 10/16/2023.

ADDRESSES: Submit completed loan applications to: U.S. Small Business Administration, Processing and Disbursement Center, 14925 Kingsport Road, Fort Worth, TX 76155.

FOR FURTHER INFORMATION CONTACT: A. Escobar, Office of Disaster Assistance, U.S. Small Business Administration, 409 3rd Street SW, Suite 6050, Washington, DC 20416, (202) 205–6734.

SUPPLEMENTARY INFORMATION: The notice of the President's major disaster declaration for the State of Alabama, dated 01/15/2023, is hereby amended to include the following areas as adversely affected by the disaster:

Primary Counties (Physical Damage and Economic Injury Loans): Coosa, Elmore, Hale.

Contiguous Counties (Economic Injury Loans Only):

Alabama: Bibb, Clay, Greene, Macon, Shelby, Talladega, Tallapoosa, Tuscaloosa.

All other information in the original declaration remains unchanged.

(Catalog of Federal Domestic Assistance Number 59008)

Rafaela Monchek,

Acting Associate Administrator for Disaster Recovery and Resilience.

[FR Doc. 2023–01623 Filed 1–26–23; 8:45 am]

BILLING CODE 8026–09–P

SOCIAL SECURITY ADMINISTRATION

[Docket No. SSA–2022–0063]

Retirement and Disability Research Consortium Cooperative Agreement

AGENCY: Social Security Administration (SSA).

ACTION: Notice.

SUMMARY: We anticipate issuing a request for applications (RFA) for the Retirement and Disability Research Consortium (RDRC) in early 2023. The program will address issues surrounding the Old Age and Survivors Insurance (OASI), Disability Insurance (DI), and Supplemental Security Income (SSI) programs and related retirement and disability policy issues.

FOR FURTHER INFORMATION CONTACT: Matt Messel, Office of Research, Evaluation, and Statistics, Social Security Administration, 737–291–8285, email: *Matt.Messel@ssa.gov.*

SUPPLEMENTARY INFORMATION: We anticipate issuing a request for applications (RFA) for the Retirement and Disability Research Consortium (RDRC) in early 2023. The program will address issues surrounding the Old Age and Survivors Insurance (OASI), Disability Insurance (DI), and Supplemental Security Income (SSI) programs and related retirement and disability policy issues.

We intend to award 5-year cooperative agreements to research centers who will conduct relevant research addressing issues in Social Security, retirement, and disability policy. These centers may be universities or other organizations or associations of multiple universities and other organizations in the United States.

Our Grants Management Official (GMO) anticipates using the policies in 2 CFR 200 in conjunction with the policies and procedures for solicitation, evaluation, and award prescribed in SSA's Grants Administration Manual. We anticipate the multiple cooperative agreements that we award may cover September 2023 through September 2028. Section 1110 of the Social Security Act authorizes these cooperative agreements. Awards will be made under full and open competition.

The following is an estimated timeline of actions associated with this requirement:

Action	Date [1]
Release of RFA package	On or about February 2023.
Notice of Intent Due Date (Optional).	On or about April 2023.
Application Due Date	On or about May 2023.
Anticipated Award(s)	On or about September 2023.

[1] Dates may change based upon administrative approval.

The GMO will publish the agency's RFA, along with any amendments, and relevant questions and answers, electronically through the government-wide point of entry at *www.grants.gov.* Interested parties can sign up for notifications of funding opportunities at: *https://www.grants.gov/web/grants/manage-subscriptions.html.*

The Acting Commissioner of Social Security, Kilolo Kijakazi, Ph.D., M.S.W., having reviewed and approved this document, is delegating the authority to electronically sign this document to Faye I. Lipsky, who is the primary Federal Register Liaison for SSA, for purposes of publication in the **Federal Register**.

Faye I. Lipsky,

Federal Register Liaison, Office of Legislation and Congressional Affairs, Social Security Administration.

[FR Doc. 2023–01634 Filed 1–26–23; 8:45 am]

BILLING CODE 4191–02–P

SOCIAL SECURITY ADMINISTRATION

[Docket No: SSA–2023–0001]

Agency Information Collection Activities: Proposed Request

The Social Security Administration (SSA) publishes a list of information collection packages requiring clearance by the Office of Management and Budget (OMB) in compliance with Public Law 104–13, the Paperwork Reduction Act of 1995, effective October 1, 1995. This notice an extension of an OMB-approved information collection.

SSA is soliciting comments on the accuracy of the agency's burden estimate; the need for the information; its practical utility; ways to enhance its quality, utility, and clarity; and ways to minimize burden on respondents, including the use of automated collection techniques or other forms of information technology. Mail, email, or fax your comments and recommendations on the information collection(s) to the OMB Desk Officer and SSA Reports Clearance Officer at the following addresses or fax numbers.

(OMB) Office of Management and Budget, Attn: Desk Officer for SSA. *Comments: https://www.reginfo.gov/public/do/PRAMain.* Submit your comments online referencing Docket ID Number [SSA–2023–0001].

(SSA) Social Security Administration, OLCA, Attn: Reports Clearance Director, 3100 West High Rise, 6401 Security Blvd., Baltimore, MD 21235, Fax: 410–966–2830, Email address: *OR.Reports.Clearance@ssa.gov.*

Or you may submit your comments online through *https://www.reginfo.gov/public/do/PRAMain,* referencing Docket ID Number [SSA–2023–0001].

I. The information collection below is pending at SSA. SSA will submit it to OMB within 60 days from the date of this notice. To be sure we consider your comments, we must receive them no later than March 28, 2023. Individuals can obtain copies of the collection instrument by writing to the above email address.

Generic Clearance for the Collection of Improving Customer Experience (OMB Circular A–11, Section 280 Implementation)—0960–0818. As part of the Administration's commitment to improving customer service delivery, SSA invites the general public to take this opportunity to comment on the ''Generic Clearance for the Collection of Improving Customer Experience'' for approval under the Paperwork Reduction Act (PRA) (44 U.S.C. 3501 *et seq.*).

A modern, streamlined, and responsive customer experience means: raising government-wide customer experience to the average of the private sector service industry; developing indicators for high-impact Federal programs to monitor progress towards excellent customer experience and mature digital services; and providing the structure (including increasing transparency) and resources to ensure customer experience is a focal point for agency leadership.

This proposed information collection activity provides a means to garner customer and stakeholder feedback in an efficient, timely manner in accordance with the Administration's commitment to improving customer service delivery as discussed in section 280 of OMB Circular A–11 at *https://www.whitehouse.gov/wp-content/uploads/2018/06/s280.pdf.*

As discussed in OMB guidance, agencies should identify their highest-impact customer journeys (using customer volume, annual program cost, and/or knowledge of customer priority as weighting factors) and select touchpoints/transactions within those journeys to collect feedback.

These results will be used to improve the delivery of Federal services and programs. It will also provide government-wide data on customer experience that can be displayed on *www.performance.gov* to help build transparency and accountability of Federal programs to the customers they serve.

As a general matter, these information collections will not result in any new system of records containing privacy information and will not ask questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

SSA Administration will only submit collections if they meet the following criteria.

- The collections are voluntary;
- The collections are low-burden for respondents (based on considerations of total burden hours or burden-hours per respondent) and are low-cost for both the respondents and the Federal Government;
- The collections are non-controversial and do not raise issues of concern to other Federal agencies;
- Any collection is targeted to the solicitation of opinions from respondents who have experience with the program or may have experience with the program in the near future;
- Personally identifiable information (PII) is collected only to the extent necessary and is not retained;
- Information gathered is intended to be used for general service improvement and program management purposes; and
- Upon agreement between OMB and the agency all or a subset of information may be released as part of A–11, section 280 requirements only on *performance.gov.* Summaries of customer research and user testing activities may be included in public-facing customer journey maps.
- Additional release of data must be coordinated with OMB.

These collections will allow for ongoing, collaborative and actionable communications between the Agency, its customers and stakeholders, and OMB as it monitors agency compliance on Section 280. These responses will inform efforts to improve or maintain the quality of service offered to the public. If this information is not collected, vital feedback from customers and stakeholders on services will be unavailable.

The respondents are Individuals and Households, Businesses and Organizations, State, Local or Tribal Government.

Type of Request: Extension of an OMB-approved information collection.

Affected Public: Individuals and households, businesses and organizations, State, Local or Tribal government.

Total Estimated Number of Respondents: 17,866,680.

Below we provide projected average estimates for the next three years:

Annual Respondents: 5,955,560.

Annual Responses: 1,142,475.

Frequency of Response: Once per request.

Average minutes per response: 12 minutes (11.51).

Estimated Annual Burden: 384,629 hours.

Dated: January 24, 2023.

Naomi Sipple,

Reports Clearance Officer, Social Security Administration.

[FR Doc. 2023–01680 Filed 1–26–23; 8:45 am]

BILLING CODE 4191–02–P

DEPARTMENT OF STATE

[Public Notice: 11967]

60-Day Notice of Proposed Information Collection: Office of Language Services Contractor Application Form

ACTION: Notice of request for public comment.

SUMMARY: The Department of State is seeking Office of Management and Budget (OMB) approval for the information collection described below. In accordance with the Paperwork Reduction Act of 1995, we are requesting comments on this collection from all interested individuals and organizations. The purpose of this notice is to allow 60 days for public comment preceding submission of the collection to OMB.

DATES: The Department will accept comments from the public up to March 28, 2023.

ADDRESSES: You may submit comments by any of the following methods:

- *Web:* Persons with access to the internet may comment on this notice by going to *www.Regulations.gov.* You can search for the document by entering ''Docket Number: DOS–2023–0001'' in the Search field. Then click the ''Comment Now'' button and complete the comment form.
- *Email: LSApplications@state.gov.* You must include the DS form number, information collection title, and the OMB control number in the subject line of your message.
- *Regular Mail:* Send written comments to: Department of State, Office of Language Services, 2201 C Street NW, Washington, DC 20522–0114.

• *Fax:* 202–395–5806. Attention: Desk Officer for Department of State.

You must include the DS form number (if applicable), information collection title, and the OMB control number in any correspondence.

FOR FURTHER INFORMATION CONTACT: Direct requests for additional information regarding the collection listed in this notice, including requests for copies of the proposed collection instrument and supporting documents, to Wanda Lyles Howell, who may be reached on 202–631.9374 or at *lyleswm2@state.gov.*

SUPPLEMENTARY INFORMATION:

• *Title of Information Collection:* Office of Language Services Contractor Application Form.

• *OMB Control Number:* 1405–0191.

• *Type of Request:* Extension of a Currently Approved Collection.

• *Originating Office:* Bureau of Administration, A/OPR/LS.

• *Form Number:* DS–7651.

• *Respondents:* General public applying for translator and/or interpreter contract positions.

• *Estimated Number of Respondents:* 1,000.

• *Estimated Number of Responses:* 1,000.

• *Average Time per Response:* 30 minutes.

• *Total Estimated Burden Time:* 500 annual hours.

• *Frequency:* On occasion.

• *Obligation to Respond:* Required to Obtain or Retain a Benefit.

We are soliciting public comments to permit the Department to:

• Evaluate whether the proposed information collection is necessary for the proper functions of the Department.

• Evaluate the accuracy of our estimate of the time and cost burden for this proposed collection, including the validity of the methodology and assumptions used.

• Enhance the quality, utility, and clarity of the information to be collected.

• Minimize the reporting burden on those who are to respond, including the use of automated collection techniques or other forms of information technology.

Please note that comments submitted in response to this Notice are public record. Before including any detailed personal information, you should be aware that your comments as submitted, including your personal information, will be available for public review.

Abstract of Proposed Collection

The information collected is needed to ascertain whether respondents are valid interpreting and/or translating candidates, based on their work history and legal work status in the United States. If candidates successfully become contractors for the U.S. Department of State, Office of Language Services, the information collected is used to initiate security clearance background checks and for processing payment vouchers. Respondents are typically members of the general public with varying degrees of experience in the fields of interpreting and/or translating.

Methodology

The Office of Language Services makes the ''Office of Language Services Contractor Application Form'' available via its internet site. Respondents can submit the form via email.

Kevin E. Bryant,

Deputy Director, Office of Directives Management, Department of State.

[FR Doc. 2023–01728 Filed 1–26–23; 8:45 am]

BILLING CODE 4710–24–P

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Notice of Final State Agency Actions on Sunset Road: I–10 to River Road Pima County, Arizona

AGENCY: Federal Highway Administration (FHWA), Department of Transportation (DOT).

ACTION: Notice.

SUMMARY: The FHWA, on behalf of the Arizona Department of Transportation (ADOT), is issuing this notice to announce actions taken by ADOT and other relevant Federal agencies that are final. The actions relate to the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the proposed project Sunset Road: I–10 to River Road, Pima County, Arizona. The actions grant licenses, permits, and approvals for the project.

DATES: By this notice, FHWA, on behalf of ADOT, is advising the public of final agency actions subject to 23 U.S.C. 139(l)(1). A claim seeking judicial review of the Federal agency actions with authority on the highway project will be barred unless the claim is filed on or before June 26, 2023. If the Federal law that authorizes judicial review of a claim provides a time period of less than 150 days for filing such claim, then that shorter time period still applies.

FOR FURTHER INFORMATION CONTACT: Mr. Steven Olmsted, NEPA Assignment Manager, Environment Planning, Arizona Department of Transportation, 205 S 17th Avenue, MD EM02, Phoenix, Arizona 85007; telephone: (480) 202–6050, email: *solmsted@azdot.gov.* The Arizona Department of Transportation normal business hours are 8:00 a.m. to 4:30 p.m. (Mountain Standard Time).

You may also contact: Mr. Paul O'Brien, Environmental Planning Administrator, Arizona Department of Transportation, 205 S 17th Avenue, MD EM02, Phoenix, Arizona 85007; telephone: (480) 356–2893, email: *POBrien@azdot.gov.*

SUPPLEMENTARY INFORMATION: Effective April 16, 2019, the FHWA assigned and ADOT assumed environmental responsibilities for this project pursuant to 23 U.S.C. 327 and a Memorandum of Understanding executed by FHWA and ADOT.

Notice is hereby given that ADOT and other relevant Federal agencies have taken final agency actions by issuing licenses, permits, and approvals for the following project in the State of Arizona: Sunset Road: I–10 to River Road, Pima County, Arizona. The actions by ADOT and other relevant Federal agencies and the laws under which such actions were taken, are described in the Draft EA approved on March 24, 2022, Final EA approved within the Finding of No Significant Impact issued on May 2, 2022, and in other documents in the administrative record. The FEA, FONSI, and other project records are available by contacting ADOT at the addresses provided above. Project decision documents are also available online at: *https://webcms.pima.gov/cms/One.aspx?pageId=533587*.

This notice applies to all ADOT and other relevant Federal agency decisions as of the issuance date of this notice and all laws under which such actions were taken, including but not limited to:

1. *General:* National Environmental Policy Act (NEPA) [42 U.S.C. 4321–4351]; Federal-Aid Highway Act [23 U.S.C. 109].

2. *Air:* Clean Air Act [42 U.S.C. 7401–7671(q)].

3. *Land:* Section 4(f) of the U.S. Department of Transportation Act of 1966 [49 U.S.C. 303]; Landscaping and Scenic Enhancement (Wildflowers) [23 U.S.C. 319].

4. *Wildlife:* Endangered Species Act [16 U.S.C. 1531–1544 and Section 1536], Marine Mammal Protection Act [16 U.S.C. 1361], Fish and Wildlife Coordination Act [16 U.S.C. 661–667(d)], Migratory Bird Treaty Act [16 U.S.C. 703–712].

5. *Historic and Cultural Resources:* Section 106 of the National Historic

Preservation Act of 1966, as amended [16 U.S.C. 470(f) *et seq.*]; Archeological Resources Protection Act of 1977 [16 U.S.C. 470(aa)–11]; Archeological and Historic Preservation Act [16 U.S.C. 469–469(c)]; Native American Grave Protection and Repatriation Act (NAGPRA) [25 U.S.C. 3001–3013].

6. *Social and Economic:* Civil Rights Act of 1964 [42 U.S.C. 2000(d)–2000(d)(1)]; American Indian Religious Freedom Act [42 U.S.C. 1996]; Farmland Protection Policy Act (FPPA) [7 U.S.C. 4201–4209].

7. *Wetlands and Water Resources:* Land and Water Conservation Fund (LWCF) [16 U.S.C. 4601–4604]; Safe Drinking Water Act (SDWA) [42 U.S.C. 300(f)–300(j)(6)]; Rivers and Harbors Act of 1899 [33 U.S.C. 401–406]; Wild and Scenic Rivers Act [16 U.S.C. 1271–1287]; Emergency Wetlands Resources Act [16 U.S.C. 3921, 3931]; Flood Disaster Protection Act [42 U.S.C. 4001–4128].

8. *Water:* Clean Water Act 33 U.S.C. 1251–1387.

9. *Executive orders:* E.O. 11990 Protection of Wetlands; E.O. 11988 Floodplain Management; E.O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations; E.O. 11593 Protection and Enhancement of Cultural Resources; E.O. 13007 Indian Sacred Sites; E.O. 13287 Preserve America; E.O. 13175 Consultation and Coordination with Indian Tribal Governments; E.O. 11514 Protection and Enhancement of Environmental Quality; E.O. 13112 Invasive Species.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction.)

Authority: 23 U.S.C. 139(l)(1).

Karla S. Petty,

Arizona Division Administrator, Phoenix, Arizona.

[FR Doc. 2023–01630 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–RY–P

DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

[Docket No. FMCSA–2022–0242]

Parts and Accessories Necessary for Safe Operation; Exemption Application From Encore Building Products

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Notice of application for exemption; request for comments.

SUMMARY: The Federal Motor Carrier Safety Administration (FMCSA) requests public comment on Encore Building Products' (Encore) application for an exemption from the requirement that lighting devices be steady burning. The exemption would allow the company to operate commercial motor vehicles (CMVs), equipped with a module manufactured by Intellistop, Inc. (Intellistop) which pulses the rear clearance, identification, and brake lamps from low-level lighting intensity to high-level lighting intensity 4 times in 2 seconds when the brakes are applied. FMCSA requests public comment on the applicant's request for exemption.

DATES: Comments must be received on or before February 27, 2023.

ADDRESSES: You may submit comments identified by Federal Docket Management System (FDMS) Number FMCSA–2022–0242 by any of the following methods:

- *Federal eRulemaking Portal: www.regulations.gov.* See the Public Participation and Request for Comments section below for further information.
- *Mail:* Dockets Operations, U.S. Department of Transportation, 1200 New Jersey Avenue SE, West Building, Ground Floor, Room W12–140, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* West Building, Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, between 9 a.m. and 5 p.m. E.T., Monday through Friday, except Federal holidays.
- *Fax:* (202) 493–2251.

Each submission must include the Agency name and the docket number (FMCSA–2022–0242) for this notice. Note that DOT posts all comments received without change to *www.regulations.gov,* including any personal information included in a comment. Please see the Privacy Act heading below.

Docket: For access to the docket to read background documents or comments, go to *www.regulations.gov* at any time or visit Room W12–140 on the ground level of the West Building, 1200 New Jersey Avenue SE, Washington, DC, between 9 a.m. and 5 p.m., ET, Monday through Friday, except Federal holidays. To be sure someone is there to help you, please call (202) 366–9317 or (202) 366–9826 before visiting Dockets Operations.

Privacy Act: In accordance with 49 U.S.C. 31315(b), DOT solicits comments from the public to better inform its exemption process. DOT posts these comments, without edit, including any personal information the commenter provides, to *www.regulations.gov.* As described in the system of records notice DOT/ALL 14–FDMS, which can be reviewed at *https://www.transportation.gov/privacy,* the comments are searchable by the name of the submitter.

FOR FURTHER INFORMATION CONTACT: Mr. José R. Cestero, Vehicle and Roadside Operations Division, Office of Carrier, Driver, and Vehicle Safety, FMCSA, at (202) 366–5541, or by email at *jose.cestero@dot.gov.*

If you have questions on viewing or submitting material to the docket, contact Dockets Operations at (202) 366–9826.

SUPPLEMENTARY INFORMATION:

I. Public Participation and Request for Comments

FMCSA encourages you to participate by submitting comments and related materials.

Submitting Comments

If you submit a comment, please include the docket number for this notice (FMCSA–2022–0242), indicate the specific section of this document to which the comment applies, and provide a reason for suggestions or recommendations. You may submit your comments and material online or by fax, mail, or hand delivery, but please use only one of these means. FMCSA recommends that you include your name and a mailing address, an email address, or a phone number in the body of your document so the Agency can contact you if it has questions regarding your submission.

To submit your comment online, go to *www.regulations.gov* and put the docket number ''FMCSA–2022–0242'' in the keyword box, and click ''Search.'' Next, sort the results by ''Posted (Newer-Older),'' choose the first notice listed, click the ''Comment'' button, and type your comment into the text box on the following screen. Choose whether you are submitting your comment as an individual or on behalf of a third party and then submit. If you submit your comments by mail or hand delivery, submit them in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. If you submit comments by mail and would like to know that they reached the facility, please enclose a stamped, self-addressed postcard or envelope. FMCSA will consider all comments and material received during the comment period.

II. Legal Basis

FMCSA has authority under 49 U.S.C. 31136(e) and 31315(b) to grant exemptions from Federal Motor Carrier Safety Regulations (FMCSRs). FMCSA

must publish a notice of each exemption request in the **Federal Register** (49 CFR 381.315(a)). The Agency must provide the public an opportunity to inspect the information relevant to the application, including any safety analyses that have been conducted. The Agency must provide an opportunity for public comment on the request.

The Agency reviews safety analyses and public comments submitted and determines whether granting the exemption would likely achieve a level of safety equivalent to, or greater than, the level that would be achieved by the current regulation (49 CFR 381.305). The Agency must publish its decision in the **Federal Register** (49 CFR 381.315(b)) with the reasons for denying or granting the application and, if granted, the name of the person or class of persons receiving the exemption and the regulatory provision from which the exemption is granted. The notice must specify the effective period and explain the terms and conditions of the exemption. The exemption may be renewed (49 CFR 381.300(b)).

III. Encore's Request

Encore seeks an exemption from the requirement in 49 CFR 393.25(e) that all exterior lamps (both required lamps and any additional lamps) be steady-burning, except for turn signal lamps, hazard warning signal lamps, school bus warning lamps, amber warning lamps or flashing warning lamps on tow trucks and CMVs transporting oversized loads, and warning lamps on emergency and service vehicles authorized by State or local authorities.

Encore asserts that using the Intellistop module, which pulses the rear clearance, identification, and brake lamps from low-level lighting intensity to high-level lighting intensity 4 times in 2 seconds when the brakes are applied rather than providing steady burning lamps during the first 2 seconds, would enhance rear signal systems. Encore submits that pulsing the rear brake lamps of a CMV may significantly increase visibility and reduce the frequency of rear-end crashes, and thus would maintain a level of safety that is equivalent to, or greater than, the level that the CMV would achieve without the requested exemption.

On October 7, 2022 (87 FR 61133), FMCSA denied Intellistop's application for an industry-wide exemption to allow all motor carriers to operate commercial motor vehicles (CMVs) equipped with Intellistop's module. FMCSA noted that the decision did not preclude individual motor carriers from seeking an exemption from 49 CFR 393.25(e) to purchase, install, and use Intellistop's device subject to terms and conditions to allow sufficient monitoring of the use of the device. Therefore, consistent with the October 7, 2022, decision, the Agency seeks public comment on Encore's carrier-specific exemption application.

A copy of Encore's application is included in the docket referenced at the beginning of this notice.

IV. Request for Comments

In accordance with 49 U.S.C. 31315(b), FMCSA requests public comment from all interested persons on Encore's application for a five-year exemption from 49 CFR 393.25(e) to allow the company to operate CMVs equipped with Intellistop's module which pulses the rear clearance, identification and brake lamps from low-level lighting intensity to high-level lighting intensity 4 times in 2 seconds when the brakes are applied.

All comments received before the close of business on the comment closing date will be considered and will be available for examination in the docket at the location listed under the **ADDRESSES** section of this notice. Comments received after the comment closing date will be filed in the public docket and may be considered to the extent practicable. In addition to late comments, FMCSA will also continue to file, in the public docket, relevant information that becomes available after the comment closing date. Interested persons should continue to examine the public docket for new material.

Larry W. Minor,

Associate Administrator for Policy.

[FR Doc. 2023–01602 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–EX–P

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

FY 2023 Competitive Funding Opportunity: Low or No Emission Grant Program and the Grants for Buses and Bus Facilities Competitive Program

AGENCY: Federal Transit Administration (FTA), DOT.

ACTION: Notice of funding opportunity (NOFO).

SUMMARY: The Federal Transit Administration (FTA) announces the opportunity to apply for approximately $1.22 billion in competitive grants under the fiscal year (FY) 2023 Low or No Emission Grant Program (Low-No Program) (Federal Assistance Listing: 20.526) and approximately $469 million in competitive grants under the FY 2023 Grants for Buses and Bus Facilities Program (Buses and Bus Facilities Program) (Federal Assistance Listing 20.526), subject to availability of appropriated funding.

DATES: Complete proposals must be submitted electronically through the *GRANTS.GOV* ''APPLY'' function by 11:59 p.m. Eastern time on April 13, 2023. Prospective applicants should initiate the process by registering on the *GRANTS.GOV* website promptly to ensure completion of the application process before the submission deadline.

ADDRESSES: Instructions for applying can be found on FTA's website at *https://www.transit.dot.gov/howtoapply* and in the ''FIND'' module of *GRANTS.GOV*. The funding opportunity ID is FTA–2023–002–TPM–LWNO for Low-No applications and FTA–2023–003–TPM–BUS for Buses and Bus Facilities applications. Please note, if an applicant is choosing to apply to both programs, the applicant must submit a separate *GRANTS.GOV* package to each opportunity ID. Applicants should also select both programs and respond to all questions needed for both programs on the supplemental form. Mail and fax submissions will not be accepted.

FOR FURTHER INFORMATION CONTACT: Either Program may be contacted by email at *FTALowNoBusNOFO@dot.gov,* or applicants may call Margaretta Veltri, FTA Office of Program Management, at 202–366–5094.

SUPPLEMENTARY INFORMATION: As required by Federal public transportation law, Low or No Emission Grant Program funds will be awarded competitively for the purchase or lease of low or no emission vehicles that use advanced technologies for transit revenue operations, including related equipment or facilities. As required by Federal public transportation law, Buses and Bus Facilities Program funds will be awarded competitively to assist in the financing of capital projects to replace, rehabilitate, purchase or lease buses and related equipment, and to rehabilitate, purchase, construct or lease bus-related facilities. Zero-emission projects will include costs for workforce development, unless the applicant certifies funds are not needed for this purpose. In general, projects may include costs incidental to the acquisition of buses or to the construction of facilities, such as the costs of related workforce development and training activities, and project administration expenses. As these two programs have overlapping eligibilities

and must be implemented on the same timeline as required by 49 U.S.C. 5339, FTA is publishing this joint NOFO. Per Federal public transportation law, FTA will award grants for these programs within 75 days after the date this solicitation expires from funds available for award at that time. FTA may award additional funding that is made available to the programs prior to the announcement of project selections.

Table of Contents

A. Program Description

This is a joint NOFO and announces the availability of FY 2023 funding for both the Low-No and the Buses and Bus Facilities Programs.

Federal public transportation law (49 U.S.C. 5339(c)) authorizes FTA to award grants for low or no emission bus projects through a competitive process, as described in this notice. The Low-No Program provides funding to States (including territories and Washington, DC), local governmental authorities, and tribal governments for the purchase or lease of zero-emission and low-emission transit buses, including acquisition, construction, and leasing of required supporting facilities such as recharging, refueling, and maintenance facilities.

Federal public transportation law (49 U.S.C. 5339(b)) authorizes FTA to award grants for the Buses and Bus Facilities Program through a competitive process, as described in this notice. Grants under this program are for capital projects to replace, rehabilitate, purchase, or lease buses and related equipment, or to rehabilitate, purchase, construct, or lease bus-related facilities.

The Department seeks to fund projects under the Low-No and the Buses and Bus Facilities Programs that reduce greenhouse gas emissions in the transportation sector; incorporate evidence-based climate resilience measures and features; avoid adverse environmental impacts to air or water quality, wetlands, and endangered species; and address the disproportionate negative environmental impacts of transportation on disadvantaged communities, consistent with Executive Order 14008, Tackling the Climate Crisis at Home and Abroad (86 FR 7619).

In addition, the Department seeks to award projects under the Low-No and the Buses and Bus Facilities Programs that proactively evaluate whether a project will create proportional impacts to all populations in a project area and increase equitable access to project benefits, consistent with Executive Order 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (86 FR 7009). The Department also seeks to award projects that address equity and environmental justice, particularly for communities that have experienced decades of underinvestment and are most impacted by climate change, pollution, and environmental hazards, consistent with Executive Order 14008, Tackling the Climate Crisis at Home and Abroad (86 FR 7619).

In addition, the Department intends to use the Low-No and the Buses and Bus Facilities programs to support the creation of good-paying jobs with the free and fair choice to join a union and the incorporation of strong labor standards and training and placement programs, especially registered apprenticeships, in project planning stages, consistent with Executive Order 14025, Worker Organizing and Empowerment (86 FR 22829), and Executive Order 14052, Implementation of the Infrastructure Investment and Jobs Act (86 FR 64335). The Department also intends to use the Low-No and the Buses and Bus Facilities programs to support wealth creation, consistent with the Department's Equity Action Plan, through the inclusion of local inclusive economic development and entrepreneurship such as the utilization of Disadvantaged Business Enterprises, Minority-owned Businesses, Women-owned Businesses, or 8(a) firms.

B. Federal Award Information

Federal public transportation law (49 U.S.C. 5338(a)(2)(N)) authorizes $73,056,178 in FY 2023 for the Low-No Program. The 2021 Bipartisan Infrastructure Law (BIL) (enacted as the Infrastructure Investment and Jobs Act, Pub. L. 117–58) provided an additional $1,029,000,000 in advance appropriations for FY 2023 grants after accounting for the authorized takedown for administrative and oversight expenses and the Office of Inspector General (OIG). The Consolidated Appropriations Act, 2023 appropriated an additional $49,625,000 for FY 2023 grants after accounting for the authorized oversight takedown, for a total of $1,151,681,178 for grants under the Low-No program. Further, due to less funding being requested than funding available during the FY 2022 competition for low-emission projects, $69,668,939 of FY 2022 Low-No Program funds remain available for award, of which $69,192,987 are reserved for low-emission projects as required by statute. A grand total of $1,221,350,117 is being made available for the FY 2023 Low-No Program under this notice. Additional funds made available prior to project selection may be allocated to eligible projects.

As required by Federal public transportation law (49 U.S.C. 5339(c)(5)), a minimum of 25 percent of the amount awarded under the Low-No Program will be awarded to low-emission projects other than zero-emission vehicles and related facilities. As noted above, $69,192,987 of FY 2022 funding for low-emission projects remains available. This amount, along with the $287,920,295 low-emission set-aside for FY 2023, totals $357,113,282 specifically set aside by law for low-emission projects through the Low-No Program in FY 2023.

In FY 2022, the Low-No program received applications for 248 projects requesting a total of $4,033,245,618. One hundred projects were funded at a total of $1,105,329,750.

Federal public transportation law (49 U.S.C. 5338(a)(2)(N)) authorizes $383,544,933 in FY 2023 funds for the Buses and Bus Facilities Program. The Consolidated Appropriation Act, 2023 appropriated an additional $90,000,000. After the oversight takedown of $4,099,509, FTA is announcing the availability of $469,445,424 for the Buses and Bus Facilities Program through this notice. Additional funds made available prior to project selection may be allocated to eligible projects.

As required by Federal public transportation law at 49 U.S.C. 5339(b)(5), a minimum of 15 percent of the amount awarded under the Buses and Bus Facilities Program will be awarded to projects located in rural areas. As required by 49 U.S.C. 5339(b)(8), no single grant recipient will be awarded more than 10 percent of the amount made available. In FY 2022, the program received applications for 282 projects requesting a total of $3,682,203,133. Fifty projects were funded at a total of $551,366,311.

An applicant may submit a low or no emissions project to both the Buses and Bus Facilities Program and the Low-No Program, or submit the project only to the Low-No Program or only to the Buses and Bus Facilities Program. Applicants are encouraged to submit projects for consideration under both programs whenever practicable. If a project submitted for consideration under both programs is selected for funding, FTA will exercise its discretion

to determine under which program the project will receive an award. Please note that if submitting to both programs, a separate application package must be submitted to each opportunity ID for the respective program listed on *GRANTS.GOV.* If there are not enough eligible requests for either the low-emission set-aside under the Low-No Program or the rural set-aside under the Buses and Bus Facilities Program, and eligible applications that would qualify under either of those set-asides were submitted only to the other program, FTA may contact such applicants to request additional information in order to consider them under the program for which they would satisfy a statutory set-aside.

FTA may cap the amount a single recipient or State may receive as part of the selection process for either program.

FTA will grant pre-award authority to incur costs for selected projects beginning on the date FY 2023 project selections are announced on FTA's website. Funds are available for obligation for three fiscal years after the fiscal year in which the competitive awards are announced. Funds are available only for eligible costs incurred after announcement of project selections. FTA intends to fund as many meritorious projects as possible.

C. Eligibility Information

1. Eligible Applicants

Eligible applicants for the Low or No Emission Program include designated recipients, States (including territories and Washington, DC), local governmental authorities, and Indian Tribes. Proposals for funding projects in rural (non-urbanized) areas—defined as any area that has not been designated in the 2010 census, as an ''urbanized area'' with at least 50,000 in population by the Secretary of Commerce—must be submitted as part of a consolidated State proposal. To be considered eligible, applicants must be able to demonstrate the requisite legal, financial, and technical capabilities to receive and administer Federal funds under this program. Assistance on this requirement is available from FTA's Regional Offices.

Eligible applicants for the Buses and Bus Facilities Program include designated recipients that allocate funds to fixed route bus operators, States (including territories and Washington, DC) or local governmental entities that operate fixed route bus service, and Indian tribes. Eligible subrecipients include all otherwise eligible applicants and also private nonprofit organizations engaged in public transportation.

Except for projects proposed by Indian tribes, all proposals for projects in rural (non-urbanized) areas must be submitted by a State, either individually or as a part of a statewide application. States and other eligible applicants also may submit consolidated proposals for projects in urbanized areas. The submission of a statewide or consolidated urbanized area application does not preclude any other eligible recipients in an urbanized area or in a State from also submitting a separate application. Proposals may contain projects to be implemented by the recipient or its subrecipients.

As permitted under Federal public transportation law (49 U.S.C. 5339(b)(10), (c)(8)), an applicant proposing a low or no emission project under both the Buses and Bus Facilities Program and the Low-No Program, or an applicant proposing only a low or no emission project under the Low-No program, may include partnerships with other entities that intend to participate in the implementation of the project, including, but not limited to, specific vehicle manufacturers, equipment vendors, owners or operators of related facilities, or project consultants. If an application that involves such a partnership is selected for funding, the project will be deemed to satisfy the requirement for a competitive procurement under 49 U.S.C. 5325(a) for the named entities. Applicants are advised that any changes to the proposed partnership will require FTA written approval, must be consistent with the scope of the approved project, and may necessitate a competitive procurement.

2. Cost Sharing or Matching

The maximum Federal share for projects that involve leasing or acquiring transit buses (including clean fuel or alternative fuel vehicles) for purposes of complying with or maintaining compliance with the Clean Air Act (CAA) or the Americans with Disabilities Act (ADA) of 1990 is 85 percent of the net project cost.

The maximum Federal share for the cost of acquiring, installing, or constructing vehicle-related equipment or facilities (including clean fuel or alternative fuel vehicle-related equipment or facilities) for purposes of complying with or maintaining compliance with the CAA or ADA is 90 percent of the net project cost of such equipment or facilities that are attributable to compliance with the CAA or ADA. The award recipient must itemize the cost of specific, discrete, vehicle-related equipment associated with compliance with the CAA to be eligible for the maximum 90 percent Federal share for these costs.

The Federal share of the cost of other projects shall not exceed 80 percent.

Eligible sources of match include the following: cash from non-Government sources other than revenues from providing public transportation services; revenues derived from the sale of advertising and concessions; amounts received under a service agreement with a State or local social service agency or private social service organization; revenues generated from value capture financing mechanisms; funds from an undistributed cash surplus; replacement or depreciation cash fund or reserve; new capital; or in-kind contributions. Transportation development credits or in-kind match may be used for local match if identified and documented in the application. Other Federal funds from non-U.S. Department of Transportation sources may only be used as match (Federal fund braiding) if the proposed project is eligible under the other Federal program and the other Federal program providing the matching funds expressly authorizes its funds to fulfill the match requirement of other Federal programs. Learn more about Federal fund braiding at *https://www.transit.dot.gov/regulations-and-programs/ccam/about/coordinating-council-access-and-mobility-ccam-federal-fund.*

3. Eligible Projects

Under the Low-No Program (49 U.S.C. 5339(c)), eligible projects include projects or programs of projects in an eligible area for: (1) purchasing or leasing low or no emission buses; (2) acquiring low or no emission buses with a leased power source; (3) constructing or leasing facilities and related equipment for low or no emission buses; (4) constructing new public transportation facilities to accommodate low or no emission buses; or (5) rehabilitating or improving existing public transportation facilities to accommodate low or no emission buses (49 U.S.C. 5339(c)(1)(B)). As required by Federal public transportation law (49 U.S.C. 5339(c)(5)), FTA will consider only eligible projects relating to the acquisition or leasing of low or no emission buses or bus facilities that make greater reductions in energy consumption and harmful emissions than comparable standard buses or other low or no emission buses. A single application may include both vehicle and facility components, along with associated equipment and workforce development plans.

A low or no emission bus is defined as a passenger vehicle used to provide

public transportation that sufficiently reduces energy consumption or harmful emissions, including direct carbon emissions, when compared to a standard vehicle. The statutory definition includes zero-emission transit buses, which are defined as buses that produce no direct carbon emissions and no particulate matter emissions under any and all possible operational modes and conditions. Examples of zero-emission bus technologies include, but are not limited to, hydrogen fuel-cell buses, battery-electric buses, and rubber tire trolley buses powered by overhead catenaries. All new transit bus models must successfully complete FTA bus testing for production transit buses pursuant to FTA's Bus Testing regulation (49 CFR part 665) in order to be procured with funds awarded under the Low-No Program. All transit vehicles must be procured from certified transit vehicle manufacturers in accordance with the Disadvantaged Business Enterprise (DBE) regulations (49 CFR part 26). The development or deployment of prototype vehicles is not eligible for funding under the Low-No Program.

Eligible projects for the Buses and Bus Facilities Program include capital projects to replace, rehabilitate, purchase, or lease buses, vans, or related equipment; or to rehabilitate, purchase, construct, or lease bus-related facilities regardless of propulsion type or emissions. A single application may include both vehicle and facility components, along with associated equipment and workforce development activities.

Recipients are permitted to use up to 0.5 percent of their requested grant award for workforce development activities eligible under Federal public transportation law (49 U.S.C. 5314(b)), including on-the-job training, labor-management partnership training, and registered apprenticeships, and an additional 0.5 percent for costs associated with training at the National Transit Institute. Supportive services, such as childcare and transportation assistance for participants, may be an eligible use of program funds under 49 U.S.C. 5314(b). FTA will publish clarifying frequently asked questions.

For applicants proposing any project related to zero-emission vehicles (including vehicles, facilities, equipment, etc.) for either program, 5 percent of the total requested Federal amount, including the workforce development activities, but not including additional required local share, must be used for workforce development to retrain the existing workforce and develop the workforce of the future, including registered apprenticeships and other joint labor-management training programs, as outlined in the applicant's Zero-Emission Transition Plan (see Section E(1)(c) of this notice), unless the applicant certifies via the application that less funding is needed to carry out the Plan. Supportive services, such as childcare and transportation assistance for participants, may be an eligible use of program funds within this 5 percent. FTA will publish clarifying frequently asked questions. Applicants must identify the proposed use of funds for these activities in the project proposal and identify them separately in the project budget. These amounts are additional, not a take-down, from other eligible project expenses. For example, if an application includes a Federal request of $95,000 for total capital costs of the zero-emission vehicles and associated equipment, an additional Federal request of $5,000 should be included in the budget for workforce development expenses for a total Federal request of $100,000. The local share for the vehicles, equipment, and workforce development is in addition to the $100,000 Federal request. Applicants are encouraged to discuss training needs with their workforce and to develop training plans in collaboration with unions and other workforce representatives, as well as with workforce boards, community colleges, and other workforce organizations. Applicants that propose not to use the full 5 percent available must include an explanation as to why the funds are not needed.

If a single project proposal involves multiple public transportation providers, such as when an agency acquires vehicles that will be operated by another agency, the proposal must include a detailed statement regarding the role of each public transportation provider in the implementation of the project.

D. Application and Submission Information

1. Address To Request Application Package

Applications must be submitted electronically through *GRANTS.GOV*. General information for accessing and submitting applications through *GRANTS.GOV* can be found at *https://www.transit.dot.gov/howtoapply* along with specific instructions for the forms and attachments required for submission. Mail or fax submissions of completed proposals will not be accepted. A complete proposal submission for each program consists of two forms: the SF–424 Application for Federal Assistance (available at *GRANTS.GOV*) and the supplemental form for the FY 2023 Low-No and Buses and Bus Facilities Programs (downloaded from *GRANTS.GOV* or the FTA website at *https://www.transit.dot.gov/funding/grants/lowno*). The same supplemental form will be used to apply to either program or both programs. However, please note that if an applicant is applying to both programs, they must submit the materials through each of the *GRANTS.GOV* opportunity IDs listed for each program. Failure to submit the information as requested can delay review or disqualify the application.

2. Content and Form of Application Submission

a. Proposal Submission

A complete proposal submission for each program consists of two forms: (1) the SF–424 Application for Federal Assistance; and (2) the supplemental form for the FY 2023 Low-No and Buses and Bus Facilities Programs. The supplemental form and any supporting documents must be attached to the ''Attachments'' section of the SF–424. The application must include responses to all sections of the SF–424 Application for Federal Assistance and the supplemental form, unless indicated as optional. The information on the supplemental form will be used to determine applicant and project eligibility for the program, and to evaluate the proposal against the selection criteria described in part E of this notice.

FTA will accept only one supplemental form per SF–424 submission. FTA encourages States and other applicants to consider submitting a single supplemental form that includes multiple activities to be evaluated as a consolidated proposal. If a State or other applicant chooses to submit separate proposals for individual consideration by FTA, each proposal must be submitted using a separate SF–424 and supplemental form.

Applicants may attach additional supporting information to the SF–424 submission, including but not limited to letters of support, project budgets, fleet status reports, or excerpts from relevant planning documents. Applicants for zero-emission projects must attach the fleet transition plan. Any supporting documentation must be described and referenced by file name in the appropriate response section of the supplemental form, or it may not be reviewed.

Information such as applicant name, Federal amount requested, local match amount, description of areas served, etc. may be requested in varying degrees of detail on both the SF–424 and supplemental form. Applicants must fill in all fields unless stated otherwise on the forms. If information is copied into the supplemental form from another source, applicants should verify that pasted text is fully captured on the supplemental form and has not been truncated by the character limits built into the form. Applicants should use both the ''Check Package for Errors'' and the ''Validate Form'' validation buttons on both forms to check all required fields on the forms, and ensure that the Federal and local amounts specified are consistent. Applicants should enter their information in the supplemental form (fillable PDF) that is made available on FTA's website or through the *GRANTS.GOV* application package, and should attach this to the application in its original format. Applicants should not use scanned versions of the form, ''print'' the form to PDF, convert or create a version using another text editor, etc.

b. Application Content

The SF–424 Application for Federal Assistance and the supplemental form will prompt applicants for the required information, including:

i. Applicant name
ii. Unique Entity ID (UEI) assigned by *SAM.GOV*
iii. Key contact information (including contact name, address, email address, and phone)
iv. Congressional district(s) where project will take place
v. Project information (including title, an executive summary, and type)
vi. A detailed description of the need for the project
vii. A detailed description on how the project will support either Program's objectives
viii. Evidence that the project is consistent with local and regional planning documents
ix. Evidence that the applicant can provide the local cost share
x. Address all the applicable criteria and priority considerations identified in Section E.
xi. A description of the technical, legal, and financial capacity of the applicant
xii. A detailed project budget identifying the amounts requested, amounts of other Federal funds, if any, and amounts of non-Federal funds.
xiii. An explanation of the scalability of the project
xiv. Details on the non-Federal matching funds
xv. A detailed project timeline

Except for the information properly marked as described in Section H, the Department may share application information within the Department or with other Federal agencies if the Department determines that sharing is relevant to the respective program's objectives.

3. Unique Entity Identifier and System for Award Management (SAM)

Each applicant is required to: (1) be registered in *SAM.GOV* before submitting an application; (2) provide a valid unique entity identifier in its application; and (3) continue to maintain an active SAM registration with current information at all times during which the applicant has an active Federal award or an application or plan under consideration by FTA. These requirements do not apply if the applicant has an exemption approved by FTA pursuant to 2 CFR 25.110(c), or is otherwise excepted from registration requirements. FTA may not make an award until the applicant has complied with all applicable unique entity identifier and SAM requirements. If an applicant has not fully complied with the requirements by the time FTA is ready to make an award, FTA may determine that the applicant is not qualified to receive an award and use that determination as a basis for making a Federal award to another applicant.

All applicants must provide a unique entity identifier provided by SAM. Registration in SAM may take as little as 3–5 business days, but since there could be unexpected steps or delays (for example, if there is a need to obtain an Employer Identification Number), FTA recommends allowing ample time, up to several weeks, for completion of all steps. For additional information on obtaining a unique entity identifier, please visit *https://www.sam.gov/.*

4. Submission Dates and Times

Project proposals must be submitted electronically through *GRANTS.GOV* by 11:59 p.m. Eastern time on April 13, 2023. *GRANTS.GOV* attaches a time stamp to each application at the time of submission. Proposals submitted after the deadline will only be considered under extraordinary circumstances not under the applicant's control. Mail and fax submissions will not be accepted.

Within 48 hours after submitting an electronic application, the applicant should receive an email message from *GRANTS.GOV* with confirmation of successful transmission to *GRANTS.GOV*. If a notice of failed validation or incomplete materials is received, the applicant must address the reason for the failed validation, as described in the email notice, and resubmit before the submission deadline. If making a resubmission for any reason, include all original attachments regardless of which attachments were updated and check the box on the supplemental form indicating this is a resubmission.

FTA urges applicants to submit applications at least 72 hours prior to the due date to allow time to receive the validation messages and to correct any problems that may have caused a rejection notification. *GRANTS.GOV* scheduled maintenance and outage times are announced on the *GRANTS.GOV* website. Deadlines will not be extended due to scheduled website maintenance.

Applicants are encouraged to begin the process of registration on the *GRANTS.GOV* site well in advance of the submission deadline. Registration is a multi-step process, which may take several weeks to complete before an application can be submitted. Registered applicants may still be required to take steps to keep their registrations up to date before submissions can be made successfully. For example, (1) registration in *SAM.GOV* is renewed annually, and (2) persons making submissions on behalf of the Authorized Organization Representative (AOR) must be authorized in *GRANTS.GOV* by the AOR to make submissions.

5. Funding Restrictions

Funds under this NOFO cannot be used to reimburse applicants for otherwise eligible expenses incurred prior to FTA award of a grant agreement until FTA has issued pre-award authority for selected projects. FTA will issue pre-award authority to incur costs for selected projects beginning on the date that project selections are announced. FTA does not provide pre-award authority for competitive funds until projects are selected, and even then, there are Federal requirements that must be met before costs are incurred. FTA will issue specific guidance to awardees regarding pre-award authority at the time of selection. For more information about FTA's policy on pre-award authority, please see the most recent Apportionment Notice on FTA's website. Refer to Section C.3., Eligible Projects, for information on activities that are allowable in this grant program. Allowable direct and indirect expenses must be consistent with the Governmentwide Uniform Administrative Requirements and Cost

Principles (2 CFR part 200) and FTA Circular 5010.1E. Funds may not be used to support or oppose union organizing.

6. Other Submission Requirements

All applications must be submitted via the *GRANTS.GOV* website. FTA does not accept applications on paper, by fax, email, or other means. For information on application submission requirements, please see Section D.1. of this notice, Address to Request Application.

E. Application Review Information

1. Criteria

Projects will be evaluated primarily on the responses provided in the supplemental form. Additional information may be provided to support the responses; however, any additional documentation must be directly referenced on the supplemental form, including the file name where the additional information can be found. FTA will evaluate proposals based on the criteria described in this notice.

Applicants are encouraged to identify scaled funding options in case insufficient funding is available to fund a project at the full requested amount. If an applicant indicates that a project is scalable, the applicant must provide an appropriate minimum funding amount that will fund an eligible project that achieves the objectives of the program and meets all relevant program requirements. The applicant must provide a clear explanation of how the project budget would be affected by a reduced award. FTA may award a lesser amount regardless of whether a scalable option is provided.

If an applicant is proposing to deploy autonomous vehicles or other innovative motor vehicle technology, the application should demonstrate that all vehicles will comply with applicable safety requirements, including those administered by the National Highway Traffic Safety Administration (NHTSA) and Federal Motor Carrier Safety Administration (FMCSA). Specifically, the application should show that vehicles acquired for the proposed project will comply with applicable Federal Motor Vehicle Safety Standards (FMVSS) and Federal Motor Carrier Safety Regulations (FMCSR). If the vehicles may not comply, the application should either (1) show that the vehicles and their proposed operations are within the scope of an exemption or waiver that has already been granted by NHTSA, FMCSA, or both agencies or (2) directly address whether the project will require exemptions or waivers from the FMVSS, FMCSR, or any other regulation and, if the project will require exemptions or waivers, present a plan for obtaining them.

a. Demonstration of Need

Since the purpose of these programs is to fund vehicles and facilities, applications will be evaluated based on the quality and extent to which they demonstrate how the proposed project will address an unmet need for capital investment in vehicles and/or supporting facilities. For example, an applicant may demonstrate that it requires additional or improved charging or maintenance facilities for low or no emission vehicles, that it intends to replace existing vehicles that have exceeded their minimum useful life, or that it requires additional vehicles to meet current ridership demands or expand services to better connect underserved communities.

FTA will consider an applicant's responses to the following criteria when assessing the need for capital investment underlying the proposed project:

For bus projects (replacement or expansion):

For replacement requests, applicants must provide information on the age, condition, and performance of the vehicles to be replaced by the proposed project. Vehicles to be replaced must have met their minimum useful life at the time of project completion. For service expansion requests, applicants must provide information on the proposed service expansion and the benefits for transit riders and the community from the new service. For all vehicle projects, the proposal must address whether the project conforms to FTA's spare ratio guidelines. Vehicles funded under these programs are not exempt from FTA's standard spare ratio requirements, which apply to and are calculated based on the agency's entire fleet. Applicants that are introducing zero-emission vehicles into their fleet may consider including vehicles that have already met their minimum useful life in a contingency fleet, which is not included in the spare ratio calculation. Additionally, applicants who may need to exceed the spare ratio for a temporary period are encouraged to work with their FTA Regional Office to determine what flexibilities may be afforded to them and include reference to that in their application.

For bus facility and equipment projects (replacement, rehabilitation, or expansion):

For replacement requests, applicants must provide information on the age and condition of the asset to be rehabilitated or replaced relative to its minimum useful life. For expansion requests, applicants must provide information on the proposed expansion and the reason that transit riders and the community need the expansion.

b. Demonstration of Benefits

i. Low or No Emissions Program

Applicants to the Low-No Program must demonstrate how the proposed project will support the statutory requirements of the Low-No Program (See 49 U.S.C. 5339(c)(5)(A)). In particular, FTA will consider the quality and extent to which applications demonstrate how the proposed project will: (1) Reduce Energy Consumption; (2) Reduce Harmful Emissions; and (3) Reduce Direct Carbon Emissions.

Reduce Energy Consumption: Applicants must describe how the proposed project will reduce energy consumption. FTA will evaluate applications based on the degree to which the proposed technology reduces energy consumption as compared to comparable standard vehicle propulsion technologies.

Reduce Harmful Emissions: Applicants must demonstrate how the proposed vehicles or facility will reduce the emission of particulates that create local air pollution, which leads to local environmental health concerns, smog, and unhealthy ozone concentrations. FTA will evaluate the rate of particulate emissions by the proposed vehicles or vehicles to be supported by the proposed facility, compared to the emissions from the vehicles that will be replaced or moved to the contingency fleet as a result of the proposed project, as well as comparable standard buses.

Reduce Direct Carbon Emissions: Applicants should demonstrate how the proposed vehicles or facility will reduce emissions of greenhouse gases from transit vehicle operations. FTA will evaluate the rate of direct carbon emissions by the proposed vehicles or vehicles to be supported by the proposed facility, compared to the emissions from the vehicles that will be replaced or moved to the contingency fleet as a result of the proposed project, as well as comparable standard buses.

ii. Grants for Buses and Bus Facilities Program

Applicants to the Buses and Bus Facilities Program will be evaluated based on how well they describe how the proposed project will improve the condition of, or otherwise modernize, the transit system; improve the reliability of transit service for its riders;

enhance access and mobility within the service area, particularly for low-income or underserved communities; and expand accessibility for people with disabilities.

Safety: FTA will evaluate the potential for projects to provide positive safety benefits for all users, while not negatively impacting safety for all users. Applicants may describe how the project will reduce the frequency of safety events and/or improve the outcomes of safety events.

System Condition: FTA will evaluate the potential for replacement projects to improve the condition of the transit system by rehabilitating or replacing assets that are in poor condition or have surpassed their minimum or intended useful life benchmarks. Applicants may describe the benefits of reducing breakdowns and service interruptions; increasing service performance; and/or reducing the cost of maintaining outdated vehicles, facilities and equipment.

Enhanced Access and Mobility: FTA will evaluate the potential for expansion projects to improve access and mobility for the transit riding public, particularly for low-income and underserved communities, including improved headways, creation of new transportation choices, or eliminating gaps in the current route network. Proposed benefits should be based on documented ridership demand, based on indicators like area population density, employment served, and existing and planned affordable housing in the corridor, and be well-described or documented through a study or route planning proposal.

Applicants that intend to apply to both programs must submit information that addresses the requirements of both programs as described above.

c. Planning and Local or Regional Prioritization

Applicants must demonstrate how the proposed project is consistent with local and regional long-range planning documents and local government priorities. FTA will evaluate applications based on the quality and extent to which the project is consistent with the transit priorities identified in the long-range plan for all proposals; contingency or illustrative projects included in that plan; or the locally developed human services public transportation coordinated plan. Applicants may submit copies of the relevant pages of such plans to support their application. FTA will consider how the project will support regional goals and applicants may submit support letters from local and regional planning organizations attesting to the consistency of the proposed project with these plans. Applicants are encouraged to also consult DOT's Promising Practices for Meaningful Public Involvement in Transportation Decision-Making at *https://www.transportation.gov/priorities/equity/promising-practices-meaningful-public-involvement-transportation-decision-making.*

Evidence of additional local or regional prioritization may include letters of support for the project from local government officials, public agencies, and non-profit or private sector supporters.

Applicants may also address how the proposed project will impact overall system performance, asset management performance, or specific performance measures tracked and monitored by the applying entity to demonstrate how the proposed project will address local and regional planning priorities.

For applications related to zero-emission vehicles (including vehicles, facilities, equipment, etc.) under either the Low-No or Buses and Bus Facilities programs, applicants are required by law (49 U.S.C. 5339(c)(3)(D)) to submit a Zero-Emission Fleet Transition Plan. This plan must be a separate document from other local or regional planning documents and must: (1) demonstrate a long-term fleet management plan with a strategy for how the applicant intends to use the current application and future acquisitions; (2) address the availability of current and future resources to meet costs for the transition and implementation; (3) consider policy and legislation impacting relevant technologies; (4) include an evaluation of existing and future facilities and their relationship to the technology transition; (5) describe the partnership of the applicant with the utility or alternative fuel provider; and (6) examine the impact of the transition on the applicant's current workforce by identifying skill gaps, training needs, and retraining needs of the existing workers of the applicant to operate and maintain zero-emission vehicles and related infrastructure and avoid the displacement of the existing workforce. FTA has developed resources for applicants regarding the development of this plan which can be found at *https://www.transit.dot.gov/funding/grants/zero-emission-fleet-transition-plan.* For agencies with smaller fleets, a fleet transition plan need not be complex and should be tailored as applicable, but it still must address all six elements. For applications from State departments of transportation, the state may either provide a fleet transition plan that covers some or all of the subrecipients, attach individual plans developed by the subrecipients, or a combination of both.

d. Local Financial Commitment

Applicants must identify the source of the local cost share and describe whether such funds are currently available for the project or will need to be secured if the project is selected for funding. FTA will consider the availability of the local cost share as evidence of local financial commitment to the project. Applicants should submit evidence of the availability of funds for the project; for example, by including a board resolution, letter of support from the State, a budget document highlighting the line item or section committing funds to the proposed project, or other documentation of the source of local funds. FTA will favorably view an applicant that proposes to use grant funds only for the incremental cost of new technologies over the cost of replacing vehicles with standard propulsion technologies.

e. Project Implementation Strategy

FTA will rate projects higher if grant funds can be obligated within 12 months of selection and the project can be implemented within a reasonable time frame. In assessing when funds can be obligated, FTA will consider whether the project qualifies for a Categorical Exclusion (CE), or whether the required environmental work has been initiated or completed for projects that require an Environmental Assessment (EA) or Environmental Impact Statement (EIS) under the National Environmental Policy Act of 1969 (NEPA). As such, applicants should submit information describing the project's anticipated path and timeline through the environmental review process for all proposals, including those that may qualify for a CE. The proposal must state when grant funds can be obligated and indicate the timeframe under which the Metropolitan Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP) can be amended to include the proposed project.

In assessing whether the proposed implementation plans are reasonable and complete, FTA will review the proposed project implementation plan, including all necessary project milestones and the overall project timeline. For projects that will require formal coordination, approvals, or permits from other agencies or project partners, the applicant must demonstrate coordination with these organizations and their support for the

project, such as through letters of support.

Applicants that have identified a cooperative procurement strategy listed in Section 3019 of the Fixing America's Surface Transportation Act (Pub. L. 114–94; 49 U.S.C. 5325, note) are encouraged to describe the method chosen as part of their implementation plans and how such a cooperative procurement will reduce costs.

For proposals that involve a partnership with a manufacturer, vendor, consultant, or other third party, applicants must identify by name any project partners, including, but not limited to, other transit agencies, bus manufacturers, owners or operators of related facilities, or any expert consultants. Such partnerships are permitted under Federal public transportation law (49 U.S.C. 5339(b)(10), (c)(8)) only for applicants proposing a low or no emission project under both the Buses and Bus Facilities Program and the Low-No Program, or for applicants proposing only a low or no emission project under the Low-No program. FTA will evaluate the experience and capacity of the named project partners to successfully implement the proposed project based on the partners' experience and qualifications. Applicants are advised to submit information on the partners' qualifications and experience as a part of the application. Entities to be involved in the project that are not named in the application must be selected through ordinary procurement processes.

f. Technical, Legal, and Financial Capacity

Applicants must demonstrate that they have the technical, legal, and financial capacity to undertake the project.

FTA will review relevant oversight assessments and records to determine whether there are any outstanding legal, technical, or financial issues with the applicant that would affect the outcome of the proposed project. Applicants with outstanding legal, technical, or financial compliance issues from an FTA compliance review or Federal Transit grant-related Single Audit finding must explain how corrective actions taken will mitigate negative impacts on the proposed project.

2. Review and Selection Process

A technical evaluation committee will evaluate proposals based on the published evaluation criteria. FTA may request additional information from applicants, if necessary. Based on the review of the technical evaluation committee, the FTA Administrator will determine the final selection of projects for program funding. In determining the allocation of program funds, FTA may consider geographic diversity, diversity in the size of the transit systems receiving funding, whether an applicant is from a small urban or rural area or is a tribal government, and the applicant's receipt of other competitive awards. FTA may also consider capping the amount a single applicant may receive.

After applying the above criteria, to address climate change and improve sustainability, FTA will give priority consideration to applications that are expected to create significant community benefits relating to the environment, including those projects that incorporate low or no emission technology or specific elements to address greenhouse gas emissions and climate change impacts. Amongst vehicle applications that include at least twenty zero-emission 40-foot buses, FTA will give priority consideration to applications that identify greater emission reductions. To be considered for priority consideration, vehicle applications for at least twenty zero-emission 40-foot buses must use the FTA FY 2023 Bus and Low-No Emission Reduction Calculator which can be found at *https://www.transit.dot.gov/funding/grants/fy-2023-bus-and-low-no-emission-reduction-calculator,* attach the file, and include the amount of reductions per vehicle in the supplemental form.

FTA will also prioritize a zero-emission project higher than other zero-emission projects if the applicant is able to demonstrate how the proposed project and fleet transition plan support the conversion of the agency's overall fleet to zero emissions.

FTA will also provide priority consideration for applicants that describe how their projects support workforce development, job quality, and wealth creation as follows:

Applicants for facility projects should identify whether they will commit to registered apprenticeship positions and use apprentices on the funded project, sometimes called an apprenticeship utilization requirement (*e.g.,* requiring that a certain percent of all labor hours will be performed by registered apprentices); AND detail partnerships with high-quality workforce development programs with supportive services [1] to help train, place, and retain underrepresented communities in jobs and registered apprenticeships on the project; and, for facility projects over $35 million in total project cost, whether the project will use a Project Labor/Community Workforce Agreement and, for facility projects over $35 million, whether the recipient commits to participate in the U.S. Department of Labor's Office of Federal Contract Compliance Programs (OFCCP) Mega Construction Project Program if selected by OFCCP (see F.2.e. *Federal Contract Compliance*).

To support efficient and cost-effective vehicle procurements, FTA will provide priority consideration to applicants that identify their intent to use a procurement method that reduces customization, such as a joint procurement or procurement using an existing schedule. The applicant should identify the proposed approach, other partners if applicable, and how the procurement approach reduces vehicle customization. FTA will evaluate each project on its own merits and selection of one participant indicating their intent to pursue a joint procurement will be independent of selection of other potential participants. If after selection, the proposed procurement method is no longer feasible due to other selections made, the applicant may proceed with a different methodology.

Among zero-emission applications, FTA will give priority consideration to zero-emission applicants that are able to demonstrate that they have consulted with workforce representatives on all aspects of the workforce section of the fleet transition plan; AND include steps to provide or connect workers to supportive services (such as childcare and transportation assistance); AND identify the use of at least one of the following in their plan (1) use of labor-management partnerships for training; (2) use of registered apprenticeship training to support skilling of incumbent and entry-level workers with focus on using registered apprenticeship to advance Black, Hispanic, Asian American, Native Hawaiian and Pacific Islanders, tribal, women, and other groups facing systemic barriers to employment that may be underrepresented in the current workforce, especially in higher-paying jobs.

FTA will also give priority consideration to projects that support the Justice40 initiative. In support of Executive Order 14008, DOT has been

[1] Supportive services are critical to help women and people facing systemic barriers to employment be able to participate and thrive in training and employment. Supportive services include childcare, tools, work clothing, application fees and other costs of apprenticeship or required pre-employment training, transportation and travel to training and work sites, and services aimed at helping to retain underrepresented groups such as mentoring, support groups, and peer networking.

developing a geographic definition of Historically Disadvantaged Communities as part of its implementation of the Justice40 Initiative. Consistent with OMB's Interim Guidance for the Justice40 Initiative, Historically Disadvantaged Communities include (a) certain qualifying census tracts, (b) any Tribal land, or (c) any territory or possession of the United States. Applicants may use DOT's Transportation Disadvantaged Census Tracts (arcgis.com) tool to identify whether the project impact area encompasses disadvantaged communities: *https://usdot.maps.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a.* Use of this map tool is optional; applicants may provide an image of the map tool outputs, or alternatively, consistent with OMB's Interim Guidance, applicants can supply quantitative, demographic data of their ridership demonstrating the percentage of their ridership that meets the criteria described in Executive Order 14008 for disadvantage. Examples of Historically Disadvantaged Communities that an applicant could address using geographic or demographic information include low income, high and/or persistent poverty, high unemployment and underemployment, racial and ethnic residential segregation, linguistic isolation, or high housing cost burden and substandard housing. Additionally, in support of the Justice40 Initiative, the applicant also should identify how they considered the benefits and potential burdens a project may create, who would experience them and how they may be measured over time, with a specific focus on how the benefits and potential burdens will impact underserved/disadvantaged communities; and, identify how the applicant utilized a meaningful public involvement process, inclusive of disadvantaged populations, throughout the lifecycle of a project. For technical assistance using the mapping tool, please contact *GMO@dot.gov.*

Due to funding limitations, projects that are selected for funding may receive less than the amount originally requested, even if an application did not present a scaled project option. In those cases, applicants must be able to demonstrate that the proposed projects are still viable and can be completed with the amount awarded.

3. Integrity and Performance Review

Prior to making an award with a total amount of Federal share greater than the simplified acquisition threshold (currently $10,000), FTA is required to review and consider any information about the applicant that is in the Federal Awardee Performance and Integrity Information Systems (FAPIIS) accessible through SAM. An applicant may review and comment on information about itself that a Federal awarding agency previously entered. FTA will consider any comments by the applicant, in addition to the other information in FAPIIS, in making a judgment about the applicant's integrity, business ethics, and record of performance under Federal awards when completing the review of risk posed by applicants as described in 2 CFR 200.206.

F. Federal Award Administration Information

1. Federal Award Notices

FTA will announce the final project selections on the FTA website. Selectees should contact their FTA Regional Offices for additional information regarding allocations for projects. At the time the project selections are announced, FTA will extend pre-award authority for the selected projects (see Section D.5 of this notice for more information). There is no blanket pre-award authority for these projects before announcement.

2. Administrative and National Policy Requirements

a. Grant Requirements

If selected, awardees will apply for a grant through FTA's Transit Award Management System (TrAMS). Recipients of funding in urban areas according to the 2010 Census are subject to the grant requirements of the Urbanized Area Formula Grants program (49 U.S.C. 5307), including those of FTA Circular ''Urbanized Area Formula Program: Program Guidance and Application Instructions'' (FTA.C.9030.1E). Recipients of funding in rural areas according to the 2010 Census are subject to the grant requirements of the Formula Grants for Rural Areas Program (49 U.S.C. 5311), including those of FTA Circular ''Formula Grants for Rural Areas: Program Guidance and Application Instructions'' (FTA.C.9040.1G). All recipients must accept the FTA Master Agreement and follow FTA Circular ''Award Management Requirements'' (FTA.C.5010.1E) and the labor protections required by Federal public transportation law (49 U.S.C. 5333(b)). Technical assistance regarding these requirements is available from each FTA regional office.

By submitting a grant application, the applicant assures that it will comply with all applicable Federal statutes, regulations, executive orders, directives, FTA circulars and other Federal administrative requirements in carrying out any project supported by the FTA grant, including the Davis-Bacon Act (40 U.S.C. 3141–3144, and 3146–3148) as supplemented by Department of Labor regulations (29 CFR part 5, ''Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction''). Further, the applicant acknowledges that it is under a continuing obligation to comply with the terms and conditions of the grant agreement issued for its project with FTA. The applicant understands that Federal laws, regulations, policies, and administrative practices might be modified from time to time and may affect the implementation of the project. The applicant agrees that the most recent Federal requirements will apply to the project, unless FTA issues a written determination otherwise. The applicant must submit the Certifications and Assurances before receiving a grant if it does not have current certifications on file.

Applicants for the Buses and Bus Facilities Program are encouraged to utilize the innovative procurement practices found in Section 3019 of the Fixing America's Surface Transportation Act (49 U.S.C. 5325, note). Please see details at *https://www.transit.dot.gov/funding/grants/innovative-procurement-leasing-fact-sheet-section-3019.* If selected for funding, any project that purchases fewer than five buses through a standalone procurement must provide a written explanation why the tools authorized under Section 3019 were not utilized.

As authorized by Section 25019 of the BIL, applicants are encouraged to implement a local or other geographical or economic hiring preference relating to the use of labor for construction of a project funded by the grant, including pre-hire agreements, subject to any applicable State and local laws, policies, and procedures.

b. Buy America and Domestic Preferences for Infrastructure Projects

As expressed in Executive Order 14005, 'Ensuring the Future Is Made in All of America by All of America's Workers' (86 FR 7475), the Executive Branch should maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States. Therefore, all capital procurements must comply with FTA's Buy America requirements (49 U.S.C. 5323(j)), which require that all iron, steel, and manufactured products be produced in the United States. In addition, any award must

comply with the Build America, Buy America Act (BABA) (Pub. L. 117–58, sections 70901–27). BABA provides that none of the funds provided under an award made pursuant to this notice may be used for a project unless all iron, steel, manufactured products, and construction materials are produced in the United States. FTA's Buy America requirements are consistent with BABA requirements for iron, steel, and manufactured products.

Any proposal that will require a waiver of any domestic preference standard must identify the items for which a waiver will be sought in the application. Applicants should not proceed with the expectation that waivers will be granted.

c. Civil Rights Requirements

As a condition of a grant award, grant recipients should demonstrate that the recipient has a plan for compliance with civil rights obligations and nondiscrimination laws, including Title VI of the Civil Rights Act of 1964 and implementing regulations (49 CFR part 21), the Americans with Disabilities Act of 1990 (ADA), and Section 504 of the Rehabilitation Act, all other civil rights requirements, and accompanying regulations. This should include a current Title VI plan, completed Community Participation Plan (alternatively called a Public Participation Plan and often part of the overall Title VI program plan), if applicable. DOT's and the applicable Operating Administrations' Office of Civil Rights may work with awarded grant recipients to ensure full compliance with Federal civil rights requirements.

d. Disadvantaged Business Enterprise

Recipients of planning, capital, or operating assistance that will award prime contracts (excluding transit vehicle purchases), the cumulative total of which exceeds $250,000 in FTA funds in a Federal fiscal year, must comply with the Disadvantaged Business Enterprise (DBE) program regulations (49 CFR part 26).

To be eligible to bid on any FTA-assisted vehicle procurement, entities that manufacture transit vehicles or perform post-production alterations or retrofitting must be certified Transit Vehicle Manufacturers (TVM). If a vehicle remanufacturer is responding to a solicitation for new or remanufactured vehicles with a vehicle to which the remanufacturer has provided post-production alterations or retrofitting (*e.g.,* replacing major components such as engine to provide a ''like new'' vehicle), the vehicle remanufacturer must be a certified TVM.

The TVM rule requires that, prior to bidding on any FTA-assisted vehicle procurement, manufacturers of transit vehicles submit a DBE Program plan and annual goal methodology to FTA. FTA then will issue a TVM concurrence and certification letter. Grant recipients must verify each manufacturer's TVM status before accepting its bid. A list of compliant, certified TVMs is posted on FTA's website at *https://www.transit.dot.gov/TVM.* Recipients should contact FTA before accepting a bid from a manufacturer not on this list. In lieu of using a certified TVM, a recipient may establish project-specific DBE goals for its vehicle procurement. FTA will provide additional guidance as grants are awarded. For more information on DBE requirements, please contact Monica McCallum, FTA Office of Civil Rights, 206–220–7519, *Monica.McCallum@dot.gov.*

e. Federal Contract Compliance

As a condition of grant award and consistent with E.O. 11246, Equal Employment Opportunity (30 FR 12319, and as amended), all Federally-assisted construction contractors are required to make good faith efforts to meet the goals of 6.9 percent of construction project hours being performed by women, in addition to goals that vary based on geography for construction work hours and for work being performed by people of color. Under Section 503 of the Rehabilitation Act and its implementing regulations, affirmative action obligations for certain contractors include an aspirational employment goal of 7 percent workers with disabilities.

The U.S. Department of Labor's Office of Federal Contract Compliance Programs (OFCCP) is charged with enforcing Executive Order 11246, Section 503 of the Rehabilitation Act of 1973, and the Vietnam Era Veterans' Readjustment Assistance Act of 1974. OFCCP has a Mega Construction Project Program through which it engages with project sponsors as early as the design phase to help promote compliance with non-discrimination and affirmative action obligations. OFCCP may identify construction projects that receive an award under this notice that have a project cost above $35 million to participate in OFCCP's Mega Construction Project Program. If selected and the applicant agrees to participate, OFCCP will ask selected project sponsors to make clear to prime contractors in the pre-bid phase that award terms may require their participation in the Mega Construction Project Program. Additional information on how OFCCP makes their selections for participation in the Mega Construction Project Program is outlined under ''Scheduling'' on the Department of Labor website: *https://www.dol.gov/agencies/ofccp/faqs/construction-compliance.*

f. Planning

FTA encourages applicants to notify the appropriate State Departments of Transportation and Metropolitan Planning Organizations (MPOs) in areas likely to be served by the project funds made available under this program. Selected projects must be incorporated into the long-range plans and transportation improvement programs of States and metropolitan areas before they are eligible for FTA funding.

3. Reporting

Post-award reporting requirements include the electronic submission of Federal Financial Reports and Milestone Progress Reports in FTA's electronic grants management system. Recipients of funds made available through this NOFO are also required to regularly submit data to the National Transit Database. Recipients should include any goals, targets, and indicators referenced in their applications in the Executive Summary of the TrAMS application.

FTA is committed to making evidence-based decisions guided by the best available science and data. In accordance with the Foundations for Evidence-based Policymaking Act of 2018 (Evidence Act), FTA may use information submitted in discretionary funding applications; information in FTA's Transit Award Management System (TrAMS), including grant applications, Milestone Progress Reports (MPRs), Federal Financial Reports (FFRs); transit service, ridership and operational data submitted in FTA's National Transit Database; documentation and results of FTA oversight reviews, including triennial and state management reviews; and other publicly available sources of data to build evidence to support policy, budget, operational, regulatory, and management processes and decisions affecting FTA's grant programs.

As part of completing the annual certifications and assurances required of FTA grant recipients, a successful applicant must report on the suspension or debarment status of itself and its principals. If the award recipient's active grants, cooperative agreements, and procurement contracts from all Federal awarding agencies exceeds $10,000,000 for any period of time during the period of performance of an

award made pursuant to this Notice, the recipient must comply with the Recipient Integrity and Performance Matters reporting requirements described in Appendix XII to 2 CFR part 200.

G. Federal Awarding Agency Contacts

For further information concerning this notice, please email *FTALowNoBusNOFO@dot.gov,* or call Margaretta Veltri, FTA Office of Program Management, at 202–366–5094. A TDD is available for individuals who are deaf or hard of hearing at 800–877–8339. In addition, FTA will post answers to questions and requests for clarifications on FTA's website at *https://www.transit.dot.gov/lowno.* To ensure applicants receive accurate information about eligibility or the program, applicants are encouraged to contact FTA with questions directly, rather than through intermediaries or third parties.

For issues with *GRANTS.GOV,* please contact *GRANTS.GOV* by phone at 1–800–518–4726 or by email at *support@grants.gov.* Contact information for FTA's regional offices can be found on FTA's website at *https://www.transit.dot.gov/about/regional-offices/regional-offices.*

H. Other Information

User-friendly information and resources regarding DOT's discretionary grant programs relevant to rural applicants can be found on the Rural Opportunities to Use Transportation for Economic Success (ROUTES) website at *https://www.transportation.gov/rural.*

This program is not subject to Executive Order 12372, ''Intergovernmental Review of Federal Programs.''

All information submitted as part of or in support of any application shall use publicly available data or data that can be made public and methodologies that are accepted by industry practice and standards, to the extent possible. If an applicant submits information the applicant considers to be a trade secret or confidential commercial or financial information, the applicant must provide that information in a separate document, which the applicant may reference from the application narrative or other portions of the application. For the separate document containing confidential information, the applicant must do the following: (1) state on the cover of that document that it ''Contains Confidential Business Information (CBI);'' (2) mark each page that contains confidential information with ''CBI;'' (3) highlight or otherwise denote the confidential content on each page; and (4) at the end of the document, explain how disclosure of the confidential information would cause substantial competitive harm. FTA will protect confidential information complying with these requirements to the extent required under applicable law. If FTA receives a Freedom of Information Act (FOIA) request for the information that the applicant has marked in accordance with this section, FTA will follow the procedures described in DOT's FOIA regulations at 49 CFR 7.29. Only information that is in the separate document, marked in accordance with this section, and ultimately determined to be confidential will be exempt from disclosure under FOIA.

Nuria I. Fernandez,

Administrator.

[FR Doc. 2023–01654 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–57–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

Petition for Exemption From the Federal Motor Vehicle Theft Prevention Standard; Ford Motor Company

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Grant of petition for exemption.

SUMMARY: This document grants in full the Ford Motor Company (Ford) petition for exemption from the Federal Motor Vehicle Theft Prevention Standard (theft prevention standard) for its Mustang Mach-E vehicle line beginning in model year (MY) 2024. The petition is granted because the agency has determined that the antitheft device to be placed on the line as standard equipment is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the theft prevention standard. Ford also requested confidential treatment for specific information in its petition. Therefore, no confidential information provided for purposes of this notice has been disclosed.

DATES: The exemption granted by this notice is effective beginning with the 2024 model year.

FOR FURTHER INFORMATION CONTACT: Carlita Ballard, Office of International Policy, Fuel Economy, and Consumer Programs, NHTSA, West Building, W43–439, NRM–310, 1200 New Jersey Avenue SE, Washington, DC 20590. Ms. Ballard's phone number is (202) 366–5222. Her fax number is (202) 493–2990.

SUPPLEMENTARY INFORMATION: Under 49 U.S.C. chapter 331, the Secretary of Transportation (and the National Highway Traffic Safety Administration (NHTSA) by delegation) is required to promulgate a theft prevention standard to provide for the identification of certain motor vehicles and their major replacement parts to impede motor vehicle theft. NHTSA promulgated regulations at 49 CFR part 541 (theft prevention standard) to require parts-marking for specified passenger motor vehicles and light trucks. Pursuant to 49 U.S.C. 33106, manufacturers that are subject to the parts-marking requirements may petition the Secretary of Transportation for an exemption for a line of passenger motor vehicles equipped with an antitheft device as standard equipment that the Secretary decides is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements. In accordance with this statute, NHTSA promulgated 49 CFR part 543, which establishes the process through which manufacturers may seek an exemption from the theft prevention standard.

49 CFR 543.5 provides general submission requirements for petitions and states that each manufacturer may petition NHTSA for an exemption of one vehicle line per model year. Among other requirements, manufacturers must identify whether the exemption is sought under section 543.6 or section 543.7. Under section 543.6, a manufacturer may request an exemption by providing specific information about the antitheft device, its capabilities, and the reasons the petitioner believes the device to be as effective at reducing and deterring theft as compliance with the parts-marking requirements. Section 543.7 permits a manufacturer to request an exemption under a more streamlined process if the vehicle line is equipped with an antitheft device (an ''immobilizer'') as standard equipment that complies with one of the standards specified in that section.[1]

[1] 49 CFR 543.7 specifies that the manufacturer must include a statement that their entire vehicle line is equipped with an immobilizer that meets one of the following standards:

(1) The performance criteria (subsection 8 through 21) of C.R.C, c. 1038.114, Theft Protection and Rollaway Prevention (in effect March 30, 2011), as excerpted in appendix A of [part 543];

(2) National Standard of Canada CAN/ULC–S338–98, Automobile Theft Deterrent Equipment and Systems: Electronic Immobilization (May 1998);

(3) United Nations Economic Commission for Europe (UN/ECE) Regulation No. 97 (ECE R97), Uniform Provisions Concerning Approval of Vehicle Alarm System (VAS) and Motor Vehicles with Regard to Their Alarm System (AS) in effect August 8, 2007; or

Section 543.8 establishes requirements for processing petitions for exemption from the theft prevention standard. As stated in section 543.8(a), NHTSA processes any complete exemption petition. If NHTSA receives an incomplete petition, NHTSA will notify the petitioner of the deficiencies. Once NHTSA receives a complete petition the agency will process it and, in accordance with section 543.8(b), will grant the petition if it determines that, based upon substantial evidence, the standard equipment antitheft device is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of part 541.

Section 543.8(c) requires NHTSA to issue its decision either to grant or to deny an exemption petition not later than 120 days after the date on which a complete petition is filed. If NHTSA does not make a decision within the 120-day period, the petition shall be deemed to be approved and the manufacturer shall be exempt from the standard for the line covered by the petition for the subsequent model year.[2] Exemptions granted under part 543 apply only to the vehicle line or lines that are subject to the grant and that are equipped with the antitheft device on which the line's exemption was based, and are effective for the model year beginning after the model year in which NHTSA issues the notice of exemption, unless the notice of exemption specifies a later year.

Sections 543.8(f) and (g) apply to the manner in which NHTSA's decisions on petitions are to be made known. Under section 543.8(f), if the petition is sought under section 543.6, NHTSA publishes a notice of its decision to grant or deny the exemption petition in the **Federal Register** and notifies the petitioner in writing. Under section 543.8(g), if the petition is sought under section 543.7, NHTSA notifies the petitioner in writing of the agency's decision to grant or deny the exemption petition.

This grant of petition for exemption considers Ford Motor Corporation's (Ford) petition for its Mustang Mach-E vehicle line beginning in MY 2024.

I. Specific Petition Content Requirements Under 49 CFR 543.6

Pursuant to 49 CFR part 543, *Exemption from Vehicle Theft Prevention,* Ford petitioned for an exemption for its specified vehicle line from the parts-marking requirements of the theft prevention standard, beginning in MY 2024. Ford petitioned under 49 CFR 543.6, *Petition: Specific content requirements,* which, as described above, requires manufacturers to provide specific information about the antitheft device installed as standard equipment on all vehicles in the line for which an exemption is sought, the antitheft device's capabilities, and the reasons the petitioner believes the device to be as effective at reducing and deterring theft as compliance with the parts-marking requirements.

More specifically, section 543.6(a)(1) requires petitions to include a statement that an antitheft device will be installed as standard equipment on all vehicles in the line for which the exemption is sought. Under section 543.6(a)(2), each petition must list each component in the antitheft system, and include a diagram showing the location of each of those components within the vehicle. As required by section 543.6(a)(3), each petition must include an explanation of the means and process by which the device is activated and functions, including any aspect of the device designed to: (1) facilitate or encourage its activation by motorists; (2) attract attention to the efforts of an unauthorized person to enter or move a vehicle by means other than a key; (3) prevent defeating or circumventing the device by an unauthorized person attempting to enter a vehicle by means other than a key; (4) prevent the operation of a vehicle which an unauthorized person has entered using means other than a key; and (5) ensure the reliability and durability of the device.[3]

In addition to providing information about the antitheft device and its functionality, petitioners must also submit the reasons for their belief that the antitheft device will be effective in reducing and deterring motor vehicle theft, including any theft data and other data that are available to the petitioner and form a basis for that belief,[4] and the reasons for their belief that the agency should determine that the antitheft device is likely to be as effective as compliance with the parts-marking requirements of part 541 in reducing and deterring motor vehicle theft. In support of this belief, the petitioners should include any statistical data that are available to the petitioner and form the basis for the petitioner's belief that a line of passenger motor vehicles equipped with the antitheft device is likely to have a theft rate equal to or less than that of passenger motor vehicles of the same, or a similar, line which have parts marked in compliance with part 541.[5]

The following sections describe Ford's petition information provided pursuant to 49 CFR part 543, *Exemption from Vehicle Theft Prevention*. To the extent that specific information in Ford's petition is subject to a properly filed confidentiality request, that information was not disclosed as part of this notice.[6]

II. Ford's Petition for Exemption

In a petition originally submitted on July 11, 2022 and re-submitted on September 14, 2022, Ford requested an exemption from the parts-marking requirements of the theft prevention standard for its Mustang Mach-E vehicle line beginning with MY 2024.

In its petition, Ford provided a detailed description and diagram of the identity, design, and location of the components of the antitheft device for the Mustang Mach-E vehicle line. Ford stated that its MY 2024 Mustang Mach-E vehicle line will be installed with a passive, transponder based, electronic engine immobilizer antitheft device as standard equipment. Ford also stated that its Mustang Mach-E vehicle line will offer a phone as a key (PaaK) feature as standard equipment. Specifically, Ford stated that its vehicle line will be installed with the Intelligent Access with Push Button Start (IAwPB). Key components of the IAwPB device will include a key fob, radio transceiver module, engine start/stop button, body control module (BCM), primary drive control module (PDCM) (battery electric vehicle (BEV) equivalent of the powertrain control module (PCM), secondary drive control module (SDCM), Bluetooth low energy module (BLEM) and an embedded secure modem (for PaaK feature). Ford also stated that its vehicle line will be equipped with a hood release, counterfeit resistant VIN label, secondary VINs inscribed on the body and a cabin accessible with a valid keycode as standard antitheft features.

Ford further stated that its Mustang Mach-E vehicle line will also be offered with a perimeter alarm system[7] as

(4) UN/ECE Regulation No. 116 (ECE R116), Uniform Technical Prescriptions Concerning the Protection of Motor Vehicles Against Unauthorized Use in effect on February 10, 2009.

[2] 49 U.S.C. 33106(d).

[3] 49 CFR 543.6(a)(3).

[4] 49 CFR 543.6(a)(4).

[5] 49 CFR 543.6(a)(5).

[6] 49 CFR 512.20(a).

[7] Ford also stated that it will offer an audible and visible perimeter alarm as optional equipment on its Mustang Mach-E line. Per 49 U.S.C. 33106(b), manufacturers may petition NHTSA for an exemption ''for a line of passenger motor vehicles equipped *as standard equipment* with an antitheft device that [NHTSA] decides is likely to be as effective in reducing and deterring motor vehicle theft as compliance with'' the Theft Prevention Standard (emphasis added). Per 49 U.S.C.

Continued

optional equipment which will activate a visible and audible alarm whenever unauthorized access is attempted. Some additional features of the antitheft device include: encrypted communication between the transponder, BCM control function and the PCM; ''virtually impossible'' key duplication; and shared security data between the body control module/remote function actuator and the powertrain control module. NHTSA has previously approved the IAwPB antitheft system as standard equipment for the Ford Bronco Sport vehicle line. The IAwPB system is described in the grant of petition for exemption published in the **Federal Register** on August 12, 2020.

Pursuant to section 543.6(a)(3), Ford explained that there is no manual activation of its antitheft system and that it is activated/armed when the ''StartStop'' button is pressed, shutting off the engine. Ford stated that the device is deactivated when a start sequence is completed and engine start is successful. Ford further stated that the vehicle engine can only be started when the key is present in the vehicle and the ''StartStop'' button inside the vehicle is pressed. Ford stated that when the ''StartStop'' button is pressed, the transceiver module will read a key code and transmit an encrypted message to the control module to determine key validity and engine start by sending a separate encrypted message to the BCM, the BLEM, the SDCM, then the PDCM equivalent of the PCM. The powertrain will function only if the key code matches the unique identification key code previously programmed into the BCM. Ford stated that there are three modules that must be matched together in order for the vehicle to start. If the codes do not match, the electric drive inverter for each drive motor is disabled preventing currents reaching the motor which then prevents torque from being produced at the wheels. Ford further stated that any attempt to operate the vehicle without transmission of the correct code to the electronic control (*i.e.,* short circuiting the ''StartStop'' button) module will be ineffective.

As required in section 543.6(a)(3)(v), Ford provided information on the reliability and durability of its proposed device. To ensure reliability and durability of the device, Ford stated that it conducted tests on the antitheft device which complied with its own specific standards. Additionally, Ford stated that its antitheft device has no moving parts (*i.e.,* BCM, BLEM, SDCM and the PCM, and electrical components) to perform system functions, which eliminate the possibility of physical damage or deterioration from normal use; and mechanically overriding the device to start the vehicle is also impossible. In further addressing the reliability and durability of its device, Ford stated that its Mustang Mach-E vehicle line will also be equipped with several other standard antitheft features common to Ford vehicles, (*i.e.,* hood release located inside the vehicle, counterfeit resistant VIN labels, secondary VINs, and cabin accessibility only with the use of a valid key fob).

Ford stated that the antitheft system installed in its 2024 MY Ford Mustang Mach-E vehicles is similar to the system that was offered in the 2021 MY Ford Bronco Sport vehicles equipped with the IAwPB. The Ford Bronco Sport vehicle line was granted a parts-marking exemption by NHTSA (85 FR 48759, August 12, 2020) beginning with its MY 2021 vehicles.

Ford believes that the Ford Mustang Mach-E would have a similar theft rate to the Ford Edge. Ford specifically stated that the Ford Edge vehicle line is comparable with the Ford Mustang Mach-E in vehicle segment, size and equipment and since the IAwPB system is the primary theft deterrent on Ford vehicles, Ford believes that the Ford Mustang Mach-E will likely have a very low theft rate based on the comparable Ford Edge average theft rate of approximately 2.9/1000. Ford also stated that its Ford Mustang with the antitheft system showed a 70% reduction in theft rate compared to the MY 1995 Ford Mustang, according to the National Insurance Crime Bureau (NICB) theft statistics.

III. Decision To Grant the Petition

Pursuant to 49 U.S.C. 33106 and 49 CFR 543.8(b), the agency grants a petition for exemption from the parts-marking requirements of part 541, either in whole or in part, if it determines that, based upon substantial evidence, the standard equipment antitheft device is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of part 541. The agency finds that Ford has provided adequate reasons for its belief that the antitheft device for its vehicle line is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the theft prevention standard. This conclusion is based on the information Ford provided about its antitheft device. NHTSA believes, based on Ford's supporting evidence, that the antitheft device described for its vehicle line is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the theft prevention standard.

The agency concludes that Ford's antitheft device will provide four types of performance features listed in section 543.6(a)(3): promoting activation; preventing defeat or circumvention of the device by unauthorized persons; preventing operation of the vehicle by unauthorized entrants; and ensuring the reliability and durability of the device.

The agency notes that 49 CFR part 541, Appendix A–1, identifies those lines that are exempted from the theft prevention standard for a given model year. 49 CFR 543.8(f) contains publication requirements incident to the disposition of all part 543 petitions. Advanced listing, including the release of future product nameplates, the beginning model year for which the petition is granted and a general description of the antitheft device is necessary in order to notify law enforcement agencies of new vehicle lines exempted from the parts-marking requirements of the theft prevention standard.

If Ford decides not to use the exemption for its requested vehicle line, the manufacturer must formally notify the agency. If such a decision is made, the line must be fully marked as required by 49 CFR 541.5 and 541.6 (marking of major component parts and replacement parts).

NHTSA notes that if Ford wishes in the future to modify the device on which this exemption is based, the company may have to submit a petition to modify the exemption. Section 543.8(d) states that a part 543 exemption applies only to vehicles that belong to a line exempted under this part and equipped with the antitheft device on which the line's exemption is based. Further, section 543.10(c)(2) provides for the submission of petitions ''to modify an exemption to permit the use of an antitheft device similar to but differing from the one specified in the exemption.''

The agency wishes to minimize the administrative burden that section 543.10(c)(2) could place on exempted vehicle manufacturers and itself. The agency did not intend in drafting part 543 to require the submission of a modification petition for every change

33106(a)(2), ''standard equipment'' means equipment already installed in a motor vehicle when it is delivered from the manufacturer and not an accessory or other item that the first purchaser customarily has the option to have installed. Therefore, for purposes of Ford's petition, NHTSA is only considering the device equipped on the vehicle as standard equipment.

to the components or design of an antitheft device. The significance of many such changes could be de minimis. Therefore, NHTSA suggests that if Ford contemplates making any changes, the effects of which might be characterized as de minimis, it should consult the agency before preparing and submitting a petition to modify.

For the foregoing reasons, the agency hereby grants in full Ford's petition for exemption for the Mustang Mach-E vehicle line from the parts-marking requirements of 49 CFR part 541, beginning with its MY 2024 vehicles.

Issued under authority delegated in 49 CFR 1.95 and 501.8.

Raymond R. Posten,

Associate Administrator for Rulemaking.

[FR Doc. 2023–01603 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–59–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA–2021–0067; Notice 1]

Ricon Corporation, Receipt of Petition for Decision of Inconsequential Noncompliance

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Receipt of petition.

SUMMARY: Ricon Corporation (Ricon) has determined that certain Ricon Baylift Series wheelchair lifts (Baylifts) do not fully comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 403, *Platform Lift Systems for Motor Vehicles.* Ricon filed an original noncompliance report dated July 30, 2021, and subsequently petitioned NHTSA on August 26, 2021, for a decision that the subject noncompliances are inconsequential as they relate to motor vehicle safety. This notice announces receipt of Ricon's petition.

DATES: Send comments on or before February 27, 2023.

ADDRESSES: Interested persons are invited to submit written data, views, and arguments on this petition. Comments must refer to the docket and notice number cited in the title of this notice and submitted by any of the following methods:

- *Mail:* Send comments by mail addressed to the U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Deliver comments by hand to the U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590. The Docket Section is open on weekdays from 10 a.m. to 5 p.m. except for Federal holidays.
- *Electronically:* Submit comments electronically by logging onto the Federal Docket Management System (FDMS) website at *https://www.regulations.gov/.* Follow the online instructions for submitting comments.
- Comments may also be faxed to (202) 493–2251.

Comments must be written in the English language and be no greater than 15 pages in length, although there is no limit to the length of necessary attachments to the comments. If comments are submitted in hard copy form, please ensure that two copies are provided. If you wish to receive confirmation that comments you have submitted by mail were received, please enclose a stamped, self-addressed postcard with the comments. Note that all comments received will be posted without change to *https://www.regulations.gov,* including any personal information provided.

All comments and supporting materials received before the close of business on the closing date indicated above will be filed in the docket and will be considered. All comments and supporting materials received after the closing date will also be filed and will be considered to the fullest extent possible.

When the petition is granted or denied, notice of the decision will also be published in the **Federal Register** pursuant to the authority indicated at the end of this notice.

All comments, background documentation, and supporting materials submitted to the docket may be viewed by anyone at the address and times given above. The documents may also be viewed on the internet at *https://www.regulations.gov* by following the online instructions for accessing the docket. The docket ID number for this petition is shown in the heading of this notice.

DOT's complete Privacy Act Statement is available for review in a **Federal Register** notice published on April 11, 2000 (65 FR 19477–78).

FOR FURTHER INFORMATION CONTACT: Ahmad Barnes, Safety Compliance Engineer, NHTSA, Office of Vehicle Safety Compliance, 202–366–7236, *ahmad.barnes@dot.gov.*

SUPPLEMENTARY INFORMATION:

I. Overview

Ricon has determined that certain Ricon Baylift Series wheelchair lifts do not fully comply with the requirements of paragraphs S6.4.2, S6.4.4.3, S6.10.2.7, and S6.7.4 of FMVSS No. 403, *Platform Lift Systems for Motor Vehicles* (49 CFR 571.403). Ricon filed a noncompliance report dated July 30, 2021, pursuant to 49 CFR part 573, *Defect and Noncompliance Responsibility and Reports.* Ricon subsequently petitioned NHTSA on August 26, 2021, for an exemption from the notification and remedy requirements of 49 U.S.C. Chapter 301 on the basis that the noncompliances are inconsequential as they relate to motor vehicle safety, pursuant to 49 U.S.C. 30118(d) and 30120(h) and 49 CFR part 556, *Exemption for Inconsequential Defect or Noncompliance.*

This notice of receipt of Ricon's petition is published under 49 U.S.C. 30118 and 30120 and does not represent any Agency decision or other exercise of judgment concerning the merits of the petition.

II. Equipment Involved

Approximately 1,877 Ricon Baylift Series wheelchair lifts, manufactured between April 1, 2005, and April 22, 2020, are potentially involved.

III. Noncompliances

Ricon explains that the subject lifts have four noncompliances related to both the design of the platform and the performance of the lifts. The first noncompliance is that the lift platform does not meet the unobstructed platform minimum operating volume at one particular location on the platform as required by paragraph S6.4.2.1 of FMVSS No. 403. Specifically, at the location of the lift platform counterbalance gas springs, the slight protrusion of the gas springs, and the gas spring mounting hardware reduces the platform clear width to approximately 755.7 mm (29.75 inches) between the gas springs and 746.3 mm (29.38 inches) at the specific location of the gas spring mounting hardware. A minimum operating volume of 30 inches width at 2 inches above the platform surface. The platform meets the volume requirements in all other locations.

- The gap between the edge of the outer platform and the fully deployed outer barrier is marginally larger (approximately 2.38 mm (0.094 inches)) than the clearance test block specified in S7.1.3 and may allow the test block to pass through the gap when the long axis is held perpendicular to the

platform reference plane as required in S6.4.4.3.

• The inner roll stop interlock may not sense the presence of the wheelchair test device in certain limited locations when tested to the provisions of S7.6.3. When the lift platform is at vehicle floor height with the inner barrier in the fully down (non-deployed) position and a wheelchair test device is placed in certain locations on the inner barrier with 1 or 2 front wheels on the inner roll stop, the inner roll stop may begin to deploy even though there is a wheelchair present.

• The wheelchair lift control does not conform to the simultaneous activation requirements of FMVSS 403 section S6.7.4 for the DEPLOY and DOWN command functions.

IV. Rule Requirements

The following paragraphs of FMVSS No. 403 include the requirements relevant to this petition.

• *S6.4.2: Unobstructed platform operating volume.* S6.4.2.1 *Public use lifts.* For public use lifts, the minimum platform operating volume is the sum of an upper part and a lower part. The lower part is a rectangular solid whose base is 725 mm (28.5 in) wide by the length of the platform surface, whose height is 50 mm (2 in), and which is resting on the platform surface with each side of the base parallel with the nearest side of the platform surface. The width is perpendicular to the lift reference plane and the length is parallel to the lift reference plane. The upper part is a rectangular solid whose base is 760 mm (30 in) by 1,220 mm (48 in) long, whose height is 711 mm (28 in), and whose base is tangent to the top surface of the lower rectangular solid. The centroids of both the upper and lower parts coincide with the vertical centroidal axis of the platform reference plane.

• *S6.4.4.3:* When the inner roll stop or any outer barrier is deployed, any gap between the inner roll stop and lift platform and any gap between the outer barrier and lift platform must prevent passage of the clearance test block specified in S7.1.3 when its long axis is held perpendicular to the platform reference plane.

• *S6.10.2.7:* Vertical deployment of the inner roll is stop required to comply with S6.4.8 when it is occupied by portions of a passenger's body or mobility aid throughout the lift operations. When the platform stops, the vertical change in distance of the horizontal plane (passing through the point of contact between the wheelchair test device wheel(s) and the upper surface of the inner roll stop or platform edge) must not be greater than 13 mm (0.5 in). Verification of compliance with this requirement is made using the test procedure specified in S7.6.1.

• *S6.7.4:* Except for the POWER function described in S6.7.2.1, the control system specified in S6.7.2 must prevent the simultaneous performance of more than one function. If an initial function is actuated, then one or more other functions are actuated while the initial function remains actuated, the platform must either continue in the direction dictated by the initial function or stop. Verification of this requirement is made throughout the lift operations specified in S7.9.3 through S7.9.8.

V. Summary of Ricon's Petition

The following views and arguments presented in this section, ''V. Summary of Ricon's Petition,'' are the views and arguments provided by Ricon. They have not been evaluated by the Agency and do not reflect the views of the Agency. Ricon describes the four subject noncompliances and contends that the noncompliances are inconsequential as they relate to motor vehicle safety, ''whether considered individually or as a whole.''

Ricon submits the following arguments for each of the noncompliances:

A. Unobstructed Platform Operating Volume

Ricon states that although the width at 2 inches above the platform surface measures 0.62 inches less than the required width, this condition ''does not pose a safety risk or deny access to mobility users.'' Ricon argues, the intent of this requirement ''is to create a consistent platform size to ensure *most* users with mobility devices are able to access the platform and the vehicle'' and cites 67 FR 79416 (December 27, 2002). Ricon also states that the Baylifts were not designed for use in public transit buses but to be installed in ''specialized over the road buses such as motorcoaches that are used for tour operations.''

According to Ricon, there ''is little to no risk that a user would be precluded from accessing the motorcoach'' via the subject lifts can accommodate ''a standard adult-sized manual powered wheelchair'' as defined in the Americans with Disabilities Act. Further, Ricon found that 3 out of 45 powered wheelchairs and 1 of 14 scooters sold by ''major mobility device manufacturers'' were 30 or more inches wide.[1] Ricon also says that in NHTSA's final rule for FMVSS Nos. 403 and 404,[2] it ''recognized and accepted that not all mobility devices could necessarily be accommodated through the platform volume provision.'' Ricon stated its belief that ''the minor deviations in the platform volume width at the extreme upper part of the platform would have no impact on the ability of a user with a standard wheelchair'' and ''limited, if any effect on powered mobility device users.''

B. Outer Barrier Gap

Ricon says that although the gap measures 2.38 mm (0.094 inch) more than the requirements allows, ''the deviation is extremely slight'' and does not pose a safety risk. Ricon provided photos in its petition[3] to demonstrate that ''the size of the gap with the exceedance is so small that it does not create an open space or a void between the testing block and the metal edge of the gap.'' Ricon also says that because the ''standard size of a walking cane tip'' and the size of drive and caster wheels found on wheelchairs, are bigger than the gap, occupants using mobility devices would not be impacted. Additionally, Ricon says that the orientation in which these devices should be used would provide ''no opportunity for the wheel or base to slip into the gap even in the unlikely scenario that a device had an extremely small base installed.'' Ricon argues that occupants ''are typically aided by trained personnel during entry and exit of the platform,'' which it believes would further reduce the possibility of any safety risks associate with this noncompliance.

C. Inner Roll Stop Interlock

Ricon states that although the subject lifts may not meet the inner roll stop interlock requirement, the conditions given by the test procedure ''are inconsistent with the manner in which the platform is loaded and unloaded in normal and real world operating conditions.'' Ricon believes that this noncompliance is not consequential to safety because the operating procedures provided with the subject lifts state that the ''user mobility device should be loaded with the rear wheels of the wheelchair first,'' therefore, ''the rear wheels would be sensed by the inner roll stop lock and the interlock would

[1] Ricon submitted details of these findings in its petition which can be viewed in full at *https://www.regulations.gov/document/NHTSA-2021-0067-0001.*

[2] *See* Federal Motor Vehicle Safety Standards; Platform Lift Systems for Accessible Motor Vehicles, Platform Lift Installations on Motor Vehicles; 67 FR 79415 (December 27, 2002).

[3] *https://www.regulations.gov/document/NHTSA-2021-0067-0001.*

be activated.'' Ricon also notes that ''in normal operating conditions'' the wheelchair user would be assisted by ''trained personnel during entry and exit of the platform,'' so ''in the unlikely event'' the wheelchair user is misoriented, the trained operator would step in to assist.

D. Control Pendant

Ricon then addresses the noncompliance concerning the control pendant and states that ''due to the geometry of the pendant and buttons'' it is highly unlikely to simultaneously activate the UP and DOWN buttons or the STOW and DEPLOY buttons. Ricon says that due to the buttons being spaced approximately 1.25 inches ''between centers across the top surface of the pendant device,'' Ricon argues that it would be difficult for an operator to ''wrap their hand around the back of the pendant or contort their hand across the top of the pendant to across the top of the pendant'' making it difficult and unlikely for the operator to activate multiple buttons simultaneously. Furthermore, Ricon says that ''the pendants use four individual push style buttons that utilize a momentary switch to cause the lift to move up/down or stow/deploy'' and ''a separate button must be pressed downwards for each function.'' Overall, Ricon argues the function will not be activated merely by making contact with the button surface; force must be deliberately applied to the button to engage it.

In the event that the up/down or stow/deploy buttons were to be activated simultaneously, Ricon explains that ''because of the momentary switch design, the lift can only be activated for as long as the operator holds down the button,'' therefore, ''[a]s soon as the two buttons are released, the lift immediately stops movement.'' Additionally, according to Ricon, if the operator were to continue to simultaneously press the UP and DOWN ''the lift would change direction from the intended downwards movement and instead begin a normal upwards motion'' at a speed that falls within the maximum platform velocity, as required by paragraph S.6.2.1 of FMVSS No. 403. Ricon also states all occupants ''must be secured in the platform by a safety belt which is a redundant safety feature.''

Ricon then goes on to explain that the STOW and DEPLOY can only be activated simultaneously ''when the lift is located in the stowed position and is being commanded to deploy.'' Ricon states that if these buttons were to be pressed at the same time, it would not impact safety ''because the lift would be unoccupied'' in the stowed position.

According to Ricon, NHTSA has previously granted petitions regarding noncompliances that are similar to the subject noncompliance. Ricon cites one petition from The Braun Corporation ''where the lift handrails did not meet the values for deflection force.'' [4] Ricon explains that although ''the handrails collapsed when exposed to forces above the threshold requirement, the handrails did not collapse or fail catastrophically,'' and summarizes that NHTSA's concern in ''instituting the deflection force requirement was the possibility of a catastrophic failure of the handrails which would expose the occupant to a risk of injury.'' Therefore, Ricon says, NHTSA ''recognized'' that the noncompliance in that case was not a safety concern that was intended to be addressed by handrail requirements.

Ricon says that, like the noncompliance found in the Braun Corporation's petition, ''there is little to no risk of harm or injury'' caused by the subject noncompliances. Ricon then reiterates that it ''[t]he slight design deviations in the unobstructed platform operating volume and the gap between the outer platform and fully deployed outer barrier do not present any risks to user safety, nor have these issues denied access to the vehicle for any mobility device users'' and ''under normal operating conditions, the inner roll stop interlock performs as required and not present any risk to the occupant.''

Ricon says that they are not aware of any users being denied access due to the noncompliance. Ricon says if they were to remedy the noncompliance, it would require them to completely redesign the lifts. Ricon concludes its petition by stating that the subject noncompliances are inconsequential as they relate to motor vehicle safety and that its petition to be exempted from providing notification of the noncompliance, as required by 49 U.S.C. 30118, and a remedy for the noncompliance, as required by 49 U.S.C. 30120, should be granted.

NHTSA notes that the statutory provisions (49 U.S.C. 30118(d) and 30120(h)) that permit manufacturers to file petitions for a determination of inconsequentiality allow NHTSA to exempt manufacturers only from the duties found in sections 30118 and 30120, respectively, to notify owners, purchasers, and dealers of a defect or noncompliance and to remedy the defect or noncompliance. Therefore, any decision on this petition only applies to the subject lifts that Ricon no longer controlled at the time it determined that the noncompliances existed. However, any decision on this petition does not relieve equipment distributors and dealers of the prohibitions on the sale, offer for sale, or introduction or delivery for introduction into interstate commerce of the noncompliant lifts under their control after Ricon notified them that the subject noncompliances existed.

(Authority: 49 U.S.C. 30118, 30120: delegations of authority at 49 CFR 1.95 and 501.8.)

Otto G. Matheke III,

Director, Office of Vehicle Safety Compliance.

[FR Doc. 2023–01690 Filed 1–26–23; 8:45 am]

BILLING CODE 4910–59–P

[4] *See* ''The Braun Corporation, Grant of Petition for Decision of Inconsequential Noncompliance;'' 72 FR 19754 (April 19, 2007).

DEPARTMENT OF THE TREASURY

Office of Foreign Assets Control

Notice of OFAC Sanctions Action

AGENCY: Office of Foreign Assets Control, Treasury.

ACTION: Notice.

SUMMARY: The U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) is publishing the names of one or more persons that have been placed on OFAC's Specially Designated Nationals and Blocked Persons List (SDN List) based on OFAC's determination that one or more applicable legal criteria were satisfied. All property and interests in property subject to U.S. jurisdiction of these persons are blocked, and U.S. persons are generally prohibited from engaging in transactions with them.

DATES: See **SUPPLEMENTARY INFORMATION** section for effective date.

FOR FURTHER INFORMATION CONTACT: OFAC: Andrea Gacki, Director, tel.: 202–622–2490; Associate Director for Global Targeting, tel.: 202–622–2420; Assistant Director for Licensing, tel.: 202–622–2480; Assistant Director for Regulatory Affairs, tel.: 202–622–4855; or the Assistant Director for Sanctions Compliance & Evaluation, tel.: 202–622–2490.

SUPPLEMENTARY INFORMATION:

Electronic Availability

The Specially Designated Nationals and Blocked Persons List and additional information concerning OFAC sanctions programs are available on OFAC's website (*https://www.treasury.gov/ofac*).

Notice of OFAC Action

On January 24, 2023, OFAC determined that the property and interests in property subject to U.S. jurisdiction of the following persons are blocked under the relevant sanctions authorities listed below.

BILLING CODE 4810–AL–P

Individuals

1. MOUKALLED, Hassan Ahmed (Arabic: حسن احمد مقلد) (a.k.a. MAKLED, Hasan Ahmed; a.k.a. MOKALED, Hassan; a.k.a. MUQALAD, Hassan; a.k.a. MUQALLAD, Hasan), Jarjo, Nabatiyeh, Lebanon; DOB 17 Feb 1967; nationality Lebanon; Additional Sanctions Information - Subject to Secondary Sanctions Pursuant to the Hizballah Financial Sanctions Regulations; Gender Male; Secondary sanctions risk: section 1(b) of Executive Order 13224, as amended by Executive Order 13886 (individual) [SDGT] (Linked To: HIZBALLAH).

   Designated pursuant to section 1(a)(iii)(C) of Executive Order 13224 of September 23, 2001, "Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten to Commit, or Support Terrorism," 66 FR 49079, as amended by Executive Order 13886 of September 9, 2019, "Modernizing Sanctions To Combat Terrorism," 84 FR 48041 (E.O. 13224, as amended), for having materially assisted, sponsored, or provided financial, material, or technological support for, or goods or services to or in support of, HIZBALLAH, a person whose property and interests in property are blocked pursuant to E.O. 13224.

2. MOUKALLED, Rani Hassan (Arabic: راني حسن مقلد) (a.k.a. MUQALLAD, Rani Hasan), Jarjo, Nabatiyeh, Lebanon; DOB 29 Oct 1998; nationality Lebanon; Additional Sanctions Information - Subject to Secondary Sanctions Pursuant to the Hizballah Financial Sanctions Regulations; Gender Male; Secondary sanctions risk: section 1(b) of Executive Order 13224, as amended by Executive Order 13886 (individual) [SDGT] (Linked To: CTEX EXCHANGE).

   Designated pursuant to section 1(a)(iii)(A) of E.O. 13224, as amended, for being owned, controlled, or directed by, or to have acted or purported to act for or on behalf of, directly or indirectly, CTEX EXCHANGE, a person whose property and interests in property are blocked pursuant to E.O. 13224, as amended.

3. MOUKALLED, Rayyan Hassan (Arabic: ريان حسن مقلد) (a.k.a. MAKLED, Ryan Hassan; a.k.a. MOUKALLED, Rayan; a.k.a. MUQALLAD, Rayyan), Jarjo, Nabatiyeh, Lebanon; DOB 25 Oct 1993; nationality Lebanon; Additional Sanctions Information - Subject to Secondary Sanctions Pursuant to the Hizballah Financial Sanctions Regulations; Gender Male; Secondary sanctions risk: section 1(b) of Executive Order 13224, as amended by Executive Order 13886 (individual) [SDGT] (Linked To: MOUKALLED, Hassan Ahmed).

   Designated pursuant to section 1(a)(iii)(C) of E.O. 13224, as amended, for having materially assisted, sponsored, or provided financial, material, or technological support for, or goods or services to or in support of, HASSAN AHMED MOUKALLED, a person whose property and interests in property are blocked pursuant to E.O. 13224, as amended.

Entities

1. CTEX EXCHANGE (a.k.a. CTEX COMPANY FOR EXCHANGE S.A.L.; a.k.a. "CURRENCY TRANSFER EXCHANGE"), Ahmad Chawki Street, Beirut, Lebanon; Website www.ctexlb.com; Additional Sanctions Information - Subject to Secondary Sanctions Pursuant to the Hizballah Financial Sanctions Regulations; Secondary sanctions risk: section 1(b) of Executive Order 13224, as amended by Executive Order 13886; Registration Number 2061281 (Lebanon) [SDGT] (Linked To: MOUKALLED, Hassan Ahmed).

   Designated pursuant to section 1(a)(iii)(A) of E.O. 13224, as amended, for being owned, controlled, or directed by, directly or indirectly, HASSAN AHMED MOUKALLED, a person whose property and interests in property are blocked pursuant to E.O. 13224, as amended.

2. LEBANESE COMPANY FOR INFORMATION AND STUDIES SARL (Arabic: الشركة اللبنانية للاعلام والدراسات) (a.k.a. LEBANESE COMPANY FOR MEDIA AND STUDIES LLC; a.k.a. "LCIS"), Taysir Shararah Building, Floor 3, Jinah, Lebanon; Sheikh Building, 5th floor, Nazlat al Sarola, Mneimneh Street, Al Hamra, Beirut, Lebanon; Snoubra Building, 6th Floor, Sami el Solh Street, Badaro, Beirut, Lebanon; Website http://lcis.media; alt. Website www.imarwaiktissad.com; alt. Website www.greenarea.me; alt. Website www.russia-now.com; Additional Sanctions Information - Subject to Secondary Sanctions Pursuant to the Hizballah Financial Sanctions Regulations; Secondary sanctions risk: section 1(b) of Executive Order 13224, as amended by Executive Order 13886; Registration Number 1004003 (Lebanon) issued 03 Aug 2005 [SDGT] (Linked To: MOUKALLED, Hassan Ahmed).

   Designated pursuant to section 1(a)(iii)(A) of E.O. 13224, as amended, for being owned, controlled, or directed by, directly or indirectly, HASSAN AHMED MOUKALLED, a person whose property and interests in property are blocked pursuant to E.O. 13224, as amended.

3. LEBANESE COMPANY FOR PUBLISHING, MEDIA, AND RESEARCH (Arabic: الشركة اللبنانية للنشر والاعلام والابحاث ش.م.م) (a.k.a. LEBANESE COMPANY FOR PUBLICATION AND RESEARCH), Sheikh Building, 5th Floor, Mneimneh Street, Al Hamra, Beirut, Lebanon; Snoubra Building, 6th floor, Sami El Solh Street, Badaro, Beirut, Lebanon; Additional Sanctions Information - Subject to Secondary Sanctions Pursuant to the Hizballah Financial Sanctions Regulations; Secondary sanctions risk: section 1(b) of Executive Order 13224, as amended by Executive Order 13886; Registration Number 1005025 (Lebanon) issued 17 Nov 2005 [SDGT] (Linked To: MOUKALLED, Hassan Ahmed).

   Designated pursuant to section 1(a)(iii)(A) of E.O. 13224, as amended, for being owned, controlled, or directed by, directly or indirectly, HASSAN AHMED MOUKALLED, a person whose property and interests in property are blocked pursuant to E.O. 13224, as amended.

Dated: January 24, 2023.

Andrea Gacki,

Director, Office of Foreign Assets Control, U.S. Department of the Treasury.

[FR Doc. 2023–01664 Filed 1–26–23; 8:45 am]

BILLING CODE 4810–AL–C

DEPARTMENT OF THE TREASURY

Internal Revenue Service

Quarterly Publication of Individuals, Who Have Chosen to Expatriate

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Notice.

This notice is provided in accordance with IRC section 6039G of the Health Insurance Portability and Accountability Act (HIPAA) of 1996, as amended. This listing contains the name of each individual losing United States citizenship (within the meaning of section 877(a) or 877A) with respect to whom the Secretary received information during the quarter ending December 31, 2022. For purposes of this listing, long-term residents, as defined in section 877(e)(2), are treated as if they were citizens of the United States who lost citizenship.

Last name	First name	Middle name/initials
ADAMS	BARBARA	ANNE
AGOTHA	ANTHONY	WILLEM PAUL
AHING	KIMBERLY	NATASHA
AHMED	MUSTAFA	
ALEKNA	AUDRIUS	KESTUTIS
ALEXAKOS	ALEXANDER	NIKOLAOS
AL-SALMAN	YASIR	A.
ALTON-TRACY	RHONDA	MARIE
AMAKI	KENICKI	
ANDREJCIK	JAN	
ANDREWS	BELINDA	A.
ANDREWS	RICHARD	
ANNICCHINO	MICHELLE	S.
AOKI	JUN	
APARICIO BADENAS	CONRADO	J.
AQUINO	JILL	DAPHNE CHUA
AQUINO IV	SERAFIN	F.
ARAKI	KATSUYA	
ARAKI	KAYOKO	
ARAMONTE	SIRIO	
ARANGUIZ PETERSON	STONE	ALAN
ARCHER	JOHN	JOSEPH
ARRANZ	JAUME	MINGARD
ARTAUX	GASPARD	BILL
ASBUN	WADY	LUIS
ASHKAR	NATALIE	
ASHWORTH	IDA	VIRGINIA
ASSADI	RAMIN	FRANCIS
ATENCIO	ELISSA	TERESA
ATTALLAH-TOM	DANIEL	EDWARD
ATWELL	NEAL	ALAN
BABER	JON	CHRISTIAN
BAER	PATRICIA	
BAERWALDT	KIRK	LIKEN
BAHADIR	FRANZISKA	
BAHADIR	KEMAL	ATA
BAIN	JAMES	MASON
BAIN	VIOLA	M.
BAKER	PHILLIP	DAVID
BALLHORN	CAROLINE	MARGARET ALICE
BANG	EUN	MI
BANKS	CAROLYN	JANE
BANWELL	ANNE	MASON
BAO	XINRAN	
BARARIU	CATALIN	
BARNES	FRANCES	KATHLEEN
BARNES	IRMGARD	
BARON VAN VERSCHUER	WOLTER	FRANS
BARR	MICHAEL	LESLIE
BASSANO	DIONNE	MICHELLE
BATE	ANN	MARY
BAVARESCO	BRITTA	INGRID
BAZ	ANDRE	CAMILLE
BEATTY	TAYLOR	PATRICK
BECK	MICHELLE	KATHARINE
BECKER	SHANE	DAVID
BECKLEY	JEFFREY	A.
BELL	RICHARD	JOHN
BENNETT	MASON	WEST

Last name	First name	Middle name/initials
BENOIT	HANNAH	RUTH
BENSON	ROGER	SHELTON
BERCOV	MARCIA	
BERINGER	JAMES	THEODORE
BERRILL	STEPHEN	MARC
BESSONE KAUFFMAN	GUSTAVO	ERNESTO
BEURTEAUX	DANIELLE	
BHATIA	MAYA	PILAR
BI	SHEN	
BIAN	JIANWEI	
BIEHN	TRAVIS	W.
BILDFELL	ROBERT	JOHN
BINE	CELINE	MAYA
BISCHOFF	THOMAS	
BISSETT	JESSIE	S.
BISSETT	THOMAS	SMITH
BLACK	AEZANI	
BLACKLER	CLARE	HAYLEY
BLAFF	HERBERT	
BLANCKART	NELE	ELS MARGRIET
BLOXHAM	WENDY	DAWN
BLYWEERT	STIJIN	
BOELE	PETER	CHRISTIAAN
BOISVERT	PIERRE	JEAN
BOLLIGER	NORAH	ESTELLE
BOOTH	AMANDA	JANE
BOOTH	SIMON	CHRISTOPHER
BOOTH-CASEY	LESLEY	LORAINE
BOULAY	MARJOLAINE	MONICA
BOURELY	JAMES	ALEC
BOYD	COLIN	T.
BRADLEY	MARK	ANDREW
BREMNER	BETH	
BRESKI	ELISABETH	DOROTHY
BRITTON	REBECCA	MATTHEWS
BROEMELING	JOHN	MICHAEL
BROMILOW	CATHERINE	LYNNE
BROOKS	DOUGLAS	JAMES
BROWN	PETER	MICHAEL
BROWN	TINA	MARIE
BRUYEA	REXFORD	PAUL
BUCHT	PETER	L.
BUECHI	NICOLE	EMMY
BUI	QUYNH	CAO NGOC
BUISSON	CLAIRE	DIANA
BUNTARAM	RUDHY	
BURGIN	AMY	ALLEGRA
BURKARD	JENNIFER	B.
BURKHOLDER	SHARON	ROSE
BURKHOLDER	TIMOTHY	JAMES
BURMANN	VANESSA	SANDRA
BURNET	DALE	MARSHALL
BURRELL	BRITNEY	V.
BUSHNELL	SUSANNE	LYNETTE
BUTLER	MELANIE	CLAIRE
BYRNE	AMANDA	JANE
BYRNE	GEOFFREY	MICHAEL
BYRNE	JOAN	LOUISE
CALLAHAN	KEVIN	
CANNOCK	JUSTIN	I.
CARNEY	STEPHEN	JASON
CASAS	JAVIER	ALEJANDRO
CASE	KATHRYN	HEIFRICH
CASTELLA	SIMON	RICHARD
CASTILLO	TAMI	LOU
CHAN	EUGENE	LING-HEEN
CHAN	SUET	MEI
CHANDLER	DAPHNE	JOAN
CHANG	HANNA	HAWON
CHANG	JENNY	SU CHUAN
CHANG	TUNGYAO	
CHANG	CHON-HOU	
CHAO	EDDIE	
CHARLES	KAREN	GAIL

Last name	First name	Middle name/initials
CHARRIAUD	OLIVIER	JEAN
CHEN	CHIH	FU
CHEN	GRACE	
CHEN	LILLIAN	
CHEN	QING	
CHEN	STEVE	
CHEN	WEI	
CHEN	WEIDONG	
CHEUN	JAE	MYUNG
CHEUN	KYUNGWHOON	
CHINONE	KEISUKE	
CHO	EUN	JA
CHOI	ICK	SOO
CHOW	JONATHAN	C.
CHOW	JULIAN	KEE-JONG
CHOW	KEANU	YUN HUN
CHOW	SUMTAK	MARGARET LI
CHRISTIAN	BENJAMIN	JOHN
CHU	YING	HSIU
CHUANG	JULIAN	CHIA-YUH
CHUNG	KOK	LOON
CHUNGUE	DAVID	DIDIER
CIESIELSKI	TOMASZ	LEESZEK
CIMINO	MARIA	BETTINA
CININI	GUILHERME	
CLARKE	LINDA	JANE
CLARKE	RICHARD	NOEL
COLEMAN	ROGER	JOHN VICKERS
COLVIN	STUART	RAYMOND
CONFESSORE	GIOVANNI	
CONWAY	MARY	IRENE
COOKE	PETER	ROBERT
CORNETT	SONDRA	FAY
CORNOFSKY	DANIEL	
COX	FREDRICK	ALLEN
CRAWFORD	EVE	ELIAS
CRONIN	CLAIRE	
CROSSAN	JEREMIAH	JOHN
CUMPSTON BIRD	TERESA	ANNE GERALYNN
CUNNINGHAM	GRANT	M.
CURAC	MARINA	
DAIS-VISCA	JACQUELINE	M.
DANIEL	SARAH	RUTH
DAVIDS	REBECCA	SUSANNE
DAVIDSSON	HANS	ERIK
DAVIES	EDWARD	D.
DE ARAUJO TSCHACHTLI	EVELYNE	
DE BRUCKER	RAYMONDA	
DE CORDES	LEOPOLD	GUY ERIC MARIE
DE GROOT	CAROLINE	WENDY
DE GROOT	HANS	CHRISTIAAN
DE JONG	SARAH	JILL
DE LANGE	ALBERT	RICHARD
DE LUCA	ALEXANDER	EMIDIO
DEANE	CARL	RAYMOND
DECKER	CRYSTAL	YVONNE
DELFINO	JESSICA	MAE
DEMARCO	DANIEL	JOSEPH
DICKAU	KIMBERLEE	D.
DING	MENG	
DITTMANN	KRISTA	MARIE
DOMENGHINO	CHRISTOPHER	F.
DONALDSON	JANE	EVELYN
DONZE	ANNE-ELISABETH	LOUISE
DOWNEY	SHARON	GAIL
DOWNING	ALISON	JANE
DOWNING	MARK	AIDAN
DRUMMOND	JEREMY	NICHOLAS HUMPHREY
DRYBURGH	IAIN	COLIN
DRYBURGH	KATHRYN	LYNN
DRYSDALE	JENNIFER	
DU	HAITAO	
DUBOIS	SANDRA	SUE
DUNNE	PATRICK	H.

Last name	First name	Middle name/initials
DYCK	WAYNE	D.
ECKHARDT	CATHERINE	ELLEN
ECKHARDT	GREGORY	WILLIAM
EDES	BARTLET	W.
EDGE	SHARON	AERONWY
EDWARDS	MURRAY	STUART
EGAN	DUNCAN	GEOFFREY
ELDER	SHIRLEY	A.
EL–DIEB	ADAM	
ELDRIDGE	HIZUKO	IIDA
ELIAS	JOCELYN	CORNELIA
ELLBERGER	EMILE	BENJAMIN
ENDO	AYAKO	ENDO
ENGLAND	SALLY	
ENTIS	MICHAEL	PETER
ENTIS	PHYLLIS	
EPSTEIN	LARRY	G.
ERMENIDIS	SYLVIE	
ESCOBEDO GONZALES	ESPERANZA	ROSE ELIANA
ESME	NUTREN	
ESQUIVIAS JORGE	RAQUEL	
EVANS	KEVIN	EARL
EVANS	WENDELYN	A.
EYLMANN	MARC	O.
EYLMANN	SEHEL	
EZANA	SIZANA	FEREDE
FACHETTI	NELITO	DE MELLO
FAHERTY	MICHAEL	PATRICK
FALKENBERG	MICHAEL	
FARINA	VELCO	GREGORIO
FARNARARO	MARCO	
FATTOUH	ALIA	
FELDMAN	JODY	TERENCE
FELSKIE	DONNA	MARIE
FERRER–VIEYRA	ENRIQUE	IGNACIO A.
FERRIS	MICHAEL	KEITH
FIJAL	KATRINA	MARIE
FISCH	MYRIAM	TATIANA CECILE
FISHER	ADELAIDE	JEAN
FISHER	SALLY	ANN
FLORES	STEPHANIE	NICHOLE
FONG	RYAN THOMAS	QUI
FORBER	CHRISTINE	LILIAS
FORD	CAROLYN	KUHN
FORKINK-WEIJERS	ANNET	
FORSTER SPIESS	KATHERINE	A.
FOSKEY	ROBERT	JEROME
FRAHM	FREDRIC	FRANCIS
FREGNI	MARCO	
FREI	BRIDGET	ANGELA
FREI	RETO	PATRICK
FRIBERG	GUSTAV	ROBERT ESKIL
FRICK	ALINA	JANICE
FRIEND	LINDA	ANNE HALTERLEIN
FROGGATT	JONATHAN	ANTHONY
FUAD	TUROCHAS	CHRISTEVE
FUCHIGAMI	HYOJA	TAKAKO
FUCHIGAMI	NOBUMICHI	
FUJIMURA	MIHO	
FUKAO	TAEKO	
FUNG	STEPHEN	Y.
FUNIAK	STANISLAV	
GADKARY	NALINI	
GAGNON	CHARLES	ALEXANDRE
GALLER–SMITH	BARBARA	JEAN
GALSIER	SUSAN	OLIVE
GAMARRA	LUIS	ALBERTO
GAO	YAN	
GAO	YONGJING	
GAO	MICHAEL	TIANYU
GARFIELD	JOSHUA	BENJAMIN BERNARD
GARRO JOUBERT	VIRGINIE	ANITA SYLVIANE
GASPARD	DIMITRI	ANDRE JULES GEORGES
GER	LEE	KYLE

Last name	First name	Middle name/initials
GERBER	THOMAS	
GERSDORF	MARTIN	KARL
GHANDOUR	LOUAY	MONZER
GILL LYONS	KIRSTIE	ELLEN
GIRAUD	FRANCK	U.
GIURGOLA	PAOLA	FRANCES
GLASER	STANLEY	LLOYD
GLICK	BRIAN	
GLICK	HEATHER	MARIE
GNATOVICH	ROBERT	DOUGLAS
GODDARD	KATHLEEN	CHERYL
GOLDEN	JAMES	RICHARD
GOMES	MARCOS	S.
GOOD	MICHAEL	BRUCE HOLMBERG
GOODIN	BRETT	GARRETT
GOODMAN	NANCY	STEWART
GORDON	EMILY	MEREDITH
GORWILL	THOMAS	JOHN
GOULD	THOMAS	P.
GRAF	REINHARD	JOSEF
GRAHAM	SUSAN	BARBARA
GREAVES	BRENDA	JOY
GREENBERG	JONATHAN	S.
GREEVES	KELLY	ANNE
GREIG	EMILY	JANE
GRENNBERG	JOHAN	GUNNAR
GRIESHABER-OTTO	RHODA	SUSAN MARIE
GRONDIN	FRANCOIS	RENE
GRZANKA	SYLVIA	ANN
GU	WANG-PING	
GUDE	PETER	JEAN
GUENETTE	MARIE	FRANCE
GUERIN	JONATHAN	RUDY
GULBINSKA	MALGORZATA	KRYSTYNA
GUMY	ETIENNE	EDOUARD ALEXANDRE
GUNNING	DIANNIE	CAMIEL
GUSTAVSSON	SARA	MARIA
GWILYM	PATRICIA	EDNA
HAGER	KENDALL	N.
HALLIWELL	STEVEN	JOHN
HALLORAN	MAURA	C.
HAMAGATA	TAKANORI	
HAMILTON	DANIEL	THOMAS
HAMILTON	GILLIAN	MAE
HAMMOND	JOHN	CAMERON
HAMMOND	KEITH	EUGENE
HANES	WENDY	DENISE
HANSEN	CHARLOTTE	MARGARETE
HARMON	PAMELA	JUNE
HARRIS-MCLEOD	KATY	
HARRISON	CATHERINE	JOANNE
HARROL	NATHANIEL	
HARTENSTEIN	HANS	ULRICH
HARVEY	JEROMY	
HASEGAWA	KAORIKO	
HAUSER	RON	
HAYASHI	SHUNICHI	
HAYES	DEIRDRE	MAEVE
HAYES	TREVOR	C.
HEALEY	JULIE	L.
HEALY	JULIA	
HEATLEY	CARL	GERRARD
HEDFORS	ANITA	MARGARETA
HEINDENREICH	HANS	PETER
HEINEIKE	AMY	RACHEL
HELLEM	KENNETH	MICHAEL
HELMORE	PAUL	JOHN
HERCUS	MICHAEL	MCDONALD MACKY
HERDIN	WENDY	
HERO	VALERIA	C.
HEROLD	SYLVIE	ELLEN
HESSELINK	TRICIA	LEIGH
HEWSON	ROBIN	FREDRICK
HEZKY	JODI	ANN

Last name	First name	Middle name/initials
HIARI	OMAR	M.A.
HIGBEE	POLLYANNE	HESTER
HILL	LARA	KATHERINE
HILTUNEN	KIRSI	HELENA
HIOE	HELEN	
HIRS	LAURIN	D.
HITOMI	CHIHARU	
HJALBER	JAN	JOHAN ANDREAS
HO	ANNA	KATO
HO	BEVERLY	PUI YING
HO	CHENG	CHUN
HO	HSIN	TSUNG
HOEFLING	LAURA	JEAN
HOEKSTRA	JEROEN	PIETER
HOFFMAN	SUSAN	LYNN
HOFSTEDE VOS	JEANNINE	HENRIETTE
HOLMES	DOUGLAS	KELSICK
HOPKINS	ERICA	BERTA
HRECENIUK	STEVEN	SIMEON
HUANG	AARON	
HUANG	HAOLING	
HUANG	HUEY-BEY	
HUANG	JUN	D.
HUANG	LIPING	
HUANG	YING	
HUG	THOMAS	FRANZ
HUGGINS	STORMY	DAWN SWEET
HUGHES	BARBARA	
HUGHES	SEAN	ANDREW
HUH	CHIHONG	ERIC
HULSBOSCH	JOANNE	ALICE
HUMPHREY	GILLIAN	MARY
HUNTLEY	ELEANOR	LORRAINE
HUO	YUNLONG	
HWANG	YOON	
IBARGUEN VILLA	ALVARO	ANTONIO
IHARA	TAISEI	
IIMURO	CHIEKO	
IMAGAWA	MIYO	
INABA	TSUBASA	
INNES	MELISSA	PLAUNT
IOSEF	CRISTIANA	
IRWIN	ROY	PETER
ISAAC	LEANNE	JANET
ISAAC	MICHAEL	ROBB
ISHIOKA	MARIKO	
ISON	CHIN	TING
ITO	AKIE	
ITO	HIROYUKI	
JACOBS	RACHEL	SADIE
JACOBSON	MANDY	ELYSE
JACQUEMONT	NATHALIE	HELENE
JALLADE	SEBASTIEN	
JARAMILLO GOMEZ	MARIA	FERNANDA
JAROUDI	NADIM	S.
JEFFREYS	KATHARINE	MARY
JOHN	JAYANTHY	
JOHNSEN	ERIK	LEE
JOHNSON	DIEGO	ANDRES
JOHNSON	JAYNE	MERLENE ADELAIDE
JOHNSON	MARC	ANTHONY
JOHNSON	OLIVER	
JOHNSON	RHIANNON	MARIE
JOHNSON	SUSANA	ROMANACH
JOHNSTON	SARAH	ELIZABETH
JOHNSTON	ANDREW	
JONES	APRIL	D.
JONES	CIARA	FITZGERALD
JONES	DAVID	SIMON
JONES	PHILLIP	KEITH
JONES	WILLIAM	BENJAMIN
JUNG	JAE-KOOK	
KADATZ	NANCY	DIANE
KAMIJO	SEIJI	

Last name	First name	Middle name/initials
KANG	TAE	WOOK
KAO	KENNETH	SHIR CHIEH
KATAGI	YOSHINOBU	
KAUFMANN	SILVIA	VERENA
KEARNS	JESSE	EMERTON
KEAYS	MAGNUS	STORM
KEIRSTEAD	PAUL	
KELLY	BOZENA	BEATA
KELLY	BRIDGET	JEAN
KELLY	KATHRYN	ELISE
KELLY	KEVIN	GERARD
KELLY	MEGHAN	CHRISTINE
KERR	LINDA	MARIE
KETSCHER	STEVEN	
KETTLE	ROBERT	CHARLES
KIM	CHUNKYOUNG	
KIM	HEASUNG	
KIM	HEON	SOOK
KIM	HODONG	
KIM	JEONG	SUK
KIM	JONG	SOO
KING	JOHNNY	LOYE
KING	JUDY	CAROL
KIRPALANI	HARESH	M.
KIRTLEY	REBECCA	SARAH LAURA
KITAMURA	ERI	
KLEIN	BIRGIT	SUSANNE
KLEINER	GALIT	
KLEINER	SANDRA	
KNIGHT	JOAN	DIANE
KNOWSLEY	CANDICE	BROOKE DANIELLE
KOEPER	MICHAEL	RALPH
KOIZUMI	MICHI	
KONINGS	ANDREW	JOHN
KONISHI	YASUFUMI	
KOPP	NOEL	J.
KOSLOWSKI	LAUREL	
KOSTLBAUER	NANCY	
KOT	DOMINIK	
KOTBI	ALINA	
KRATOCHVILOVA	HANA	
KROES	ANNE	ROSE
KROMER	ELIZABETH	CHRISTINE
KROMER	ROBERT	GEORGE
KUHNE	PEGGY	A.
KUO	JIAN	MEI
KURITA	MASANORI	
KUROIWA	RINTARO	
KUUSIK	TAAVI	
KWAN	WEI	CHEUK RACHEL
LA TOUCHE	ROBERT	WILLIAM
LADWA	PRANEIL	
LAFORGE	NAOMI	LEA
LAMMIN	JANE	
LAMMIN	ROGER	JOHN
LANCASTER	BARBARA	
LANGBROEK	CATHERINE	ELIZABETH WILHELMINA
LARIVIERE	WILLIAM	ROGER
LARKE-GRASS	CORINNE	
LARSON	MARY	FRANCES
LATIF	TINA	
LAW	CHERYL	J.
LAW, JR	KENNETH	S.
LAWSON	MARGARET	ANN
LEA	NICHOLAS	MATTHEW
LEBRUN	FABIEN	ALBERT
LEDDIE	GRANT	EDWARD
LEDDIE	LOUISE	LESLEY
LEE	CANDACE	YAN WAH
LEE	DENNET	
LEE	GORDON	
LEE	HAO-TI	
LEE	JOOYOUNG	
LEE	MIMI	M.

Last name	First name	Middle name/initials
LEE	SUKCHAN	
LEE AN	HYUN	SOOK
LEESER	CHRISTIAN	FRANK
LEIGH	LEONA	IRENE
LEIGH	TERRENCE	EDWARD
LEITCH	ANDREA	JANE
LEITNER	ZAPHOD	L.
LEMKE	JILL	ELLEN
LEMKE	STEVEN	LLOYD
LEOPOLD	NIKOLAUS	
LERNER	DUSTIN	BRIAN
LETAC	CHRISTOPHE	STANLEY
LI	JEFFREY	J.F.
LI	YONG	
LIEOU	NICHOLAS	
LIGHTBOWN	DAVID	
LIGUORI	YUJI	
LIM	JEKEUK	
LIND	ADAM	CONRAD
LINTON	AARON	JAMES
LIPTON	JONATHAN	ANDREW
LISSEL	CLAUDIA	ELSE
LISSEL	JOACHIM	K.
LITTLEMORE	BENNET	JOEL
LIU	JENNIE	I-CHING
LIU	JING	
LIU	PING-YU	
LIU	SUSAN	HSUN CHI
LOCKHART	PETER	DOUGLAS
LONDONO BRAVO	PABLO	
LONG	ELISHA	SOPHIA
LONG	TOBEN	MICHAEL JAMES
LOUREIRO-RODRIGUEZ	VERONICA	
LOW	JONATHAN	JAMES
LOZERON	EMILY	S.
LUBELL	ADAM	SCOTT
LUDLOW	JEFFREY	VINCENT
LUI	JACQUELINE	CHIU TONG
LYONS	JESSIE	CLARK
MA	HENRY	PACLIAN
MA	ZHIBIN	
MABUCHI	TAKUMA	
MACCARA	ALICIA	MARIE
MACDONALD	HALIMAH	
MACDONALD	KARSTEN	
MACHALE	THOMAS	EDWARD
MACKEY	CONNOR	TEMPLETON
MACKIE-KWIST	MICHAEL	JAKOB THOMAS
MADRABAJAKIS	CHRISTINE	ANTOINETTE
MAES	GERALDINE	FRANCOISE
MAES	NICOLAS	HENRI-JAMES
MAGMER-MEKAAS	JUTTA	
MAGUIRE	SCOTT	HARMON
MAHER	LESLIE	LOUISE
MAHER	PETER	FRANCIS
MALMGREN	LENA	ELISABETH
MAMONDEZ	MAXIMILIANO	
MANNYNVALI	ALLAN	
MANSUR	DEREK	JORDAN
MARCHAND	ERIC	BENJAMIN
MARKS	CAMERON	MARIE
MARKS	TEDDY	RAY
MARRIOTT	JAMES	ANTHONY PATRICK
MARSAULT	JUSTINE	INGRID
MARSAULT	NADIA	VIRGINIA MARIE
MARSHALL	SCOTT	ROBERT
MARTEL	MARC	JOSEPH
MARTEN	KENT	M.
MARTENS	JULIA	DIANA
MARTIN	YAN	
MARTINDALE	LYNN	MARIE ARMANDE
MARXER	RAY	W.
MASON	BARBARA	JOYCE
MASSOL	HELENE	JEANNE JELINE

Last name	First name	Middle name/initials
MASUDA	KAYOKO	
MATIC	IGOR	
MATOUS	MILAN	
MATSUMOTO	NORIKO	
MAYNE	DAVID	ANTHONY
MAYSER	LIDIA	
MBUNGU	MICHAEL	SONA
MCCARTHY	SARAH	A.
MCCUNN SEGUIN	SUSAN	MARY
MCCUSKEE	JUDY	LYNN
MCDONALD	FERGUS	BARTON
MCHENRY	JACQUELINE	A.
MCINNES	SHARON	THERESE
MCINTYRE	PAUL	HENRY HESSLER
MCNEIL	BRANNAN	JACOB
MCNEIL	CRAIG	RUSSELL
MCPHAIL	KATHRYN	MARGARET
MCPHAIL	ROBERT	JAME FIELD
MCPHEE	WILLIAM	ALEXANDER
MEAN	JOHN	NATHAN
MEEK	DEBBIE	GWEN
MEGIN	VIRGINIA	MARIE
MELIEF	PIET	HERMAN GERARD JAN
MELLES	HELENE	
MELLES	JAN	ANNE
MELNIK	AUDREY	
MELVILLE	IAIN	A.
MENON	ANGIRAS	
MERKLI	PATRICK	PETER
MESA GOMEZ	CARLOS	EDUARDO
METZNER	NICOLE	KATHLEEN
MEYER	ERIC	MCCLEAN
MEYER	PHILLIP	MICHAEL
MICHELI	CHARLOTTE	ELIZABETH ANN
MICHELI	GIOVANNA	
MILLICE	CHRISTOPHER	GLENN
MILLIGAN	CHRISTOPHER	PATRICK
MILLS	JONATHAN	BRIAN
MITSUGI	SANAKO	
MIYASHITA	TADASHI	
MOCHIMARU	AKIRA	
MOLLOY	CHRISTINE	LOUISE
MOLLOY	PETER	LAURENCE
MOOSMUELLER	ANETTE	REGINA
MORIMOTO	KANAKO	
MORSE	DEBORAH	JUNE
MORSE	PETER	PHILLIP
MOSHER	KARA	MICHELLE
MOSS	ROBERT	GRAEME
MOXLEY	HEATHER	JANE
MUDRONCIKOVA	MARINA	
MUNRO	CANDACE	RACHEL
MUNZAR	MATTHEW	D.
MURSET	CHRISTOPHER	ALAIN
MUTHUSAMY	GOKILAVANI	
NAGALLO	ROSE	MARIE LAMADRID
NAGI	RIKA	
NAGI	YUJI	
NAISBITT	LOUISA	SLADE
NAKAMURA	JUNYA	
NARITA	AYANA	
NATALE	MARCO	
NAUMANN	MARCUS	
NAUMANN	NICOLA	R.
NAWIJIN	JACOB	ARJEN
NELSON	LYNN	ANNE
NESFIELD JR	WINSTON	STEPHEN
NEUENHOFER	BEATE	
NEUENHOFER	ANSGAR	
NEVEU	SOPHIE	EVELYN
NEWMAN	STACEY	ARALEE
NEWSOM-PRAVETZ	NANCY	LILLIAN
NG	TING	FAI
NG	WARREN	BRIAN HA HEI

Last name	First name	Middle name/initials
NICHOLLS	PETER	ALAN
NIGGEMANN	LOTHAR	
NOIRCENT	URSULA	JASMINE NATALIE
NOLAN	THOMAS	JOHN
NOONAN	MICHAEL	GREGORY
NOONAN	SILVIA	FRANCESCA
NORDMAN	PAULI	HENRIK
NORFLEET	TERESA	JEANETTE
NORTON	DONALD	WILLIAM
NOURRY	DOMINIQUE	
NUTTING	JACQUELINE	DANIELLE
OH	HYUN	MYUNG
OLBRECHTS	ANNIK	MARIA
OLDFIELD	SANDRA	MARIE
O'NEIL	DONNA	LOUISE
OOMS	MARGARET	JOANS
OORT	ROBERT	MAARTEN
OPPERMANN	NINA	MARIE CHARLOTTE
ORD	WILLIAM	
ORELLANO	MARINA	VALERIA FERNANDEZ
ORELLANO	VERONICA	INES FERNANDEZ
ORRIS	ANDREW	WILLIAM
OSBORN	KATHERINE	WENDY
OSSEY	ROBERT	ALAN
OSSWALD	LUCA	
OSTERLAND	MICHAEL	KIRK
OVENS	TYLER	J.
OWCHAR	MATTHEW	J.
PACE II	JAMES	E.
PAGE	RYAN	JOHN
PAGE	SAM	STUART
PALMER	MARK	
PALMERS	TANJA	NORA
PALSETIA	ADIL	
PANAYI	DEMETRIS	G.
PARK	SHIRLEY	SUNGMIN
PARK	SUNG	JIN
PASTORIUS	KAREN	SUSAN
PATANKAR	RAJESH	SHARADKUMAR
PATEL	DAKSHA	DUSHYANT
PATEL	SHRUTI	MANUBHAI
PATEL	JANAK	
PATRIC	KEVIN	LAWRENCE
PAUL	ERIN	SARAH
PERLMAN	ROSEMARY	JANE
PERRY	BRENDA	SUSAN
PERRY	EMIKO	ISHIGAKI
PFALTZ	MONIQUE	CHRISTINE
PHENIX	CARL	
PICHLER	MARKUS	JOHANNES
PICKARD	BENJAMIN	CHARLES
PIEPER	GRIETJE	GEESJE
PIER	LEJUNE	ANN
PIIRONEN	PATRICIA	CLARK
PIRRE	SALVATRICE	
PISANO	PAULO	ALEXANDRE
PITT	ALEXANDER	CALEB
PLANERT	SILKE	CHRISTA
POHL	JOHN	JOSEPH
POHL	MARIA	G.
POIRIER	DENNIS	
POLIAK	HARRY	RAPHAEL
POLZ	MARTIN	F.
PONTONI	GIANNA	
POWERS	MICHAEL	
PRALORAN	JEAN	PIERRE
PRANGER	JEE	HYEON
PRESNELL	MARK	ALLEN
PRICE	AMANDA	LOUISE
PRICE	JANICE	CHRISTINA
PRUDOVSKAYA	YELIZAVETA	IGOREVNA
PRYTULA	JENNIFER	MAY
PURDY	BENJAMIN	LEE
QI	XIANGBING	

Last name	First name	Middle name/initials
QI	XIN	
QU	TAO	
QUINN	EWELINA	BARBARA
RANSOM	CLAIRE	CATHERINE
RANSOM	MICHAEL	JOHN
RAO	CHANDRAMOULI	
RAVARD	MARC	HERVE CHRISTIAN
RAVENA	PERSIO	PIMENTEL PINTO
RAVENA	SILVANA	LACRETA
RAYES	LUIS	EDUARDO CABRINI
READ	DAVID	
REID	DUSTIN	TYLER
REISCHL	CHRISTINE	MARIA
REMAI	PAMELA	JOYCE
RESING	JOANN	MARIE
REYNOLDS	PHILIP	LYNDON
RHODES	HELEN	MARGARET
RICE	HELEN	D.
RICE	THOMAS	MAURICE
RICHARDSON	SUSAN	JANE
RIDD	LYDIA	MARY
RIGBY	ROMAIN	ALEXANDER
RIGDEN	CHRISTINE	ELAINE
RIGHETTI	JENNIFER	BRIE
RIJNBEEK	FRANCIS	JOHN
RIVAS	JUAN	ANTONIO
ROBINSON	JENNIFER	ANNE
ROBSON	LUCY	SARAH JANE
ROGERS	CHARLES	PHILIP
ROGERS	JONATHAN	LEE
ROGERS	LAWRENCE	JAMES
RONCETTI	VIRGINIA	LAURA
ROSANOVE	ELIZABETH	ANN
ROSANOVE	MERRIANNE	
ROSE	GRAHAM	R.
ROSE	MICHAEL	ROBERT
ROVERSI	BARBARA	ANNA MARISA
ROWE	ANNA	ENWA
ROWLAND	KELLY	BROOKE
ROY	VIRGINIA	MARGARET
ROYAARDS	MICHAEL	ANTHONY
RUBENSTEIN	PAUL	NORMAN
RUBIN	JAMES	PHILIP
RUBIN	MARK	SAMUEL
RUEHLI	JONATHAN	
RUEHLI	LILLIANE	
RUSSELL	RANDY	
RUSSETT	ROBERT	WILLIAM JAMES
RYU	HANSUK	
SACH	ROSEMARIE	
SADEGHI	KIANOUSH	
SANDFORD	SUSAN	ELODIE
SANDS	BARBARA	
SANDS	PETER	EDWARD
SANTOS	CRISTOFER	PAUL
SAROYA	PRABHJOT	SINGH
SAUNDERS	MONIKA	ELLY BERNARDI
SAUTER	ILAN	B.
SAWYER	ANGELA	MARY MANGAN
SCHANK	SUSAN	S.
SCHAPER	PETER	
SCHIRMER	TRACY	LOUISE
SCHMIDT	BARBARA	K.
SCHONFELDER	FRANCESCA	LARAH
SCHOOLCRAFT	RONALD	ALFRED
SCHULER	ISABELLE	
SCHUSTER	BARABRA	
SCHUTH	VOLKER	
SCHWARTZ	DAVID	THOMAS
SCHWEIZER	JULIANNE	M.
SEGALL	ALLAN	JEFFREY
SEGEM	JOSEPH	
SELENTA	CHRISTOPHER	TADEUSZ
SELVAGGI	GIAMBATTISTA	

Last name	First name	Middle name/initials
SEMPERT	MARTHA	ANN
SERVANTE	JULIE	ANNE
SEWARD	EMILY	ANN
SHAVER	KAREN	ISABEL MAISIE
SHEE	ANNKARIN	WONG
SHEN	HONG	
SHEN	YUSHI	
SHIN	JONGU	
SHIRLEY	TEAGAN	SHAE
SHOEMAKER	DAVID	MICHAEL
SILVERSTEIN	HELEN	RAE
SKAGGS	JOHN	PHILLIP
SKEDZUHN	TIMOTHY	JAMES
SKULEVOLD	SILJE	KARIN
SLATER	DEBORAH	JANINE
SLATER	JORDAN	LEE
SMIRNOV	NIKOLAI	
SMITH	KEVIN	DENIS
SMITH	PATRICK	
SMITH	DEBORAH	ANNE
SNOW	VICTORIA	MARIE
SNYDER	RICHARD	KEITH
SOLWAY	MARTIN	EDWARD
SOMERVILLE	ROBERT	D.
SOMMER	ROBIN	
SON	YOUNG-CHAN	
SPENCE	JOHN	R.
SPENCE	MICHAEL	BRYN
SPERLING	VERA	
SPINGLER	MARKUS	STEVEN
SPOERRI	MICHAEL	CHARLES
SPRATLING	DREW	BAER
SPRATLING	HAYLEY	BAER
SPROUL	BRETT	HOWARD
STANTON	ELIZABETH	JANE
STELPSTRA	DONNA	JOY
STEPHENSON	JAMES	DAVID
STEVENS	ALEXANDRA	ELISABETH
STEVENS	ELIZABETH	A.
STEWARD	STEFANIE	JANE
STEWART	WENDY	HEATHER
STOECKL	NATALIE	ELAINE
STOLL	CATHERINE	LOUISE
STRAS	LAURIE	A.
STRAUB	ANGELA	BRIGITTE
STUBENBAUM	KARIN	MARIA
STUCKI	IRENE	A.
SUGE	YUICHI	
SUGO	DAISUKE	
SUGO	YOKO	
SULLIVAN	EDWARD	W.
SULLIVAN	JENNIFER	MARIA
SUN	CHEN	
SUN	ZHENG	
SUNDJAJA	ANDREW	
SUTER	LUIS	JAKOB
SUTORIUS	PHILIP	ERNEST
SWEET	BRIAN	RICHARD
TAEGER	AARON	DAVID
TAKAGI	ERIKO	
TAKANO	YOKO	
TAMIYA	TAKURO	
TAMURA	MARIKO	
TAN	ELIZABETH	HSIU-CHIN
TAN	ENG	HENG
TAN	MARLONE	JOHNSON LU
TANG	BETTY	
TANNER	GEORG	MICHAEL
TAYLOR	SCOTT	THOMAS
THACKER	HITESH	RAMESH
THERRIEN	JOAN	MARY ANN
THESINGH	FAITH	C.
THOMPSON	CHRISTOPHER	EDWARD
THOMPSON	MARK	ELLIOT

Last name	First name	Middle name/initials
THOMPSON	MARTYN	PETER
THOMSEN	CHAD	RICHARD
THONG	EDWIN	MULIANTO
THUAUX	MARK	JOSEPH
TIMMERMAN	JOSE	ROBERT
TIMOTHEE	DE VALENCE DE MINARDIERE	
TINKER	NICOLAS	ANDREW
TISSERAND	ALEX	PIERRE DANIEL
TJEERDEMA	RUURD	
TODD	SANDRA	BETH
TONG	TOBY	MAY YANG
TOYODA	YUKIHIKO	
TRELEWICZ	JENNIFER	QUIRIN
TRUSCOTT	JANE	ELIZABETH
TUER	MICHELLE	
TURNER	BRANDON	DEAN
UBOLDI	MARY	SANTINA COLOMBO
UDY	ANNE	BENUA
UNGER	RUSSELL	BRIAN
UPCROFT	BENJAMIN	
VALENTIN	CHARLOTTE	
VALERI	MICHAL	
VAN BENTUM	SHANE	CHARLES
VAN DER EIJK	BRITTA	
VAN DER MEER	BROOKE	LYDIA
VAN DIJK	MARTEN	ERIK
VAN EVRA	SUSAN	ELIZABETH
VAN HOUTTE-VERDOCK	MARGRIET	M.
VAN KATAWIJK	CORNELIS	MICHIEL
VAN OOSTERHOUT	BIANCA	F.
VAN POEDEROOYEN	JASON	ARIE
VAN STEK	ROB	
VAN VEEN	ALBERT	JOHN BERNARD
VAN VLIET	JADA	
VAN ZUILEN	MICHAEL	CORNELIS
VANDENBORRE	KATHERINE	MARIA
VANDERKOOI	WILLIAM	KENNETH
VANDERSTICHELEN	MARIA	
VARMA	SONIA	
VARTAK	AARTI	JAYESH
VARTAK	JAYESH	SADANAND
VASILENKO	ALEXEY	
VAUTIN	SARAH	FENWICK
VECHALAPU	CHINA	B.
VERDOUW	BIRGIT	KAREN
VILLAR	CRISTINA	CUNHA
VINCIGUERRA	OLIVIER	
VOGELE	SILVIA	LYNN
VOIRUL	NICOLAS	C.Y.
VON BONIN	HELLA	REGINA
WAGENER	GUY	HENRI
WAGENER FRANTZ	CHANTAL	M.
WAJON	SALLY	ELIZABETH
WAKULICZ WILLIAMS	MEGHAN	LEAH
WALKER	ANA	QING
WALKER	BRENDA	
WALKINTON	RACHAEL	CATHARINE
WALLENBERG	MAUD	
WALLER	JOSEPH	DOUGLAS
WALLISER	MARC	RENE
WALLISER	TINA	NASTASJA
WALTON	EMILY	BETH
WALTON	JOHN	WESLEY
WANG	HUBIN	
WANG	YANDONG	
WARD	ANDREW	JAMES
WARDLAW	STEPHEN	JAMES
WARK	AMY	SUZANNE
WARNING	ROBERT	GEORGE
WARREK	RICHARD	ARTHUR
WASSEN	ANNE	HELENE
WATANABE	KENICHI	
WATANABE	KIMIKO	
WATERHAM	MICHELLE	MARIE

Last name	First name	Middle name/initials
WATERS	LORI	LYNN
WATERS	RACHEAL	ELIZABETH
WEBB	CATHERINE	ANN
WEBBER	MARTYN	DAREN
WEBER	SIMON	PAUL
WECK	STEFAN	
WEI	SIJIE	
WEI	YIQING	
WEIDENMUELLER	BERND	
WEIDENMUELLER	VIOLA	
WEIJERS	HUBERTUS	WILHELMUS
WEISS	TIANA	SARA
WEITZEL	URSULA	EVERLYN ADRIANA
WEN	SHUHAO	
WENGER	ILEANA	
WENGER	RHONA	
WENTZEL	ELIZABETH	JEAN
WERNER	DAGMAR	UTE
WETTSTEIN	MARKUS	FELIX
WHITEBREAD	STEVEN	E.
WHITING	CAROLYN	
WIDMER	REGINA	ELIZABETH
WILKIN	SABINE	
WILKINSON	PETER	RICHARD
WILSON	CONOR	MICHAEL
WILSON	MARIE	ELAINE
WILSON	MICHAEL	RICHARD
WILSON	NICOLE	MARIE
WINK	ANDRE	
WINSLETT JR	JAMES	R.
WINTERSON	JEREMY	ALEXANDRE
WIRTH-TECKENTRUP	ALEXANDRA	
WONG	CARMEN	
WONG	CHE	PING
WOO	AMANDA	
WOOD	LAUREN	EMILY
WOOD	MORAG	FINLEY
WOOD	PAUL	
WOODS	JONATHAN	ROBERT
WORSFOLD	JOCELYN	MARGARET
WRIGHT	SUSAN	JEAN
WU	LAN	
WU	XIAOHAN	
XIE	LILING	
XU	HONG	
XU	WEI	
YAMADA	TEIKO	
YAMANI	OMAR	A.
YAMASHITA	ALEXANDER	HAN
YAMNIUK	AARON	PAUL
YAMNIUK	LEANNE	JOY
YANG	LIULIU	
YANG	YING	
YOKOMURA	KAZUNORI	
YONER	CLINTON	PETER
YONG	KEN	TYE
YOSHIDA	YUKO	
YOSHIDA	YUTAKA	
YOSHIMURA	MITSUAKI	
YOUNG	JOSEPH	HARRISON
YU	SHENG-SUNG	
YUAN	TSZ	HO DANNY
YUEN	FAYE	HUGH
ZARGARYAN	ARTHUR	
ZAYAN	ADLEY	
ZEEVY	MICHAL	G.
ZENG	WEN	
ZHANG	XIAOJUN	
ZHANG	YUMEI	
ZHAO	ALLEN	
ZHAO	LIJIE	
ZHENG	XUFEI	
ZHOU	JIANXIN	
ZHU	CHAO	

Last name	First name	Middle name/initials
ZHU	MINGDI	
ZIS	ODYSSEUS	TAKIS
ZOBL	THOMAS	

Dated: January 24, 2023.

Steven B. Levine,

Manager Team 1940, CSDC—Compliance Support, Development & Communications.

[FR Doc. 2023–01681 Filed 1–26–23; 8:45 am]

BILLING CODE 4830–01–P

DEPARTMENT OF THE TREASURY

Meeting of the Treasury Advisory Committee on Racial Equity

AGENCY: Department of the Treasury.

ACTION: Notice of meeting.

SUMMARY: The Department of the Treasury is hosting its Fiscal Year 2023 Quarter 2 meeting of the Treasury Advisory Committee on Racial Equity (''TACRE'' or ''Committee''). The Committee is comprised of 25 members who will provide information, advice, and recommendations to the Department of the Treasury on matters relating to the advancement of racial equity. This notification provides the date, time, and location of the second meeting and the process for participating and providing comments.

DATES: March 9, 2022, at 2:00–5:00 p.m. Eastern Time.

FOR FURTHER INFORMATION CONTACT: Snider Page, Designated Federal Official, Department of the Treasury, by emailing *TACRE@Treasury.gov* or by calling (202) 622–0341 (this is not a toll-free number). For persons who are deaf, hard of hearing, have a speech disability or difficulty speaking may dial 7–1–1 to access telecommunications relay services. Check: *https://home.treasury.gov/about/offices/equity-hub/TACRE* for any updates to the March 9th meeting.

SUPPLEMENTARY INFORMATION: Pursuant to the Federal Advisory Committee Act (FACA) (5 U.S.C. 10), the Department has established the Treasury Advisory Committee on Racial Equity. The Department has determined that establishing this Committee was necessary and in the public interest in order to carry out the provisions of Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Throughout the Federal Government.*

Background

Objectives and Duties

The purpose of the Committee is to provide advice and recommendations to the Department on efforts to advance racial equity and address acute disparities for communities of color that have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality. The Committee will identify, monitor, and review aspects of the domestic economy that have directly and indirectly resulted in unfavorable conditions for communities of color. The Committee plans to address topics including but not limited to: financial inclusion, access to capital, housing stability, federal supplier diversity, and economic development. The duties of the Committee are solely advisory and extend only to the submission of non-binding advice and recommendations to the Department. No determination of fact or policy shall be made by the Committee.

The agenda for the meeting includes opening remarks from the Chair and Vice-Chair of TACRE, an overview of work from TACRE subcommittees, and a presentation of strategic questions to help the subcommittees focus on their work. This will be followed by a general discussion of the Committee and potentially a vote on short-term and long-term matters that Committee would like to focus on during the next two years. Meeting times and topics are subject to change.

Second Periodic Meeting: In accordance with section 10(a)(2) of the FACA and implementing regulations at 41 CFR 102–3.150, Snider Page, the Designated Federal Officer of TACRE, has ordered publication of this notice to inform the public that the TACRE will convene its FY 2023 Quarter 2 meeting on Thursday, March 9, 2023, from 2:00 p.m.–5:00 p.m. Eastern Time, at the Department of the Treasury, 1500 Pennsylvania Ave. NW, Washington, DC 20220.

Process for Submitting Public Comments: Members of the public wishing to comment on the business of the TACRE are invited to submit written comments by emailing *TACRE@Treasury.gov.* Comments are requested no later than 15 calendar days before the public meeting in order to be considered by the Committee.

In general, the Department will post all comments received on its website *https://home.treasury.gov/about/offices/equity-hub/TACRE* without change, including any business or personal information provided such as names, addresses, email addresses, or telephone numbers. The Department will also make these comments available for public inspection and copying in the Department of the Treasury's Library, 720 Madison Place NW, Room 1020, Washington, DC 20220, on official business days between the hours of 10:00 a.m. and 5:00 p.m. Eastern Time. You can make an appointment to inspect statements by telephoning (202) 622–2000. All statements received, including attachments and other supporting materials, are part of the public record and subject to public disclosure. You should submit only information that you wish to make available publicly.

Process for Attending In-Person: Treasury is a secure facility, that requires all visitors to get cleared by security prior to arrival at the building. In addition, all visitors will be required to undergo COVID screening. The COVID screening will be a self-administered test provided by Treasury and visitors will have to wait for a negative result before proceeding to the meeting. Anyone testing positive will need to immediately leave the building. Please register for the Public Meeting by visiting: *https://events.treasury.gov/s/event-template/a2m3d0000000csqAAA.* The registration process will require submission of personally identifiable information, such as, full name, email address, date of birth, social security number, citizenship, residence, and if you have recently traveled outside of the United States.

Due to the limited size of the meeting room, public attendance will be limited to the first 20 people that complete the registration process. Members of the public will need to bring a government issued identification that matches the information provided during the registration process and present that to Security, for entry into the building. Please plan on arriving 30–45 minutes prior to the meeting to allow time for security and COVID screening.

If you require reasonable accommodation, please contact the Departmental Offices Reasonable Accommodations Coordinator at

ReasonableAccommodationRequests@treasury.gov. If requesting a sign language interpreter, please make sure your request to the Reasonable Accommodations Coordinator is made at least five (5) days prior to the event if at all possible.

Dated: January 23, 2023.

Snider Page,

Acting Chief, Office of Diversity, Equity, Inclusion and Accessibility and Designated Federal Officer.

[FR Doc. 2023–01626 Filed 1–26–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF THE TREASURY

Agency Information Collection Activities; Submission for OMB Review; Comment Request; Information Collection Requirements in Connection With the Imposition of a Special Measure Concerning North Korea as a Jurisdiction of Primary Money Laundering Concern

AGENCY: Financial Crimes Enforcement Network, U.S. Department of the Treasury.

ACTION: Notice.

SUMMARY: As part of a continuing effort to reduce paperwork and respondent burden, FinCEN invites comment on a renewal, without change, to information collection requirements finalized on November 9, 2016, imposing a special measure with respect to North Korea as a jurisdiction of primary money laundering concern. This request for comments is being made pursuant to the Paperwork Reduction Act of 1995.

DATES: Comments should be received on or before February 27, 2023 to be assured of consideration.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function. Copies of the submissions may be obtained from Melody Braswell by emailing *PRA@treasury.gov,* calling (202) 622–1035, or viewing the entire information collection request at *www.reginfo.gov.*

SUPPLEMENTARY INFORMATION:

Financial Crimes Enforcement Network (FinCEN)

Title: Information Collection Requirements in Connection with the Imposition of a Special Measure Concerning North Korea as a Jurisdiction of Primary Money Laundering Concern.

OMB Control Number: 1506–0071.

Form Number: Not applicable.

Abstract: FinCEN is issuing this notice to renew the OMB control number for the imposition of a special measure against North Korea as a jurisdiction of primary money laundering concern pursuant to the authority contained in *31 U.S.C. 5318A.* See *31 CFR 1010.659.*

Affected Public: Businesses or other for-profit institutions, and not-for-profit institutions.

Estimated Frequency: One time notification and recordkeeping associated with the notification. See *31 CFR 1010.659(b)(3)(i)(A)* and *1010.659(b)(4)(i).*

Estimated Number of Respondents: 16,588.

Estimated Time per Respondent: 1 hour.

Estimated Total Annual Burden: 16,588 hours.

Authority: 44 U.S.C. 3501 et seq.

Melody Braswell,

Treasury PRA Clearance Officer.

[FR Doc. 2023–01693 Filed 1–26–23; 8:45 am]

BILLING CODE 4810–02–P

DEPARTMENT OF THE TREASURY

Agency Information Collection Activities; Submission for OMB Review; Comment Request; Departmental Offices Information Collection Request

AGENCY: Departmental Offices, U.S. Department of the Treasury.

ACTION: Notice.

SUMMARY: The Department of the Treasury will submit the following information collection requests to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995, on or after the date of publication of this notice. The public is invited to submit comments on these requests.

DATES: Comments should be received on or before February 27, 2023 to be assured of consideration.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function.

FOR FURTHER INFORMATION CONTACT: Copies of the submissions may be obtained from Melody Braswell by emailing *PRA@treasury.gov,* calling (202) 622–1035, or viewing the entire information collection request at *www.reginfo.gov.*

SUPPLEMENTARY INFORMATION:

Title: Treasury International Capital Form CQ–1, ''Financial Liabilities to, and Claims on, Unaffiliated Foreign Residents;'' and Treasury International Capital Form CQ–2, ''Commercial Liabilities to, and Claims on, Unaffiliated Foreign Residents.''

OMB Number: 1505–0024.

Abstract: Forms CQ–1 and CQ–2 are part of the Treasury International Capital (TIC) reporting system, which is required by law (*22 U.S.C. 286f; 22 U.S.C. 3103;* E.O. 10033; *31 CFR 128*), and is designed to collect timely information on international portfolio capital movements. Forms CQ–1 and CQ–2 are quarterly reports filed by non-financial enterprises in the U.S. to report their international portfolio transactions with unaffiliated foreign residents. This information is necessary for compiling the U.S. balance of payments accounts and the U.S. international investment position, and for use in formulating U.S. international financial and monetary policies.

Type of Review: Revision of a currently approved data collection.

Affected Public: Business or other for-profit organizations.

Form Number: CQ–1 and CQ–2 (1505–0024).

Estimated Number of Respondents: 135.

Estimated Average Time per Respondent: Six and seven-tenths (6.7) hours per respondent per filing.

Estimated Total Annual Burden Hours: 3,620 hours, based on four reporting periods per year.

Authority: 44 U.S.C. 3501 *et seq.*

Melody Braswell,

Treasury PRA Clearance Officer.

[FR Doc. 2023–01648 Filed 1–26–23; 8:45 am]

BILLING CODE 4810–AK–P

DEPARTMENT OF THE TREASURY

Agency Information Collection Activities; Submission for OMB Review; Comment Request; Troubled Asset Relief Program—Making Home Affordable Participants

AGENCY: Departmental Offices, U.S. Department of the Treasury.

ACTION: Notice.

SUMMARY: The Department of the Treasury will submit the following

information collection requests to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995, on or after the date of publication of this notice. The public is invited to submit comments on these requests.

DATES: Comments should be received on or before February 27, 2023 to be assured of consideration.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *www.reginfo.gov/public/do/PRAMain.* Find this particular information collection by selecting ''Currently under 30-day Review—Open for Public Comments'' or by using the search function. Copies of the submissions may be obtained from Melody Braswell by emailing *PRA@treasury.gov,* calling (202) 622–1035, or viewing the entire information collection request at *www.reginfo.gov.*

FOR FURTHER INFORMATION CONTACT: Copies of the submissions may be obtained from Christopher Dove by emailing *Christopher.Dove@treasury.gov,* calling (202) 927–0374, or viewing the entire information collection request at *www.reginfo.gov.*

SUPPLEMENTARY INFORMATION:

Departmental Offices (DO)

Title: Troubled Asset Relief Program—Making Home Affordable Participants.

OMB Control Number: 1505–0216.

Type of Review: Extension without change of a currently approved collection.

Description: Authorized under the Emergency Economic Stabilization Act (EESA) of 2008 (Pub. L. 110–343), the Department of the Treasury has implemented several aspects of the Troubled Asset Relief Program (TARP). Among these components was a voluntary foreclosure prevention program—the Making Home Affordable (MHA) program, under which the Department used TARP capital to lower the mortgage payments of qualifying borrowers. The Treasury did this through agreements with mortgage servicers (Servicer Participation Agreements, or SPAs) to modify loans on their systems. Pursuant to the Consolidated Appropriations Act, 2016 (Pub. L. 114–113), the MHA program terminated on December 31, 2016, except with respect to certain loan modification applications made before such date. The MHA program has several subcomponents: HAMP (Home Affordable Modification Program), 2MP (Second Lien Modification Program), HAFA (Home Affordable Foreclosure Alternatives) and FHA (Federal Housing Administration)/RD (Rural Development) HAMP. Though the MHA program has terminated, there is some data reporting that will continue through December 2023 for incentive payment and compliance purposes.

Form Number: None.

Affected Public: Businesses or other for-profits.

Estimated Number of Respondents: 140.

Frequency of Response: On Occasion.

Estimated Total Number of Annual Responses: 1,680.

Estimated Time per Response: 28.5 hours.

Estimated Total Annual Burden Hours: 47,880.

Request for Comments: Comments submitted in response to this notice will be summarized and included in the request for Office of Management and Budget approval. All comments will become a matter of public record. Comments are invited on: (a) Whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden of the collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; (d) ways to minimize the burden of the collection of information on respondents, including through the use of technology; and (e) estimates of capital or start-up costs and costs of operation, maintenance, and purchase of services required to provide information.

Authority: 44 U.S.C. 3501 *et seq.*

Melody Braswell,

Treasury PRA Clearance Officer.

[FR Doc. 2023–01687 Filed 1–26–23; 8:45 am]

BILLING CODE 4810–AK–P

DEPARTMENT OF VETERANS AFFAIRS

[OMB Control No. 2900–0474]

Agency Information Collection Activity: Create Payment Request for the VA Funding Fee

AGENCY: Veterans Benefits Administration, Department of Veterans Affairs.

ACTION: Notice.

SUMMARY: Veterans Benefits Administration, Department of Veterans Affairs (VA), is announcing an opportunity for public comment on the proposed collection of certain information by the agency. Under the Paperwork Reduction Act (PRA) of 1995, Federal agencies are required to publish notice in the **Federal Register** concerning each proposed collection of information, including each proposed revision of a currently approved collection, and allow 60 days for public comment in response to the notice.

DATES: Written comments and recommendations on the proposed collection of information should be received on or before March 28, 2023.

ADDRESSES: Submit written comments on the collection of information through Federal Docket Management System (FDMS) at *www.Regulations.gov* or to *Nancy J. Kessinger,* Veterans Benefits Administration (20M33), Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420 or email to *nancy.kessinger@va.gov.* Please refer to ''OMB Control No. 2900–0474'' in any correspondence. During the comment period, comments may be viewed online through FDMS.

FOR FURTHER INFORMATION CONTACT: Maribel Aponte, Office of Enterprise and Integration, Data Governance Analytics (008), 1717 H Street NW, Washington, DC 20006, (202) 266–4688 or email *maribel.aponte@va.gov.* Please refer to ''OMB Control No. 2900–0474'' in any correspondence.

SUPPLEMENTARY INFORMATION: Under the PRA of 1995, Federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information they conduct or sponsor. This request for comment is being made pursuant to section 3506(c)(2)(A) of the PRA.

With respect to the following collection of information, VBA invites comments on: (1) whether the proposed collection of information is necessary for the proper performance of VBA's functions, including whether the information will have practical utility; (2) the accuracy of VBA's estimate of the burden of the proposed collection of information; (3) ways to enhance the quality, utility, and clarity of the information to be collected; and (4) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or the use of other forms of information technology.

Authority: 38 U.S.C. 3729, 38 CFR 36.4232 and 36.4313.

Title: Create Payment Request for the VA Funding Fee (VA Form 26–8986).

OMB Control Number: 2900–0474.

Type of Review: Revision of a currently approved collection.

Abstract: A funding fee must be paid to VA before a loan can be guaranteed and evidence of guaranty issued. The funding fee is payable on all VA-guaranteed loans (*i.e.,* assumptions, manufactured housing, refinances, and real estate purchase and construction loans). Lenders are required to pay the funding fee in an internet-based application, VA Funding Fee Payment System (FFPS), that permits lenders to pay the funding fee online in order to obtain a VA loan guaranty. The application calculates the appropriate fee, including any late fees and interest that may be due. Lenders may also choose to pay the funding fee via batch payment processing by uploading an XML file into FFPS.

Affected Public: Individuals and households.

Estimated Annual Burden: 26,400 hours.

Estimated Average Burden per Respondent: 2 minutes.

Frequency of Response: One time.

Estimated Number of Respondents: 800,000.

By direction of the Secretary.

Maribel Aponte,

VA PRA Clearance Officer, Office of Enterprise and Integration/Data Governance Analytics, Department of Veterans Affairs.

[FR Doc. 2023–01618 Filed 1–26–23; 8:45 am]

BILLING CODE 8320–01–P

DEPARTMENT OF VETERANS AFFAIRS

Privacy Act of 1974; System of Records

AGENCY: National Cemetery Administration (NCA), Department of Veterans Affairs (VA).

ACTION: Notice of a modified system of records.

SUMMARY: Pursuant to the Privacy Act of 1974, notice is hereby given that the Department of Veterans Affairs (VA) is updating the system of records in its inventory entitled, ''Veterans and Dependents National Cemetery Gravesite Reservation Records—VA'' (41VA41). This system contains information related to Veterans and their dependents who have made gravesite reservations with the National Cemetery Administration (NCA). VA is updating the contact information and correcting the system name in the preamble. VA is republishing the system notice in its entirety.

DATES: Comments on this modified system of records must be received no later than 30 days after date of publication in the **Federal Register**. If no public comment is received during the period allowed for comment or unless otherwise published in the **Federal Register** by VA, the modified system of records will become effective a minimum of 30 days after date of publication in the **Federal Register**. If VA receives public comments, VA shall review the comments to determine whether any changes to the notice are necessary.

ADDRESSES: Comments may be submitted through *www.Regulations.gov* or mailed to VA Privacy Service, 810 Vermont Avenue NW, (005R1A), Washington, DC 20420. Comments should indicate that they are submitted in response to ''Veterans and Dependents National Cemetery Gravesite Reservation Records—VA'', (41VA41). Comments received will be available at regulations.gov for public viewing, inspection or copies.

FOR FURTHER INFORMATION CONTACT: Cindy Merritt, National Cemetery Administration (NCA) Privacy Officer (43E), Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420, *Cindy.Merritt@va.gov,* telephone (321) 200–7477 (this is not a toll-free number).

SUPPLEMENTARY INFORMATION: The system name, which was incorrectly listed in **SUPPLEMENTARY INFORMATION** section of the February 23, 2022, publication, is ''Veterans and Dependents National Cemetery Gravesite Reservation Records—VA''.

Signing Authority

The Senior Agency Official for Privacy, or designee, approved this document and authorized the undersigned to sign and submit the document to the Office of the Federal Register for publication electronically as an official document of the Department of Veterans Affairs. Kurt D. DelBene, Assistant Secretary for Information and Technology and Chief Information Officer, approved this document on January 23, 2023 for publication.

Dated: January 23, 2023.

Amy L. Rose,

Program Analyst, VA Privacy Service, Office of Information Security, Office of Information and Technology, Department of Veterans Affairs.

SYSTEM NAME AND NUMBER:

Veterans and Dependents National Cemetery Gravesite Reservation Records—VA (41VA41).

SECURITY CLASSIFICATION:

Unclassified.

SYSTEM LOCATION:

Records are maintained at the National Cemetery Administration (41B), VA Central Office, Washington, DC 20420.

SYSTEM MANAGER(S):

Lisa Pozzebon, Executive Director of Cemetery Operations (41A), National Cemetery Administration, VA Central Office, 810 Vermont Avenue NW, Washington, DC 20420, *Lisa.Pozzebon@va.gov,* telephone (202) 461–9340.

AUTHORITY FOR MAINTENANCE OF THE SYSTEM:

Title 38 U.S.C. 2402.

PURPOSE(S) OF THE SYSTEM:

The purpose for which the records are used will include but will not be limited to the provision of VA burial and memorial benefits; provision of information about VA burial and memorial benefits, including specific claims; determination of eligibility for burial in a VA national cemetery; disclosure of military service information upon request from VA-funded State and Tribal Veterans cemeteries; coordination of committal services and interment upon request of families, funeral homes, and others of eligible decedents at VA national cemeteries; investigation of potential bars to benefits for an otherwise eligible individual.

CATEGORIES OF INDIVIDUALS COVERED BY THE SYSTEM:

The records contain information on Veterans, family members of Veterans, Members of the Armed Forces (Service members), family members of Service members, Reservists and Retirees (Active Duty; Reserves; or National Guard), and other VA customers (*e.g.,* attorneys, agents, Veterans Service Organizations, funeral directors, coroners, Missing in America Project (MIAP) volunteers, State and local governmental administrators, in addition to VA authorized users permitted by VA to access VA IT systems (*e.g.,* VA employees, VA contractors, VA registered volunteers).

CATEGORIES OF RECORDS IN THE SYSTEM:

Records may include information submitted to VA by means of paper or online forms that respondents can mail or electronically transmit by fax or email for storage and retrieval in VA's secure filing and IT systems. Records may contain information, such as demographics and personal identifiers (*e.g.,* names, mailing addresses, email addresses, phone numbers, social security numbers, VA claim numbers and military service numbers); socioeconomic characteristics (*e.g.,* date

of birth, place of birth, date of death, gender, marital records; health records; health related information, benefit related information); military service information (*e.g.,* dates of active duty, dates of active duty for training, military service numbers, branch of service including Reserves or National Guard service, locations of service for National Guard, dates of entry, enlistment, or discharge, type and character of discharge, rank, awards, decorations, and other military history and information).

Records may also include supporting documentation submitted to identify individuals submitting pre-need applications on behalf of claimants. Supporting documentation may include, but is not limited to the following items: VA Form 21–22 (Appointment of Veterans Service Organization as Claimant's Representative), VA Form 21–22a (Appointment of Individual as Claimant's Representative) for an Authorized Attorney, or Agent; proof of prior written authorization, such as a durable power of attorney, or an affidavit establishing a caregiver relationship to the claimant (spousal, parent, other relative); and documentation showing the individual as the court-appointed representative authorized to act on behalf of as the claimant.

RECORD SOURCE CATEGORIES:

Information in this system of records is provided by Veterans; Veteran beneficiaries; members of the Armed Forces of the United States including Reserves and National Guard and their beneficiaries, as well as other individuals (such as funeral home directors) submitting eligibility determinations on behalf of claimants; VA employees; other VA authorized users (*e.g.,* Department of Defense), VA IT systems and databases; VA claims records; and official military records IT systems.

ROUTINE USES OF RECORDS MAINTAINED IN THE SYSTEM, INCLUDING CATEGORIES OF USERS AND PURPOSES OF SUCH USES:

1. *Congress:* To a Member of Congress or staff acting upon the Member's behalf when the Member or staff requests the information on behalf of, and at the request of, the individual who is the subject of the record.

2. *Data Breach Response and Remediation, for VA:* To appropriate agencies, entities, and persons when (1) VA suspects or has confirmed that there has been a breach of the system of records, (2) VA has determined that as a result of the suspected or confirmed breach there is a risk of harm to individuals, VA (including its information systems, programs, and operations), the Federal Government, or national security; and (3) the disclosure made to such agencies, entities, and persons is reasonably necessary to assist in connection with VA's efforts to respond to the suspected or confirmed breach or to prevent, minimize, or remedy such harm.

3. *Data Breach Response and Remediation, for Another Federal Agency:* To another Federal agency or Federal entity, when VA determines that information from this system of records is reasonably necessary to assist the recipient agency or entity in (1) responding to a suspected or confirmed breach or (2) preventing, minimizing, or remedying the risk of harm to individuals, the recipient agency or entity (including its information systems, programs, and operations), the Federal Government, or national security, resulting from a suspected or confirmed breach.

4. *Law Enforcement:* To a Federal, state, local, territorial, Tribal, or foreign law enforcement authority or other appropriate entity charged with the responsibility of investigating or prosecuting such violation or charged with enforcing or implementing such law, provided that the disclosure is limited to information that, either alone or in conjunction with other information, indicates a violation or potential violation of law, whether civil, criminal, or regulatory in nature. The disclosure of the names and addresses of veterans and their dependents from VA records under this routine use must also comply with the provisions of 38 U.S.C. 5701.

5. *DoJ, Litigation, Administrative Proceeding:* To the Department of Justice (DoJ), or in a proceeding before a court, adjudicative body, or other administrative body before which VA is authorized to appear, when:

(a) VA or any component thereof;

(b) Any VA employee in his or her official capacity;

(c) Any VA employee in his or her individual capacity where DoJ has agreed to represent the employee; or

(d) The United States, where VA determines that litigation is likely to affect the agency or any of its components.

is a party to such proceedings or has an interest in such proceedings, and VA determines that use of such records is relevant and necessary to the proceedings.

6. *Contractors:* To contractors, grantees, experts, consultants, students, and others performing or working on a contract, service, grant, cooperative agreement, or other assignment for VA, when reasonably necessary to accomplish an agency function related to the records.

7. *OPM:* To the Office of Personnel Management (OPM) in connection with the application or effect of civil service laws, rules, regulations, or OPM guidelines in particular situations.

8. *EEOC:* To the Equal Employment Opportunity Commission (EEOC) in connection with investigations of alleged or possible discriminatory practices, examination of Federal affirmative employment programs, or other functions of the Commission as authorized by law.

9. *FLRA:* To the Federal Labor Relations Authority (FLRA) in connection with the investigation and resolution of allegations of unfair labor practices, the resolution of exceptions to arbitration awards when a question of material fact is raised, matters before the Federal Service Impasses Panel, and the investigation of representation petitions and the conduct or supervision of representation elections.

10. *MSPB:* To the Merit Systems Protection Board (MSPB) in connection with appeals, special studies of the civil service and other merit systems, review of rules and regulations, investigation of alleged or possible prohibited personnel practices, and such other functions promulgated in 5 U.S.C. 1205 and 1206, or as authorized by law.

11. *NARA:* To the National Archives and Records Administration (NARA) in records management inspections conducted under 44 U.S.C. 2904 and 2906, or other functions authorized by laws and policies governing NARA operations and VA records management responsibilities.

12. *Funeral Homes, for Arrangements:* To funeral directors or representatives of funeral homes in order for them to make necessary arrangements prior to and in anticipation of a veteran's impending death.

13. *Federal Agencies, for Research:* To a Federal agency for the purpose of conducting research and data analysis to perform a statutory purpose of that Federal agency upon the written request of that agency.

14. *Federal Agencies, for Computer Matches:* To other Federal agencies for the purpose of conducting computer matches to obtain information to determine or verify eligibility of veterans receiving VA benefits or medical care under title 38.

15. *Federal Agencies, Courts, Litigants, for Litigation or Administrative Proceedings:* To another Federal agency, court, or party in

litigation before a court or in an administrative proceeding conducted by a Federal agency, when the government is a party to the judicial or administrative proceeding.

16. *Former Employee or Contractor, Representative, for EEOC:* To a former VA employee or contractor, as well as the authorized representative of a current or former employee or contractor of VA, in connection with investigations by the Equal Employment Opportunity Commission pertaining to alleged or possible discrimination practices, examinations of Federal affirmative employment programs, or other functions of the Commission as authorized by law or regulation.

17. *Former Employee or Contractor, Representative, for MSPB, OSC:* To a former VA employee or contractor, as well as the authorized representative of a current or former employee or contractor of VA, in proceedings before the Merit Systems Protection Board or the Office of the Special Counsel in connection with appeals, special studies of the civil service and other merit systems, review of rules and regulations, investigation of alleged or possible prohibited personnel practices, and such other functions promulgated in 5 U.S.C. 1205 and 1206, or as otherwise authorized by law.

18. *Governmental Agencies, Health Organizations, for Claimants' Benefits:* VA To Federal, state, and local government agencies and national health organizations as reasonably necessary to assist in the development of programs that will be beneficial to claimants, to protect their rights under law, and assure that they are receiving all benefits to which they are entitled.

POLICIES AND PRACTICES FOR STORAGE OF RECORDS:

Records in this system are maintained in paper and electronic formats in the NCA Field Program Office. Records are maintained on electronic storage media including magnetic tape, disk, and laser optical media.

POLICIES AND PRACTICES FOR RETRIEVAL OF RECORDS:

Records are retrieved by name only; name and one or more numbers (service or social security); name and one or more criteria (*e.g.,* date of birth or dates of service); VA claim number; or other VA or NCA assigned identifier.

POLICIES AND PRACTICES FOR RETENTION AND DISPOSAL OF RECORDS:

Records in this system are retained in accordance with records retention standards approved by the Archivist of the United States, National Cemetery Records, NC1–015–85–14.

ADMINISTRATIVE, TECHNICAL, AND PHYSICAL SAFEGUARDS:

Information in the system is protected from unauthorized access through administrative, physical, and technical safeguards. Access to the hard copy and computerized information is restricted to authorized VA employees and VA contractors by means of PIV card and PIN, and/or passwords. Information security officers and system data stewards review and authorize data access requests. VA regulates data access with security software that authenticates users and requires individually unique codes and passwords. VA requires information security training for all staff and instructs staff on the responsibility each person has for safeguarding data confidentiality. Hard copy records are maintained in offices that are restricted by cypher locks during work hours and locked after duty hours with security camera surveillance of the office area and facility.

RECORD ACCESS PROCEDURES:

Individuals seeking information on the existence and content of records in this system pertaining to them should contact the system manager in writing as indicated above. A request for access to records must contain the requester's full name, address, telephone number, be signed by the requester, and describe the records sought in sufficient detail to enable VA personnel to locate them with a reasonable amount of effort.

CONTESTING RECORD PROCEDURES:

Individuals seeking to contest or amend records in this system pertaining to them should contact the system manager in writing as indicated above. A request to contest or amend records must state clearly and concisely what record is being contested, the reasons for contesting it, and the proposed amendment to the record.

NOTIFICATION PROCEDURES:

Generalized notice is provided by the publication of this notice. For specific notice, see Record Access Procedure, above.

EXEMPTIONS PROMULGATED FOR THE SYSTEM:

None.

HISTORY:

87 FR 10283 (Feb. 23, 2022).

[FR Doc. 2023–01601 Filed 1–26–23; 8:45 am]

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Part II

Securities and Exchange Commission

17 CFR Parts 240 and 242
Regulation Best Execution; Proposed Rule

SECURITIES AND EXCHANGE COMMISSION

17 CFR Parts 240 and 242

[Release No. 34–96496; File No. S7–32–22]

RIN 3235–AN24

Regulation Best Execution

AGENCY: Securities and Exchange Commission.

ACTION: Proposed rule.

SUMMARY: The Securities and Exchange Commission (''Commission'') is proposing new rules under the Securities Exchange Act of 1934 (''Exchange Act'') relating to a broker-dealer's duty of best execution. Proposed Regulation Best Execution would enhance the existing regulatory framework concerning the duty of best execution by requiring detailed policies and procedures for all broker-dealers and more robust policies and procedures for broker-dealers engaging in certain conflicted transactions with retail customers, as well as related review and documentation requirements.

DATES: Comments should be received on or before March 31, 2023.

ADDRESSES: Comments may be submitted by any of the following methods:

Electronic Comments

- Use the Commission's internet comment form (*https://www.sec.gov/regulatory-actions/how-to-submit-comments*); or
- Send an email to *rule-comments@sec.gov*. Please include File Number S7–32–22 on the subject line.

Paper Comments

- Send paper comments to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549–1090.

All submissions should refer to File Number S7–32–22. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method of submission. The Commission will post all comments on the Commission's website (*https://www.sec.gov/rules/proposed.shtml*). Comments are also available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549, on official business days between the hours of 10 a.m. and 3 p.m. Operating conditions may limit access to the Commission's Public Reference Room. All comments received will be posted without change. Persons submitting comments are cautioned that the Commission does not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly.

Studies, memoranda, or other substantive items may be added by the Commission or staff to the comment file during this rulemaking. A notification of the inclusion in the comment file of any materials will be made available on the Commission's website. To ensure direct electronic receipt of such notifications, sign up through the ''Stay Connected'' option at *www.sec.gov* to receive notifications by email.

FOR FURTHER INFORMATION CONTACT: David Dimitrious, Senior Special Counsel and Arisa Tinaves Kettig, Special Counsel at (202) 551–5500, Office of Market Supervision, Division of Trading and Markets, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549.

SUPPLEMENTARY INFORMATION: The Commission is proposing to add the following new rules under the Exchange Act: (1) 17 CFR 242.1100 (Rule 1100 of Regulation Best Execution); (2) 17 CFR 242.1101 (Rule 1101 of Regulation Best Execution); and (3) 17 CFR 242.1102 (Rule 1102 of Regulation Best Execution). The Commission is also proposing to amend 17 CFR 240.17a–4 (Rule 17a–4 under the Exchange Act).

Table of Contents

I. Introduction

The duty of best execution requires a broker-dealer to execute customers' trades at the most favorable terms reasonably available under the circumstances,[1] and customers benefit from broker-dealers' robust considerations of execution opportunities that may provide customers with the most favorable terms. Accordingly, promoting the best execution of customer orders is of fundamental importance to investors and the markets, and is an important aspect of investor protection. The Financial Industry Regulatory Authority, Inc. (''FINRA''), a national securities association, and the Municipal Securities Rulemaking Board (''MSRB'') currently have rules and guidance directly addressing the duty of best execution. The Commission has made statements concerning the duty over the years, but has never itself established a rule addressing best execution. While the Commission believes the existing regulatory framework concerning the duty of best execution has helped broker-dealers fulfill their duty to their customers, the Commission believes this regulatory framework can be made more effective. In particular, while FINRA and the MSRB have established best execution rules and provided guidance on how broker-dealers should achieve best execution in a variety of contexts, and generally require broker-dealers to have procedures for compliance with relevant laws and rules, the Commission believes it is appropriate to propose its own comprehensive and detailed best execution requirements. The Commission understands that, currently, broker-dealers' best execution policies and procedures, and the documentation relating to their best execution practices, may vary. However, as described in section III.A below, the Commission believes that customers would benefit from consistently robust best execution practices by broker-dealers, and the execution of retail customer orders by broker-dealers that have certain order handling conflicts of interest warrants heightened attention by those broker-dealers.[2]

The Commission believes that having Commission rules providing a policies and procedures-based best execution framework, along with regular reviews and related documentation, would help broker-dealers maintain consistently robust best execution practices and result in vigorous efforts by broker-dealers to achieve best execution, including in situations where broker-dealers have order handling conflicts of interest with retail customers. The Commission also believes that detailed policies and procedures, regular reviews, and related documentations would allow broker-dealers to effectively assess their best execution practices and assist the Commission and self-regulatory organizations (''SROs'') to effectively examine and enforce broker-dealers' compliance with the proposed rules.

Proposed Regulation Best Execution would establish through a Commission rule a best execution standard for broker-dealers.[3] Proposed Regulation Best Execution would also specifically require broker-dealers to establish, maintain, and enforce written policies and procedures reasonably designed to comply with that best execution standard. Those policies and procedures would be required to address: (1) how the broker-dealer will comply with the proposed standard of best execution, including by identifying material potential liquidity sources, incorporating material potential liquidity sources into its order handling practices, and ensuring that the broker-dealer can efficiently access each source, and (2) how the broker-dealer will determine the best market for customer orders received, including by assessing reasonably accessible and timely pricing information and opportunities for price improvement.

In addition, for retail customer transactions that present conflicts of interest, such as payment for order flow or internalization, that could create incentives for a broker-dealer to be less diligent in its search for better executions and potentially result in broker-dealers not providing best execution to customer orders, proposed Regulation Best Execution would require the broker-dealer's policies and procedures to address how it will comply with the best execution standard in light of such conflicts, including how it would assess a broader range of markets than it would for non-conflicted transactions. Proposed Regulation Best Execution would also require broker-dealers to document their compliance with the best execution standard and the basis for their determinations that best execution would be achieved through conflicted transactions.

Proposed Regulation Best Execution would also require broker-dealers to review the execution quality of their customer orders at least quarterly, compare it with the execution quality that might have been obtained from other markets, and revise their best execution policies and procedures accordingly.

Proposed Regulation Best Execution would exempt from specified requirements under the proposed rules an introducing broker (as defined in the proposed rules) that establishes, maintains, and enforces policies and procedures that require it to regularly review the execution quality obtained from its executing broker, compares that execution quality with the execution quality it might have obtained from other executing brokers, and revises its order handling practices accordingly.

Finally, proposed Regulation Best Execution would require broker-dealers to review and assess the overall effectiveness of their best execution policies and procedures, including their order handling practices, on at least an annual basis, and prepare a report detailing the results of such review and assessment that would be presented to the broker-dealer's board of directors (or equivalent governing body).

The Commission recognizes the importance of providing a broker-dealer flexibility to exercise its expertise and judgment when executing customer orders, and proposed Regulation Best Execution primarily would be a policies and procedures-based rule, similar to

[1] *See infra* note 21 and accompanying text.

[2] *See infra* Section V.A (describing the ''principal—agent'' problem that may exist between a broker-dealer and its customer and how that can be exacerbated by other conflicts of interest).

[3] The proposed best execution standard is consistent with the best execution standards set forth in FINRA and MSRB rules.

the Order Protection Rule,[4] the Risk Management Controls for Brokers or Dealers with Market Access Rule,[5] and Regulation Systems Compliance and Integrity.[6] Under proposed Regulation Best Execution, a broker-dealer's failure to achieve the most favorable price possible under prevailing market conditions (''most favorable price'') for customer orders would be part of the consideration of whether the broker-dealer's policies and procedures are reasonably designed and whether the broker-dealer is enforcing its policies and procedures. A broker-dealer's failure to achieve the most favorable price for customer orders would not necessarily be a violation of the proposed best execution standard, because it may not be the result of a failure by the broker-dealer to use reasonable diligence to ascertain the best market and to buy or sell in such market so that the customer receives the most favorable price.[7] However, a failure to establish and maintain reasonably designed policies and procedures applicable to all customer orders, or a failure to enforce those policies and procedures, would be a violation of the policies and procedures requirement under proposed Regulation Best Execution.

II. Duty of Best Execution

A. Current Regulatory Framework

A broker-dealer has a legal duty to seek best execution of customer orders. The duty of best execution predates the Federal securities laws and is derived from an implied representation that a broker-dealer makes to its customers.[8] The duty is established from ''common law agency obligations of undivided loyalty and reasonable care that an agent owes to [its] principal.'' [9] This obligation requires that a ''broker-dealer seek to obtain for its customer orders the most favorable terms reasonably available under the circumstances.'' [10] While there is no Commission rule or standard addressing a broker-dealer's duty of best execution, the duty is addressed in FINRA and MSRB rules, as described in sections II.C and IV below.[11]

The Commission is proposing Regulation Best Execution pursuant to, among other provisions, sections 11A and 15 of the Exchange Act.[12] In section 11A, Congress identified key national market system objectives, including the practicability of brokers executing investors' orders in the best market.[13] The Commission has rulemaking authority to further the section 11A objectives.[14] Separately, section 15 of the Exchange Act provides authority for rules that are reasonably designed to prevent fraudulent acts or practices. Specifically, section 15(c)(2)(A) provides that no broker or dealer may make use of the mails or any means or instrumentality of interstate commerce to effect any transaction in, or to induce or attempt to induce the purchase or sale of, any security (other than an exempted security [15] or commercial paper, bankers' acceptances, or commercial bills) otherwise than on a national securities exchange of which it is a member, in connection with which such broker or dealer engages in any fraudulent, deceptive, or manipulative act or practice, or makes any fictitious quotation.[16] Section 15(c)(2)(B) prohibits brokers, dealers, and municipal securities dealers from engaging in such activity in ''any municipal security.'' [17] Section 15(c)(2)(C) prohibits government securities brokers and government securities dealers from engaging in such activity in any ''government security.'' [18] Section 15(c)(2)(D) authorizes the Commission to adopt rules that define, and prescribe means reasonably designed to prevent, such acts and practices as are fraudulent, deceptive, or manipulative and such quotations as are fictitious.[19] When a broker-dealer violates its duty of best execution, it could be in violation of section 15(c) of the Exchange Act.[20]

B. Prior Commission Statements

The Commission has made statements concerning the duty of best execution in various contexts over the years. The following are some of the statements that the Commission has made with respect to the duty of best execution. The Commission solicits comment below, however, on whether any of these prior statements should be revised in light of the proposed rules.

The Commission has previously stated that the duty of best execution requires a broker-dealer to execute customers' trades at the most favorable terms reasonably available under the circumstances, *i.e.,* at the best reasonably available price.[21] The Commission has also recognized that price is a critical concern for investors.[22] In addition, the

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[4] *See* 17 CFR 242.611.

[5] *See* 17 CFR 240.15c3–5.

[6] *See* 17 CFR 242.1001.

[7] *See also* MSRB Rule G–18.01 (''A failure to have actually obtained the most favorable price possible will not necessarily mean that the dealer failed to use reasonable diligence.''). Whether a broker-dealer has met the proposed best execution standard would turn on an objective assessment of the facts and circumstances at the time of the broker-dealer's transactions for or with the customer (and not in hindsight).

[8] *See, e.g., Newton* v. *Merrill, Lynch, Pierce, Fenner & Smith, Inc.,* 135 F.3d 266, 270 (3d Cir.), *cert. denied,* 525 U.S. 811 (1998).

[9] *See id.*

[10] *See id. See also* Securities Exchange Act Release No. 37619A (Sept. 6, 1996), 61 FR 48290 (Sept. 12, 1996) (''Order Execution Obligations Adopting Release''). A Report of the Special Study of Securities Markets stated that, according to an NASD District Business Conduct Committee in a 1952 proceeding, ''[t]he integrity of the industry can be maintained only if the fundamental principle that a customer should at all times get the best available price which can reasonably be obtained for him is followed.'' *See* SEC, Report of the Special Study of Securities Markets, H.R. Doc. No. 95, 88th Cong., 1st Sess. Pt. II, 624 (1963) (''Special Study''), *available at https://www.sechistorical.org/collection/papers/1960/1963_SSMkt_Chapter_07_2.pdf.*

[11] The Commission also oversees investment advisers, which have a similar duty. As part of its duty of care, an investment adviser has a duty to seek best execution of a client's transactions where the adviser has responsibility to select broker-dealers to execute client trades, and the Commission previously has described the contours of that duty. *See* Commission Interpretation Regarding Standard of Conduct for Investment Advisers, Advisers Act Release No. 5248 (June 5, 2019), 84 FR 33669, 33674–75 (July 12, 2019). In addition, the Commission has brought a variety of enforcement actions against registered investment advisers in connection with their alleged failure to satisfy their duty to seek best execution. *See, e.g., In the Matter of Aventura Capital Management, LLC,* Investment Advisers Act Release No. 6103 (Sept. 6, 2022) (settled action); *In the Matter of Madison Avenue Securities, LLC,* Investment Advisers Act Release No. 6036 (May 31, 2022) (settled action).

[12] 15 U.S.C. 78k–1; 15 U.S.C. 78*o.*

[13] 15 U.S.C. 78k–1(a)(1)(C).

[14] 15 U.S.C. 78k–1(a)(2).

[15] *See* 15 U.S.C. 78c(a)(12) (defining the term ''exempted security'' to include, among other things, government securities and municipal securities, as defined in sections 3(a)(42) and 3(a)(29) of the Exchange Act, respectively).

[16] 15 U.S.C. 78*o*(c)(2)(A).

[17] *See* 15 U.S.C. 78*o*(c)(2)(B). *See also* 15 U.S.C. 78c(a)(29) (defining municipal securities).

[18] *See* 15 U.S.C. 78*o*(c)(2)(C). *See also* 15 U.S.C. 78c(a)(42) (defining government securities).

[19] 15 U.S.C. 78*o*(c)(2)(D).

[20] *See, e.g., In the Matter of Knight Securities L.P.,* Securities Exchange Act Release No. 50867 (Dec. 16, 2004) (settled action) (finding that the broker-dealer defrauded its institutional customers by failing to provide best execution in violation of section 15(c) of the Exchange Act).

[21] Securities Exchange Act Release No. 51808 (June 9, 2005), 70 FR 37496, 37538 (June 29, 2005) (''Regulation NMS Adopting Release''). *See also Geman* v. *SEC,* 334 F.3d 1183, 1186 (10th Cir. 2003) (''[T]he duty of best execution requires that a broker-dealer seek to obtain for its customer orders the most favorable terms reasonably available under the circumstances.'') (quoting *Newton, supra* note 8, 135 F.3d at 270); *Kurz* v. *Fidelity Management & Research Co.,* 556 F.3d 639, 640 (7th Cir. 2009) (describing the ''duty of best execution'' as ''getting the optimal combination of price, speed, and liquidity for a securities trade'').

[22] *See* Securities Exchange Act Release No. 43590 (Nov. 17, 2000), 65 FR 75414, 75418 (Dec. 1, 2000) (''Order Execution and Routing Practice Release'') (''The Commission strongly believes, however, that most investors care a great deal about the quality of prices at which their orders are executed, and that an opportunity for more vigorous competition

Commission has described a non-exhaustive list of factors that may be relevant to broker-dealers' best execution analysis. These factors include the size of the order, speed of execution, clearing costs, the trading characteristics of the security involved, the availability of accurate information affecting choices as to the most favorable market center for execution and the availability of technological aids to process such information, and the cost and difficulty associated with achieving an execution in a particular market center.[23]

Over the years, the Commission has stated the need for broker-dealers to continue to modernize their best execution practices. For example, the Commission has stated that broker-dealer practices for achieving best execution, including the data, technology, and types of markets they access, must constantly be updated as markets evolve.[24] In particular, the Commission has stated that the scope of the duty of best execution must evolve as changes occur in the market that give rise to improved executions for customer orders, including opportunities to trade at more advantageous prices.[25] As these changes occur, a broker-dealer's procedures for seeking best execution for its customer orders also must be modified to consider price opportunities that become reasonably available.[26] In doing so, broker-dealers must take into account price improvement opportunities [27] and whether different markets may be more suitable for different types of orders or particular securities.[28]

In addition, the Commission has expressed concerns regarding interpositioning and the duty of best execution. Interpositioning can occur when a broker-dealer places a third party between itself and the best market for executing a customer trade in a manner that results in a customer not receiving the best available market price.[29] Interpositioning can violate the broker-dealer's duty of best execution when it results in unnecessary transaction costs at the expense of the customer.[30]

The Commission has also discussed its views with respect to the application of best execution to different order types. With regard to the handling of limit orders, broker-dealers must take into account material differences in execution quality, such as the likelihood of execution among the various markets or market centers to which limit orders may be routed.[31] Broker-dealers are also subject to the duty of best execution when executing customer orders at the beginning of regular trading hours and should take into account alternative methods when considering how to execute these orders.[32]

Moreover, the Commission has recognized practical challenges associated with the handling of a large volume of orders. In particular, the Commission acknowledged in 1994 that although it may be impractical for a broker-dealer that handles a heavy volume of orders to make an individual determination regarding where to route each order it receives, the broker-dealer must use due diligence to seek the best execution possible given all facts and circumstances.[33] At that time, the Commission reasoned that, in such circumstances, the duty of best execution requires a broker-dealer to periodically assess the quality of competing markets to ensure that order flow is directed to the markets providing the most beneficial terms for its customer orders.[34]

The Commission has further identified the types of data needed by broker-dealers to fulfill their duty of best execution. For example, quotation information contained in the public quotation system must be considered in seeking best execution of customer orders.[35] In adopting Rules 605 and 606 of Regulation NMS,[36] the Commission recognized that the reports required of market centers would provide statistical disclosures regarding certain factors, such as execution price and speed of execution, relevant to a broker-dealer's order routing decision and that these public disclosures of execution quality should help broker-dealers fulfill their duty of best execution.[37] More recently, the Commission stated that broker-dealers should consider the availability of consolidated market data, including the various elements of data content and the timeliness, accuracy, and reliability of the data in developing and maintaining their best execution

among market participants to provide the best quality of execution will enhance the efficiency of the national market system.'').

[23] *See id.,* at 75422; Regulation NMS Adopting Release, *supra* note 21, 70 FR 37538.

[24] *See* Regulation NMS Adopting Release, *supra* note 21, 70 FR at 37538; Order Execution Obligations Adopting Release, *supra* note 10, 61 FR at 48322–23.

[25] *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323.

[26] *See id.;* Regulation NMS Adopting Release, *supra* note 21, 70 FR 37516 (stating that broker-dealers must examine their procedures for seeking best execution in light of market and technology changes and modify those practices if necessary to enable their customers to obtain the best reasonably available prices).

[27] *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323 n.357 (stating that price improvement means the difference between execution price and the best quotes prevailing in the market at the time the order arrived at the market or market maker, and that any evaluation of price improvement opportunities would have to consider not only the extent to which orders are executed at prices better than the prevailing quotes, but also the extent to which orders are executed at inferior prices).

[28] *See id.*

[29] *See Edward Sinclair, et al.,* Securities Exchange Act Release No. 9115, 1971 WL 120487 (Mar. 24, 1971) (Comm'n op.), *aff'd,* 444 F2d. 399 (2d Cir. 1971) (order clerk in OTC department of broker-dealer interposed a broker-dealer between his firm and best available market price in return for split of profits with the interposed broker); *H.C. Keister & Co., et al.,* Securities Exchange Act Release No. 7988, 1966 WL 84120 (Nov. 1, 1966) (Comm'n op.) (in exchange for payments, trader for a large broker-dealer interpositioned a small broker-dealer between its customers' orders and the best available market prices); *Synovus Securities, Inc.,* Securities Exchange Act Release No. 34313, 1994 WL 323096 (July 5, 1994) (settled order) (broker-dealer and its president placed customer orders with person who was able to promptly sell the bonds to or buy the bonds from other brokers at a profit and customers did not get the best market price). *See also SEC* v. *Ridenour,* 913 F.2d 515 (8th Cir. 1990) (a bond salesman violated the antifraud provisions based on his secret interpositioning of his personal trading account between his customers' securities transactions and the fair market price of the trades).

[30] *See Thomson & McKinnon,* Securities Exchange Act Release No. 8310, 1968 WL 87637 (May 8, 1968) (Comm'n op.) (a National Association of Securities Dealers (''NASD'') member firm interposed broker-dealers between itself and the best available market, and the added transaction cost was borne by its customers; the Commission found that, ''[i]n view of the obligation of a broker to obtain the most favorable price for his customer, where he interposes another broker-dealer between himself and a third broker-dealer, he *prima facie* has not met that obligation and he has the burden of showing that the customer's total cost or proceeds of the transaction is the most favorable obtainable under the circumstances'').

[31] *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323.

[32] *See* Order Execution and Routing Practice Release, *supra* note 22, 65 FR 75422 (recognizing that customer orders in listed securities were executed at one opening price in an auction whereas customer orders in Nasdaq securities at the time traded at the quoted bids and offers resulting in a liquidity premium for a large number of orders that effectively cross each other at a single point in time).

[33] *See* Securities Exchange Act Release No. 34902 (Oct. 27, 1994), FR Document 94–27109 (Nov. 2, 1994) (''Payment for Order Flow Release'').

[34] *See id. See also* Regulation NMS Adopting Release, *supra* note 21, 70 FR 37516.

[35] *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48324.

[36] *See* 17 CFR 242.605, 242.606.

[37] *See* Order Execution and Routing Practice Release, *supra* note 22, 65 FR 75413. The Commission further stated that the rules were designed to generate uniform, general purpose statistics that will prompt more vigorous competition on execution quality. The information provided by these reports is not, by itself, sufficient to support conclusions regarding the provision of best execution, and any such conclusions would require a more in-depth analysis of the broker-dealer's order routing practices than will be available from the disclosures required by the rules. *See id.* at 75420.

policies and procedures.[38] However, recognizing that best execution analysis varies depending upon the characteristics of customers and orders handled and the large array of potential scenarios, the Commission stated that it cannot specify the data elements that may be relevant to every specific situation.[39]

The Commission has also stated the importance of price improvement opportunities in the context of listed and over-the-counter (''OTC'') equities.[40] Simply routing customer order flow for automated executions or internalizing customer orders on an automated basis at the best bid or offer would not necessarily satisfy a broker-dealer's duty of best execution for small orders in listed and OTC equities.[41] Rather, broker-dealers handling small orders in listed and OTC equities should look for price improvement opportunities when executing these orders.[42] And the expectation of price improvement for customer orders is particularly important when broker-dealers receive payments in return for routing their customer orders.[43]

C. FINRA and MSRB Best Execution Rules

FINRA, an SRO,[44] has a best execution rule (Rule 5310) and has issued interpretive regulatory notices concerning its members' duty to provide best execution to customer orders.[45] FINRA Rule 5310 states that, ''[i]n any transaction for or with a customer or customer of another broker-dealer, a member and persons associated with a member must use reasonable diligence to ascertain the best market for the subject security and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.'' Over the years, FINRA and its predecessor, the NASD, have modified the rule and issued interpretations to account for changes in market practices and market structure, and to account for new technologies and new data available to broker-dealers that handle and execute customer orders.[46]

Modeled on FINRA Rule 5310,[47] MSRB Rule G–18 is the best execution rule for transactions in municipal securities [48] and similarly requires broker-dealers to ''use reasonable diligence to ascertain the best market for the subject security and to buy or sell in that market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.''

The Commission describes the elements in FINRA Rule 5310 and MSRB Rule G–18, as well as the differences between those rules and the proposed rules, in section IV below.

III. Existing Order Handling Practices and Overview of Proposed Regulation Best Execution

A. Existing Order Handling Practices

1. General Broker-Dealer Practices

In the past few decades, there has been a proliferation of markets and increasingly accessible prices across asset classes. For example, broker-dealers have numerous execution venues from which to choose in the NMS stock market. These include 16 registered equities exchanges, an increase from 11 registered equities exchanges approximately 12 years ago.[49] In the options markets, the number of options exchanges continues to increase, with 6 new options exchanges in the last 10 years and 16 registered options exchanges operating today. In the corporate and municipal bond markets and government securities markets, traditional OTC voice trading protocols and customer liquidity provision by principal trading desks of broker-dealers are being supplemented by other methods of execution that are both electronic and multilateral in nature. As of October 31, 2022, there are 21 corporate bond alternative trading systems (''ATSs''), 7 municipal securities ATSs, and 14 government securities ATSs, each operating pursuant to a Form ATS currently on file with the Commission.

The Commission believes that customers would benefit from broker-dealers' robust considerations of liquidity sources and price improvement opportunities, which may provide customers with the most favorable prices. In the NMS stock market, for example, broker-dealers that primarily service the accounts of individual investors (''retail broker-dealers'') route more than 90% of their customers' marketable orders to a small group of off-exchange dealers, known as wholesalers,[50] and the Commission

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[38] *See* Securities Exchange Act Release No. 90610 (Dec. 9, 2020), 86 FR 18596, 18605–06 (Apr. 9, 2021) (''MDI Adopting Release''). The Commission stated that it was not establishing minimum data elements needed to achieve best execution nor mandating consumption of the expanded data content. The Commission also acknowledged that different market participants and different trading applications have different market data needs. *See id.* (citing Securities Exchange Act Release No. 88216 (Feb. 14, 2020), 85 FR 16726, 16734, 16755 (Mar. 24, 2020) (''Market Data Infrastructure Proposing Release'')).

[39] *See* MDI Adopting Release, *supra* note 38, 86 FR at 18606.

[40] *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR at 48323. *See also id.* at 48323 n.357.

[41] *See id.* at 48323.

[42] *See id.*

[43] *See* Payment for Order Flow Release, *supra* note 33, 59 FR at 55008. *See also* 17 CFR 240.10b–10(d)(8) (defining ''payment for order flow'' as any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration to a broker or dealer from any broker or dealer, national securities exchange, registered securities association, or exchange member in return for the routing of customer orders by such broker or dealer to any broker or dealer, national securities exchange, registered securities association, or exchange member for execution, including but not limited to: research, clearance, custody, products or services; reciprocal agreements for the provision of order flow; adjustment of a broker or dealer's unfavorable trading errors; offers to participate as underwriter in public offerings; stock loans or shared interest accrued thereon; discounts, rebates, or any other reductions of or credits against any fee to, or expense or other financial obligation of, the broker or dealer routing a customer order that exceeds that fee, expense or financial obligation). Retail broker-dealers receiving cash payments from wholesale market makers in return for routing their customers' orders to the market maker for execution is a common example of payment for order flow. *See* Memorandum to the SEC Equity Market Structure Advisory Committee from the SEC Division of Trading and Markets, Certain Issues Affecting Customers in the Current Equity Market Structure 5–6 (Jan. 26, 2016). Staff reports, Investor Bulletins, and other staff documents (including those cited herein) represent the views of Commission staff and are not a rule, regulation, or statement of the Commission. The Commission has neither approved nor disapproved the content of these staff documents and, like all staff statements, they have no legal force or effect, do not alter or amend applicable law, and create no new or additional obligations for any person.

[44] While the MSRB is an SRO for only certain purposes of the Exchange Act, *see* Exchange Act section 3(a)(26), 15 U.S.C. 78c(a)(26), MSRB rules are rules of an SRO, *see* Exchange Act section 3(a)(28), 15 U.S.C. 78c(a)(28). FINRA and the MSRB are both referred to herein as SROs.

[45] For ease of discussion and consistency, this release refers to FINRA members as broker-dealers when discussing the FINRA rules that are applicable to FINRA members.

[46] *See, e.g.,* FINRA Regulatory Notices 21–23 (June 23, 2021), 21–12 (Mar. 18, 2021), 18–29 (Sept. 12, 2018), 15–46 (Nov. 2015), and 09–58 (Oct. 2009); NASD Notices to Members 01–22 (Apr. 2001), 00–42 (June 2000), and 99–12 (Feb. 1999).

[47] In proposing Rule G–18, the MSRB stated that a best execution rule should be generally harmonized with FINRA Rule 5310 for purposes of regulatory efficiency, but appropriately tailored to the characteristics of the municipal securities markets. *See* Securities Exchange Act Release No. 73764 (Dec. 5, 2014), 79 FR 73658 (Dec. 11, 2014) (''MSRB Best Execution Approval Order''). While proposed Regulation Best Execution does not include different requirements for markets with different characteristics, proposed Regulation Best Execution is designed to enable broker-dealers to tailor their compliance based on the different characteristics of the markets.

[48] MSRB Rule G–18 applies to brokers, dealers, and municipal securities dealers. For ease of discussion and consistency, when discussing the MSRB rule, the release refers to these entities collectively as broker-dealers. Furthermore, the term ''municipal securities'' throughout this release is referred to as either ''municipal bonds'' or ''municipal securities.''

[49] *See* Securities Exchange Act Release No. 61358 (Jan. 14, 2010), 75 FR 3594 (Jan. 21, 2010) (''Concept Release on Equity Market Structure'').

[50] *See* Table 8, *infra* section V.B.3.(a).i.d..

believes that customers would benefit from considerations by these retail broker-dealers of whether other markets may provide customer orders, or a portion of those orders, with potentially better executions than wholesalers.

For NMS stock orders that receive price improvement from wholesalers, approximately 18.6% of those shares receive an amount of price improvement of less than 0.1 cent per share when executed by the wholesaler.[51] Moreover, for stocks priced higher than $30, between approximately 46–63% of shares executed by wholesalers received price improvement that was less favorable than the midpoint of the prevailing national best bid and offer (''NBBO'') at the time the wholesaler received the order.[52] For stocks priced higher than $30, it appears that for between 60–93% of the shares executed by the wholesaler in a principal capacity at a price less favorable than the NBBO midpoint there was midpoint liquidity that was available on exchanges and ATSs at the time the wholesaler executed the order.[53] Retail broker-dealers often do not route customer orders to execute against midpoint liquidity that may be present on other markets prior to routing for execution by wholesalers.[54] While a retail broker-dealer's decision to route orders to a wholesaler that provides price improvement may indeed be consistent with its duty of best execution in many cases,[55] the Commission believes that customers would benefit from robust considerations by retail broker-dealers regarding, for example, the possibility of available liquidity priced at the midpoint of the NBBO at other markets.

Similar considerations are present with the order handling and routing practices of wholesalers in the NMS stock market.[56] While the prices that wholesalers provide to a customer may often justify the determination by the wholesaler that it is the best market for the customer order, the specific amount of price improvement for orders that are executed internally is largely within the discretion of the wholesaler. The wholesaler typically first determines whether or not it desires to transact with a particular customer order in a principal capacity. Should it choose to do so, the wholesaler determines what amount of price improvement it will provide for the order, and the data described above shows that wholesalers often do not execute customer orders at the NBBO midpoint. When the wholesaler has determined that it does not want to transact with a customer order in a principal capacity, the wholesaler may attempt to route such order to other markets.

As discussed in section III.A.2, the Commission believes that customers would benefit from robust considerations by broker-dealers of liquidity sources and price improvement opportunities in the options market, particularly with respect to transactions that involve order handling conflicts of interest.

The corporate and municipal bond markets and the government securities markets are different from the NMS stock market in substantial ways that can impact how a broker-dealer fulfills its duty of best execution. For example, market participants do not have the same level of price transparency in these markets as they do in the NMS stock market. While the corporate and municipal bond markets disseminate post-trade price information, this information often is not available immediately upon execution of a bond transaction as FINRA and MSRB rules permit a trade to be reported within 15 minutes of the transaction.[57] In the government securities market, there is no real-time public dissemination of post-trade price information. Despite the increase in electronic trading and the use of ATSs, these markets are decentralized with most trading occurring through broker-dealers that make markets in securities they have underwritten or hold in inventory.[58] There is virtually no exchange trading of these bonds.[59] Generally, trades occur both by voice and through the use of electronic systems that provide trading facilities and communication protocols with varying degrees of execution functionality and access to pre-trade pricing information.[60] However, market participants in the corporate and municipal bond markets and the government securities markets are increasingly utilizing technology to trade these securities, and electronic trading is growing.[61] The lower level of price transparency in, and the decentralized nature of, the corporate and municipal bond and government securities markets make it more difficult for customers to evaluate their transactions and highlights the importance of robust best execution considerations by broker-dealers in these markets.

Commission analysis shows significant differences in the variability of execution prices among interdealer trades[62] compared to the variability of execution prices among customer trades in the same bonds on the same trading day. For example, in the corporate bond market, the dispersion, or standard deviation, of customer execution prices for transactions under $100,000 was almost 3 times more than that of interdealer execution prices.[63]

[51] *See* Table 8, *infra* section V.B.3.(a).i.d.

[52] The percentage ranges are based on stock prices, the liquidity of the stock, whether or not the stock was in the S&P 500 Index, and whether or not the stock is an exchange-traded fund (''ETF''). *See* Table 8, *infra* section V.B.3.(a).i.d (analysis showing that depending on the type of NMS stock, its price, and liquidity, between 46% and 73% of retail marketable order shares are internalized by a wholesaler at a price worse than the NBBO midpoint).

[53] *See* Table 8, *infra* section V.B.3.(a).i.d (analysis showing that, depending on the type of NMS stock, its price, and its liquidity, between 40% and 93% of the shares in marketable retail orders that wholesalers internalize at prices less favorable than the NBBO midpoint had midpoint liquidity available at a better price on an exchange or ATS).

[54] *See* Table 3, *infra* section V.B.3.(a).i.d (according to Table 3, retail brokers appear to outsource handling of over 87% of customer orders and over 90% of customer marketable orders to wholesalers).

[55] For example, wholesalers appear to provide customers with executions in NMS stocks at the midpoint or better (based on the NBBO at the time the wholesaler received the order) for almost 46% of the customer orders executed by the wholesaler in a principal capacity. *See* Table 7, *infra* section V.B.3.(a).i.d . *But see supra* note 53 and accompanying text (describing that for stocks priced higher than $30, it appears that between 60–93% of the shares executed by the wholesaler in a principal capacity at a price less favorable than the NBBO midpoint had liquidity available at the NBBO midpoint on an exchange or ATS).

[56] Wholesalers owe a duty of best execution to the customers of retail broker-dealers under FINRA Rule 5310. *See* FINRA Rule 5310(a) (applying its best execution requirements to any transaction for or with a customer or a customer of another broker-dealer).

[57] However, both FINRA and the MSRB recently solicited comment about shortening the applicable transaction reporting window to one minute. *See* FINRA Regulatory Notice 22–17 (Aug. 2, 2022); MSRB Notice 2022–07 (Aug. 2, 2022).

[58] *See, e.g.,* Maureen O'Hara & Xing (Alex) Zhou, *Anatomy of a Liquidity Crisis: Corporate Bonds in the COVID–19 Crisis,* 142 J. Fin. Econ. 46 (2021).

[59] A small percentage of corporate bonds are exchange-traded on trading systems such as NYSE Bonds and the Nasdaq Bond Exchange. *See generally, https://www.nyse.com/markets/bonds* and *https://www.nasdaq.com/solutions/nasdaq-bond-exchange.* Trading volume in exchange-traded bonds was reported to be around $19 billion as of January 2020. *See* Securities Exchange Act Release No. 94062 (Jan. 26, 2022), 87 FR 15496 (Mar. 18, 2022) (''Government Securities ATS Proposing Release''), at 15604 n.863 (citing Eric Uhlfelder, A Forgotten Investment Worth Considering: Exchange-Traded Bonds, Wall St. J. (Jan. 5, 2020), *https://www.wsj.com/articles/a-forgotten-investment-worth-considering-exchange-traded-bonds-11578279781*).

[60] *See* Government Securities ATS Proposing Release, *supra* note 59, 87 FR 15606.

[61] For example, according to one industry group, approximately 32% of investment-grade and 23% of high-yield corporate bond daily dollar volumes are executed electronically. *See id.,* at 15606 n.890.

[62] It is well-established that interdealer prices can reflect the prevailing market value for a bond. *See, e.g.,* FINRA Rule 2121.

[63] *See* Table 17, *infra* section V.B.3.b.i.

Similarly, in the municipal bond market, the dispersion of customer execution prices for transactions under $100,000 was more than 4 times greater than that of interdealer trades.[64] And in the government securities market, the dispersion of customer execution prices for transactions under $100,000 was almost 40 percent greater than that of interdealer trades.[65] The variability of prices for customer transactions suggests that some customers may be paying or receiving worse prices than other customers in the same security on the same day because their broker-dealers may not be evaluating as many markets for those transactions as other broker-dealers. While it is possible that some of the variability of prices paid by customers may be attributable to variations in broker-dealer compensation as reflected in the markups or markdowns charged by broker-dealers when they transact with customers in a principal capacity, the Commission does not believe that this is the only reason for customer price dispersion in the same bonds on the same day.[66] For example, Commission analysis shows that in the corporate bond market, for trades that were reported by the broker-dealer as not involving any collection of commissions, markups or markdowns, the dispersion of customer execution prices was still 65% greater than that of interdealer trades.[67] Because the variability in the customer execution prices suggests that some broker-dealers may not be exercising as much diligence in identifying the best market for customer orders, the Commission believes that customers would benefit from consistently robust best execution considerations by broker-dealers, including considerations of the various markets that may provide their customers with the most favorable prices.

2. Order Handling Conflicts of Interest

The Commission also believes that execution of retail customer orders by broker-dealers that have order handling conflicts of interest warrants heightened attention by those broker-dealers. These order handling conflicts of interest include payment for order flow, principal trading, and routing customer orders to affiliates.

Payment for order flow[68] creates a conflict of interest because it creates an incentive for a broker-dealer to send customer orders to a market, such as a wholesaler or an exchange, which agrees to pay the broker-dealer for sending its customer orders.[69] Payment for order flow may harm customers because the broker-dealer may be making order handling decisions to benefit itself at the expense of its customer.[70] Because payment for order flow is a form of economic inducement that has the potential to influence the way a broker-dealer handles customer orders, the Commission has stated that such arrangements must be considered as part of a broker-dealer's best execution assessment.[71]

While the Commission has stated that a broker-dealer's receipt of payment for order flow is not a violation of its duty of best execution as long as it periodically assesses the quality of the markets to which it routes order flow, a broker-dealer must not allow payment for order flow to interfere with its efforts to obtain best execution.[72] Likewise, FINRA has stated that broker-dealers may not negotiate the terms of order routing arrangements for customer orders in a manner that reduces the price improvement opportunities that, absent payment for order flow, otherwise would be available to those customer orders.[73] FINRA has also stated that obtaining price improvement is a heightened consideration when a broker-dealer receives payment for order flow and it is especially important to determine that customers are receiving the best price and execution quality opportunities notwithstanding the payment for order flow.[74] Accordingly, the Commission believes that the receipt of payment for customer order flow continues to warrant heightened attention by broker-dealers.[75]

A significant portion of retail orders in the NMS stock and listed options market is routed in return for payment

[64] *See* Table 17, *infra* section V.B.3.b.i and V.B.3.b.ii.

[65] *See* Table 17, *infra* section V.B.31.b.i and V.B.3.b.iii .

[66] *See, e.g.,* John M. Griffin, Nicholas Hirschey, and Samuel Kruger, *Do Municipal Bond Dealers Give their Customers 'Fair and Reasonable' Pricing?* J. Fin., Forthcoming (Aug. 4, 2022) (''Instead of delivering uniform pricing, dealer transactions with customers take place at highly variable markups relative to both reoffering prices and dealer costs. On the same day, customers frequently buy the same bond at different prices from different dealers, and prices even vary across different customers purchasing the same bond from the same dealer on the same day. These price differences are not explained by trade characteristics or by dealer costs. Some dealers provide customers with low and consistent markups, but this does not appear to be the industry norm. Pricing at quarter or eighth price or yield increments is common and is seemingly a method to deliver higher markups.'').

[67] *See infra* note 478.

[68] When discussing payment for order flow in the context of the proposed rules, the Commission uses the term as defined in Exchange Act Rule 10b–10(d)(8). This definition includes payment for order flow from wholesalers to retail broker-dealers, as well as exchange rebates that are paid to broker-dealers in return for sending orders to the exchange. *See* 17 CFR 240.10b–10 (defining payment for order flow and requiring a broker-dealer to disclose to the customer whether payment for order flow is received by the broker-dealer for the customer transaction and the fact that the source and nature of the compensation received in connection with the particular transaction will be furnished upon written request of the customer).

[69] *See, e.g.,* Payment for Order Flow Release, *supra* note 33, FR Doc No: 94–27109; FINRA Regulatory Notice 21–23; *Robinhood Financial, LLC,* Letter of Acceptance, Waiver and Consent (FINRA Case No. 2017056224001) (Dec. 2019) (''Robinhood FINRA'') (describing violations of FINRA's best execution rule where the firm routed its customers' orders to four broker-dealers that all paid for order flow and ''did not exercise reasonable diligence to ascertain whether these four broker-dealers provided the best market for the subject securities to ensure its customers received the best execution quality from these as compared to other execution venues''); *In the Matter of Robinhood Financial, LLC,* Securities Exchange Act Release No. 90694 (Dec. 17, 2020) (settled action) (''Robinhood SEC''). Broker-dealers that accept payment for order flow must disclose certain information concerning the payments publicly. *See* 17 CFR 242.606(a)(1)(iv) (requiring a description of any arrangement for payment for order flow and any profit-sharing relationship and a description of any terms of such arrangements, written or oral, that may influence a broker-dealer's order routing decision).

[70] *See, e.g.,* Robinhood FINRA, *supra* note 69; Robinhood SEC, *supra* note 69 (finding that the retail broker-dealer explicitly offered to accept less price improvement for its customers than what the wholesalers were offering, in exchange for receiving a higher rate of payment for order flow for itself).

[71] *See* Payment for Order Flow Release, *supra* note 33, FR Doc No: 94–27109.

[72] *See id.*

[73] *See* FINRA Regulatory Notice 21–23 (June 23, 2021).

[74] *See id.,* at 3–4. FINRA has also stated that ''inducements such as payment for order flow and internalization may not be taken into account in analyzing market quality.'' *See id.* at 4.

[75] Commission staff, in a recent report, stated that wholesaler payment for order flow to retail broker-dealers is ''individually negotiated prior to trading between the retail broker-dealer and the [wholesaler], and the rates and amounts can vary substantially depending on the broker-dealer and its customer order flow. [Wholesalers] may give the retail broker the choice of how to allocate those funds—either by applying some or all of that payment to improve the prices of its customers' orders or by allowing the retail broker-dealer to keep part of the payment for itself.'' Commission staff stated that these payments can create a conflict of interest for the retail broker-dealer. *See* Staff Report on Equity and Options Market Structure Conditions in Early 2021 (Oct. 14, 2021), *available at https://www.sec.gov/files/staff-report-equity-options-market-struction-conditions-early-2021.pdf.* Additionally, Rule 606(a) of Regulation NMS requires broker-dealers to make publicly available on a quarterly basis certain aggregated order routing disclosures for held orders that provide, among other things, detailed disclosure of payments received from or paid to certain trading centers, as well as a discussion of the material aspects of broker-dealers' relationships with those trading centers, including a description of any arrangements for payment for order flow and any profit-sharing relationships and a description of any terms of such arrangements, written or oral, that may influence broker-dealers' order routing decisions. *See* 17 CFR 242.606(a).

for order flow. In the first quarter of 2022, wholesalers paid more than $796 million dollars to retail broker-dealers for order flow in NMS stocks and listed options.[76] Listed options represented approximately 70% of the total payment for order flow with more than $561 million paid to retail broker-dealers by wholesalers.[77] Payment for order flow creates an incentive for the retail broker-dealer to adopt order handling and execution practices that may not result in best execution for their customers.[78] For example, as discussed more fully in section V, analysis in the NMS stock market appears to show that payment for order flow can harm customer execution quality. More specifically, the orders of broker-dealers that receive more payment for order flow from wholesalers are internalized by wholesalers with (1) higher effective spreads, (2) higher execution quality ratios, and (3) slightly smaller price improvement when compared with the orders of broker-dealers that do not receive payment for order flow and that are internalized by wholesalers.[79] In the context of exchange rebates in the options market, one study finds that some brokers seemingly route non-marketable orders to exchanges that offer large liquidity rebates to maximize the value of order flow and suggests that broker-dealers can enhance non-marketable limit order execution quality by routing those orders to exchanges that do not offer liquidity rebates to non-marketable limit orders.[80]

The Commission has also acknowledged that the opportunity for a broker-dealer to trade with a customer order as principal is an order routing inducement that could interfere with the broker-dealer's duty of best execution.[81] Internalizing customer orders may create a conflict of interest because broker-dealers do so for the opportunity to capture the spread,[82] and may thereby provide broker-dealers an incentive to trade with orders as principal. In the NMS stock market and listed options market, principal trading with retail customers is a common practice. As stated above in section III.A.1, a significant portion of retail customer orders are routed to wholesalers for handling and execution. Once the wholesaler receives retail customer orders for handling and execution, it often trades with those customer orders as principal. Wholesalers internalize over 90% of the dollar value of the marketable order flow retail broker-dealers send them.[83] The Commission believes that the incentive to trade in a principal capacity at a price most advantageous for the wholesaler itself rather than the customer warrants heightened attention by the wholesaler.

Principal trading in the listed options market is also common. Options exchange trading and priority rules, which must be filed with the Commission under section 19(b) of the Exchange Act[84] and Rule 19b–4 thereunder,[85] provide wholesalers with a number of methods to internalize customer orders. For example, the wholesaler or an affiliate is often either a specialist or directed market maker on one or more of the options exchanges. Exchange rules typically provide the specialist or directed market maker with the right to trade with a certain portion of incoming order flow regardless of whether other market participants may also be quoting at the same price as the specialist or directed market maker.[86] These ''allocation guarantees'' effectively allow the wholesaler to internalize a minimum amount of the customer orders by routing the customer orders to exchanges where the wholesaler or its affiliate is designated as a specialist or directed market maker. Similarly, many options exchanges provide small order guarantees that permit the specialist (which potentially can be an affiliate of the wholesaler) to trade with 100% of all orders sent to the exchange for five contracts or less.[87] Moreover, options exchanges' two-sided auctions (''price improvement auctions'') allow a wholesaler to internalize a customer order by submitting a proposed transaction between the wholesaler and a customer at a specified price.[88] Other market participants are permitted to compete with the wholesaler for the opportunity to trade with the customer order. These price improvement auctions, however, generally afford the wholesaler with certain advantages over other market participants that may be interested in competing for the right to trade with a customer order.[89] The Commission estimates that wholesalers in the listed options market generally internalize approximately 31% of the executed

[76] *See* Table 12, *infra* section V.B.3.(a).iii.a.

[77] *See id. See also* Thomas Ernst & Chester S. Spatt, *Payment for Order Flow and Asset Choice,* 40 (NBER Working Paper No. w29883, May 2022), *https://ssrn.com/abstract=4068065* (retrieved from Elsevier database) (finding that approximately 65% of all payment for order flow is attributable to the options market). In addition to payment for order flow paid by wholesalers to retail broker-dealers, some exchanges administer ''marketing fee'' programs pursuant to rules filed with the Commission, that result in payment for order flow directed by exchange market makers to order flow providers, which can include retail broker-dealers. *See, e.g.,* Nasdaq Phlx LLC Options 7, Section 4; Miami International Securities Exchange LLC Fee Schedule Section (1)(a)(xi); NYSE American LLC Options Fee Schedule Section I.A. Under these programs, the exchanges assess fees on market makers who then typically direct the disbursement of some or all of the marketing fees to selected market participants in return for retail order flow directed to the market makers from the broker-dealer recipients of the marketing fees. If the directed market maker is quoting at the NBBO when the order is received, exchange rules typically guarantee the market maker a certain allocation of the incoming directed order, typically determined by the number of other market makers quoting at the NBBO at the time the order is received. *See, e.g.,* PHLX Options 3, Section 10(a)(1)(C) (describing the directed market maker priority).

[78] The Commission and FINRA settled claims against a retail broker-dealer for, among other things, failing to provide best execution to customer orders for which it received payment for order flow. *See supra* note 69. The inherent trade-off between payment for order flow for a retail broker-dealer and price improvement for their customers was discussed in the Commission's settled enforcement action against the retail broker. *See* Robinhood SEC, *supra* note 69. The Commission found that the retail broker-dealer had negotiated with a number of wholesalers about potentially routing customer orders to those firms and that, in the course of those negotiations, certain of the wholesalers told the retail broker-dealer that there was a trade-off between payment for order flow on the one hand and price improvement on the other. *See id.* The Commission also found that the retail broker-dealer explicitly offered to accept less price improvement for its customers than what the wholesalers were offering, in exchange for receiving a higher rate of payment for order flow for itself. *See id.* Subsequently, the retail broker-dealer conducted a more extensive internal analysis, which showed that its execution quality and price improvement metrics were substantially worse than other retail broker-dealers in many respects, including the percentage of orders that received price improvement and the amount of price improvement, measured on a per order, per share, and per dollar traded basis. *See id.*

[79] *See* Table 16, *infra* section V.B.3.b..iii.b.

[80] *See* Robert Battalio et al., *Do (Should) Brokers Route Limit Orders to Options Exchanges That Purchase Order Flow?,* 56 J. Fin. & Quantitative Analysis 183 (2020).

[81] *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323.

[82] *See* Internalized/Affiliate Practices, Payment for Order Flow and Order Routing Practices, Securities Exchange Act Release No. 34903 (Oct. 27, 1994), 59 FR 55014, 55014 (Nov. 2, 1994) (recognizing several commenters who described this conflict of interest).

[83] *See* Table 7, *infra* Section V.B.3.a.i.d.

[84] 15 U.S.C. 78s(b).

[85] 17 CFR 240.19b–4.

[86] *See, e.g.,* BOX Exchange LLC Rule 7135(c); Miami International Securities Exchange LLC Rule 514(g)–(i); Nasdaq Phlx LLC Options 3, Section 10(a)(1); Nasdaq ISE, LLC Options 3, Section 10(c)(1); NYSE American LLC Rule 964NY(b)(2).

[87] *See, e.g.,* Nasdaq ISE, LLC Options 3, Section 10(c)(1)(D); Nasdaq Phlx LLC Options 3, Section 10(a)(1)(D); BOX Exchange LLC Rule 7135(c)(2)(iii); NYSE American LLC Rule 964NY(b)(2)(C)(iv).

[88] Customer orders that are submitted into price improvement auctions are guaranteed complete execution at a minimum execution price and are electronically auctioned for price improvement. *See, e.g.,* Nasdaq ISE, LLC Options 3, Section 13; Nasdaq Phlx LLC Options 3, Section 13; Miami International Securities Exchange LLC Rule 515A; BOX Exchange LLC Rule 7150; NYSE American LLC Rule 971.1NY; Cboe Exchange, Inc. Rule 5.37.

[89] *See infra* notes 137–140 and accompanying text.

orders routed to option exchanges, with approximately 73% of orders routed to price improvement auctions being internalized and approximately 17% of orders routed to the limit order book being internalized.[90] The Commission believes that the incentive to trade in a principal capacity at a price most advantageous for the wholesaler itself rather than the customer warrants heightened attention by the wholesaler.

Finally, the practice of routing customer orders to affiliates raises a conflict of interest for the broker-dealer. When a broker-dealer chooses to route customer orders to an affiliate, it may do so because of financial incentives, and these incentives can vary depending on the business model or business lines of the broker-dealer. For example, broker-dealers may have conflicts of interest to the extent that they operate or are affiliated with an entity that operates a trading venue, such as an ATS, because the broker-dealer or its affiliate receives financial benefits when the broker-dealer operator chooses to route customer orders to its ATS for execution (*e.g.,* by routing an order to its ATS, a broker-dealer operator that does not pass through trading fees to its customers may be able to avoid paying fees that it otherwise would have to pay when routing and executing orders on unaffiliated trading venues).[91] A broker-dealer operator also benefits by routing to its ATS because it creates higher volume on the ATS, which can attract additional order flow to the ATS, ultimately increasing the ATS' market share and associated revenue.[92] Another example of affiliate routing conflicts of interest relates to a financial services firm that may have an organizational structure that separates its retail facing business from its order handling and execution business. The retail broker-dealer that receives a customer order may have a financial incentive to send the customer order to its affiliated executing broker-dealer because the affiliated executing broker-dealer may wish to trade as principal with the customer order. While an affiliated executing broker-dealer could provide best execution for customer orders, the incentive to send customer orders to an affiliate may influence the broker-dealer to route the customer order in a manner that maximizes the broker-dealer's interest, rather than route the customer order to another market consistent with its duty of best execution.[93] Accordingly, the Commission believes that the impact of this practice on customer orders continues to warrant heightened attention by broker-dealers.

3. Crypto Asset Securities

As discussed in section II.A above, a broker-dealer has a legal duty to seek best execution of customer orders in securities. Proposed Regulation Best Execution would apply to all securities, including any digital asset that is a security or a government security under the Federal securities laws. The term ''digital asset'' refers to an asset that is issued and/or transferred using distributed ledger or blockchain technology (''distributed ledger technology''), including, but not limited to, so-called ''virtual currencies,'' ''coins,'' and ''tokens.'' [94]

Unlike securities that are not issued or transferred using distributed ledger technology, the Commission has limited information about the order handling and best execution practices of broker-dealers that engage in transactions for or with customers in crypto asset securities.[95] This information limitation is, in part, due to the fact that only a small portion of crypto asset security trading activity is occurring within entities that are registered with the Commission and any of the SROs. For example, there are currently no special purpose broker-dealers authorized to maintain custody of crypto asset securities.[96] Similarly, only a limited

[90] *See infra* Section V.B.3.a.ii.

[91] *See* Amber Anand et al., *Institutional Order Handling and Broker-Affiliated Trading Venues,* 34 Rev. Fin. Stud. 3364, 3366 (July 2021) (''Anand'') (recognizing the conflict between obtaining the best outcome for the customer and maximizing the broker-dealer's revenue due to avoiding a fee that is typically borne by the broker-dealer). This study found that ''institutional brokers who route more orders to affiliated [ATSs] are associated with lower execution quality (*i.e.,* lower fill rates and higher implementation shortfall costs).'' *Id. See also* Regulation of NMS Stock Alternative Trading Systems, Securities Exchange Act Release No. 83663 (July 18, 2018), 83 FR 38768, 38775, 38834 (Aug. 7, 2018).

[92] *See* Anand, supra note 91, at 3366.

[93] Recently, FINRA has entered into settlements with broker-dealers for best execution violations of FINRA rules involving affiliated routing practices. In one case, FINRA found that the broker-dealer ''failed to consider whether alternate routing arrangements could have provided price improvement opportunities and better speed of execution'' for customer orders despite its consideration of certain execution quality factors for orders routed to an affiliated ATS. FINRA also stated that ''although [the firm] reviewed fill rates in [its affiliated ATS] during the relevant period, the firm failed to consider alternate routing arrangements when the firm showed that fill rates in [its affiliated ATS] were inferior to fill rates at some competing execution venues.'' FINRA found that this practice violated FINRA's best execution rule. *See* Barclays Capital Inc., Letter of Acceptance, Waiver, and Consent No. 2014041808601 (Oct. 4, 2022), *available at https://www.finra.org/sites/default/files/2022-10/Barclays-Capital-AWC-100522.pdf.* In another case, FINRA found that the broker-dealer routinely routed institutional customer orders to its affiliated ATS prior to routing such orders to exchanges or to other ATSs. According to FINRA's findings, the broker-dealer routed to its affiliated ATS despite having evidence that (1) orders that were sent to the affiliated ATS had lower fill rates as compared to orders sent directly to exchanges, and (2) other ATSs consistently ranked higher in the firm's rankings for execution quality than the affiliated ATS. FINRA found that this affiliated routing practice violated FINRA's best execution rule 5310. *See* Deutsche Bank Securities Inc., Letter of Acceptance, Waiver, and Consent No. 2014041813501 (Mar. 7, 2022), *available at https://www.finra.org/sites/default/files/2022-03/deutsche-bank-awc-030722.pdf.*

[94] *See* Custody of Digital Asset Securities by Special Purpose Broker-Dealers, Securities Exchange Act Release No. 90788 (Dec. 23, 2020), 86 FR 11627, 11627 n.1 (Feb. 26, 2021) (''Crypto Asset Securities Custody Release''). A digital asset may or may not meet the definition of a ''security'' under the Federal securities laws. *See, e.g.,* Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, Securities Exchange Act Release No. 81207 (July 25, 2017) (''DAO 21(a) Report''), *available at https://www.sec.gov/litigation/investreport/34-81207.pdf. See also SEC* v. *W.J. Howey Co.,* 328 U.S. 293 (1946). To the extent digital assets rely on cryptographic protocols, these types of assets also are commonly referred to as ''crypto assets'' and ''digital asset securities'' can be referred to as ''crypto asset securities.'' For purposes of this release, the Commission does not distinguish between the terms ''digital asset securities'' and ''crypto asset securities.''

[95] *See, e.g.,* Fin. Stability Oversight Council, Report on Digital Asset Financial Stability Risks and Regulation 119 (2022) (''FSOC Report''), *available at https://home.treasury.gov/system/files/261/FSOC-Digital-Assets-Report-2022.pdf* (''The crypto-asset ecosystem is characterized by opacity that creates challenges for the assessment of financial stability risks.''); U.S. Dep't of the Treasury, Crypto-Assets: Implications for Consumers, Investors, and Businesses 12 (Sept. 2022) (''Crypto-Assets Treasury Report''), *available at https://home.treasury.gov/system/files/136/CryptoAsset_EO5.pdf* (finding that data pertaining to ''off-chain activity'' is limited and subject to voluntary disclosure by trading platforms and protocols, with protocols either not complying with or not subject to obligations ''to report accurate trade information periodically to regulators or to ensure the quality, consistency, and reliability of their public trade data''); Fin. Stability Bd., Assessment of Risks to Financial Stability from Crypto-assets 18–19 (Feb. 16, 2022) (''FSB Report''), *available at https://www.fsb.org/wp-content/uploads/P160222.pdf* (finding that the difficulty in aggregating and analyzing available data in the digital asset space ''limits the amount of insight that can be gained with regard to the [digital asset] market structure and functioning,'' including who the market participants are and where the market's holdings are concentrated, which, among other things, limits regulators' ability to inform policy and supervision); Raphael Auer et al., *Banking in the Shadow of Bitcoin? The Institutional Adoption of Cryptocurrencies* 4, 9 (Bank for Int'l Settlements, Working Paper No. 1013, May 2022), *available at https://www.bis.org/publ/work1013.pdf* (stating that data gaps, which can be caused by limited disclosure requirements, risk undermining the ability for holistic oversight and regulation of cryptocurrencies); Int'l Monetary Fund, The Crypto Ecosystem and Financial Stability Challenges, in Global Financial Stability Report 41, 47 (Oct. 2021), *available at https://www.imf.org/-/media/Files/Publications/GFSR/2021/October/English/ch2.ashx* (finding that digital asset service providers provide limited, fragmented, and, in some cases, unreliable data, as the information is provided voluntarily without standardization and, in some cases, with an incentive to manipulate the data provided).

[96] For background on Rule 15c3–3, 17 CFR 240.15c3–3, as it relates to digital asset securities,

amount of crypto asset security volume is executed on trading venues under the Commission's ATS framework.[97] This information limitation is also, in part, due to the significant trading activity in crypto asset securities that may be occurring in non-compliance with the Federal securities laws.[98]

The Commission believes that it is appropriate for a broker-dealer that engages in transactions for or with customers or customers of another broker-dealer in crypto asset securities to be subject to proposed Regulation Best Execution. As discussed in section I above, the duty of best execution is of fundamental importance to investors and the markets, including investors in, and the market for, crypto asset securities. For example, a customer transacting in crypto asset securities should receive the protections afforded by the requirement that broker-dealers exercise reasonable diligence to ascertain the best market for the crypto asset securities and buy and sell in such market so that the price to the customer is as favorable as possible under prevailing market conditions. In doing so, broker-dealers should be taking steps to ensure that they are evaluating the range of markets that trade crypto asset securities and appropriately identifying those markets that may be likely to provide customers with the most favorable prices.

B. Overview of Proposed Regulation Best Execution

The Commission believes that proposed Regulation Best Execution would further the Congressional goal set forth in Exchange Act Section 11A(a)(1)(C)(iv) regarding executing investors' orders in the best market and reinforce broker-dealer obligations concerning the duty of best execution. In particular, proposed Regulation Best Execution would identify specific factors that must be addressed by a broker-dealer's policies and procedures on best execution, impose additional requirements for conflicted transactions, and impose best execution-specific review and documentation requirements, all of which should better protect investors by promoting consistently robust order handling and execution practices.[99]

Proposed Rule 1100 would set forth the standard of best execution, requiring a broker-dealer to use reasonable diligence to ascertain the best market for a security, and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions. Proposed Rule 1101 would require a broker-dealer to establish, maintain, and enforce written policies and procedures that address specific elements that are designed to promote the best execution of customer orders, and comply with certain execution quality review and documentation requirements.

More specifically, proposed Rule 1101(a)(1) would require that a broker-dealer's policies and procedures address how it will comply with the best execution standard in proposed Rule 1100. In particular, a broker-dealer's policies and procedures would be required to address how it will: (1) obtain and assess reasonably accessible information concerning the markets trading the relevant securities; (2) identify markets that may be reasonably likely to provide the most favorable prices for customer orders (''material potential liquidity sources''); and (3) incorporate the material potential liquidity sources into its order handling practices and ensure efficient access to each such material potential liquidity source. The Commission believes this aspect of the proposal would promote consistently robust order handling practices by requiring each broker-dealer to establish a detailed framework to achieve best execution, which involves an analysis of relevant information, an evaluation of the range of liquidity sources, and the identification of and ability to efficiently access liquidity sources.

Proposed Rule 1101(a)(2) would require a broker-dealer's policies and procedures to address how it will determine the best market and make routing and execution decisions for the customer orders that it receives. In particular, a broker-dealer's policies and procedures would be required to address how it will: (1) assess reasonably accessible and timely information, including information with respect to the best displayed prices, opportunities for price improvement, and order exposure opportunities that may result in the most favorable price; (2) assess the attributes of customer orders and consider the trading characteristics of the security, the size of the orders, the likelihood of execution, and the accessibility of the market, and any customer instructions in selecting the market most likely to provide the most favorable price; and (3) reasonably

see U.S. Sec. & Exch. Comm'n, Joint Staff Statement on Broker-Dealer Custody of Digital Asset Securities (July 8, 2019), *https://www.sec.gov/news/public-statement/joint-staff-statement-broker-dealer-custody-digital-asset-securities*; Fin. Indus. Regul. Auth., SEC Staff No-Action Letter, ATS Role in the Settlement of Digital Asset Security Trades (Sept. 25, 2020), *available at https://www.sec.gov/divisions/marketreg/mr-noaction/2020/finra-ats-role-in-settlement-of-digital-asset-security-trades-09252020.pdf*. To date, five offerings of crypto asset securities have been registered or qualified under the Securities Act of 1933, and five classes of crypto asset securities have been registered under the Exchange Act. The Commission issued a statement describing its position that, for a period of five years, special purpose broker-dealers operating under the circumstances set forth in the statement will not be subject to a Commission enforcement action on the basis that the broker-dealer deems itself to have obtained and maintained physical possession or control of customer fully paid and excess margin digital asset securities for purposes of Rule 15c3–3(b)(1) under the Exchange Act. *See* Crypto Asset Securities Custody Release, *supra* note 94. To date, no such special purpose broker-dealer registration applications have been granted by FINRA.

[97] ATSs that do not trade NMS stocks file with the Commission a Form ATS notice, which the Commission does not approve. Form ATS requires, among other things, that ATSs provide information about: classes of subscribers and differences in access to the services offered by the ATS to different groups or classes of subscribers; securities the ATS expects to trade; any entity other than the ATS involved in its operations; the manner in which the system operates; how subscribers access the trading system; procedures governing entry of trading interest and execution; and trade reporting, clearance, and settlement of trades on the ATS. In addition, all ATSs must file quarterly reports on Form ATS–R with the Commission. Form ATS–R requires, among other things, volume information for specified categories of securities, a list of all securities traded in the ATS during the quarter, and a list of all subscribers that were participants. To the extent that an ATS trades crypto asset securities, the ATS must disclose information regarding its crypto asset securities activities as required by Form ATS and Form ATS–R. Form ATS and Form ATS–R are deemed confidential when filed with the Commission. Based on information provided on these forms, a limited number of ATSs have noticed on Form ATS their intention to trade certain crypto asset securities and a subset of those ATSs have reported transactions in crypto asset securities on their Form ATS–R.

[98] *See also* FSOC Report, *supra* note 95, at 5, 87, 94, 97 (emphasizing the importance of the existing financial regulatory structure while stating that certain digital asset platforms may be listing securities while not in compliance with exchange, broker-dealer, or other registration requirements, which may impose additional risk on banks and investors and result in ''serious consumer and investor protection issues''); Crypto-Assets Treasury Report, *supra* note 95, at 26, 29, 39, 40 (stating that issuers and platforms in the digital asset ecosystem may be acting in non-compliance with statutes and regulations governing traditional capital markets, with market participants that actively dispute the application of existing laws and regulations, creating risks to investors from non-compliance with, in particular, extensive disclosure requirements and market conduct standards); FSB Report, *supra* note 95, at 4, 8, 18 (stating that some trading activity in crypto assets may be failing to comply with applicable laws and regulations, while failing to provide basic investor protections due to their operation outside of or in non-compliance with regulatory frameworks, thereby failing to provide the ''market integrity, investor protection or transparency seen in appropriately regulated and supervised financial markets'').

[99] *See* section IV for discussions of the differences between the proposed rules and the existing FINRA and MSRB rules on best execution. As discussed in detail in section IV, proposed Regulation Best Execution is consistent with the FINRA and MSRB best execution rules in some respects and, in some other respects, goes beyond those rules imposing additional and/or more specific requirements.

balance the likelihood of obtaining a better price with the risk that delay could result in a worse price when determining the number and sequencing of markets to be assessed. These considerations have been recognized as relevant for a broker-dealer's duty of best execution.[100]

As discussed in section IV.B below, the factors that must be included in a broker-dealer's policies and procedures under proposed Rule 1101(a) are generally consistent with the factors that FINRA and the MSRB have identified as relevant to a broker-dealer's best execution determinations. The Commission understands that, currently, some broker-dealers incorporate various best execution factors from the FINRA and MSRB best execution rules in their policies and procedures. However, by requiring broker-dealers' best execution policies and procedures to explicitly address these factors, proposed Rule 1101(a) would help ensure that broker-dealers have established processes in place for considering these factors and that broker-dealers follow these processes when transacting for or with customers, which should promote consistently robust order handling practices among broker-dealers.[101]

Proposed Rule 1101(b) would require broker-dealers that have certain conflicts of interest to establish additional policies and procedures to better position them to meet the best execution standard in these circumstances. In particular, a broker-dealer's policies and procedures for conflicted transactions would be required to address how it will: (1) obtain and assess information beyond that required by proposed Rule 1101(a)(1)(i) in identifying a broader range of markets beyond the material potential liquidity sources; and (2) evaluate a broader range of markets beyond the material potential liquidity sources. Proposed Rule 1101(b) would also require broker-dealers to document their compliance with the best execution standard for conflicted transactions, including all efforts taken to enforce their policies and procedures, and their basis and information relied on for determining that their conflicted transactions would comply with the proposed best execution standard. Such documentation would be required to be done in accordance with written procedures. Proposed Rule 1101(b) would also require broker-dealers to document any arrangements concerning payment for order flow.[102] These requirements for conflicted transactions would be in addition to the current FINRA and MSRB best execution rules, although the Commission understands that some broker-dealers currently preserve information that allows them to support their best execution determinations (*e.g.,* information to recreate the pricing information that was available at the time an order was received). The Commission believes that these requirements would encourage broker-dealers to exercise additional diligence with respect to conflicted transactions in light of the incentives to handle conflicted transactions in a manner that prioritizes their own interests over their customers' interests, and are part of the Commission's ongoing efforts to protect investors when conflicts of interest exist.

Proposed Rule 1101(c) would require broker-dealers to review the execution quality of customer orders at least quarterly, and how such execution quality compares with the execution quality that might have been obtained from other markets, and revise their best execution policies and procedures, including order handling practices, accordingly. The Commission understands that, currently, broker-dealers' reviews of execution quality vary in rigor,[103] and the Commission preliminarily believes that the proposed review requirement would further ensure that broker-dealers evaluate the effectiveness of their current order handling practices and enable broker-dealers to make informed judgments regarding whether their policies and procedures or practices need to be modified. This review requirement would also apply to a broader range of broker-dealers than FINRA's rule that governs the review of execution quality,[104] and would be in addition to the current MSRB best execution rule.

Proposed Rule 1101(d) would exempt an introducing broker that routes customer orders to an executing broker from separately complying with proposed Rules 1101(a), (b), and (c), so long as the introducing broker establishes, maintains, and enforces policies and procedures that require the introducing broker to regularly review the execution quality obtained from its executing broker, compare it with the execution quality it might have obtained from other executing brokers, and revise its routing practices accordingly. This provision would provide a tailored exemption from certain provisions of proposed Regulation Best Execution for broker-dealers that do not make decisions or exercise discretion regarding the manner in which their customer orders are handled and executed, beyond their determinations to engage the services of executing brokers. This exemption would be provided to a narrower group of broker-dealers than similar exemptions provided by FINRA and the MSRB, and would require additional specific policies and procedures that are not required under the FINRA and MSRB rules.[105]

Proposed Rule 1102 would require each broker-dealer to review and assess the design and overall effectiveness of their best execution policies and procedures, including their order handling practices, on at least an annual basis, and document such review and assessment in an annual report that would be provided to the broker-dealer's governing body. The Commission understands that, currently, broker-dealers periodically review their policies and procedures (including those related to best execution), although the frequency of review may vary.[106] However, proposed Rule 1102 would require the broker-dealer to review and assess the policies and procedures it established under proposed Regulation Best Execution, and the Commission believes that these requirements would help ensure the effectiveness of broker-dealers' best execution policies and procedures that are adopted pursuant to the proposed rules.

Finally, the Commission is proposing to amend Rule 17a–4 under the Exchange Act[107] to include record preservation requirements for records made under proposed Regulation Best Execution.

The Commission believes that proposed Regulation Best Execution would also enhance its oversight of

[100] *See, e.g., supra* notes 21–23 and accompanying text; FINRA Rules 5310(a)(1) and 5310.09(b)(1).

[101] Moreover, requiring broker-dealers' best execution policies and procedures to address factors similar to those that FINRA and the MSRB have already identified as relevant to best execution determinations would mitigate compliance costs associated with the proposed rules.

[102] *See infra* section IV.C.2 (discussing the proposed requirement to document payment for order flow arrangements).

[103] *See infra* note 210 (discussing FINRA exam findings relating to execution quality reviews).

[104] *See infra* section IV.D (discussing the proposed execution quality review requirement, including the scope of the proposed requirement).

[105] *See infra* section IV.E (describing the applicability of the proposed exemption under proposed Rule 1101(d)).

[106] *See infra* notes 222, 223, and 224 and accompanying text (describing the minimum frequency standards for review of execution quality under the FINRA and MSRB rules and how broker-dealers may need to review execution quality more frequently than the minimum requirements depending on the circumstances).

[107] 17 CFR 240.17a–4.

broker-dealers through the broker-dealers' best execution policies and procedures required by the proposal, as well as broker-dealers' documentation of their compliance with proposed Regulation Best Execution.[108]

Request for Comment

The Commission requests comment on its understanding of broker-dealers' current best execution practices, and in particular:

1. Do commenters agree with the Commission's understanding that some broker-dealers currently incorporate various best execution factors from the FINRA and MSRB best execution rules in their policies and procedures? Please explain whether, and the extent to which, broker-dealers currently incorporate those factors in their policies and procedures. For example, do broker-dealers currently incorporate all of the best execution factors from the FINRA and MSRB rules in their policies and procedures?

2. Do commenters agree with the Commission's understanding that some broker-dealers currently preserve information that allows them to support their best execution determinations, such as information to recreate the pricing information that was available at the time of an execution? Please explain whether broker-dealers currently preserve information that allows them to support their best execution determinations, and if so, the type of information that they preserve.

3. Do commenters agree with the Commission's understanding that, currently, broker-dealers' reviews of execution quality vary in rigor? Please explain how broker-dealers currently conduct execution quality reviews of customer orders.

4. Do commenters agree with the Commission's understanding that, currently, broker-dealers periodically review their best execution policies and procedures, but with varying frequency? Please describe how frequently broker-dealers currently review their best execution policies and procedures.

[108] The Commission believes that Proposed Regulation Best Execution will also provide certain investor protection benefits. As discussed in Section V below, by having its own rule, the Commission will be able to seek certain remedies and other sanctions for violations of the Commission rule best execution violations that are not necessarily available under the current regulatory framework. In general, a best execution rule promulgated pursuant to the Exchange Act will expand and enhance the Commission's flexibility when pursuing best execution violations and produce efficiencies resulting from that greater flexibility.

IV. Discussion of Proposed Regulation Best Execution

As discussed in this section IV below, the Commission is proposing Regulation Best Execution, which is consistent with the FINRA and MSRB best execution rules in many respects and is different from those rules in some respects. Proposed Regulation Best Execution would not affect a broker-dealer's obligation to comply with the FINRA or MSRB best execution rule. Accordingly, a broker-dealer would be required to comply with proposed Regulation Best Execution, in addition to their existing obligations to comply with the FINRA and MSRB best execution rules, as applicable.[109]

A. Proposed Rule 1100—The Best Execution Standard

Proposed Rule 1100 would set forth the best execution standard for broker-dealers.[110] Specifically, proposed Rule 1100 states that, in any transaction for or with a customer, or a customer of another broker-dealer, a broker-dealer, or a natural person who is an associated person of a broker-dealer,[111] must use reasonable diligence to ascertain the best market for the security, and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.[112]

The proposed best execution standard would apply to securities transactions for or with a broker-dealer's own customers, as well as securities transactions for or with customers of another broker-dealer. A broker-dealer that initially receives customer orders may not necessarily be the broker-dealer that engages in transactions for or with those orders. Instead, the broker-dealer receiving the customer orders may utilize the services of another broker-dealer to engage in transactions for or with those orders (*e.g.,* a wholesaler, executing broker-dealer, or clearing firm that handles or executes those orders). Even though the other broker-dealer does not have a direct relationship with the customers of the receiving broker-dealer, the other broker-dealer (or natural persons who are associated persons of that broker-dealer) would be required to comply with the proposed best execution standard because it would be engaged in transactions for or with a customer.

In addition, the proposed best execution standard would apply to transactions for or with a customer, regardless of whether the broker-dealer is transacting for or with the customer on an agency basis or in a principal capacity.[113] For example, the proposed best execution standard would apply to broker-dealers that internalize their customers' orders, as well as to wholesalers or clearing firms that trade

[109] For example, where proposed Regulation Best Execution would impose additional or more specific requirements as compared to the FINRA or MSRB rules, a broker-dealer would be required to comply with the additional or more specific requirements under the proposed rules. *See, e.g., infra* section IV.A (discussing the application of proposed Rule 1100 to transactions with sophisticated municipal market professionals, which are exempted from the MSRB's best execution rule). Similarly, where FINRA or the MSRB impose more specific requirement than proposed Regulation Best Execution, a broker-dealer would be required to continue to comply with those requirements of FINRA and the MSRB. *See, e.g., infra* note 223 and accompanying text (discussing the requirement under FINRA Rule 5310 for broker-dealers to conduct at least a quarterly review of execution quality).

[110] For purposes of this release and proposed Regulation Best Execution, ''broker-dealer'' refers to a broker, dealer, government securities broker, government securities dealer, and municipal securities dealer, unless specifically indicated otherwise.

[111] Section 3(a)(18) of the Exchange Act defines ''person associated with a broker or dealer'' to mean any partner, officer, director, or branch manager of the broker or dealer (or any person occupying a similar status or performing similar functions), any person directly or indirectly controlling, controlled by, or under common control with the broker or dealer, or any employee of the broker or dealer. 15 U.S.C. 78c(a)(18). Any person associated with a broker or dealer whose functions are solely clerical or ministerial is not included in the meaning this term for purposes of section 15(b) the Exchange Act (other than paragraph 6 thereof). *See id.* Proposed Rule 1100 would apply to a natural person who is an associated person of a broker-dealer, and would avoid the application of proposed Rule 1100 to all associated persons of a broker-dealer, as all associated persons would capture affiliated entities of the broker-dealer and could extend the application of proposed Rule 1100 to entities that are not themselves broker-dealers.

[112] FINRA Rule 5310.09(a) states that ''[n]o member can transfer to another person its obligation to provide best execution to its customers' orders.'' The standard proposed by the Commission in Rule 1100 is consistent with the FINRA rule, and would not establish any exception to allow a broker-dealer to transfer its obligation to provide best execution to another person.

[113] The proposed application of the standard to both agency and principal trades is consistent with FINRA and MSRB rules. *See* FINRA Rule 5310(e) (stating that the best execution obligations in FINRA Rule 5310(a)–(d) exist not only where the broker-dealer acts as agent for the account of its customer but also where transactions are executed as principal); MSRB Rule G–18(c) (stating that the best execution obligations in MSRB Rule G–18(a)–(b) apply to transactions in which the broker-dealer is acting as agent and transactions in which the broker-dealer is acting as principal). In addition, the application of the existing duty of best execution in both agency and principal transactions is well-established in common law. *See, e.g., Newton,* 135 F.3d 266, 270 (3d Cir.), *cert. denied,* 525 U.S. 811 (1998); *E.F. Hutton & Co.,* Exchange Act Rel. No. 25887, 49 SEC. 829, 832 (1988) (''A broker-dealer's determination to execute an order as principal or agent cannot be 'a means by which the broker may elect whether or not the law will impose fiduciary standards upon him in the actual circumstances of any given relationship or transaction.' '') (citations omitted).

as principal with the customer orders routed to them from other broker-dealers.

Proposed Rule 1100 would provide exemptions from the best execution standard for a broker-dealer, or a natural person who is an associated person of a broker-dealer, when the broker-dealer is (i) quoting a price for a security where another broker-dealer routes a customer order for execution against that quote or (ii) an institutional customer, exercising independent judgment, executes its order against the broker-dealer's quotation.[114] These exemptions distinguish between a broker-dealer that is acting solely as the buyer or seller of securities (it would be exempt) from a broker-dealer that is accepting order flow from another broker-dealer or institutional customer for the purpose of facilitating the handling and execution of those orders (it would not be exempt).

Proposed Rule 1100 would also provide a third exemption from the best execution standard for a broker-dealer or a natural person who is an associated person of a broker-dealer, when the broker-dealer receives an unsolicited instruction from a customer to route that customer's order to a particular market for execution and the broker-dealer processes that customer's order promptly and in accordance with the terms of the order. In this scenario, the customer has determined the market where it wants to execute its order and is not relying on its broker-dealer to determine the best market for that order.[115]

Under proposed Rule 1100, the term ''market'' could include broker-dealers (*e.g.,* a broker-dealer's principal trading desk), exchange markets, markets other than exchange markets, and any other venues that emerge as markets evolve. The term ''market'' also could encompass the wide range of mechanisms operated by any given market that a broker-dealer may use to transact for or with customers. For example, markets may include different execution protocols, such as limit order books (some of which may provide for midpoint liquidity), floor auction facilities, or electronic auction mechanisms. This description of ''market'' is expansive and would require a broker-dealer to take into consideration a broad range of potential trading and market centers and venues that may provide the best market for customers' orders so that the resulting prices to the customers are as favorable as possible under prevailing market conditions.[116]

Proposed Rule 1100 would codify, in a Commission rule, a best execution standard that is consistent with how the Commission and the courts have described the duty of best execution over the years.[117] The proposed standard is also consistent with the best execution standards under FINRA Rule 5310[118] and MSRB Rule G–18.[119] However, with respect to municipal securities, while MSRB Rule G–48 exempts transactions with sophisticated municipal market participants (''SMMPs'')[120] from the MSRB best

[114] The first proposed exemption is consistent with FINRA Rule 5310.04, which states that a broker-dealer's duty to provide best execution does not apply in circumstances when another broker-dealer is simply executing a customer order against the broker-dealer's quote, and MSRB Rule G–18.05, which states that a broker-dealer's duty to provide best execution does not apply in circumstances when the other broker-dealer is simply executing a customer transaction against the broker-dealer's quote. The second proposed exemption is new. Like the first proposed exemption, the second would exempt a broker-dealer that is acting solely as a buyer or seller of a securities. However, under the second exemption, the broker-dealer would be acting solely as a buyer or seller of securities in transactions directly with an institutional customer. In the corporate and municipal bond and government securities markets, for example, institutional customers often handle and execute their own orders. Institutional customers in these markets commonly request prices from broker-dealers for particular securities (prices for any given security are often not quoted and made widely available) and exercise their own discretion concerning the execution of a particular transaction. In these instances, a broker-dealer is simply responding to the institutional customer's request (*e.g.,* through widely known request for quote (''RFQ'') mechanisms) and the institutional customer is exercising independent discretion over the handling and execution of its orders. Accordingly, the Commission believes that the broker-dealer in these circumstances should be exempted from the best execution standard under proposed Rule 1100. However, in these circumstances, the broker-dealer would still be subject, if applicable, to FINRA Rule 2121 and MSRB Rule G–30 concerning fair prices and the fairness and reasonableness of commission rates and markups or markdowns. *See* FINRA Rule 2121; MSRB Rule G–30.

[115] This exemption is consistent with FINRA and MSRB rules. *See* FINRA Rule 5310.08 (stating that if a member receives an unsolicited instruction from a customer to route that customer's order to a particular market for execution, the member is not required to make a best execution determination beyond the customer's specific instruction); MSRB Rule G–18.07 (stating that if a dealer receives an unsolicited instruction from a customer designating a particular market for the execution of the customer's transaction, the dealer is not required to make a best-execution determination beyond the customer's specific instruction).

[116] This expansive description of ''market'' is consistent with how FINRA and the MSRB describe the term in their rules, and therefore should be familiar to broker-dealers. In particular, FINRA and the MSRB also broadly construe the term ''market'' for purposes of their best execution rules. *See* FINRA Rule 5310.02 (stating that ''market'' encompasses a variety of different venues, including, but not limited to, market centers that are trading a particular security); MSRB Rule G–18.04 (stating that ''market'' encompasses a variety of different venues, including but not limited to broker's brokers, alternative trading systems or platforms, or other counterparties, which may include the dealer itself as principal). MSRB Rule G–18.04 also states that the term market ''is to be construed broadly, recognizing that municipal securities currently trade over the counter without a central exchange or platform. This expansive interpretation is meant both to inform dealers as to the breadth of the scope of venues that must be considered in the furtherance of their best-execution obligations and to promote fair competition among dealers (including broker's brokers), alternative trading systems and platforms, and any other venue that may emerge, by not mandating that certain trading venues have less relevance than others in the course of determining a dealer's best-execution obligations.'' Pursuant to FINRA guidance, broker-dealers are also expected to consider new markets that become available as venues to which the broker-dealer could potentially route customer orders for execution. *See* FINRA Regulatory Notice 15–46, at 5. In doing so, broker-dealers should consider the execution quality of venues to which they are not connected and determine whether they should connect to new markets. *See id.,* at 4.

[117] *See, e.g.,* Regulation NMS Adopting Release, *supra* note 21, 70 FR 37538 (stating that the duty of best execution requires, among other things, a broker-dealer to execute customers' trades at the most favorable terms reasonably available under the circumstances, *i.e.,* at the best reasonably available price); *Newton, supra* note 8, 135 F.3d at 270 (noting that a broker-dealer's duty of undivided loyalty to its customer requires that it ''seek to obtain for its customer orders the most favorable terms reasonably available under the circumstances''). As discussed below throughout this section IV, the Commission is also proposing requirements designed to help ensure compliance with the proposed best execution standard.

[118] FINRA Rule 5310(a)(1) provides that, in any transaction for or with a customer or a customer of another broker-dealer, a member and persons associated with a member shall use reasonable diligence to ascertain the best market for the subject security and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions. FINRA Rule 5310 applies to transactions by any FINRA member in government securities. *See* FINRA Rule 0150(c).

[119] MSRB Rule G–18(a) provides that, in any transaction in a municipal security for or with a customer or a customer of another broker, dealer, or municipal securities dealer (''dealer''), a dealer must use reasonable diligence to ascertain the best market for the subject security and buy or sell in that market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.

[120] MSRB Rule D–15 defines SMMP by three requirements: the nature of the customer; a determination of sophistication by the dealer; and an affirmation by the customer. Specifically, the rule states that the customer must be: (i) a bank, savings and loan association, insurance company, or registered investment company; (ii) an investment adviser registered either with the Commission under section 203 of the Investment Adviser Act of 1940 or with a state securities commission; or (iii) any other person or entity with total assets of at least $50 million. To achieve a determination of customer sophistication, the broker-dealer must have a reasonable basis to believe that the customer is capable of evaluating investment risks and market value independently, both in general and with regard to particular transactions and investment strategies in municipal securities. Finally, the customer must affirmatively indicate that it is exercising independent judgment in evaluating: (a) the recommendations of the broker-dealer; (b) the quality of execution of the customer's transactions by the broker-dealer; and (c) the transaction price for non-recommended

execution rule, proposed Regulation Best Execution does not include a similar exemption for SMMPs from Rule 1100.[121] Unlike the MSRB rules, proposed Rule 1100 is designed to apply broadly to transactions in all securities and is not limited to transactions in municipal securities. The Commission also preliminary believes that customers that meet the MSRB's definition of SMMP would benefit from the protections offered by proposed Regulation Best Execution, just as customers that do not meet the definition of SMMP or customers that transact in securities other than municipal securities would.[122] At the same time, the Commission believes that proposed Regulation Best Execution contains several provisions that would mitigate the burdens on the broker-dealers that engage in transactions for or with customers that meet the MSRB's definition of SMMP, and proposed Regulation Best Execution would result in similar treatment as MSRB Rule G–18 and G–48 in many instances. For example, as discussed above in this section, a broker-dealer would be exempt from proposed Rule 1100 if an institutional customer is exercising independent judgment and executing its orders against a broker-dealer's quotation, and is not providing the broker-dealer with orders for handling and execution. Additionally, a broker-dealer would be exempt from proposed Rule 1100 if a customer gave the broker-dealer an unsolicited instruction to send its order to a particular market and the broker-dealer processes that customer's order promptly and in accordance with the terms of the order. Finally, as discussed in section IV.B.2 below, if a customer provides the broker-dealer with other instructions concerning the handling of its orders, the broker-dealer's compliance with the best execution standard would be informed by such customer instructions.

Request for Comment

The Commission requests comment on all aspects of proposed Rule 1100, and in particular:

5. Is the proposed best execution standard appropriate? Why or why not? Has the Commission identified all the differences between the proposed best execution standard and the standards under FINRA Rule 5310 and MSRB Rule G–18? If not, please explain any differences that the Commission has not identified and any potential issues resulting from those differences.

6. Are the differences between the proposed best execution standard and the standards under FINRA Rule 5310 and MSRB Rule G–18 appropriate? Why or why not?

7. Do commenters agree that proposed Rule 1100 is consistent with prior Commission statements, including those described in section II.B above? Why or why not? If not, should the Commission revise any of its statements in light of the proposal? Please explain.

8. Do commenters agree that the proposed best execution standard should apply to natural persons who are associated persons of a broker-dealer? Why or why not?

9. Are there alternative definitions of ''natural person who is an associated person'' that the Commission should use instead? Is the application of proposed Rule 1100 appropriately limited to ''a natural person who is an associated person'' of a broker-dealer? Please explain.

10. Would the proposed best execution standard pose any challenges or burdens for entities that are dually-registered broker-dealers and investment advisers? As discussed above,[123] an investment adviser has its own duty to seek best execution of a client's transactions where the adviser has the responsibility to select broker-dealers to execute client trades. What effect, if any, would the proposed best execution standard have on investment advisers and their duty to seek best execution?

11. Are there elements of an investment adviser's duty to seek best execution that are relevant in assessing the proposed best execution standard for a broker-dealer?

12. Is it appropriate to provide an exemption from the proposed best execution standard to a broker-dealer when another broker-dealer is executing a customer order against the first broker-dealer's quote? Why or why not?

13. Is it appropriate to provide an exemption from the proposed best execution standard to a broker-dealer when an institutional customer, exercising independent judgment, executes its order against the broker-dealer's quotations? Why or why not?

14. Should the Commission define ''institutional customer'' for purposes of proposed Rule 1100? If so, how should ''institutional customer'' be defined? For example, should the Commission define ''institutional customer'' as any person that is a qualified institutional buyer (''QIB'') as defined in Rule 144A under the Securities Act of 1933?[124] Why or why not?

15. Should the Commission define ''institutional customer'' to include a broader set of institutional customers than the QIB definition, such as those entities that are included in the FINRA definition of ''institutional account'' under FINRA Rule 4512(c)?[125] Please explain.

16. Should the exemption concerning institutional customers in proposed Rule 1100 be limited to situations where the broker-dealer seeking the exemption has a reasonable basis to believe that the institutional customer (i) has the capacity to evaluate independently the prices offered by the broker-dealer and (ii) is exercising independent judgment in deciding to enter into the transaction, such as is provided for in FINRA Rule 2121 concerning suitability for institutional customers? Please explain.

17. Should the Commission define ''institutional customer'' for purposes of

secondary market agency transactions as to which (i) the broker-dealer's services have been explicitly limited to providing anonymity, communication, order matching, and/or clearance function and (ii) the broker-dealer does not exercise discretion as to how or when the transactions are executed. The affirmation may be given orally or in writing, and may be given on a transaction-by-transaction basis, a type-of-municipal security basis, or an account-wide basis.

[121] Additionally, MSRB Rule G–18.09 states that Rule G–18 does not apply to municipal fund securities. While proposed Regulation Best Execution does not contain a similar exemption for municipal fund securities, the Commission believes that the Commission's proposal and MSRB Rule G–18 would result in similar treatment for municipal fund securities. Transactions in municipal fund securities must be executed directly with the issuer. For this reason, there is only one market that can be accessed to fill a customer order in this type of security and, therefore, only one way to comply with Rule 1100 with respect to the handling and execution of a customer order in a municipal fund security.

[122] When the Commission approved the MSRB's exemption for transactions with SMMPs from its best execution rule, the Commission stated that the exemption ''will facilitate transactions in municipal securities and help perfect the mechanism of a free and open market in municipal securities by avoiding the imposition of regulatory burdens if they are not needed.'' *See* MSRB Best Execution Approval Order, *supra* note 47, 79 FR 73664. For the reasons discussed in this section, the Commission believes that the proposed rules are designed to mitigate the regulatory burdens for broker-dealers that transact for or with SMMP customers, while providing the benefit of the protections offered by the proposed rules under appropriate circumstances.

[123] *See supra* note 11.

[124] 17 CFR 230.144A (defining ''QIB'' to mean a variety of entities such as insurance companies, investment companies registered under the Investment Company Act of 1940, and investment advisers registered under the Investment Advisers Act of 1940, among others, that in the aggregate own or invest on a discretionary basis at least $100 million).

[125] FINRA Rule 4512(c) defines ''institutional account'' as the account of: (1) a bank, savings and loan association, insurance company or registered investment company; (2) an investment adviser registered either with the Commission under section 203 of the Investment Advisers Act or with a state securities commission (or any agency or office performing like functions); or (3) any other person (whether a natural person, corporation, partnership, trust or otherwise) with total assets of at least $50 million.

the proposed exemption in Rule 1100 to be consistent with the MSRB's definition of SMMP? For example, should an institutional customer be required to make an affirmation to the broker-dealer concerning its exercise of independent judgment in evaluating the quality of execution of its transaction with the broker-dealer? Are there other affirmations relevant to best execution that should be required?[126] Please explain.

18. If an institutional customer affirmation should be required, how should such affirmation be provided? Should an institutional customer be permitted to provide the affirmation to the broker-dealer orally or in writing? Should an institutional customer be permitted to provide its affirmation on a trade-by-trade basis, a type-of-transaction basis, a type-of-security basis (*e.g.,* municipal security, including general obligation, revenue, variable rate municipal security; corporate bond, including investment grade and non-investment grade; OTC equity; NMS security), or an account-wide basis? Please explain.

19. Should a broker-dealer seeking the exemption in proposed Rule 1100 in transactions with institutional customers be required to disclose to the institutional customer that it is not required to comply with the best execution standard of proposed Rule 1100 for the relevant transactions? Should this disclosure be provided in lieu of or in addition to a customer affirmation, if such affirmation should be provided by the institutional customer? Please explain. If disclosure should be required, what standards should apply to the disclosure? For example, should a broker-dealer be required to make a disclosure to the institutional customer on a transaction-by-transaction basis? If not, what would be the appropriate manner for this disclosure? Please explain. Should the disclosure be in writing or should a broker-dealer be permitted to provide the disclosure orally to the institutional customer? Please explain.

20. Should the proposed exemption concerning institutional customers in Rule 1100 be limited to only certain types of securities or only certain types of trading protocols where the institutional customer is executing against the broker-dealer's quote? For example, should the exemption be limited only to transactions in fixed income securities? Should it be limited to transactions that occur through multilateral RFQ systems where the institutional customer is able to put multiple broker-dealers and other market participants in competition when soliciting quotes? Should the exemption be available to a broker-dealer that is responding to a request for quote by an institutional customer in a bilateral communication, whether over the phone or through another communication protocol? Please explain.

21. Should the Commission provide a broader exemption from the proposed best execution standard for a broker-dealer when it engages in any transaction for or with institutional customers, similar to the exemption provided to broker-dealers under MSRB Rule G–48(e) for SMMPs? Please explain why such exemption should or should not be provided.

22. If a broader exemption for transactions with institutional customers should be provided, how should the Commission define ''institutional customer''? Similar to the requests for comment above, should the Commission define institutional customer as ''QIB'' as defined in Rule 144A under the Securities Act of 1933, an ''institutional account'' as defined in FINRA Rule 4512(c), or an SMMP as defined in MSRB Rule D–15? Is there another definition that would be appropriate? Please explain. Should other conditions apply to the exemption, as requested above, such as broker-dealer disclosure to the institutional customer, broker-dealer assessment of the institutional customer's ability to evaluate the transaction, and institutional customer affirmations? Please explain.

23. What are the typical order handling practices of broker-dealers for the municipal bond orders of SMMPs? Do these order handling practices vary depending on the type of SMMP under MSRB Rule D–15(a)? Do SMMPs typically provide broker-dealers with orders to handle and execute, or do SMMPs typically handle and execute their own orders? Please explain. Do broker-dealers exercise any discretion in handling the orders of SMMPs, whether executing such order on an agency or principal basis? Please explain.

24. Do commenters agree that the proposed rules are designed to mitigate the regulatory burdens for broker-dealers that transact for or with SMMP customers, while providing the benefit of the protections offered by the proposed rules under appropriate circumstances? Why or why not?

25. Should the Commission provide an exemption from the proposed best execution standard for a broker-dealer that engages in transactions for or with sophisticated market professionals in asset classes other than municipal securities? Please explain why such exemption should or should not be provided.

26. Is it appropriate to provide an exemption from the proposed best execution standard to a broker-dealer that receives an unsolicited instruction from a customer to route that customer's order to a particular market for execution, where the broker-dealer processes that customer's order promptly and in accordance with the terms of the order? Why or why not?

27. Should the Commission provide an exemption from the proposed best execution standard for transactions in municipal fund securities (which include interests in 529 college savings plans)? Should such exemption only apply to municipal fund securities that are interests in 529 college savings plans? If the Commission were to provide an exemption, should it apply similarly or differently to direct-sold and advisor-sold municipal fund securities? Please explain why such exemption should or should not be provided.

28. Should the Commission provide an exemption for mutual fund securities, such as equity and corporate bond mutual funds? Should the Commission provide an exemption for any other type of security? Please explain why such exemption should or should not be provided.

29. Should the Commission provide any other exemptions from the proposed best execution standard? If so, please explain.

30. Should proposed Regulation Best Execution be the sole best execution rule applicable to broker-dealers? Why or why not?

B. Proposed Rule 1101(a)—Best Execution Policies and Procedures

Proposed Rule 1101(a) would require a broker-dealer that effects any transaction for or with a customer or a customer of another broker-dealer to establish, maintain, and enforce written policies and procedures reasonably designed to comply with the best execution standard under proposed Rule 1100 (''best execution policies and procedures''). As discussed in sections IV.B.1 and 2 below, a broker-dealer's best execution policies and procedures would be required to address: (1) how the broker-dealer would comply with the best execution standard; and (2) how the broker-dealer would determine the

[126] For example, the MSRB's definition of SMMP requires a variety of other affirmations (*e.g.,* relating to suitability, access to timely information, fair pricing for agency transactions) as broker-dealers are also exempt from other non-best execution related obligations in transactions with SMMPs pursuant to MSRB Rules G–48(a)–(d).

best market for the customer orders that it receives.

Proposed Rule 1101 does not include specific requirements regarding the manner in which broker-dealers would comply with the best execution standard. Rather, proposed Rule 1100 would require a broker-dealer to use reasonable diligence to ascertain the best market for a security, and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions, and proposed Rule 1101 would additionally require a broker-dealer to establish and maintain written policies and procedures reasonably designed to comply with the proposed standard. The policies and procedures would be required to reflect the elements specified in proposed Rule 1101(a) (*e.g.,* best displayed prices, opportunities for price improvement including midpoint executions, attributes of particular customer orders, the trading characteristics of the security). For example, a broker-dealer could have policies and procedures that are tailored for different types of customers (*e.g.,* retail customers, institutional customers) or for securities with different trading characteristics (*e.g.,* NMS stocks, municipal securities).[127] All customer orders must be covered by a broker-dealer's best execution policies and procedures, and the broker-dealer would be required to enforce such policies and procedures.

While FINRA's best execution rule does not require broker-dealers to have the same type of detailed best execution policies and procedures as proposed Rule 1101,[128] FINRA Rule 3110(b)(1) [129] requires broker-dealers to have procedures for compliance with FINRA rules and Federal securities laws and regulations. The MSRB's best execution rule reflects a requirement for broker-dealers to have policies and procedures for determining the best available market for the executions of their customers' transactions.[130] In addition, MSRB Rule G–28 requires broker-dealers to have procedures for compliance with MSRB rules and the Exchange Act and rules thereunder.[131] The Commission understands that broker-dealers currently have policies and procedures relating to their compliance with the FINRA and MSRB best execution rules, as applicable. However, unlike the FINRA and MSRB rules, proposed Rule 1101(a)(1) would require broker-dealers' best execution policies and procedures to include specific elements, as discussed in sections IV.B.1 and 2 below.

1. Proposed Rule 1101(a)(1)—Framework for Compliance With the Best Execution Standard

Proposed Rule 1101(a)(1) would require a broker-dealer's best execution policies and procedures to address how it will comply with the proposed best execution standard by: (i) obtaining and assessing reasonably accessible information, including information about price, volume, and execution quality, concerning the markets trading the relevant securities; (ii) identifying markets that may be reasonably likely to provide material potential liquidity sources (as defined above); and (iii) incorporating material potential liquidity sources into its order handling practices and ensuring that it can efficiently access each such material potential liquidity source.

Proposed Rule 1101(a)(1)(i) would require a broker-dealer to have policies and procedures for obtaining and assessing reasonably accessible information regarding the markets trading the relevant securities.[132] Market information is relevant to a broker-dealer's best execution analysis,[133] and the Commission has previously identified price and execution quality information as among the factors relevant to that analysis.[134] The Commission believes that the ability of markets to attract trading interest as measured by trading volume would also be relevant to a broker-dealer's best execution analysis, because trading volume can be an indicator of whether sufficient interest exists on a particular market to execute customer orders.[135]

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[127] Similar to this proposal, FINRA and MSRB rules also recognize that broker-dealers' best execution practices would be tailored for securities with different characteristics. For example, FINRA Rule 5310 recognizes that the markets for different securities can vary and the standard of reasonable diligence must be assessed by examining specific factors, such as the character of the market for the security and the accessibility of the quotation. *See, e.g.,* FINRA Rules 5310.03 (Best Execution and Debt Securities); 5310.06 (Orders Involving Securities with Limited Quotations or Pricing Information); 5310.07 (Orders Involving Foreign Securities). *See also* MSRB Rule G–18.06 (Securities with Limited Quotations or Pricing Information) (recognizing that markets for municipal securities may differ dramatically and referring to heightened diligence with respect to customer transactions involving securities with limited pricing information or quotations).

[128] FINRA Rule 5310.

[129] FINRA Rule 3110(b)(1) requires a FINRA member to establish, maintain, and enforce written procedures to supervise the types of business in which it engages and the activities of its associated persons that are reasonably designed to achieve compliance with applicable securities laws and regulations, and with applicable FINRA rules. Separately, FINRA Rules 3130(b) and (c) require the chief executive officer (or equivalent officer) of a FINRA member to certify annually that the member has in place processes to establish, maintain, review, test and modify written compliance policies and written supervisory procedures reasonably designed to achieve compliance with applicable FINRA rules, MSRB rules, and Federal securities laws and regulations.

[130] MSRB Rule G–18.08 states that a broker-dealer must, at a minimum, conduct annual reviews of its policies and procedures for determining the best available market for the executions of its customers' transactions, including assessing whether its policies and procedures are reasonably designed to achieve best execution, taking into account the quality of the executions the broker-dealer is obtaining under its current policies and procedures, among other things.

[131] MSRB Rule G–28 requires broker-dealers to adopt, maintain and enforce written supervisory procedures reasonably designed to ensure that the conduct of the municipal securities activities of the broker-dealer and its associated persons are in compliance with MSRB rules and the applicable provisions of the Exchange Act and rules thereunder.

[132] Proposed Rule 1101 would not establish minimum data elements needed to comply with the proposed best execution standard. Rather, it would require broker-dealers to establish, maintain, and enforce policies and procedures reasonably designed to comply with the proposed best execution standard. In implementing its policies and procedures (both for non-conflicted and conflicted transactions), including policies and procedures that address how the broker-dealer would obtain and assess reasonably accessible information or how the broker-dealer would obtain and assess other information for conflicted transactions (as discussed in section IV.C below), a broker-dealer may determine that it is appropriate to purchase certain proprietary data. *See also supra* note 38 (describing the Commission's statements in the MDI Adopting Release that the Commission was not establishing minimum data elements needed to achieve best execution nor mandating consumption of certain data content, and acknowledging that different market participants and different trading applications have different market data needs).

[133] *See, e.g.,* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR at 48322–23 (stating that a broker-dealer's practices for achieving best execution, including the data, technology, and types of markets it accesses, must constantly be updated as markets evolve); Order Execution and Routing Practice Release, *supra* note 22, 65 FR at 75418 (stating that quotation information contained in the public quotation system must be considered in seeking best execution of customer orders); MDI Adopting Release, *supra* note 38, 86 FR at 18605 (stating that broker-dealers should consider the availability of consolidated market data, including the various elements of data content and the timeliness, accuracy, and reliability of the data in developing and maintaining their best execution policies and procedures).

[134] *See, e.g.,* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323 (identifying price improvement and execution quality as among the relevant factors for a best execution analysis); MDI Adopting Release, *supra* note 38, 86 FR 18605 (identifying order size, trading characteristics of the security, speed of execution, clearing costs, and the cost and difficulty of executing an order in a particular market as relevant factors for a best execution analysis).

[135] FINRA Rule 5310(a)(1) and MSRB Rule G–18(a) set forth similar factors that are relevant to a best execution analysis, including the character of the market for the security (*e.g.,* price, volatility, relative liquidity, and pressure on available communications). However, unlike proposed Rule 1101(a), FINRA and MSRB rules do not explicitly require relevant factors to be included in a broker-

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More specifically with respect to execution quality, the Commission believes that the level of competition within a market can impact the execution quality of that market and, therefore, broker-dealers should generally consider including the level of competition of a market as an element of its best execution policies and procedures.[136]

With respect to price improvement auctions offered by options exchanges, while the Commission believes that such auctions could provide better executions for customer orders than routing such orders to execute at the prevailing best bid or offer on an exchange, the selection of a particular price improvement auction could impact the execution quality of customer orders. A broker-dealer should generally consider addressing in its policies and procedures how it would assess the features of options price improvement auctions, how those features might affect the level of competition and the execution quality offered by the auctions, and whether those features would allow an auction to provide the most favorable prices under prevailing market conditions. For example, price improvement auctions have features, which have been implemented pursuant to proposed rule changes filed with the Commission, that allow a wholesaler to trade with much or all of the customer orders represented in an auction.[137] The current fee structures for price improvement auctions may also affect market participants' determination of whether to compete with a wholesaler for customer orders and provide more favorable prices.[138] As reflected in the table below, as of May 25, 2022, the vast majority of options exchanges charge market participants that may desire to compete for customer orders response fees of $0.50 per contract (for options classes priced in $0.01 increments (''penny classes'')) and $1.00 or more per contract (for options classes priced in $0.05 increments (''non-penny classes'')). These response fees are not charged to wholesalers that initiate the price improvement auctions.

Exchange	Fees for initiating orders	Auction market maker response fees (penny classes)	Auction market maker response fees (non-penny classes)
CBOE	0.07	0.50	1.05
EDGX	0.05	0.50	1.05
PHLX	0.07	0.25	0.40
MRX	0.02	0.50	1.10
ISE	0.10	0.50	1.10
GEMX	0.05	0.50	0.94
AMEX	0.05	0.50	1.05
MIAX	0.05	0.50	1.10
BOX	0.05	0.50	1.15

In addition, allocation guarantees, which permit the wholesaler to trade with a significant portion of the customer order, may affect competing market participants' determinations of whether and how to participate in price improvement auctions.[139] Likewise, ''auto-match'' features, which enable the wholesaler to automatically match the best prices submitted by competing market participants, may affect competing market participants' determinations of whether and how to participate in price improvement auctions.[140]

As another example, in considering RFQ systems as material potential liquidity sources for corporate and municipal bonds and government securities, a broker-dealer's policies and procedures could assess the filtering practices that may be applied by the RFQ system operator and the impact that those practices may have on the execution quality of those markets. If an RFQ system applies an automatic filter that prevents a broker-dealer that initiates the RFQ from sending that request to all participants on the RFQ system, a broker-dealer could evaluate the potential impact that may have on that market's execution quality. To the extent other RFQ systems do not apply such filters to the broker-dealer's request, a broker-dealer could evaluate whether these other RFQ systems would be a better alternative for executing customer orders, taking into consideration other relevant information that the broker-dealer may obtain concerning the RFQ systems.

dealer's best execution policies and procedures. The considerations in FINRA and MSRB rules concerning volatility, relative liquidity, and pressure on available communications could be included as part of the best market policies and procedures in proposed Rule 1101(a)(2), which requires consideration of the trading characteristics of a security. *See also* FINRA Rule 5310.09 (requiring a member to conduct regular and rigorous reviews of the quality of the executions of its customers' orders); MSRB Rule G–18.08 (requiring a dealer to conduct periodic reviews of its best execution policies and procedures, taking into account the quality of the executions the dealer is obtaining under its current policies and procedures, among other things).

[136] This could include considerations of auction features, such as allocation guarantees and fees, the types of market participants that can participate in an auction, the breadth of participation in an auction, and the accessibility of auction processes. This assessment of auction mechanisms would apply to a broker-dealer that is handling a customer order that is subject to the proposed requirements in the Order Competition Rule (known as a ''segmented order''). *See* Securities Exchange Act Release No. 34–96495 (Dec. 14, 2022). Were the Commission to adopt the proposed Order Competition Rule, a broker-dealer that desires to trade as principal with a segmented order would, absent an exception, be required to expose certain orders to competition through use of ''qualified auctions,'' as defined by the proposed Order Competition Rule. If the proposed Order Competition Rule were adopted, a broker-dealer when evaluating which qualified auction to use for segmented orders under proposed Regulation Best Execution (if adopted) would have to have policies and procedures addressing how the broker-dealer will assess the execution quality of different qualified auctions and identify those that are likely to result in the most favorable price for customer orders.

[137] *See, e.g.,* Nasdaq ISE, LLC Options 3, Section 13; Nasdaq Phlx LLC Options 3, Section 13; Miami International Securities Exchange LLC Rule 515A; BOX Exchange LLC Rule 7150; NYSE American LLC Rule 971.1NY; Cboe Exchange, Inc. Rule 5.37.

[138] *See* Nasdaq ISE LLC Options 7, Section 3; Nasdaq GEMX LLC Options 7, Section 3; Nasdaq MRX LLC Options 7, Section 3.A.; Nasdaq Phlx LLC Options 7, Section 6.A.; BOX Exchange LLC Fee Schedule Section IV.B.; Miami International Securities Exchange LLC Fee Schedule Section (1)(a)(v); NYSE American LLC Options Fee Schedule Section I.G.; Cboe Exchange, Inc. Fee Schedule; Cboe EDGX Exchange, Inc. Options Fee Schedule n.6.

[139] *See supra* note 137.

[140] *See, e.g.,* Nasdaq ISE, LLC Options 3, Section 13(d)(3); Nasdaq Phlx LLC Options 3, Section 13(b)(1); Miami International Securities Exchange LLC Rule 515A(a)(2)(i)(A); BOX Exchange LLC Rule 7150(f); NYSE American LLC Rule 971.1NY(c)(1); Cboe Exchange, Inc. Rule 5.37(b)(5).

Proposed Rule 1101(a)(1)(ii) would require a broker-dealer's policies and procedures to address how it will identify material potential liquidity sources, but it would not require a broker-dealer to include in its policies and procedures a minimum number of markets that it would need to identify as material potential liquidity sources. Rather, under proposed Rules 1101(a)(1)(i) and (ii), a broker-dealer would be required to follow its policies and procedures in assessing reasonably accessible information and determining material potential liquidity sources. The Commission believes a broker-dealer's identification of material potential liquidity sources could be influenced by the nature of the broker-dealer's business operation and customer order flow. For example, some broker-dealers focus on the handling and execution of institutional orders or large-size orders, while some broker-dealers handle and execute retail orders or small-size orders. These considerations may be relevant to the types of markets or market information that the broker-dealer assesses for purposes of identifying material potential liquidity sources. The Commission further believes a broker-dealer's assessment of market information and identification of material potential liquidity sources could vary depending on the trading characteristics of the relevant security, the level of transparency in the applicable market, and accessibility of a market, including the cost of maintaining connectivity, receiving market data, and transacting on the market. For example, if a market charges unreasonably high fees for connectivity, market data, or transactions, a broker-dealer could consider whether such market's information is reasonably accessible and whether such market should be identified as a material potential liquidity source.[141]

While proposed Rules 1101(a)(1)(i) and (ii) do not include an exhaustive list of the markets that might be considered material potential liquidity sources, or the potential sources of reasonably accessible information for different types of securities, some examples may be helpful. For the NMS stock market, material potential liquidity sources could include exchanges, ATSs, and broker-dealers, including market makers and wholesalers. It could also include trading protocols and auction mechanisms operated by these entities, including those that may provide price improvement opportunities, such as exchange limit order books, retail liquidity programs, midpoint liquidity, and wholesaler price improvement guarantees. Concerning potential sources of reasonably accessible information, the Commission has stated that quotation data made publicly available must be considered by a broker-dealer when seeking best execution of customer orders.[142] In addition, a broker-dealer generally should consider whether consolidated trade information, exchange proprietary data feeds, odd lot market data, and execution quality and order routing information contained in reports made pursuant to Rules 605 and 606 of Regulation NMS are readily accessible and needed in order for the broker-dealer to identify material potential liquidity sources for its customers' orders.[143]

In the OTC equities market, a broker-dealer could consider whether ATSs, wholesalers, and other OTC market makers may be potential material liquidity sources. With regard to reasonably accessible information, a broker-dealer could consider obtaining data from ATSs and OTC market makers, in addition to obtaining the data concerning transaction prices in OTC equities made publicly available through the FINRA Over-the-Counter Reporting Facility (''ORF'').

In the options market, material potential liquidity sources could include the options exchanges and the range of trading protocols and auction mechanisms made available by them. These could include quotes from market makers resting on exchange limit order books, price improvement auctions, liquidity resting between the best bid and offer that may be available on exchange limit order books, and floor trading facilities that may provide a broker-dealer with the opportunity to seek competitive prices from floor participants for larger or complex options orders. Other broker-dealers in the options market could also represent a type of market that generally should be considered when assessing material potential liquidity sources. Specifically, many options trades are arranged away from the exchanges by broker-dealers and are often brought to the exchanges for order exposure and potential price improvement prior to execution.[144] Because options trades may be arranged in this fashion, a broker-dealer would need to consider whether other broker-dealers may represent material potential liquidity sources for its customers' options orders. With regard to reasonably accessible information, a broker-dealer should consider whether proprietary data feeds and quarterly Rule 606 order routing reports are readily accessible and needed to identify material potential liquidity sources, in addition to consolidated trade and quotation data that is made publicly available.

In addition, a number of markets could be considered for purposes of identifying material potential liquidity sources in the corporate and municipal bond markets and government securities markets. These may include, for example, ATS and non-ATS electronic trading systems, RFQ systems, and other auction mechanisms. Material potential liquidity sources in these fixed income markets could also include interdealer brokers and other broker-dealers willing to be a counterparty upon request.[145] A broker-dealer's own principal trading desk could also be a market for purposes of identifying material potential liquidity sources.[146] With respect to reasonably accessible information, a broker-dealer could consider whether to obtain data from ATSs and other trading platforms, such as RFQ systems, interdealer brokers, and dealers that

[141] The Commission has previously described a non-exhaustive list of factors that may be relevant to broker-dealers' best execution analysis. These factors include the size of the order, speed of execution, clearing costs, the trading characteristics of the security involved, the availability of accurate information affecting choices as to the most favorable market center for execution and the availability of technological aids to process such information, and the cost and difficulty associated with achieving an execution in a particular market center. *See supra* note 23 and accompanying text.

[142] *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48324.

[143] In a regulatory notice concerning its best execution rule, FINRA has provided guidance regarding the relevance of proprietary data feeds to a broker-dealer's best execution assessment. *See* FINRA Regulatory Notice 15–46, at 13 n.12 (''[A] firm that regularly accesses proprietary data feeds, in addition to consolidated data from the Securities Information Processors (SIPs), for its proprietary trading, would be expected to also use these data feeds to determine the best market under prevailing market conditions when handling customer orders.'').

[144] *See, e.g.,* Nasdaq ISE, LLC, Options 3, Section 11(b)–(e) (providing exchange functionality for facilitation and solicitation auctions, which permit an exchange member to attempt to execute large-sized orders it represents as agent against principal interest or contra-side orders it has solicited). *See also, e.g.,* Miami International Securities Exchange LLC Rule 515A(b); Cboe Exchange, Inc. Rule 5.39. The ability to attempt to execute an agency order against principal or solicited interest is also permitted in the options exchange price improvement auctions. *See supra* note 137.

[145] For example, for less widely-traded securities, broker-dealers that have previously traded such securities or that are otherwise known to trade in the securities can be markets for certain segments of the fixed income market. *See, e.g.,* MSRB Implementation Guidance on MSRB Rule G–18, on Best Execution at Item VI.1. (updated as of Feb. 7, 2019).

[146] Principal trading with a customer by a broker-dealer would be subject to more robust policies and procedures requirements under proposed Rule 1101(b).

handle and execute customer orders, in addition to obtaining consolidated trade data in the corporate bond and municipal bond markets made publicly available through FINRA's Trade Reporting and Compliance Engine (''TRACE'') and the MSRB's Real-time Transaction Reporting System (''RTRS'').[147] A broker-dealer could also consider obtaining relevant data from information sources that do not provide execution services, such as price aggregator services or evaluated pricing services.

Proposed Rule 1101(a)(1)(iii) would require a broker-dealer to have policies and procedures that address how the broker-dealer will incorporate material potential liquidity sources into its order handling practices and ensure that it can efficiently access each such material potential liquidity source. This requirement is designed to enhance a broker-dealer's ability meet the proposed best execution standard by helping to ensure that the broker-dealer incorporates the identified material potential liquidity sources into its order handling practices so that it can execute customer orders in those markets as appropriate.[148]

Efficient access to each material potential liquidity source, as specified by proposed Rule 1101(a)(1)(iii), may require different order handling processes and arrangements in different markets, and would not necessarily require that a broker-dealer directly connect to a market, as it may be efficient in some circumstances for a broker-dealer to use another broker-dealer to access a particular market for a customer order. However, interposing a third-party between the broker-dealer and the market reasonably likely to provide the most favorable price for its customer would not be consistent with the concept of ''efficient access,'' if the broker-dealer could access the market directly but chose instead to access the market indirectly resulting in a worse execution for the customer.[149] As stated above, interpositioning can violate the broker-dealer's duty of best execution when it results in unnecessary transaction costs at the expense of the customer.[150]

Request for Comment

The Commission requests comment on all aspects of proposed Rule 1101(a)(1), and in particular:

31. Do commenters believe that proposed Rule 1101(a)(1)(i) appropriately requires a broker-dealer's policies and procedures to reflect how it will obtain and assess reasonably accessible information, including information about price, volume, and execution quality, concerning the markets trading the relevant securities? Why or why not?

32. What factors would a broker-dealer consider in determining whether information is ''reasonably accessible'' for purposes of its best execution policies and procedures under the proposed rules? Please explain.

33. Should the Commission specify the types of information that would be ''reasonably accessible'' under proposed Rule 1101(a)(1)(i)? For example, should the Commission specify that consolidated market data distributed by the securities information processors is a type of ''reasonably accessible'' information under the proposed rule? Please explain.

34. Do commenters agree that proposed Rule 1101(a)(1) is consistent with prior Commission statements, including those described in section II.B above? Why or why not? If not, should the Commission revise any of its statements in light of the proposal? Please explain.

35. Do commenters believe that proposed Rule 1101(a)(1)(ii) appropriately requires a broker-dealer's policies and procedures to reflect how it will identify material potential liquidity sources? Why or why not?

36. Do commenters believe the Commission has appropriately defined material potential liquidity sources in proposed Rule 1101(a)(1)(ii)? Please explain.

37. What factors would a broker-dealer consider in identifying material potential liquidity sources under the proposed rules? Please explain.

38. In identifying material potential liquidity sources, do broker-dealers consider market connectivity fees and other access and transaction fees? Please explain.

39. Do commenters agree that proposed Rule 1101(a)(1)(ii) is consistent with prior Commission statements, including those described in section II.B above? Why or why not? If not, should the Commission revise any of its statements in light of the proposal? Please explain.

40. Do commenters believe that proposed Rule 1101(a)(1)(iii) appropriately requires a broker-dealer's policies and procedures to reflect how it will incorporate material potential liquidity sources into its order handling practices? Why or why not?

41. Do commenters believe that proposed Rule 1101(a)(1)(iii) appropriately requires a broker-dealer's policies and procedures to reflect how it will ensure efficient access to each material potential liquidity source? Why or why not?

42. What factors would a broker-dealer consider to ensure that it can efficiently access a material potential liquidity source under the proposed rules? Please explain.

43. Do commenters agree that proposed Rule 1101(a)(1)(iii) is consistent with prior Commission statements, including those described in section II.B above? Why or why not? If not, should the Commission revise any of its statements in light of the proposal? Please explain.

[147] *See, e.g., https://www.finra.org/filing-reporting/trace/data* and *https://emma.msrb.org/.*

[148] FINRA Rule 5310(c) provides that a failure to maintain or adequately staff an OTC order room or other department assigned to execute customers' orders is not a justification for a broker-dealer executing away from the best available market. The provision further states that channeling orders through a third party as reciprocation for service or business does not relieve a broker-dealer of its obligation under FINRA Rule 5310. FINRA Rule 5310(d) also provides that a broker-dealer through which orders are channeled and that knowingly is a party to an arrangement whereby the initiating member has not fulfilled its obligations under FINRA Rule 5310 will be deemed to have violated the rule. Similarly, MSRB Rule G–18.02 states that a broker-dealer's failure to maintain adequate resources is not a justification for executing away from the best available market. The proposed rules likewise would not exempt these scenarios from the proposed best execution standard. The Commission also believes that these provisions reflect the concept of efficient access to the best market so that the resulting price to a customer is as favorable as possible under prevailing market conditions, and therefore are consistent with the Commission's proposal to require a broker-dealer's best execution policies and procedures to address how the broker-dealer will efficiently access material potential liquidity sources.

[149] The proposed requirement that a broker-dealer's policies and procedures address how it will be able to efficiently access any material potential liquidity source is consistent with FINRA and MSRB rules concerning interpositioning. Specifically, FINRA Rule 5310(a)(2) states that no broker-dealer or person associated with a broker-dealer may interject a third party between the broker-dealer and the best market for the subject security in a manner that would be inconsistent with FINRA's best execution standard. FINRA Rule 5310(b) states that when a broker-dealer cannot execute directly with a market but must employ a broker's broker or some other means in order to ensure an execution advantageous to the customer, the burden of showing the acceptable circumstances for doing so is on the broker-dealer. And FINRA Rule 5310.05 states that examples of acceptable circumstances are where a customer's order is ''crossed'' with another firm that has a corresponding order on the other side, or where the identity of the firm, if known, would likely cause undue price movements adversely affecting the cost or proceeds to the customer. MSRB Rule G–18(b) similarly prohibits a broker-dealer from interjecting a third party between itself and the best market for the subject security in a manner inconsistent with the MSRB's best execution standard. However, unlike proposed Rule 1101(a), FINRA and MSRB rules do not require a broker-dealer's best execution policies and procedures to explicitly address the incorporation of liquidity sources into its order handling practices or the efficient access of liquidity sources.

[150] *See supra* notes 29–30 and accompanying text.

44. Do commenters agree with the Commission's understanding that broker-dealers currently have policies and procedures for how they comply with the FINRA and MSRB best execution rules, as applicable? Please describe the types of best execution policies and procedures that broker-dealers currently have. In particular, do broker-dealers' policies and procedures address how they obtain and assess reasonably accessible information, including information about price, volume, and execution quality, concerning the markets trading the relevant securities? Do broker-dealers' policies and procedures address how they identify material potential liquidity sources? Do broker-dealers' policies and procedures address how they incorporate material potential liquidity sources into their order handling practices, and how they ensure that they can efficiently access each such material potential liquidity source?

45. Do commenters believe that the Commission should provide staggered compliance dates for proposed Rule 1101(a)(1) for broker-dealers of different sizes, if the Commission adopts proposed Regulation Best Execution? For example, should the Commission provide longer compliance dates for smaller broker-dealers? If so, should the Commission define a smaller broker-dealer as a broker-dealer that qualifies as a ''small entity'' under the Regulatory Flexibility Act pursuant to 17 CFR 240.0–10(c) for this purpose? [151] Or should the Commission define a smaller broker-dealer in a different way? Please explain.

2. Proposed Rule 1101(a)(2)—Best Market Determination

Proposed Rule 1101(a)(2) would require a broker-dealer's best execution policies and procedures to address how it will determine the best market and make routing or execution decisions for customer orders that it receives by: (i) assessing reasonably accessible and timely information with respect to the best displayed prices, opportunities for price improvement, including midpoint executions, and order exposure opportunities that may result in the most favorable price; (ii) assessing the attributes of customer orders and considering the trading characteristics of the security, the size of the order, the likelihood of execution, the accessibility of the market, and any customer instructions in selecting the market most likely to provide the most favorable price; and (iii) in determining the number and sequencing of markets to be assessed, reasonably balancing the likelihood of obtaining better prices with the risk that delay could result in worse prices.

In determining the best market for customer orders, the assessment of reasonably accessible and timely information [152] with respect to the best displayed prices and opportunities for price improvement would vary depending on the trading characteristics of particular securities. Displayed prices can provide a useful reference price for a broker-dealer to consider when assessing the best market in which to execute customer orders, particularly in an asset class where there are consolidated displays of the best prices across the market, or for securities that are considered liquid and have firm prices that are accessible. Accordingly, under proposed Rule 1101(a)(2)(i), a broker-dealer's policies and procedures would be required to address how it will assess reasonably accessible and timely information with respect to the best displayed prices in any given market or security.[153] In addition, the Commission has previously stated that, when reviewing their procedures for seeking to obtain best execution, ''broker-dealers must take into account price improvement opportunities, and whether different markets may be more suitable for different types of orders or particular securities.'' [154] Accordingly, under proposed Rule 1101(a)(2)(i), a broker-dealer's policies and procedures would be required to specifically address how it will assess price improvement opportunities,[155] including midpoint execution opportunities.[156]

In addition to displayed prices and opportunities for price improvement, there may be other order exposure opportunities for customer orders (*e.g.,* order handling and execution protocols that may provide exposure to a competitive process for customer orders). For example, markets that operate limit order books and enable broker-dealers to post customer limit orders could represent a best market for customer orders. These markets may provide an opportunity for executions at the prevailing best bid for customer buy orders or at the prevailing best offer for customer sell orders, rather than executing customer orders by crossing the prevailing bid-offer spread. As another example, auctions may offer an opportunity to expose marketable customer orders to prices that are more favorable than prices that would be achieved by crossing the spread. Accordingly, under proposed Rule 1101(a)(2)(i), a broker-dealer's policies and procedures would be required to address how it will assess order exposure opportunities that may result in the most favorable price.

FINRA Rule 5310(a)(1) and MSRB Rule G–18(a) also identify price information as relevant when ascertaining the best market for a security.[157] MSRB Rule G–18(a) also includes as an additional factor: the information reviewed to determine the current market for the subject security

[151] 17 CFR 240.0–10(c) defines a smaller broker-dealer as one that: (1) had total capital (net worth plus subordinated liabilities) of less than $500,000 on the date in the prior fiscal year as of which its audited financial statements were prepared pursuant to Rule 17a–5(d) under the Exchange Act, or, if not required to file such statements, had total capital (net worth plus subordinated liabilities) of less than $500,000 on the last business day of the preceding fiscal year (or in the time that it has been in business, if shorter); and (2) is not affiliated with any person (other than a natural person) that is not a small business or small organization.

[152] *See supra* notes 132 and 141 and accompanying text.

[153] For fixed income securities, FINRA has also recognized that while a broker-dealer should consider using displayed prices on electronic trading platforms as part of its reasonable diligence in determining the best market for a security, executing a customer order at the displayed price may not necessarily fulfill the broker-dealer's best execution obligations. *See* FINRA Regulatory Notice 15–46, at 8 (stating that displayed prices on electronic trading platforms may not be the presumptive best prices, especially for securities that are illiquid or trade infrequently). Accordingly, the Commission believes that the concept of ''best displayed prices'' is applicable to the fixed income securities market.

[154] Regulation NMS Adopting Release, *supra* note 21, 70 FR 37538. *See also* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323 n.357 (stating that any evaluation of price improvement opportunities would have to consider not only the extent to which orders are executed at prices better than the prevailing quotes, but also the extent to which orders are executed at inferior prices).

[155] Price improvement is the execution of an order at a price that is better than the best displayed buy or sell prices in the market, and an execution between the best displayed bid and offer is a form of price improvement. *See, e.g.,* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323 n.357 (stating that price improvement means the difference between execution price and the best quotes prevailing in the market at the time the order arrived at the market or market maker); FINRA Rule 5310.09(b)(1) (describing price improvement opportunities to mean the difference between the execution price and the best quotes prevailing at the time the order is received by the market).

[156] These executions occur at the midpoint of the best displayed buy and sell prices and may represent a significant amount of price improvement as compared to executing at the best displayed prices for customers seeking to trade immediately.

[157] FINRA has also recognized the importance of considering midpoint liquidity. *See* FINRA Regulatory Notice 15–46 at 4 n.25 (''For example, if a firm obtains price improvement at one venue of $0.0005 per share, and it could obtain mid-point price improvement at another venue of $0.025 per share, the firm should consider the opportunity of such midpoint price improvement on that other venue as part of its best execution analysis.''). In addition, FINRA Rule 5310.09(b)(1) recognizes the relevance of price improvement opportunities.

or similar securities.[158] As described in section IV.B.1 above, FINRA and MSRB rules reflect requirements for broker-dealers to have policies and procedures for compliance with relevant laws and rules. However, FINRA and MSRB rules do not require a broker-dealer's policies and procedures to specifically address the elements that are relevant to its best market determinations. The Commission understands that broker-dealers currently generally have policies and procedures to ascertain the best market for a security, although such policies and procedures may need to be updated to address the elements specified in proposed Rule 1101(a)(2).

For a retail broker-dealer in NMS stocks, its policies and procedures for the best market determination could include assessments of any assurances from a wholesaler that certain orders routed by the retail broker-dealer to the wholesaler would be guaranteed midpoint executions by the wholesaler or otherwise exposed to opportunities for midpoint executions.[159] If midpoint executions were not guaranteed by a wholesaler, a retail broker-dealer's policies and procedures could provide for assessments of whether customer orders would best be executed with midpoint liquidity that may be available on an exchange, ATS, or other market. Following an assessment of the opportunities for midpoint executions, a broker-dealer's policies and procedures could provide for an assessment of whether other price improvement opportunities might be available, such as from wholesalers,[160] from resting liquidity between the best bid and offer on exchanges, through auctions, or otherwise.

With respect to listed options, the Commission recognizes that midpoint liquidity is not as commonly available on options exchanges as it is in the NMS stock market.[161] A broker-dealer's policies and procedures nevertheless would be required to address how it will assess potential midpoint executions, including to the extent additional midpoint liquidity emerges. Following an assessment of potential opportunities for midpoint executions, the Commission preliminarily believes that a broker-dealer's policies and procedures could provide for an assessment of other price improvement opportunities that might be available. These price improvement opportunities could include potential resting liquidity on exchange limit order books priced between the best bid and offer. Price improvement opportunities may also be available through exchange price improvement auctions.[162] A broker-dealer's policies and procedures could also address how it will assess price improvement opportunities that may be available from different wholesalers, including an assessment of guarantees for price improvement that might be provided by wholesalers and the performance of the wholesalers, including the execution quality that the retail broker-dealer's customers received from the wholesalers in the past. In doing so, a broker-dealer's policies and procedures could address how it will assess the exchanges and exchange mechanisms that wholesalers use, why they use those exchanges and mechanisms, and the relative competitiveness of those exchanges and mechanisms in light of fee differentials and functionality that can affect competitive responses and facilitate internalization.

The policies and procedures requirements under proposed Rule 1101(a)(2)(i) would also apply to wholesalers in the NMS stock and options markets. For customer orders that a wholesaler intends to execute at prices worse than the midpoint, its policies and procedures could provide for an assessment of whether those orders would best be executed with midpoint liquidity that may be available on an exchange, ATS, or other market. A wholesaler's policies and procedures would also need to address how it will consider other opportunities for price improvement, which could include liquidity available on exchanges or other markets priced between the best bid and offer. Finally, these policies and procedures would need to address how the wholesaler will assess order exposure opportunities for customer orders that may result in the most favorable price for those orders.

In the corporate and municipal bond markets and government securities markets, some broker-dealers display executable prices to customers through proprietary customer-facing systems that enable customers to transact at the displayed prices. Sometimes these prices represent securities that are available on other venues such as ATSs, interdealer brokers or otherwise, while other times these prices represent securities held in inventory by the broker-dealer. The policies and procedures of a broker-dealer in the corporate and municipal bond markets and government securities markets would need to address how it will assess reasonably accessible and timely information with respect to the best displayed prices.

Information with respect to the best displayed prices would be different between the corporate and municipal bond markets and government securities markets, and the equities and options markets. In particular, timely consolidated best prices are readily accessible in the equities and options markets, but there are no similar consolidated best prices in the corporate and municipal bond markets and government securities markets. A broker-dealer's policies and procedures generally should therefore be tailored to reflect best displayed price information that is ''reasonably accessible and timely'' in the corporate and municipal bond markets and government securities markets.[163]

[158] This factor is consistent with proposed Rule 1101(a)(2) because a broker-dealer's policies and procedures regarding the assessment of reasonably accessible and timely best displayed prices in the municipal bond market could include an assessment of information to determine the current market for the subject security or similar securities.

[159] If wholesalers do not have a practice of routinely seeking and accessing midpoint liquidity as appropriate, the retail broker-dealer's policies and procedures could address how it takes that into account when assessing whether a wholesaler is the best market for customer orders.

[160] In considering wholesalers, such policies and procedures could address how the retail broker-dealer assesses the price improvement opportunities that may be available from different wholesalers, including an assessment of guarantees for price improvement that might be provided by wholesalers and the performance of wholesalers, such as the execution quality that the retail broker-dealer's customers received from the wholesalers in the past.

[161] Given the lack of order types concerning midpoint liquidity, midpoint liquidity is not prevalent in the listed options market.

[162] Price improvement auctions currently available on options exchanges are two-sided and thus may not be directly accessible by many retail broker-dealers because they do not commit capital to trade with customers. Specifically, options price improvement auctions guarantee that a customer order will be executed by requiring the broker-dealer initiating the auction to commit to trade in a principal capacity with the customer order at a certain price, with exposure to potential price improvement from competitive responders. *See, e.g.,* Nasdaq ISE, LLC Options 3, Section 13; Nasdaq Phlx LLC Options 3, Section 13; Miami International Securities Exchange LLC Rule 515A; BOX Exchange LLC Rule 7150; NYSE American LLC Rule 971.1NY; Cboe Exchange, Inc. Rule 5.37. However, to the extent one-sided auctions (or other trading protocols providing a competitive process for exposing customer orders for the most favorable price) exist or emerge, a broker-dealer's policies and procedures generally should consider addressing whether such price improvement opportunities represent the best market for customer orders when making a routing or execution decision.

[163] FINRA Rule 5310 also states that ''when quotations are available, FINRA will consider the accessibility of such quotations when examining whether a member has used reasonable diligence.'' *See* FINRA Rule 5310.03. FINRA has also discussed the importance of a broker-dealer evaluating the quality of displayed prices in fixed income securities. *See* FINRA Regulatory Notice 15–46, at 8 (''FINRA also notes that prices of a fixed income security displayed on an electronic trading platform may not be the presumptive best price of that

The proposed rule requires policies and procedures of a broker-dealer in the corporate and municipal bond markets and government securities markets to also address how it will assess order exposure opportunities that may result in the most favorable price, which could include how it will assess RFQ mechanisms. These mechanisms may represent the best market for customer orders in light of the trading characteristics of these securities, where there may be limited quotation or transaction pricing information available. In the absence of reliable pricing information, such as bid, offer, or transaction data for a security, a competitive auction mechanism may result in the most favorable prices reasonably available.

The policies and procedures of a broker-dealer in the corporate and municipal bond markets and government securities markets could also assess how its use of RFQ systems may affect the opportunity to expose a customer order to the most favorable price. For example, when a customer wishes to buy or sell a bond, a broker-dealer may use an electronic RFQ system to solicit prices from other participants on the system.[164] In this scenario, a broker-dealer's policies and procedures could address how it will use ''filters'' and assess whether the use of filters would affect the exposure for customer orders. Specifically, a broker-dealer that submits an RFQ on behalf of a customer typically has the option of deciding which participants it wants to request prices from. While a broker-dealer may use filters in a way that is consistent with its duty of best execution, a broker-dealer could also potentially use filters to prevent certain market participants from receiving and participating in the RFQ in a way that prevents a customer order from being exposed to opportunities to receive the most favorable price (*e.g.,* the participants that might have been willing to provide that price may have been precluded from the RFQ by the broker-dealer).[165]

As another example, the policies and procedures of a broker-dealer in the corporate and municipal bond markets and government securities markets could address the use of ''last look'' functionalities. When a broker-dealer uses an RFQ system, it will often receive responses in the form of bids (most common) or offers, and it typically has a certain amount of time to decide whether or not it chooses to execute the transaction with the best price or to match or improve that price in a principal trade with the customer. One effect of this ''last look'' practice may be to deter market participants that might otherwise vigorously compete to trade with the customer's order from submitting their most favorable prices, in light of the possibility that the broker-dealer is simply using the RFQ system for price discovery and ultimately intends to trade with its customer in a principal capacity.[166] A broker-dealer's policies and procedures could address how the broker-dealer uses ''last look'' in connection with its RFQs and whether this practice affects the extent to which customer orders are exposed to opportunities to receive the most favorable price.[167]

As a third example, the policies and procedures of a broker-dealer in the corporate and municipal bond markets and government securities markets could address the response times that a broker-dealer may require for responses to an RFQ. Broker-dealers frequently request quotes and include a time limit by which all quotes must be received. This practice permits market participants time to consider the request and provide a price for the security, while establishing a time limit so that the broker-dealer can execute its customer order in a timely manner. The appropriate amount of time for responses can be influenced by important and variable considerations for different customer orders. Response times that are too short, however, can prevent market participants that may otherwise be interested in competing for the customer order from being able to submit prices in response to the request. A broker-dealer's policies and procedures could address how the broker-dealer uses response times in connection with its RFQs and how its use might impact the exposure of a customer order to opportunities to receive the most favorable price.

In addition to assessing reasonably accessible and timely information regarding displayed prices and price improvement and order exposure opportunities, proposed Rule 1101(a)(2)(ii) would require a broker-dealer's policies and procedures to address how it will assess the attributes of its customers' orders and consider the trading characteristics of the security, the size of the orders, the likelihood of execution, the accessibility of the market, and any customer instructions in selecting the market most likely to

security for best execution purposes, especially for securities that are illiquid or trade infrequently. Thus, although a firm should consider using this information as part of its reasonable diligence in determining the best market for the security, executing a customer order at the displayed price may not fulfill the firm's obligations, particularly if other sources of information indicate the displayed price may not be the best price available. For example, if . . . a firm regularly uses a reliable similar security analysis to establish prices, that firm may need to use particular care before executing a trade at a price that is displayed by a trading system if its similar security analysis suggests that the displayed price is not reflective of the market.'').

[164] It is the Commission's understanding that a broker-dealer typically uses RFQ systems to solicit prices when customers are selling bonds and that RFQ systems are used less for customers that are buying bonds.

[165] FINRA and the MSRB have recognized the potential misuse of filters as well. *See* FINRA Regulatory Notice 15–46, at 5 (''If a firm uses filters on counterparties or filters on specific securities intended to limit accessing bids and offers in those securities, they may be used only for a legitimate purpose consistent with obtaining the most favorable executions for customers, and should be reviewed on a periodic basis and adjusted as needed.''). *See* MSRB Interpretive Guidance Section III.1 (''Some dealers may employ 'filters,' which generally refer to automated tools that allow the dealer to limit its trading, with, for example, specific parties or parties with specified attributes with which it does not want to interact. If a dealer uses filters on counterparties or filters on specific securities intended to limit accessing bids or offers in those securities, they may be used only for a legitimate purpose consistent with obtaining the most favorable executions for non-SMMP customers, and should be reviewed on a periodic basis and adjusted as needed. The dealer, accordingly, should have policies and procedures in place that govern when and how to: reasonably use filters without negatively impacting the quality of execution of non-SMMP customer transactions; periodically reevaluate their use; and determine whether to lift them upon request.'').

[166] *See* Recommendation Regarding the Practice of Pennying in the Corporate and Municipal Bond Markets, SEC Fixed Income Market Structure Advisory Committee (June 11, 2019), *available at https://www.sec.gov/spotlight/fixed-income-advisory-committee/fimsac-pennying-recommendations.pdf* (describing that the abusive use of the last look practice ''harms competitiveness'' and ''deters aggressive pricing or participation in the auction process by other dealers who fear that the submitting dealer is going to 'step in front of' their winning prices or is otherwise using the auction process solely for price discovery purposes''). *See also* FINRA Regulatory Notice 20–29 (Aug. 17, 2020) (requesting comment on the impact of the broker-dealer practice of trading with a customer as principal by matching or slightly improving on the best auction responses without participating in the auction); MSRB Notice 2018–22 (Sept. 7, 2018) (requesting comment on the abusive practice of last look known as pennying and stating ''[i]n recent outreach to a broad range of market participants, it has been suggested that pennying is prevalent in the municipal market and that widespread pennying does indeed disincentivize participation in the bid-wanted process, discourages bidders from giving their best price in a bid-wanted and may impact the efficiency of the market'').

[167] Last look practices can also be beneficial to customers. For example, there could be situations where the responses received by the broker-dealer all reflect prices that the broker-dealer has reason to believe are not reflective of the most favorable price. In these cases, last look enables the broker-dealer to evaluate those prices, determine not to execute the customer order at those prices, and either internalize the order at a price the broker-dealer believes is the most favorable price or seek additional liquidity for the customer order.

provide the most favorable price for the order.

Not all customer orders have the same attributes or size and a broker-dealer's best market determination is affected by the attributes of customer orders and the size of customer orders.[168] For example, when a broker-dealer is handling and executing large orders, it may likely be more sensitive to the possibility of information leakage and price impact that could harm the execution quality of such orders. Therefore, the broker-dealer may make a best market determination designed to minimize the risk of information leakage and price impact concerns.[169] In contrast, a broker-dealer handling and executing small orders may not be as concerned with information leakage, resulting in a different best market determination for execution of such orders.[170] Other relevant customer order attributes could include whether or not the order is a market order or limit order. A broker-dealer's assessment of the best market to execute customer orders is different for customers interested in trading immediately [171] and customers willing to execute orders over a longer period of time. Moreover, the likelihood of execution is a relevant consideration for a broker-dealer, as the failure to receive an execution for orders from a particular market may negatively impact the ultimate execution quality received by customers.

A broker-dealer's best market determination is also affected by the trading characteristics of a security and the accessibility of a market. For example, some securities may not have readily available or accessible quotation data or may trade in OTC markets.[172] These characteristics affect how a broker-dealer would identify the best market for customer orders, and a broker-dealer may need to seek out pricing information that may not otherwise be available or accessible at the time it receives a customer order, such as by soliciting buy or sell interest from market participants through auction mechanisms, interdealer brokers, or otherwise.[173] Furthermore, extreme market conditions that result in heightened volatility or impact the liquidity for a security may affect a broker-dealer's best market determination for customer orders as trading in those conditions may merit different order handling than in more normal market conditions.[174]

Moreover, customer instructions are relevant for a broker-dealer's best market determination. Customers may provide a broker-dealer with specific instructions regarding how the broker-dealer should handle and execute their orders, including institutional customers that also owe their clients a duty to seek best execution. A broker-dealer's policies and procedures generally should address how the broker-dealer will assess the factors in proposed Rule 1101(a)(2) within the context of and consistent with customer instructions.[175] For example, some institutional customers may instruct their broker-dealer to handle and execute their orders with regard being given to the fees and rebates that may be charged or paid by a particular market,[176] and a broker-dealer's policies

[168] FINRA Rule 5310(a)(1) also recognizes the ''size and type'' of transactions as factors relevant to a broker-dealer's exercise of reasonable diligence to ascertain the best market, although FINRA rules do not require a broker-dealer's policies and procedures to explicitly address how it would assess these factors.

[169] It is the Commission's understanding that when an institutional customer gives a large order to be executed on behalf of one account (*e.g.,* a single mutual fund or pension fund), it expects the broker-dealer that handles and executes such large order to do so in a manner that ensures best execution is provided to the ''parent'' order. In other words, to the extent that a parent order is split into smaller ''child'' orders, the institutional customer expects the best execution analysis to evaluate whether the parent order was executed at the most favorable price possible under prevailing market conditions according to customer instructions. *See, e.g.,* Concept Release on Equity Market Structure, *supra* note 49, 75 FR at 3604–3605 (measuring the transaction costs of institutional investors ''can be extremely complex'' because their ''large orders often are broken up into smaller child orders and executed in a series of transactions'' and ''[m]etrics that apply to small order executions may miss how well or poorly the large order traded overall.'').

[170] While the Commission has long-acknowledged a range of factors relevant for a best execution analysis, it has recognized price as a critical concern. *See supra* note 22 and accompanying text. The Commission has stated, for example, that it ''strongly believes, however, that most investors care a great deal about the quality of prices at which their orders are executed . . . .'' *See* Order Execution and Routing Practice Release *supra* note 22, 65 FR at 75418. Additionally, the Commission has stated that broker-dealers handling small orders in listed and OTC equities should look for price improvement opportunities when executing these orders. *See* Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48323.

[171] FINRA Rule 5310.01 requires a broker-dealer to make every effort to execute marketable customer orders fully and promptly. Similarly, MSRB Rule G–18.03 requires a broker-dealer to make every effort to execute a customer transaction promptly, taking into account prevailing market conditions, and recognizes that in certain market conditions a broker-dealer may need more time to use reasonable diligence to ascertain the best market for the subject security. The MSRB has stated that while a broker-dealer must make every effort to execute a customer transaction promptly, the determination as to whether a firm exercised reasonable diligence necessarily involves a ''facts and circumstances'' analysis, and actions that in one instance may meet a broker-dealer's best-execution obligation may not satisfy that obligation under another set of circumstances. MSRB Interpretative Guidance, V1.1: Execution timing (Nov. 20, 2015). Similarly, when assessing the attributes of a customer order under proposed Rule 1101(a)(2), a broker-dealer would be required to assess how it will execute marketable customer orders fully and promptly, taking into account prevailing conditions, given that the customer expectation when submitting a market order is to have the order executed immediately at the prevailing market price or better.

[172] *See also* FINRA Rule 5310(a)(1) (recognizing the relevance of the pressure on available communications as relevant for a broker-dealer's best market determination). A broker-dealer's assessment of the accessibility of a market could vary depending on the cost of maintaining connectivity, receiving market data, and transacting on the market.

[173] These considerations are consistent with FINRA and MSRB rules concerning orders involving securities with limited quotations or pricing information. *See* FINRA Rule 5310.06 (providing that a broker-dealer must be especially diligent in ensuring that it has met its best execution obligations with respect to customer orders involving securities for which there is limited pricing information or quotations available; requiring each member to have written policies and procedures that address how it will determine the best inter-dealer market for such a security in the absence of pricing information or multiple quotations and document its compliance with those policies and procedures; providing as an example that a broker-dealer should analyze pricing information based on other data, such as previous trades in the security, to determine whether the resultant price to the customer is as favorable as possible under prevailing market conditions; and providing that a broker-dealer should generally seek out other sources of pricing information or potential liquidity, which may include obtaining quotations from other sources (*e.g.,* other firms with which the member previously has traded in the security)); MSRB Rule G–18.06 (providing that a broker-dealer must be especially diligent in ensuring that it has met its best-execution obligations with respect to customer transactions involving securities for which there is limited pricing information or quotations available; requiring each broker-dealer to have written policies and procedures in place to address how it will make its best execution determinations with respect to such a security in the absence of pricing information or multiple quotations and document its compliance with those policies and procedures; and providing as an example that a broker-dealer generally should seek out other sources of pricing information and potential liquidity for such a security, including other broker-dealers with which the broker-dealer previously has traded in the security; and providing that a broker-dealer generally should, in determining whether the resultant price to the customer is as favorable as possible under prevailing market conditions, analyze other data to which it reasonably has access).

[174] *See also* FINRA Regulatory Notice 21–12 (discussing the best execution obligations of broker-dealers handling and executing customer orders during extreme market conditions); FINRA Rule 5310(a)(1) (discussing the relevance of volatility and liquidity to a broker-dealer's best market determination).

[175] A broker-dealer that receives an unsolicited instruction from a customer to route that customer's order to a particular market for execution and otherwise qualifies for the exemption from the proposed best execution standard in Rule 1100(c) would not be subject to the requirements of proposed Rule 1101, including the requirement to have policies and procedures that address how the broker-dealer would consider customer instructions in selecting the market most likely to provide the most favorable price.

[176] The Commission understands that these customers often pay the broker-dealer a lower commission or service fee for handling their orders, and the fees and rebates that are charged or paid

and procedures generally should address how it would assess the relevant factors in proposed Rule 1101(a)(2) while taking into account the customer instructions in determining the best market for the customers' orders.[177]

Proposed Rule 1101(a)(2)(iii) would require a broker-dealer's policies and procedures to address how it will reasonably balance the likelihood of obtaining better prices with the risk that delay could result in worse prices in determining the number and sequencing of markets to be assessed for its customers' orders.[178] An undue delay in execution of customer orders may detrimentally impact the execution of those orders, if there was a change in the price or liquidity available at the time of execution that was not favorable to the customer. For example, in a volatile market, executing customer orders quickly may be necessary for the customer to receive the most favorable prices or to receive an execution at all. Doing so may require the broker-dealer to execute customer orders using fewer or different execution methods than it might otherwise use in a less volatile market. Similarly, a broker-dealer that is handling large customer orders may determine that preventing information leakage is necessary in order for the large orders to be executed at the most favorable prices, which may affect the number and sequencing of the markets that it assesses. Accordingly, the broker-dealer's best execution policies and procedures generally should be tailored for the different circumstances in order to reflect a reasonable balance between the likelihood of obtaining better prices with the risk that delay could result in worse prices.

FINRA Rule 5310(a)(1) and MSRB Rule G–18(a) set forth similar factors that are relevant to ascertaining the best market for customer orders, including the character of the market for the security (*e.g.,* price, volatility, relative liquidity, and pressure on available communications), the size and type of transaction, the number of markets checked, the accessibility of the quotation,[179] and the terms and conditions of the order that result in the transaction as communicated to the broker-dealer. As described in section IV.B.1 above, FINRA and MSRB rules require broker-dealers to have policies and procedures for compliance with relevant laws and rules. In addition, the FINRA and MSRB rules specifically require a broker-dealer to establish written policies and procedures that address how it will determine the best market for a security in the absence of pricing information or multiple quotations and document its compliance with those policies and procedures.[180] However, FINRA and MSRB rules do not require a broker-dealer's policies and procedures to specifically address the elements that are relevant to its best market determinations. The Commission understands that broker-dealers generally have policies and procedures to ascertain the best market for a security, although such policies and procedures may need to be updated to address the elements specified in proposed Rule 1101(a)(2).

Request for Comment

The Commission requests comment on all aspects of proposed Rule 1101(a)(2), and in particular:

46. Has the Commission appropriately identified the considerations for determining the best market for customer orders? Why or why not?

47. Do commenters believe that proposed Rule 1101(a)(2)(i) appropriately requires a broker-dealer's policies and procedures to reflect how it will assess reasonably accessible and timely information with respect to the best displayed prices, opportunities for price improvement, including midpoint executions, and order exposure opportunities that may result in the most favorable price? Why or why not?

48. Do commenters believe that proposed Rule 1101(a)(2)(ii) appropriately requires a broker-dealer's policies and procedures to reflect how it will assess the attributes of customer orders and consider the trading characteristics of the security, the size of the order, the likelihood of execution, the accessibility of the market, and any customer instructions in selecting the market most likely to provide the most favorable price? Why or why not?

49. Do commenters believe that proposed Rule 1101(a)(2)(iii) appropriately requires a broker-dealer's policies and procedures to reflect how it will reasonably balance the likelihood of obtaining better prices with the risk that delay could result in a worse price, in determining the number and sequencing of markets to be assessed? Why or why not?

50. Do commenters agree that proposed Rule 1101(a)(2) is consistent with prior Commission statements, including those described in section II.B above? Why or why not? If not, should the Commission revise any of its statements in light of the proposal? Please explain.

51. While the considerations for determining the best market included in proposed Rule 1101(a)(2) are non-exhaustive, should the Commission explicitly include other considerations in the rule? If so, please explain.

52. Is the list of considerations for determining the best market included in proposed Rule 1101(a)(2) consistent with the considerations included in FINRA Rule 5310 and MSRB Rule G–18? If not, please explain any differences and whether the considerations should be consistent.

53. Do commenters agree with the Commission's understanding that midpoint liquidity is not as commonly available in the options market as it is in the NMS stock market? Why or why not?

54. Should the Commission specify transaction fees in the rule text as considerations for determining the best market? If so, please explain how fees may be relevant to the best execution standard and a broker-dealer's best market determination. Do broker-dealers route and execute customer orders based on a favorable transaction fee and does that impact the execution quality of customer orders? Please explain.

55. What factors should a broker-dealer consider in determining the number and sequencing of markets to be assessed, in addition to the likelihood of obtaining better prices and the risk that a delay could result in a worse price? Please explain.

56. Do commenters agree with the Commission's understanding that institutional customers expect broker-dealers that handle and execute their large orders for a single account to do so in a manner that ensures best execution is provided to the ''parent'' order?

by a market are often passed through to the customers.

[177] To the extent rebates cause certain transactions to be ''conflicted transactions'' as defined in proposed Rule 1101(b), a broker-dealer's policies and procedures must also address how it would assess the relevant factors in proposed Rule 1101(b) while taking into account the customer instructions.

[178] For example, a broker-dealer could develop an automated process for determining the specific markets to which it routes orders and the sequence in which the orders are routed.

[179] FINRA Rule 5310.03 provides that, for purposes of debt securities, the term ''quotation'' refers to either dollar (or other currency) pricing or yield pricing. It also states that accessibility is only one of the non-exhaustive reasonable diligence factors, and in the absence of accessibility, members are not relieved from taking reasonable steps and employing their market expertise in achieving the best execution of customer orders. Proposed Rule 1101(a) similarly provides a list of non-exhaustive reasonable diligence factors that would be addressed in a broker-dealer's best execution policies and procedures.

[180] *See supra* note 173.

57. Do commenters agree with the Commission's understanding that broker-dealers currently generally have policies and procedures to ascertain the best market for a security? Please describe the types of best market policies and procedures that broker-dealers currently have. In particular, do broker-dealers' policies and procedures address how they assess reasonably accessible and timely information with respect to the best displayed prices, opportunities for price improvement, including midpoint executions, and order exposure opportunities that may result in the most favorable price? Do broker-dealers' policies and procedures address how they assess the attributes of customer orders and consider the trading characteristics of the security, the size of the order, the likelihood of execution, the accessibility of the market, and any customer instructions in selecting the market most likely to provide the most favorable price? Do broker-dealers' policies and procedures address how they reasonably balance the likelihood of obtaining better prices with the risk that delay could result in a worse price, in determining the number and sequencing of markets to be assessed?

58. Do commenters believe that the Commission should provide staggered compliance dates for proposed Rule 1101(a)(2) for broker-dealers of different sizes, if the Commission adopts proposed Regulation Best Execution? For example, should the Commission provide longer compliance dates for smaller broker-dealers? If so, should the Commission define a smaller broker-dealer as a broker-dealer that qualifies as a ''small entity'' under the Regulatory Flexibility Act pursuant to 17 CFR 240.0–10(c) for this purpose? [181] Or should the Commission define a smaller broker-dealer in a different way? Please explain.

C. Proposed Rule 1101(b)—Policies and Procedures and Documentation for Conflicted Transactions

Proposed Rule 1101(b) would require a broker-dealer's best execution policies and procedures to address additional considerations with respect to ''conflicted transactions.'' It would also require a broker-dealer to document its compliance with the proposed best execution standard for conflicted transactions and document any arrangement concerning payment for order flow.

Proposed Rule 1101(b) would define a ''conflicted transaction'' for purposes of proposed Regulation Best Execution as any ''transaction for or with a retail customer'' where a broker-dealer: (i) executes an order as principal, including riskless principal; [182] (ii) routes an order to, or receives an order from, an affiliate for execution; or (iii) provides or receives payment for order flow as defined in Rule 10b–10(d)(8) under the Exchange Act.[183] For purposes of paragraph (b), ''affiliate'' would be defined by proposed Rule 1101(b)(4)(iii) as, with respect to a specified person, any person that, directly or indirectly, controls, is under common control with, or is controlled by, the specified person. ''Control'' would be defined for purposes of the proposed definition of ''affiliate'' by proposed Rule 1101(b)(4)(iii) as the power, directly or indirectly, to direct the management or policies of the broker-dealer whether through ownership of securities, by contract, or otherwise. A person is presumed to control a broker-dealer if that person is a director, general partner, or officer exercising executive responsibility (or having similar status or performing similar functions); directly or indirectly has the right to vote 25 percent or more of a class of voting securities or has the power to sell or direct the sale of 25 percent or more of a class of voting securities of the broker-dealer; or in the case of a partnership, has contributed, or has the right to receive upon dissolution, 25 percent or more of the capital of the broker-dealer.[184] In each of these types of conflicted transactions, the broker-dealer has a financial interest that could disincentivize the broker-dealer from achieving best execution for its customer's orders.[185] Accordingly, the Commission proposes to require more robust policies and procedures, as well as documentation, for conflicted transactions with retail customers to better address these disincentives.

Proposed Rule 1101(b) would apply to conflicted transactions for or with a retail customer, and proposed Rule 1101(b)(4)(i) would define a ''transaction for or with a retail customer'' as any transaction for or with the account of a natural person or held in legal form on behalf of a natural person or group of related family members. The proposed definition's limitation to accounts of natural persons is consistent with existing rules that are designed to identify the orders of individual investors. For example, the definition of ''retail customer'' in the

[181] *See supra* note 151 and accompanying text (describing the broker-dealers that qualify as small entities under the Regulatory Flexibility Act).

[182] For purposes of proposed Rule 1101(b), a broker-dealer would be executing an order as ''riskless principal'' if, after having received an order to buy from a customer, the broker-dealer purchases the security from another person to offset a contemporaneous sale to the customer or, after having received an order to sell, the broker-dealer sells the security to another person to offset a contemporaneous purchase from the customer. *See also,* Exchange Act Rule 3a5–1; U.S. Securities and Exchange Commission, Report on the Municipal Securities Market (July 31, 2012) *available at https://www.sec.gov/news/studies/2012/munireport073112.pdf.* The Commission preliminarily believes that it is appropriate to include riskless principal transactions as a type of conflicted transactions because of the variability of markups and markdowns associated with riskless principal transactions, which impacts the ultimate price paid by the customer (*i.e.,* the ultimate execution received by the customer) and often is not known to the customer prior to transacting. *See, e.g.,* John M. Griffin, et al., *supra* note 66.

[183] *See supra* note 43 (setting forth the definition of ''payment for order flow'' under Rule 10b–10(d)(8)). Given the widespread use of the Rule 10b–10(d)(8) definition of ''payment for order flow'' and the collective understanding of the term by market participants, the Commission proposes to use the existing Rule 10b–10(d)(8) definition in proposed Regulation Best Execution. As reflected in this definition, payment for order flow would include any payments from a wholesaler to a retail broker-dealer in return for order flow. It would also include any exchange rebates paid to a broker-dealer in return for sending orders to the exchange. When all payment for order flow for a customer order from a particular market is passed through to the customer and the broker-dealer retains no part of the payment for order flow associated with that customer order, the broker-dealer would not be engaging in a conflicted transaction under proposed Rule 1101(b) with respect to that customer order.

[184] These definitions are substantially the same as the definitions of ''affiliate'' and ''control'' prescribed for purposes of the disclosures required of an ATS that trades NMS stocks (''NMS Stock ATS'') about its operations on Form ATS–N with the following modifications: the Form ATS–N definition of ''affiliate'' uses a separately-defined term ''Person'' instead of the statutory definition of ''person,'' and Form ATS–N defines ''control'' as applicable to the ''broker-dealer of the alternative trading system'' instead of as applicable to a ''broker or dealer.'' The Commission believes that it would be appropriate to use substantially similar definitions of ''affiliate'' and ''control'' in the context of proposed Rule 1101(b) because, for purposes of Form ATS–N, the Commission defined such terms for use with respect to disclosures designed to enable market participants to better evaluate how relationships between certain persons could affect the handling of orders on a particular NMS Stock ATS. *See* Securities Exchange Act Release No. 83663 (July 18, 2018), 83 FR 38768 (Aug. 7, 2018). The substantially similar proposed definitions, as used in the context of proposed Rule 1101(b), are similarly designed to recognize that relationships among certain persons may impact the handling of orders, and are designed to help ensure that broker-dealers that have conflicts of interest in their order handing are subject to additional obligations under proposed Rule 1101(b).

[185] *See generally* section III.A.2 (discussing in more detail these conflicts of interest); *see also* 2022 Report on FINRA's Examination and Risk Monitoring Program 45 (Feb. 2022), *available at https://www.finra.org/sites/default/files/2022-02/2022-report-finras-examination-risk-monitoring-program.pdf* (describing FINRA exam findings, including firms not considering and addressing potential conflicts of interest relating to routing orders to affiliated broker-dealers, affiliated ATSs, or market centers that provide routing inducements, such as payment for order flow from wholesale market makers and exchange liquidity rebates).

Commission's Regulation Best Interest rule is limited to a ''natural person.'' [186] Moreover, several national securities exchanges operate programs for trading ''retail'' orders that are limited to accounts of natural persons or certain accounts on behalf of natural persons.[187] The proposed definition of retail customer is also consistent with FINRA's rule for certain trade reporting.[188] Proposing a definition of retail customer that is similar to existing Commission and SRO rules would facilitate compliance with proposed Rule 1101(b) and help mitigate the costs of compliance because broker-dealers would already be familiar with identifying orders for the accounts of natural persons, or for related accounts, in these other contexts.

In addition to the accounts of natural persons, the proposed definition of ''transaction for or with a retail customer'' would cover accounts held in legal form on behalf of a natural person or a group of related family members. A ''group of related family members'' would be defined broadly in proposed Rule 1101(b)(4)(i) to include a group of natural persons with any of the following relationships: child, stepchild, grandchild, great grandchild, parent, stepparent, grandparent, great grandparent, spouse, domestic partner, sibling, stepbrother, stepsister, niece, nephew, aunt, uncle, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive and foster relationships; and any other natural person (other than a tenant or employee) sharing a household with any of the foregoing natural persons. This proposed definition is broad so as not to restrict the types of arrangements that may be set up to benefit family groups, including individual retirement accounts, corporations, and limited liability companies for the benefit of related family members.

Proposed Rule 1101(b) would create new requirements for broker-dealers' conflicted transactions that are not currently required by FINRA or the MSRB. Because a broker-dealer engaging in conflicted transactions for or with retail customers has an incentive to handle those orders in a manner that prioritizes its own interests over its customers' interests, the Commission preliminarily believes that, correspondingly, additional policies and procedures elements and documentation requirements should apply to such transactions in order to help mitigate the potential for these incentives to negatively affect the broker-dealer's best execution determinations. The Commission preliminarily believes that proposed Rule 1101(b) would help broker-dealers to comply with the proposed best execution standard with respect to conflicted transactions, because it would require heightened attention by broker-dealers for conflicted transactions and would require broker-dealers to document the basis for their determinations that, despite the conflicts of interest, they have complied with the best execution standard for their conflicted transactions.

The Commission also preliminarily believes that retail customers generally would benefit more than non-retail customers from the more robust conflicted transactions requirements because retail customers are likely to have fewer resources for evaluating the best execution practices of their broker-dealers than non-retail customers. For example, institutional customers likely have additional knowledge, experience, and analytical resources as compared to retail customers and, thus, are more readily able to evaluate the impact of their broker-dealers' conflicted transactions. In contrast, retail customers are less likely to have the same level of knowledge, experience, and resources to make such evaluations.

Request for Comment

The Commission requests comment on the types of conflicted transactions under proposed Rule 1101(b), and in particular:

59. Is it appropriate for proposed Rule 1101(b) to incorporate the definition of ''payment for order flow'' from Exchange Act Rule 10b–10(d)(8)? Why or why not? If not, how should ''payment for order flow'' be defined for purposes of proposed Regulation Best Execution? Please describe any alternative definition and explain why such definition would be appropriate.

60. Does proposed Rule 1101(b) appropriately identify the conflicts of interest of broker-dealers that are most relevant to the handling of retail customer orders? If not, why not? Are there other conflicted transactions that should be included in proposed Rule 1101(b) or are there transactions that are included that should be omitted? If so, please explain.

61. Should the principal trading conflict identified in proposed Rule 1101(b) include riskless principal trades with customers, as proposed? Why or why not? If riskless principal trades should be included, should they be defined as proposed—after having received an order to buy from a customer, the broker-dealer purchases the security from another person to offset a contemporaneous sale to the customer or, after having received an order to sell, the broker-dealer sells the security to another person to offset a contemporaneous purchase from the customer—similar to the definition of riskless principal in Exchange Act Rule 3a5–1? Why or why not?

62. Should the Commission provide an exemption from the definition of conflicted transactions for certain types of riskless principal trades? For example, should the Commission exempt from the definition of ''riskless principal'' in proposed Rule 1101 (b)(4)(ii) trades where the broker-dealer discloses to its customer the markup or markdown that it charges on these trades on a pre-trade basis? Please explain. If this type of exemption should be provided, what would be an appropriate method of pre-trade markup or markdown disclosure by the broker-dealer? For example, would it be appropriate for the broker-dealer to disclose a markup or markdown schedule in a readily accessible place such as its website? Please explain.

63. Alternatively, should the Commission exempt from the definition of ''riskless principal'' in proposed Rule

[186] 17 CFR 240.15l–1(b)(1) (defining ''retail customer'' to mean, among other things, a natural person who receives a recommendation of any securities transaction from a broker or dealer and uses the recommendation primarily for personal, family, or household purposes). Proposed Rule 1101(b) does not incorporate all of the definition of ''retail customer'' in Regulation Best Interest because that definition is limited to scenarios where a person receives and uses a recommendation. In contrast, proposed Rule 1101(b) and the proposed standard of best execution are not limited to scenarios where a person receives and uses a recommendation.

[187] *See, e.g.,* Investors Exchange LLC Rule 11.190(b)(15) (providing, among other things, that ''[a] Retail order must reflect trading interest of a natural person'' and that ''[a]n order from a retail customer can include orders submitted on behalf of accounts that are held in a corporate legal form—such as an Individual Retirement Account, Corporation, or a Limited Liability Company—that have been established for the benefit of an individual or group of related family members, provided that the order is submitted by an individual''); The Nasdaq Stock Market LLC, Equity 7, Section 118 (defining a ''Designated Retail Order'' as originating from a ''natural person'' and explaining that ''[a]n order from a 'natural person' can include orders on behalf of accounts that are held in a corporate legal form—such as an Individual Retirement Account, Corporation, or a Limited Liability Company—that has been established for the benefit of an individual or group of related family members, provided that the order is submitted by an individual'').

[188] FINRA Rule 7620A.01 (defining a ''retail order'' as originating from a ''natural person'' and explaining that ''[a]n order from a 'natural person' can include orders on behalf of accounts that are held in a corporate legal form, such as an Individual Retirement Account, Corporation, or a Limited Liability Corporation that has been established for the benefit of an individual or group of related family members, provided that the order is submitted by an individual'').

1101(b)(4)(ii) trades where the contemporaneous purchases and sales are executed at the same price resulting in a transaction with the customer that does not include any markup or markdown? Please explain. In these types of transactions, how would the broker-dealer be compensated by the customer? Would it charge a commission that is separately disclosed to the customer on the confirmation? Would the customer know the commission that it would pay the broker-dealer prior to engaging in the transaction?

64. Is the proposed definition of a ''transaction for or with a retail customer'' in Rule 1101(b)(4)(i), which would include accounts held in legal form on behalf of a natural person or a group of related family members, appropriate? Why or why not? Should the proposed definition be broadened or narrowed? If so, please explain how the definition should be broadened or narrowed and why.

65. Is the proposed definition of ''group of related family members'' in proposed Rule 1101(b)(4)(i) appropriate? Why or why not? Should it be more or less inclusive, and if so, in what regard? Please explain. For example, instead of capturing a group of natural persons with ''any'' of the relationships in the proposed definition (child, stepchild, grandchild, great grandchild, parent, stepparent, grandparent, great grandparent, spouse, domestic partner, sibling, stepbrother, stepsister, niece, nephew, aunt, uncle, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister in law, including adoptive and foster relationships; and any other natural person (other than a tenant or employee) sharing a household with any of the foregoing natural persons), should the proposed definition be limited to a group of natural persons consisting ''only'' of those relationships?

66. Should the definition of a ''transaction for or with a retail customer'' exclude a transaction with a ''family office,'' which is defined in Rule 202(a)(11)(G)–1(b) under the Investment Advisers Act of 1940 as a company (including its directors, partners, members, managers, trustees, and employees acting within the scope of their position or employment) that: (1) has no clients other than family clients (as defined in the rule) (provided that if a person that is not a family client becomes a client of the family office as a result of the death of a family member or key employee (as defined in the rule) or other involuntary transfer from a family member or key employee, that person shall be deemed to be a family client for purposes of the rule for one year following the completion of the transfer of legal title to the assets resulting from the involuntary event); (2) is wholly owned by family clients and is exclusively controlled (directly or indirectly) by one or more family members and/or family entities; and (3) does not hold itself out to the public as an investment adviser? Why or why not?

67. Alternatively, should the definition of a ''transaction for or with a retail customer'' only exclude a subset of ''family offices''? For example, should it exclude a family office (as defined above) that (1) has one or more experienced securities or financial services professionals, (2) manages a threshold level of total assets (*e.g.,* $50 million or more) that are indicative of an institutional account, (3) has the capacity to evaluate independently the execution quality received from the broker-dealer, and (4) has professionals who are independent representatives of their family clients? Please explain.

68. Is the proposed definition of an ''affiliate'' in proposed Rule 1101(b)(4)(iii) appropriate? Why or why not? Should the proposed definition be broadened or narrowed? If so, please explain how the definition should be broadened or narrowed and why.

69. Is the proposed definition of ''control'' for purposes of the proposed definition of ''affiliate'' in proposed Rule 1101(b)(4)(iii) appropriate? Why or why not? Should the proposed definition be broadened or narrowed? If so, please explain how the definition should be broadened or narrowed and why.

70. Should some or all institutional customers' orders also have the protections afforded by proposed Rule 1101(b)? Please explain. If only certain categories of institutional customers' orders should also have the protections afforded by proposed Rule 1101(b), how should the Commission identify and define the institutional customers' orders that should benefit?

71. Should the size of institutional customers be considered when determining whether or not they should be afforded the protections of proposed Rule 1101(b)? If so, what would be the appropriate metric to identify such institutional customers? For example, should the Commission consider the amount of assets under management when determining which institutional customers should be afforded the protections of proposed Rule 1101(b)?

72. If the Commission were to apply the protections of proposed Rule 1101(b) to conflicted transactions for or with institutional customers, should it define ''institutional customer'' as any person that does not qualify as a QIB?[189] Should it define ''institutional customer'' to include any person that qualifies as a QIB? Or should it define ''institutional customer'' to include a broader set of institutional customers than the QIB definition, such as those entities that are included in the FINRA definition of ''institutional account'' under FINRA Rule 4512(c)?[190]

73. Do commenters believe there is another definition of ''institutional customer'' that would be more appropriate if the Commission were to apply the protections of proposed Rule 1101(b) to conflicted transactions for or with institutional customers? Please explain.

74. If institutional customers' orders should be afforded the additional protections, are some or all of the conflicts of interest identified in proposed Rule 1101(b) also relevant for institutional customers? Are there other conflicts of interest relevant for institutional customers that should be included in proposed Rule 1101(b)? Please explain.

75. If institutional customers' orders should be afforded the additional protections, should all the requirements under proposed Rule 1101(b) be extended to institutional customers' orders, or should only certain of the requirements be extended to institutional customers' orders? Should the Commission include other requirements for the protection of institutional customers' orders? Please explain.

1. Proposed Rules 1101(b)(1) and (2)—Policies and Procedures for Conflicted Transactions

Proposed Rules 1101(b)(1) and (2) would require a broker-dealer's best execution policies and procedures to address the following with respect to conflicted transactions: (1) how the broker-dealer will obtain and assess information beyond that required by proposed Rule 1101(a)(1)(i), including additional information about price, volume, and execution quality, in identifying a broader range of markets beyond those identified as material potential liquidity sources; and (2) how the broker-dealer will evaluate a broader range of markets, beyond those identified as material potential liquidity sources, that might provide the most favorable price for customer orders,

[189] *See supra* note 124 (providing the definition of QIB under Rule 144A under the Securities Act of 1933).

[190] *See supra* note 125 and accompanying text (describing the definition of institutional account in FINRA Rule 4512(c)).

including a broader range of order exposure opportunities and markets that may be smaller or less accessible.

Proposed Rule 1101(b) is not designed to eliminate order handling conflicts of interest, and does not ban conflicted transactions. However, because a broker-dealer engaging in conflicted transactions for or with retail customers has an incentive to handle those orders in a manner that prioritizes its own interests over its customers' interests, the Commission preliminarily believes that, correspondingly, such transactions should be subject to more robust policies and procedures in order to help mitigate the potential for these incentives to negatively affect the broker-dealer's best execution determinations. Specifically, to help ensure that a broker-dealer exercises the reasonable diligence required by proposed Rule 1100 despite its incentives not to, a broker-dealer would be required to have policies and procedures that are specific to conflicted transactions to address how it will assess information beyond what is required for non-conflicted transactions and how it will identify and evaluate of a broader set of liquidity sources than for non-conflicted transactions. These policies and procedures are designed to help ensure that a broker-dealer exercises additional diligence in considering relevant information and identifying the best market for customer orders, despite their conflicts of interest.

Specifically, proposed Rule 1101(b)(1) would require a broker-dealer's policies and procedures for conflicted transactions to address how it will obtain and assess information beyond what it would obtain and assess for non-conflicted transactions, including additional information about price, volume, and execution quality, in identifying a broader range of markets beyond those identified as material potential liquidity sources. While a broker-dealer would use reasonably accessible information in identifying material potential liquidity sources for non-conflicted transactions, a broker-dealer would additionally be required to consider how it would use information beyond what it used for non-conflicted transactions in identifying a broader range of markets beyond material potential liquidity sources for conflicted transactions.[191]

Proposed Rule 1101(b)(2) would require a broker-dealer's policies and procedures for conflicted transactions to address how it will evaluate a broader range of markets, beyond those identified as material potential liquidity sources, that might provide the most favorable price for retail customer orders, including a broader range of order exposure opportunities and markets that may be smaller or less accessible than those identified as material potential liquidity sources. Because a broker-dealer may have a financial incentive to engage in conflicted transactions, it may have an incentive to more quickly conclude that the conflicted transactions represent the best market and thus execute the trade in a conflicted transaction. Accordingly, the proposed rule would require a broker-dealer to have policies and procedures that reflect additional efforts to identify a broader range of markets, including a broader range of order exposure opportunities, that may provide retail customers with the most favorable price and the establishment of order handling, routing, and execution arrangements with this broader range of potential liquidity sources.[192]

Request for Comment

The Commission requests comment on all aspects of proposed Rules 1101(b)(1) and (2), and in particular:

76. Do proposed Rules 1101(b)(1) and (2) represent an appropriate approach to addressing conflicted transactions? Why or why not?

77. Should a broker-dealer be required to establish, maintain, and enforce best execution policies and procedures for conflicted transactions that address the additional requirements under proposed Rules 1101(b)(1) and (2)? Why or why not?

78. Should a broker-dealer's policies and procedures for conflicted transactions be required to address how it will obtain and assess information beyond what it would obtain and assess for non-conflicted transactions, including additional information about price, volume, and execution quality, in identifying a broader range of markets beyond the material potential liquidity sources? Why or why not?

79. Should a broker-dealer's policies and procedures for conflicted transactions be required to address how it will evaluate a broader range of markets beyond material potential liquidity sources, including a broader range of order exposure opportunities and markets that may be smaller or less accessible? Why or why not?

80. Would retail customers benefit from potentially having their orders exposed by a broker-dealer to a broader array of liquidity sources where the broker-dealer would have a conflict of interest? Why or why not?

81. Should proposed Rules 1101(b)(1) and (2) include different or additional requirements for conflicted transactions in different asset classes? Please explain.

82. What challenges, if any, would broker-dealers encounter in implementing proposed Rules 1101(b)(1) and (2)? Please explain.

83. Do commenters believe that the Commission should provide staggered compliance dates for proposed Rules 1101(b)(1) and (2) for broker-dealers of different sizes, if the Commission adopts proposed Regulation Best Execution? For example, should the Commission provide longer compliance dates for smaller broker-dealers? If so, should the Commission define a smaller broker-dealer as a broker-dealer that qualifies as a ''small entity'' under the Regulatory Flexibility Act pursuant to 17 CFR 240.0–10(c) for this purpose? [193]

[191] Proposed Rule 1101(b) would require a broker-dealer to consider a broader range of markets for conflicted transactions than non-conflicted transactions. In doing so, the broker-dealer may need to obtain and assess information beyond what it obtains and assesses for non-conflicted transactions. It is possible, however, that a broker-dealer obtains and assesses information beyond what is needed to identify material potential liquidity sources for non-conflicted transactions, including information concerning markets that it did not identify as material potential liquidity sources. Under these circumstances, the information the broker-dealer obtained and assessed for non-conflicted transactions may include information beyond what is required by proposed Rule 1101(a)(1), and this information may be sufficient for it to identify a broader set of markets beyond those identified as material potential liquidity sources. *See also supra* note 132 and accompanying text.

[192] For example, a retail broker-dealer, in accordance with its policies and procedures related to the identification of material potential liquidity sources as required by proposed Rule 1101(a), may have evaluated a certain number of markets and identified a subset of those markets as material potential liquidity sources for non-conflicted transactions. For conflicted transactions, the broker-dealer, in accordance with its policies and procedures for conflicted transactions, would additionally evaluate some of the markets that it did not identify as material potential liquidity sources for non-conflicted transactions. Conflicted transactions, such as routing orders to an affiliated ATS for execution, may involve financial incentives for the broker-dealer and could result in the broker-dealer prioritizing its own interests over its customers' interests. The additional requirements of proposed Rule 1101(b) are designed to help ensure that the broker-dealer exercises reasonable diligence for conflicted transactions in light of these incentives. As stated above, proposed Rule 1101(a)(1)(ii) would not prescribe the minimum number of markets that a broker-dealer would need to identify as material potential liquidity sources. *See supra* section IV.B.1. Rather, as stated above, the Commission believes that the identification of these markets could be influenced by the nature of the broker-dealer's business operation and customer order flow, such as whether it handles institutional or retail orders. *See id.*

[193] *See supra* note 151 and accompanying text (describing the broker-dealers that qualify as small entities under the Regulatory Flexibility Act).

Or should the Commission define a smaller broker-dealer in a different way? Please explain.

2. Proposed Rule 1101(b)(3)—Documentation for Conflicted Transactions

Proposed Rule 1101(b)(3) would require a broker-dealer to document its compliance with the best execution standard for conflicted transactions, including all efforts taken to enforce its policies and procedures for conflicted transactions and the basis and information relied on for its determination that such conflicted transactions would comply with the best execution standard. Proposed Rule 1101(b)(3) would require that such documentation be done in accordance with written procedures.

The Commission understands that broker-dealers currently differ in documentation practices relating to their compliance with their duty of best execution, and some broker-dealers currently retain information that allows them to recreate the prices that were available at the time of an execution. While proposed Rule 1101(b)(3) would not require a broker-dealer to document its compliance with the best execution standard with respect to its conflicted transactions in any specific way, the broker-dealer would need to document all efforts taken to enforce its policies and procedures for its conflicted transactions [194] and to demonstrate the basis and information relied on for its determination that its conflicted transactions would comply with the best execution standard.[195] Proposed Rule 1101(b)(3) also would not prescribe the manner in which a broker-dealer would need to document its compliance with the proposed best execution standard, and the Commission preliminarily believes that the manner of documentation may vary depending on various considerations specific to the broker-dealer, such as the nature of its customers and the characteristics of the securities traded. The Commission preliminarily believes that, in connection with documenting its compliance with the proposed best execution standard and its best execution determinations for conflicted transactions, the broker-dealer could document the prices received from those markets that it checked pursuant to its policies and procedures. The Commission preliminarily believes that such information could serve as a basis for demonstrating a broker-dealer's best execution efforts and determinations, and broker-dealers already maintain much of this information pursuant to existing regulatory or operational requirements.[196]

The proposed documentation requirement, including the obligation to document pursuant to written procedures, would assist broker-dealers in complying with proposed Regulation Best Execution and regulators in overseeing broker-dealers' compliance. As stated above in this section, while the Commission understands that some broker-dealers retain information that allows them to recreate the prices that were available at the time of an execution (for example, in response to a regulatory inquiry), the Commission understands that broker-dealers have varying degrees of documentation with respect to their best execution practices. By specifically requiring all broker-dealers that engage in conflicted transactions to document their compliance with the proposed best execution standard, including all efforts to enforce their policies and procedures, and the basis and information relied on for their determinations that the conflicted transactions would comply with the best execution standard, such broker-dealers would be required to collect important information concerning the application of their best execution process. This information may help broker-dealers better evaluate the effectiveness of their best execution policies and procedures, including their order handling practices. Moreover, by requiring that the documentation be conducted pursuant to written procedures, the proposed rule would help ensure that all broker-dealers that engage in conflicted transactions (and any applicable associated persons of such broker-dealers) document their compliance with the best execution standard in a consistently robust manner.[197] Similarly, the proposed documentation requirement would help ensure that regulators have access to a consistent and minimum level of information in overseeing broker-dealers' efforts to satisfy the best execution standard in proposed Rule 1100 with respect to conflicted transactions with retail customers.

Proposed Rule 1101(b)(3) would also require a broker-dealer to document any arrangement, whether written or oral, concerning payment for order flow, including but not limited to the parties to the arrangement, all qualitative and quantitative terms concerning the arrangement,[198] and the date and terms of any changes[199] to the arrangement.[200] This proposed documentation requirement would complement the other requirements of proposed Rule 1101(b), and could facilitate a broker-dealer's understanding of the effect of such arrangements on its order handling and execution practices, and more broadly, on its compliance with the best execution standard and proposed Rules

[194] A failure to have the policies and procedures required by proposed Rule 1101(b) that are applicable to all conflicted transactions, or a failure to enforce such policies and procedures, would be a violation of proposed Regulation Best Execution.

[195] This proposed documentation requirement would differ from proposed Rule 1101(a), which would more generally require the broker-dealer's policies and procedures to be reasonably designed to comply with the best execution standard and to address a number of specified elements.

[196] The Commission preliminarily believes that this documentation would be similar to many of the records that broker-dealers currently maintain pursuant to regulatory requirements, such as trade-through prohibitions and the National Market System Plan Governing the Consolidated Audit Trail (''CAT Plan'') reporting. For example, the CAT Plan requires a broker-dealer to report the entire lifecycle of an order. *See* CAT Plan, Appendix C, Section A. 2 (3); *See also* Rule 613(c)(1) of Regulation NMS, 17 CFR 242.613(c)(1) (stating that the CAT plan must provide for an accurate, time-sequenced record of orders beginning with the receipt or origination of an order by a member of a national securities exchange or national securities association, and document the life of the order through the process of routing, modification, cancellation, and execution (in whole or in part) of the order). This order lifecycle information that today is reported to the CAT Plan could include information that is relevant for the documentation provision of proposed Rule 1101(b). For example, in documenting the markets checked, a broker-dealer that routes customer orders to markets in an attempt to access midpoint liquidity could retain records concerning the markets it pinged for potential midpoint executions.

[197] For example, the written procedures concerning documentation could describe the obligations of various personnel within the broker-dealer with respect to this documentation requirement.

[198] Qualitative and quantitative terms would include any terms that impact the variability or establish a condition concerning payment for order flow. These could include, for example, any terms based on the characteristics of an order (*e.g.,* size, marketability, held or not held, special order handling instructions, whether the order is a complex options order) and the type of security involved (*e.g.,* whether the security is in the S&P 500 Index, ETF) or the price of a security.

[199] The proposed rule would require a broker-dealer to document the date and terms of any changes to an existing payment for order flow arrangement.

[200] This proposed requirement would apply whether or not there is any contractual obligation associated with the payment for order flow arrangement, and is intended to capture payment for order flow arrangements between broker-dealers and between broker-dealers and other markets, such as exchanges. Such documentation would be required in any scenario where payment for order flow is actually made or received by a broker-dealer. This proposed documentation requirement would also apply to rebates paid by an exchange to a broker-dealer in return for routing orders to the exchange. For example, a broker-dealer must document the specific rebate tiers that it qualifies for with respect to each exchange from which it receives payment for order flow. Furthermore, should a broker-dealer have an arrangement with an exchange for the establishment of a tier aimed at earning that broker-dealer's order flow, the broker-dealer must document that arrangement.

1100–1102. This proposed requirement would also help ensure that regulators have fuller and more efficient access to details regarding broker-dealers' payment for order flow arrangements,[201] which in turn should facilitate regulators' oversight of broker-dealers' compliance with the proposed rules by providing more context with respect to broker-dealers' operations, business model, and order handling and execution practices.

Request for Comment

The Commission requests comment on all aspects of the proposed documentation requirement under proposed Rule 1101(b)(3), and in particular:

84. Are the proposed documentation requirements appropriate? Why or why not?

85. Should such documentation requirements apply only to broker-dealers' conflicted transactions? Alternatively, should they apply to all transactions, including non-conflicted transactions? Or should they apply to all conflicted transactions and to a subset of non-conflicted transactions? Please explain.

86. Should such documentation be required to be done pursuant to written procedures? Please explain.

87. As proposed, a broker-dealer would need to document, for its conflicted transactions, its compliance with the best execution standard, including all efforts taken to enforce its best execution policies and procedures for conflicted transactions and the basis and information relied on for its determinations that the conflicted transactions would comply with the best execution standard. What challenges, if any, would a broker-dealer encounter in complying with the proposed documentation requirements? Would such challenges differ based on the type of security being traded or the type of broker-dealer engaging in the conflicted transactions? Please explain.

88. Do commenters agree with the Commission's understanding that broker-dealers have varying degrees of documentation with respect to their best execution practices? Why or why not?

89. Should the proposed documentation requirements apply only to certain types of conflicted transactions or for all types of conflicted transactions? Please explain.

90. Should broker-dealers in the NMS stock and listed options markets be subject to the documentation requirements for the orders they execute on a principal basis, or for which they have paid or received payment for order flow, or routed to an affiliate, as proposed? Why or why not?

91. Should broker-dealers in the corporate and municipal bond markets and government securities markets be subject to the documentation requirements for the orders they execute on a principal basis, as proposed? Why or why not?

92. Are there other aspects of the proposed additional requirements for a broker-dealer's policies and procedures for conflicted transactions that should also be required to be documented? Please explain.

93. Are there practices other than the proposed additional requirements for conflicted transactions that should be required to be documented? Please explain.

94. Should a broker-dealer be required to document any payment for order flow arrangement, whether written or oral, as proposed? Why or why not? If so, should such documentation requirements include the parties to the arrangement, all qualitative and quantitative terms concerning the arrangement, and the date and terms of any changes to the arrangement? Why or why not? Are there other aspects of the arrangements that should also be included in the documentation requirement? If so, please describe.

95. Are there other types of arrangements involving conflicted transactions that should also be subject to a documentation requirement? Please explain.

96. Do commenters believe that the Commission should provide staggered compliance dates for proposed Rule 1101(b)(3) for broker-dealers of different sizes, if the Commission adopts proposed Regulation Best Execution? For example, should the Commission provide longer compliance dates for smaller broker-dealers? If so, should the Commission define a smaller broker-dealer as a broker-dealer that qualifies as a ''small entity'' under the Regulatory Flexibility Act pursuant to 17 CFR 240.0–10(c) for this purpose? [202] Or should the Commission define a smaller broker-dealer in a different way? Please explain.

3. Application of Proposed Rule 1101(b) to NMS Stock Market Conflicts of Interest

Broker-dealers that engage in conflicted transactions for or with retail customers in NMS stocks would be required to comply with the additional policies and procedures requirements under proposed Rule 1101(b). For example, a retail broker-dealer that receives payment for order flow from a wholesaler would need to establish, maintain, and enforce policies and procedures to address how it will evaluate additional liquidity sources that the broker-dealer would not need to evaluate if it did not receive payment for order flow. Therefore, in connection with a determination of whether to route customer orders to the wholesaler that pays for order flow, the retail broker-dealer could evaluate other exchanges, ATSs, or order exposure opportunities that may not have been determined by the retail broker-dealer to be material potential liquidity sources for non-conflicted transactions under proposed Rule 1101(a)(1).

Retail broker-dealers that receive payment for order flow for retail customer orders must also comply with the documentation requirement under proposed Rule 1101(b)(3). For example, to the extent a retail broker-dealer attempts to execute customer orders prior to sending them to a wholesaler in return for payment, it could document such efforts by, for example, retaining a record of the markets at which it attempted to execute customer orders at prices better than the NBBO (*e.g.,* markets pinged for midpoint liquidity),[203] or documenting how it otherwise used reasonable diligence in assessing whether those markets may be the best market for customer orders. For retail nonmarketable orders routed to markets (*e.g.,* exchanges) that pay rebates for those orders, a retail broker-dealer would need to document its basis for determining that routing orders to such markets would comply with the best execution standard, as well as the information relied on for such determination. It could do so by, for example, documenting its assessment of fill rates and the likelihood of execution for nonmarketable orders at such

[201] Existing Commission rules, such as Rule 10b–10(d)(8), 17 CFR 240.10b–10(d)(8), and Rule 606 under Regulation NMS, 17 CFR 242.606, do not require the same level of detail with respect to the payment for order flow practices of broker-dealers that would be required under proposed Rule 1101(b)(3).

[202] *See supra* note 151 and accompanying text (describing the broker-dealers that qualify as small entities under the Regulatory Flexibility Act).

[203] *See supra* note 196 (describing records and documentations under the CAT Plan). As discussed above in section IV.C.2, proposed Rule 1101(b)(3) would not require a broker-dealer to document its efforts to comply with the best execution standard with respect to its conflicted transactions in any specific way. However, the broker-dealer would need to document in accordance with its written procedures the basis and information relied on for its determination that its conflicted transactions would comply with the best execution standard.

markets as compared to other markets that do not provide such rebates.

Furthermore, in documenting its determination that transactions that are conflicted due to payment for order flow from a wholesaler would comply with the best execution standard, a retail broker-dealer could document its process for evaluating and routing to wholesalers that pay it for order flow, including its assessment of wholesaler performance and any price improvement commitments. Additionally, a retail broker-dealer would be required to document its determination that customer transactions for which it receives payment for order flow would comply with the best execution standard.[204] A retail broker-dealer could do this by, for example, soliciting price improvement commitments from wholesalers for customer orders in the absence of payment for order flow and comparing those commitments to the price improvement commitments that the wholesaler would make if it were to pay the retail broker-dealer for order flow, and documenting these efforts. Finally, as described above in section IV.C.2, a retail broker-dealer would be required to document any arrangement concerning payment for order flow.

A wholesaler that executes customer orders in a principal capacity or pays a retail broker-dealer for order flow would also be required to document its compliance with the best execution standard for conflicted transactions.[205] For example, a wholesaler could document the prices received from those markets that it checked pursuant to its policies and procedures, such as by retaining a record of the markets at which it attempted to execute customer orders at prices better than the NBBO (*e.g.,* markets pinged for midpoint liquidity) [206] and by retaining records of market data feeds that the wholesaler uses when handling retail customer orders. A wholesaler could also document how it otherwise used reasonable diligence in its best execution determinations. For retail nonmarketable orders routed to markets that pay rebates for those orders, a wholesaler could document its basis for determining that routing to such markets would comply with the best execution standard and the information relied on for such determination by, for example, documenting its assessment of fill rates and the likelihood of execution for nonmarketable orders at such markets as compared to other markets that do not provide such rebates.

The wholesaler would also be required to document any arrangement concerning payment for order flow as described above in section IV.C.2. Furthermore, the wholesaler would be required to document its determination that its transactions with customer orders that were sent to it in return for payment would comply with the best execution standard. For example, a wholesaler could document that it provides the same price improvement to the customers of retail broker-dealers to which it does not pay for order flow that it provides to the customers of broker-dealers to which it pays for order flow.

4. Application of Proposed Rule 1101(b) to the Options Market

As discussed above, payment for order flow, principal trading, and affiliated routing conflicts of interest in the execution of retail customer orders also exist in the options market.[207] Under proposed Rule 1101(b), a wholesaler that pays for order flow or transacts with retail customers in a principal capacity would need to establish, maintain, and enforce policies and procedures for conflicted transactions that address how it will obtain and assess information beyond that required by proposed Rule 1101(a)(1)(i) and evaluate a broader range of liquidity sources, including a broader range of order exposure opportunities, which could include an evaluation of whether any price improvement auctions may provide an opportunity to execute a customer order at a price that is better than the displayed best bid and offer.[208]

Under proposed Rule 1101(b)(3), a wholesaler that engages in conflicted transactions would also be required to document, in accordance with written procedures, its compliance with the best execution standard for such conflicted transactions, including all efforts to enforce its policies and procedures for conflicted transactions and the basis and information relied on for its determinations that such conflicted transactions would comply with the best execution standard. For example, as with conflicted transactions in NMS stocks, a wholesaler could document the prices received from those markets that it checked pursuant to its policies and procedures, such as by retaining records of market data feeds that the wholesaler uses when handling retail customer orders. The wholesaler's documentation could also include a description of its decision making process for routing retail customer orders to execute against the wholesaler's or its affiliates' displayed prices on exchanges and when it chooses to execute through a price improvement auction that may provide an opportunity for price improvement. For retail nonmarketable orders routed to markets that pay rebates for those orders, a wholesaler would need to document its basis for determining that routing to such markets would comply with the best execution standard and the information relied on for such determination. It could do so by, for example, documenting its assessment of fill rates and the likelihood of execution for nonmarketable orders at such markets as compared to other markets that do not provide such rebates.

The wholesaler would also be required to document any arrangement concerning payment for order flow as described above in section IV.C.2. Furthermore, the wholesaler would be required to document its determination that its transactions with the customer orders that were sent to it in return for payment would comply with the best execution standard. For example, a wholesaler could document that it provides the same execution quality to the customers of retail broker-dealers to which it does not pay for order flow that it provides to the customers of broker-dealers to which it pays for order flow.

A retail broker-dealer in the listed options market would be engaged in a conflicted transaction under proposed Rule 1101(b) if it receives payment for order flow and its policies and procedures would have to address how it evaluates a broader range of markets, including opportunities to expose customer orders for the most favorable price. A retail broker-dealer's policies

[204] Similarly, FINRA has stated that broker-dealers may not negotiate the terms of order routing arrangements for customer orders in a manner that reduces the price improvement opportunities that, absent payment for order flow, otherwise would be available to those customer orders. *See* FINRA Regulatory Notice 21–23.

[205] *See supra* note 200.

[206] *See supra* note 203.

[207] *See supra* section III.A.2 (discussing the payment for order flow, affiliated routing and principal trading conflicts of interest in the options market).

[208] As discussed above, the wholesaler's policies and procedures that would be required by proposed Rule 1101(a)(1) could address how the wholesaler assesses price improvement auctions, including their relative competitiveness, when identifying material potential liquidity sources. A similar assessment would be required under proposed Rule 1101(b)(2) for a broader range of order exposure opportunities that may result in the most favorable price for customer orders. A wholesaler's best execution policies and procedures that favor one price improvement auction when other, more competitive, price improvement auctions exist may be relevant to an assessment of whether such policies and procedures are reasonably designed to identify material potential liquidity sources or to evaluate a broader range of order exposure opportunities that may result in the most favorable price for the customer order, as required by proposed Rules 1101(a) and 1101(b).

and procedures could evaluate wholesaler practices concerning the use of price improvement auctions and whether such wholesalers are appropriately considering a broader range of opportunities to expose customer orders and identifying exposure opportunities that are designed to enhance competition for customer orders.

Retail broker-dealers that accept payment for order flow for retail customer orders would also be required to comply with the documentation requirement under proposed Rule 1101(b)(3). To the extent a retail broker-dealer routes retail customer nonmarketable orders to markets that pay rebates for those orders, a retail broker-dealer would need to document its basis for determining that routing to such markets would comply with the best execution standard and the information relied on for such determination. It could do so by, for example, documenting its assessment of fill rates and the likelihood of execution for nonmarketable orders at such markets as compared to other markets that do not provide such rebates.

Furthermore, in documenting its determination that transactions conflicted due to payment for order flow from a wholesaler would comply with the best execution standard, a retail broker-dealer could document its process for evaluating and routing to wholesalers that pay it for order flow, including its assessment of wholesaler performance and any price improvement commitments. Additionally, under proposed Rule 1101(b)(3), a retail broker-dealer would need to document its determination that customer transactions for which it receives payment for order flow would comply with the best execution standard and the information relied on for such determination. A retail broker-dealer could do this by, for example, soliciting price improvement commitments from wholesalers for customer orders in the absence of payment for order flow and comparing those commitments to the price improvement commitments that the wholesaler would make if it were to pay the retail broker-dealer for order flow. Finally, a retail broker-dealer would be required to document any arrangement concerning payment for order flow, as described above in section IV.C.2.

5. Application of Proposed Rule 1101(b) to the Corporate and Municipal Bond Markets and Government Securities Markets

Many broker-dealers in the corporate and municipal bond markets and government securities markets trade with retail customers in a principal capacity and therefore engage in conflicted transactions. Such broker-dealers would also be subject to proposed Rule 1101(b) with respect to their conflicted transactions. A broker-dealer's policies and procedures for conflicted transactions would be required to address how it will evaluate a broader range of markets, including a broader range of order exposure opportunities. This could include evaluation of a broader range of ATSs, broker's brokers, RFQ systems, and other broker-dealers that trade corporate and municipal bonds and government securities, than the markets that the broker-dealer identifies as material potential liquidity sources under proposed Rule 1101(a)(1).

Under proposed Rule 1101(b)(3), a retail broker-dealer that trades in a principal capacity with retail customers would be required to document, in accordance with written procedures, its compliance with the best execution standard for conflicted transactions, including all efforts taken to enforce its policies and procedures for conflicted transactions and the basis and information relied on for its determinations that such conflicted transactions would comply with the best execution standard. In doing so, a retail broker-dealer could retain records of any data feeds or other pricing information that the retail broker-dealer uses when handling retail customer orders, including ATS data feeds, responses to RFQs, transaction prices, and evaluated pricing information.[209] In documenting its efforts to comply with the best execution standard, a retail broker-dealer could also document its order handling practices that can impact whether customer orders are executed in compliance with the best execution standard. This could include, for example, its practices concerning the use of RFQ systems, including its filtering, response time, and last look practices and how those practices promote the execution of retail customer orders in a manner that complies with the best execution standard. Finally, broker-dealers could document their markup policies for principal trades, including documenting how the broker-dealer assesses markups for trades with customers and any variation in its markups depending on the nature of the transaction (*e.g.,* riskless principal trades versus trades with the broker-dealer's inventory).

Request for Comment

The Commission requests comment on the application of proposed Rule 1101(b) to the NMS stock, options, corporate and municipal bond markets, and government securities markets, and in particular:

97. Has the Commission appropriately described the various practices in sections IV.C.3–5 that should be addressed in a broker-dealer's policies and procedures for conflicted transactions? Please explain.

98. Are there other practices not described in sections IV.C.3–5 that should be addressed in a broker-dealer's policies and procedures for conflicted transactions, or any that are described that should be not be addressed? Please explain.

D. Proposed Rule 1101(c)—Regular Review of Execution Quality

Proposed Rule 1101(c) would require a broker-dealer, no less frequently than quarterly, to review the execution quality of its transactions for or with its customers or customers of another broker-dealer, and how such execution quality compares with the execution quality the broker-dealer might have obtained from other markets, and to revise its best execution policies and procedures, including its order handling and routing practices, accordingly. Proposed Rule 1101(c) would also require a broker-dealer to document the results of this review.

While the Commission understands that broker-dealers generally currently conduct certain execution quality reviews,[210] including pursuant to

[209] As discussed above in section IV.C.2, proposed Rule 1101(b)(3) would not require a broker-dealer to document its efforts to comply with the best execution standard with respect to its conflicted transactions in any specific way. However, the broker-dealer would need to document the basis and information relied on for its determination that its conflicted transactions would comply with the best execution standard, and the Commission preliminarily believes that the manner of documentation may vary depending on asset class. For example, a broker-dealer's best execution policies and procedures may provide for more individualized handling of customer orders in corporate and municipal bonds and government securities than in equities securities. Accordingly, the broker-dealer's documentation for conflicted retail transactions in corporate and municipal bonds and government securities would need to reflect the more individualized best execution process.

[210] FINRA describes the findings from its best execution exams in an annual report. *See, e.g.,* 2022 Report on FINRA's Examination and Risk Monitoring Program, *supra* note 185, at 44–45 (describing FINRA exam findings, including: not comparing the quality of the execution obtained via firms' existing order-routing and execution arrangements against the quality of execution they could have obtained from competing markets; not conducting adequate reviews on a type-of-order basis, including, for example, on market, marketable limit, or non-marketable limit orders;

Continued

FINRA's best execution rule, the scope of proposed Rule 1101(c) differs from FINRA's best execution rule in that it would apply to a broader range of broker-dealers.[211] Specifically, while FINRA's execution quality review requirement applies only to a broker-dealer that routes customer orders to other broker-dealers for execution on an automated, nondiscretionary basis or that internalizes customer order flow,[212] proposed Rule 1101(c) would apply to all broker-dealers that are not introducing brokers (discussed in section IV.E below) that transact for or with customers. The Commission preliminarily believes that it would be beneficial to customers for a broader range of broker-dealers to regularly review the execution quality that their customer orders receive. Aside from this distinction in scope, proposed Rule 1101(c) is designed to be consistent with FINRA Rule 5310.09.

The requirements of proposed Rule 1101(c) would complement a broker-dealer's policies and procedures concerning how it will comply with the proposed best execution standard and the determination of the best market for customer orders, as well as the additional policies and procedures for conflicted transactions. As proposed, a broker-dealer must compare the execution quality it obtains via its current order routing and execution arrangements (including through the internalization of its order flow or executing its order flow through another broker-dealer in a wholesaler or other arrangement) to the execution quality it might have obtained from other markets. A broker-dealer would not meet the requirements of proposed Rule 1101(c) if it solely conducted its review based on the markets to which it currently routes customer orders without considering other markets or trading venues.[213] Rather, a broker-dealer would be required to consider the potential execution quality at trading venues that it does not currently use to execute customer orders, including new markets to the extent they become available, and consider whether it needs to access such markets in order to attain best execution for its customer orders.[214]

In reviewing and comparing the execution quality of its customer transactions to the execution quality that might have been obtained from other markets, a broker-dealer could consider various factors, including price improvement opportunities, differences in price disimprovement,[215] likelihood of execution of limit orders, speed of execution, size of execution, transaction costs, customer needs and expectations, and the existence of internalization or payment for order flow arrangements.[216] Furthermore, a broker-dealer that routinely routes customer orders to multiple trading centers, whether internal or external, could evaluate the latency impacts, fill rates, information leakage, and resulting execution quality harms.[217] And when conducting these reviews, a broker-dealer could consider the procedures it uses or would use for executing the same or similar transactions for its own accounts.[218] The Commission believes that, when compared to the execution quality that the broker-dealer might have obtained from other markets, the review could help the broker-dealer evaluate the effectiveness of its current best execution policies and procedures, including its order handling practices, and enable the broker-dealer to make informed judgments regarding whether these policies and procedures and practices need to be modified.

As described in this section IV.D above, proposed Rule 1101(c) would apply to a broader range of broker-dealers than FINRA Rule 5310.09. However, the substantive review requirements of proposed Rule 1101(c) are similar to FINRA Rule 5310.09, which requires a broker-dealer to compare, among other things, the quality of the executions it is obtaining via current order routing and execution arrangements to the quality of the executions that the broker-dealer could obtain from competing markets.

While the review under FINRA Rule 5310.09 must be conducted on a security-by-security, type-of-order basis (*e.g.,* limit order, market order, and market on open order), proposed Rule 1101(c) does not provide this level of specificity concerning the manner of execution quality reviews. The Commission believes that execution quality reviews would differ based on the characteristics of a market or of a broker-dealer's business, and the methods for conducting execution quality reviews would evolve over time

not considering certain factors set forth in FINRA Rule 5310 when conducting a ''regular and rigorous review,'' including, among other things, speed of execution, price improvement and the likelihood of execution of limit orders; and using routing logic that was not necessarily based on quality of execution).

[211] The MSRB rule does not require broker-dealers to conduct quarterly (or more frequent) comparative analysis of execution quality. Rather, MSRB Rule G–18 requires an annual review of the broker-dealer's policies and procedures that takes ''into account the quality of the executions the [broker-dealer] is obtaining under its current policies and procedures, changes in market structure, new entrants, the availability of additional pre-trade and post-trade data, and the availability of new technologies'' and requires the broker-dealer ''to make promptly any necessary modifications to such policies and procedures as may be appropriate in light of such reviews.'' *See* MSRB Rule G–18.08(a).

[212] *See* FINRA Rule 5310.09.

[213] This is consistent with FINRA's rule concerning the review of execution quality. *See* FINRA Rule 5310.09(b) (''To assure that order flow is directed to markets providing the most beneficial terms for their customers' orders, the member must compare, among other things, the quality of the executions the member is obtaining via current order routing and execution arrangements (including the internalization of order flow) to the quality of the executions that the member could obtain from competing markets.'').

[214] FINRA has pursued enforcement against broker-dealers relating to compliance with FINRA Rule 5310.09 concerning the regular and rigorous review of execution quality. *See, e.g., TradeStation Securities, Inc.,* Letter of Acceptance, Waiver and Consent (FINRA Case No. 2014041812501) (Mar. 2021) (describing violations of FINRA's best execution rule where the firm ''did not exercise reasonable diligence to ascertain whether the venues where it routed certain equity and option customer orders provided the best market for the subject securities as compared to the execution quality that was being provided at competing markets''); Robinhood FINRA, *supra* note 69 (describing violations of FINRA's best execution rule where the firm routed its customers' orders to four broker-dealers that all paid for order flow and ''did not exercise reasonable diligence to ascertain whether these four broker-dealers provided the best market for the subject securities to ensure its customers received the best execution quality from these as compared to other execution venues''); *E*Trade Securities LLC,* Letter of Acceptance, Waiver, and Consent (FINRA Case No. 20130368815–01) (June 2016) (describing violations of FINRA's best execution rule where the firm lacked sufficient information to reasonably assess the execution quality it provided to its customer because, among other things, the firm ''did not take into account the internalization model employed by the firm'' and ''was overly reliant on comparisons of the firm's overall execution quality with industry and custom averages, rather than focusing on comparisons to the actual execution quality provided by the market centers to which the firm routed orders'').

[215] Price disimprovement occurs when a customer receives a worse price than the best quotes prevailing at the time the order is received by the market. *See, e.g.,* FINRA Rule 5310.09(b)(2).

[216] These considerations are consistent with FINRA's rule regarding the review of execution quality. *See* FINRA Rule 5310.09(b) (providing that, in reviewing and comparing the execution quality of its current order routing and execution arrangements to the execution quality of other markets, a member should consider: (1) price improvement opportunities; (2) differences in price disimprovement; (3) the likelihood of execution of limit orders; (4) the speed of execution; (5) the size of execution; (6) transaction costs; (7) customer needs and expectations; and (8) the existence of internalization or payment for order flow arrangements).

[217] This is also consistent with existing FINRA guidance concerning these types of reviews. *See* FINRA Regulatory Notice 15–46, at 4–5.

[218] This is consistent with existing FINRA guidance. *See* FINRA Regulatory Notice 15–46, at 4–5. FINRA states that ''firms should consider the risk of information leakage by routing orders to a particular venue in light of the fill rates achieved at that venue and carefully assess whether the risks outweigh the potential for an execution.'' *Id.* at 5.

based on the availability of data and advancements in technology. A broker-dealer generally should conduct such reviews in a manner that will provide it with robust information concerning its customer orders' execution quality so that it can assess whether it needs to revise its best execution policies and procedures. In doing so, a broker-dealer should exercise its expertise and judgment in this regard and the manner of its execution quality reviews may be tailored to reflect various factors (*e.g.,* whether the broker-dealer engages in conflicted transactions, the sizes of customer orders).[219]

FINRA Rule 5310.09 also requires a broker-dealer to determine whether any material differences in execution quality exist among the markets trading the security and, if so, modify its routing arrangements or justify why it is not modifying its routing arrangements. While proposed Rule 1101(c) does not include ''materiality'' language or require a broker-dealer to justify why it is not modifying its routing arrangements, these concepts are consistent with the language of proposed Rule 1101(c). Proposed Rule 1101(c) states that a broker-dealer would be obligated to ''revise its best execution policies and procedures, including its order handling practices, accordingly'' after it has conducted its comparative execution quality analysis. The Commission preliminarily believes that revisions to the broker-dealer's policies and procedures, including its order handling practices, would be appropriate if there were material differences in execution quality that were not otherwise justifiable. Moreover, proposed amendments to Rule 17a–4 would require a broker-dealer to retain documentation of the results of its execution quality review, which could include any justifications for not modifying its policies and procedures if a comparative analysis revealed material differences in execution quality.[220]

MSRB rules do not require broker-dealers to conduct comparative analysis of execution quality.[221] Rather, MSRB Rule G–18.08 states that, when conducting its periodic reviews, a broker-dealer must assess whether its policies and procedures are reasonably designed to achieve best execution, taking into account the quality of the executions the broker-dealer is obtaining under its current policies and procedures, changes in market structure, new entrants, the availability of additional pre-trade and post-trade data, and the availability of new technologies, and make promptly any necessary modifications to such policies and procedures as may be appropriate in light of such reviews. While MSRB Rule G–18.08 reflects an execution quality review by broker-dealers, proposed Rule 1101(c) would impose a specific requirement for review of execution quality on at least a quarterly basis, including a comparative analysis requirement, for all broker-dealers regardless of whether they are currently subject to MSRB or FINRA rules.

Proposed Rule 1101(c) would require a broker-dealer to review the execution quality of customer orders no less frequently than quarterly.[222] In complying with the proposed rule, a broker-dealer should determine the appropriate frequency of review by considering, for example: the nature of its business; the asset class transacted; new pools of liquidity, trading protocols, or sources of data that have emerged; the availability of technology needed to conduct execution quality reviews; and the level of transparency in a particular market. In doing so, the Commission believes that, in many cases, broker-dealers may determine that a more frequent review of execution quality than quarterly is appropriate. For example, market participants subject to Rule 605 of Regulation NMS are required to disclose on a monthly basis certain execution quality statistics in NMS stocks. These Rule 605 reports provide a broker-dealer with information that it could use to evaluate the execution quality of customer transactions in NMS stocks more frequently than quarterly.[223] In contrast, a broker-dealer may determine that it is appropriate to review the execution quality of customer transactions in non-NMS stocks less frequently due to the characteristics of those other markets.[224]

Finally, proposed Rule 1101(c) would require a broker-dealer to document the results of its execution quality reviews.[225] By documenting its execution quality reviews, a broker-dealer would maintain and preserve a robust record of its order execution quality over time that could assist the broker-dealer to better evaluate the effectiveness of its best execution policies and procedures, including its order handling practices, on an ongoing basis. Similarly, such documentation would allow regulators to more effectively oversee the broker-dealer's efforts to meet the best execution standard of proposed Rule 1100 and the requirements of proposed Rules 1101 and 1102.

Request for Comment

The Commission requests comment on all aspects of proposed Rule 1101(c), and in particular:

99. Should broker-dealers be required to conduct reviews of execution quality of their transactions for or with customers at least quarterly, including how such execution quality compares with the execution quality that might

[219] Under FINRA Rule 5310.09, a broker-dealer must have procedures in place to ensure it periodically conducts regular and rigorous reviews of the quality of the executions of its customers' orders if it does not conduct an order-by-order review. FINRA has stated in a regulatory notice that broker-dealers must conduct order-by-order best execution reviews rather than relying on regular and rigorous reviews in certain circumstances. In particular, FINRA has stated that a ''regular and rigorous review alone (as opposed to an order-by-order review) may not satisfy best execution requirements, given that the execution of larger-size orders 'often requires more judgment in terms of market timing and capital commitment.' '' FINRA has also stated that ''[o]rders that a firm determines to execute internally are subject to an order-by-order best execution analysis.'' Finally, FINRA has recognized that advances in order routing technology make order-by-order reviews of execution quality for a range of orders in all equity and standardized options increasingly possible. *See* FINRA Regulatory Notice 15–46, at 3–4. As stated above, proposed Regulation Best Execution would not affect a broker-dealer's obligation to comply with the FINRA or MSRB best execution rule. Accordingly, a broker-dealer would be required to comply with proposed Regulation Best Execution, in addition to the FINRA and MSRB best execution rules, as applicable. *See supra* note 109 and accompanying text. To the extent FINRA or the MSRB impose more specific requirements than proposed Regulation Best Execution, broker-dealers must continue to comply with those requirements, as applicable.

[220] For a discussion of recordkeeping requirements of the proposed rules, *see infra* section IV.G.

[221] *See supra* note 211.

[222] FINRA also requires a broker-dealer to conduct regular and rigorous reviews of its customer execution quality at least quarterly, but has specified that a broker-dealer should consider, based on its business, whether more frequent reviews are needed. *See* FINRA Rule 5310.09; FINRA Regulatory Notice 15–46, at 4. MSRB Rule G–18 requires a broker-dealer to, at a minimum, conduct annual reviews of its policies and procedures for determining the best available market for the executions of its customers' transactions, but the broker-dealer should consider a frequency reasonably related to the nature of its municipal securities business, including but not limited to its level of sales and trading activity. *See* MSRB Rule G–18.08(a).

[223] FINRA has stated that some broker-dealers conduct monthly reviews of execution quality, recognizing that market participants are required to publish Rule 605 execution quality statistics on a monthly basis. *See* FINRA Regulatory Notice 15–46, at 4, 15 n.21.

[224] FINRA has also stated that orders in the fixed income market may be handled and executed differently than in equity and options markets. Because of these differences, FINRA stated that broker-dealers may determine to conduct execution quality reviews of such securities under FINRA's rule less frequently than for equities and options. *See* FINRA Regulatory Notice 15–46, at 8.

[225] *See* proposed amendments to Rule 17a–4; *infra* section IV.G (describing the recordkeeping obligations applicable to any documentation made pursuant to proposed Regulation Best Execution).

have been obtained from other markets, as required by proposed Rule 1101(c)? Why or why not? Should broker-dealers document the results of their execution quality reviews, as required by proposed Rule 1101(c)? Why or why not?

100. Should a review of execution quality include factors similar to those identified in FINRA rules and guidance, such as price improvement opportunities, differences in price disimprovement, likelihood of execution of customer limit orders, speed of execution, size of execution, transaction costs, customer needs and expectations, and the existence of internalization or payment for order flow arrangements? Why or why not? Are there other factors that should also be included in a review of execution quality? If so, please explain. Should these factors be specified in proposed Rule 1101(c)? Please explain.

101. Would the proposed documentation requirement improve the utility of the reviews of execution quality by a broker-dealer? Please explain. Should the proposed rule include other specific documentation requirements to supplement the documentation of the execution quality reviews? If so, please explain.

102. Should proposed Rule 1101(c) apply to broker-dealers that currently rely on their executing brokers to conduct such reviews, if they otherwise would not qualify as introducing brokers as defined in proposed Rule 1101(d) and discussed in section IV.E below? Please explain. Would broker-dealers that currently rely on the execution quality reviews of their executing brokers (and do not qualify as introducing brokers as defined in proposed Rule 1101(d) and discussed in section IV.E below) have the resources and expertise to conduct the reviews required by proposed Rule 1101(c)? Would such broker-dealers have the information necessary to compare the executions received for their customers and the customers of other broker-dealers with the execution quality that could have been obtained on other markets to which they did not route customer orders? Please explain.

103. Should the Commission require a different frequency for the reviews of execution quality? If so, how frequently should such reviews be required and should the frequency be different for different asset classes? Should the frequency be monthly, semi-annually, annually, or another time period? Please explain.

104. Should the frequency of such reviews be dependent on any unique characteristics of the broker-dealer, its customers, its order flow, or the securities traded? For example, should the frequency standard be at least monthly for reviews of execution quality for NMS stocks because broker-dealers and market centers are required to disclose execution quality on a monthly basis under Rules 605 of Regulation NMS? Or does the availability of Rule 605 reports suggest that reviews of execution quality in NMS stocks should be less frequent? Please explain.

105. Should broker-dealers that handle and execute customer municipal bond orders be required to conduct reviews of execution quality at least quarterly as required by proposed Rule 1101(c)? Please explain. Is there a different frequency for these reviews that would be more appropriate for the municipal bond market? If so, please explain. Is there a frequency standard that would be more appropriate for other fixed income markets, such as the corporate bond and government securities markets? Is it appropriate to require that a broker-dealer's best execution policies and procedures, including its order handling practices, be revised based on the outcome of the proposed execution quality reviews? Please explain. Should there be more specificity concerning when a broker-dealer would be required to revise its best execution policies and procedures, including its order handling practices? For example, should the rule specify that best execution policies and procedures, including order handling practices, must be revised if the broker-dealer identifies material differences in execution quality among the various markets and trading venues that trade the applicable security? Please explain.

106. Should the proposed requirement that a broker-dealer revise its best execution policies and procedures, including its order handling practices, based on its review of execution quality apply differently depending on the type of asset class or any unique characteristics of the broker-dealer, its customers, its order flow, or the securities traded? Please explain.

107. Do commenters agree with the Commission's understanding that broker-dealers currently conduct certain execution quality reviews and those reviews vary in rigor? Please describe the frequency and rigor of any such reviews and whether broker-dealers document the results of such reviews.

108. Do commenters believe that the Commission should provide staggered compliance dates for proposed Rule 1101(c) for broker-dealers of different sizes, if the Commission adopts proposed Regulation Best Execution? For example, should the Commission provide longer compliance dates for smaller broker-dealers? If so, should the Commission define a smaller broker-dealer as a broker-dealer that qualifies as a ''small entity'' under the Regulatory Flexibility Act pursuant to 17 CFR 240.0–10(c) for this purpose? [226] Or should the Commission define a smaller broker-dealer in a different way? Please explain.

E. Proposed Rule 1101(d)—Introducing Brokers

Proposed Rule 1101(d) would permit a broker-dealer that qualifies as an introducing broker to rely on its executing broker to comply with proposed Rules 1101(a), (b), and (c), subject to certain review requirements.

Broker-dealers have different business models, including whether they accept, and the extent to which they handle and execute, customer orders. Certain broker-dealers commit their own capital by executing customer transactions on a principal basis, while some broker-dealers employ an agency model that requires them to find another buyer or seller in order to execute a customer order. The sizes and resources of broker-dealers also vary, with some broker-dealers carrying the accounts of millions of customers, while others carry few customer accounts and employ significantly fewer in-house personnel.

Many broker-dealers do not provide the service of holding customer funds and securities and instead enter into agreements with other broker-dealers to provide such services and handle and execute their customers' orders. Such agreements generally allocate various functions among the broker-dealers, including the opening and approval of accounts, acceptance of orders, transmission of orders for execution, execution of orders, extension of credit, receipt and delivery of funds and securities, preparation and transmission of confirmations, maintenance of books and records, and monitoring of accounts.[227] Typically, a broker-dealer that does not carry customer accounts enters into an agreement with another broker-dealer that would require the initial broker-dealer to transmit all of its customer orders to the other broker-dealer for order handling and execution. In this circumstance, the second broker-dealer, which accepts the responsibility to handle and execute the customer orders, would be subject to the full obligations of proposed Regulation Best

[226] *See supra* note 151 and accompanying text (describing the broker-dealers that qualify as small entities under the Regulatory Flexibility Act).

[227] *See* FINRA Rule 4311 (establishing standards for carrying agreements between executing firms and introducing firms).

Execution. On the other hand, the first broker-dealer is not making any decisions or exercising discretion regarding the manner in which its customer orders will be handled and executed, beyond its determination to engage the services of the second broker-dealer, and it would not be subject to the full obligations of proposed Regulation Best Execution.

FINRA Rule 5310.09(c) provides that a broker-dealer that routes its order flow to another broker-dealer that has agreed to handle that order flow as agent for the customer can rely on that broker-dealer's regular and rigorous review, as long as the statistical results and rationale of the review are fully disclosed to the first broker-dealer and the first broker-dealer periodically reviews how the review is conducted, as well as the results of the review.[228] MSRB Rule G–18.08(b) provides that a broker-dealer that routes its customers' transactions to another broker-dealer that has agreed to handle those transactions as agent or riskless principal for the customer may rely on that other broker-dealer's periodic reviews as long as the results and rationale of the review are fully disclosed to the first broker-dealer and the first broker-dealer periodically reviews how the other broker-dealer's review is conducted and the results of the review.[229] As discussed in section IV.E.1 below, the exemption under proposed Rule 1101(d) would be provided to a narrower group of broker-dealers than contemplated by FINRA and MSRB rules, because it would apply only to broker-dealers that meet the proposed definition of ''introducing broker.'' Accordingly, certain broker-dealers that qualify under the current FINRA and MSRB exemptions may not similarly qualify for the exemption under proposed Rule 1101(d), absent a change in business practices that would allow them to meet the additional criteria described below in section IV.E.1. Moreover, as discussed in section IV.E.2 below, the exemption under proposed Rule 1101(d) would require the introducing broker's policies and procedures to provide for comparisons between the execution quality obtained from its executing broker and the execution quality it might have obtained from other executing brokers, which would be a more specific policies and procedures obligation for introducing brokers than required under the current FINRA and MSRB rules. Finally, a broker-dealer that qualifies as an introducing broker under proposed Rule 1101(d) would be exempt from the requirement to separately comply with proposed Rules 1101(a), (b), and (c), while the FINRA and MSRB rules only provide certain broker-dealers with exemptions from conducting either the regular and rigorous execution quality review under the FINRA rule or the periodic review under the MSRB rule.

1. Definition of Introducing Broker and Executing Broker

For purpose of proposed Rule 1101(d), the Commission would define an ''introducing broker'' as a broker-dealer that: (1) does not carry customer accounts and does not hold customer funds or securities; (2) has entered into an arrangement with an unaffiliated broker-dealer that has agreed to handle and execute on an agency basis all of the introducing broker's customer orders (''executing broker''); and (3) has not accepted any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration from the executing broker in return for the routing of the introducing broker's customer orders to the executing broker.[230] Broadly, these proposed conditions are designed to identify those entities that, due to their business models, expertise, and resources, need to be able to rely on their executing brokers, and to ensure that these entities do not have order handling conflicts of interest such that their reliance on their executing brokers would be appropriate.

The first proposed condition of this definition (in proposed paragraph (d)(1)) would require that an introducing broker not carry customer accounts or hold customer funds or securities. This proposed condition is designed to identify those broker-dealers that do not handle or execute customer orders and therefore need to enter into arrangements with other broker-dealers to provide those services. The Commission preliminarily believes that this proposed condition would identify broker-dealers that do not exercise any discretion with respect to how their customer orders are handled and executed, beyond the selection of the executing broker. Because these introducing brokers do not handle or execute customer orders in a manner that would warrant the application of the proposed best execution rules, the Commission proposes to permit these broker-dealers to rely on their executing brokers for purposes of complying with proposed Rules 1101(a), (b), and (c). In addition, these introducing brokers may not be in a position to implement certain of the proposed best execution rules because they have chosen to outsource order handling and execution functions to another broker-dealer.

The second proposed condition in the definition (in proposed paragraph (d)(2)) would require an introducing broker to enter into an arrangement with an *unaffiliated* broker-dealer that has agreed to handle and execute on an *agency* basis all of the introducing broker's customer orders. This proposed condition contains several elements. First, the proposed requirement that an arrangement be in place for the handling and execution of all customer orders by another broker-dealer would help ensure that the introducing broker does not exercise discretion concerning the routing and execution of customer orders in a manner that would otherwise necessitate the application of all of the provisions of proposed Regulation Best Execution.[231] Second, the introducing broker would be required to have an order handling and execution arrangement with an unaffiliated broker-dealer. Because the

[228] *See* FINRA Rule 5310.09(c).

[229] *See* MSRB Rule G–18.08(b). The MSRB has further interpreted the obligations of introducing brokers under this provision. *See* MSRB Implementation Guidance on MSRB Rule G–18, on Best Execution, at Section II.1 (last updated Feb. 7, 2019) (''Under this provision, introducing dealers may rely on the best-execution policies and procedures of their clearing firms or other executing dealers, all of which are subject to their own best-execution obligations under the rule. An introducing dealer, however, is not relieved of its obligations to establish written policies and procedures of its own. For example, such an introducing dealer's policies and procedures could provide for the reliance on another dealer's policies and procedures and periodic reviews by the introducing dealer of the other dealer's reviews of its policies and procedures.'').

[230] This proposed definition of ''introducing broker'' would be used only for purposes of proposed Rule 1101(d), and would not affect the use of this term under existing Exchange Act rules. *See, e.g.,* 17 CFR 240.15c3–3 (defining introducing broker as a broker-dealer that ''clears all transactions with and for customers on a fully disclosed basis with a clearing broker or dealer, and who promptly transmits all customer funds and securities to the clearing broker or dealer which carries all of the accounts of such customers and maintains and preserves such books and records pertaining thereto . . . as are customarily made and kept by a clearing broker or dealer''). While the term ''introducing broker'' is defined differently for purposes of other Commission rules, the Commission preliminarily believes the definition in proposed Rule 1101(d) is appropriately tailored for application in the best execution context. As discussed in this section, the proposed definition is designed to identify introducing brokers that rely on their executing brokers and to ensure that they do not have order handling conflicts of interest in their reliance on their executing brokers. *See also* section IV.E.1 (describing FINRA Rule 5310.09(c), MSRB Rule G–18.08(b), and the definition of introducing broker in proposed Rule 1101(d)).

[231] The broker-dealer that has agreed to handle all of the introducing broker's customer orders on an agency basis would be subject to proposed Regulation Best Execution, including proposed Rules 1101(a)–(c).

introducing broker would be permitted to rely on the executing broker rather than having policies and procedures that address independently many of the operative provisions of proposed Regulation Best Execution (including the additional obligations for conflicts of interest with retail customers), the introducing broker should not be permitted to be subject to a conflict of interest by selecting an affiliated executing broker. Such conflict of interest could impede the introducing broker's efforts to achieve best execution by providing the introducing broker an incentive to act in manner that benefits its own or its affiliate's interests. Third, the executing broker that has been selected by the introducing broker would be required to agree to handle all of the introducing broker's customer orders on an agency basis. If an executing broker could trade with the introducing broker's customers in a principal capacity, the introducing broker would effectively be making a determination concerning how its customer order should be executed, and the introducing broker should be subject to the full requirements of proposed Regulation Best Execution.

There are two principal trading scenarios that, under proposed Rule 1101(d)(2), would be considered to be orders handled on an agency basis solely for the purposes of proposed Rule 1101(d)(2): fractional share trading in NMS stocks and riskless principal trading in corporate and municipal bonds and government securities. The Commission understands that many broker-dealers permit their customers to submit orders for fractional shares of a stock. These orders are often the result of a retail customer submitting an order for a security for a certain dollar amount, rather than for a specific number of shares. In order for an executing broker to fill the fractional share orders of an introducing broker's customer buy orders, for example, the executing broker may buy a whole share into its inventory and allocate a portion of that share to fill the customer's fractional share order. This scenario involves a principal trade between the executing broker and the customer that is necessary to fill the customer's fractional share order. The Commission preliminarily believes that an executing broker filling the fractional share components of an introducing broker's customer orders in this manner should not disqualify the initial broker-dealer from meeting prong (2) of the definition of an introducing broker, because the executing broker is filling the fractional share components on a principal basis solely for the purpose of completing transactions that otherwise would be executed on an agency basis. Therefore, in this context, the executing broker filling a customer's fractional share order would be considered to be acting on an agency basis.

In the corporate and municipal bond markets and government securities markets, the Commission understands that executing brokers most often execute an introducing broker's customer orders on a riskless principal basis.[232] In these transactions, the executing broker does not fill a customer order out of its own inventory, but rather finds a counterparty for the customer order prior to executing the customer order.[233] The bond simply flows through the executing broker's account for transaction processing before ultimately being transferred to the appropriate customer. For purposes of proposed Rule 1101(d)(2), riskless principal would be defined as proposed under Rule 1101(b)(4)(ii). In particular, a transaction would be riskless principal if, after having received an order to buy from the introducing broker on behalf of its customer, the executing broker purchased the security from another person to offset a contemporaneous sale to such introducing broker on behalf of a customer or, after having received an order to sell, the executing broker sold the security to another person to offset a contemporaneous purchase from such introducing broker on behalf of its customer.[234] The Commission preliminarily believes that this riskless principal transaction scenario in the corporate and municipal bond markets and government securities markets should not disqualify the initial broker-dealer from meeting the definition of an introducing broker in proposed Rule 1101(d), as the riskless principal trading in this context is analogous to the executing broker trading on an agency basis.

The third proposed condition in the definition of introducing broker (in proposed paragraph (d)(3)) is that the introducing broker may not accept any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration from the executing broker in return for the routing of the introducing broker's customer orders to the executing broker.[235] Similar to the second proposed condition concerning the use of unaffiliated executing brokers, the Commission preliminarily believes that this proposed condition is appropriate because the introducing broker, which would be exempt from many of the operative provisions of proposed Regulation Best Execution, should not be subject to a conflict of interest that could influence its selection of a broker-dealer that will handle and execute its customers' orders.

2. Review of Executing Broker's Execution Quality

Proposed Rule 1101(d) would provide that an introducing broker that routes customer orders to an executing broker

[232] The MSRB best execution rule recognizes that introducing brokers may have a relationship with clearing firms that handle and execute customer orders on a riskless principal basis. *See, e.g.,* MSRB Rule G–18.08(b) (''A dealer that routes its customers' transactions to another dealer that has agreed to handle those transactions as agent or riskless principal for the customer (*e.g.,* a clearing firm or other executing dealer) may rely on that other dealer's periodic reviews as long as the results and rationale of the review are fully disclosed to the dealer and the dealer periodically reviews how the other dealer's review is conducted and the results of the review.'').

[233] As the Commission has stated, ''[t]rading on a riskless principal basis is similar, conceptually, to a municipal bond dealer trading on an agency basis. In these transactions, the municipal bond dealer is not putting its capital at risk. For example, when it receives a customer order to buy, the [dealer] will offset the sale to the customer by contemporaneously purchasing the security sold to the customer.'' *See* U.S. Securities and Exchange Commission, Report on the Municipal Securities Market (2012), *available at https://www.sec.gov/news/studies/2012/munireport073112.pdf. See also* 17 CFR 240.3a5–1(b) (defining the term ''riskless principal transaction'' for purposes of a bank's exemption from the definition of dealer).

[234] This riskless principal trading scenario would be limited to these types of transactions in the corporate and municipal bond markets and government securities markets and is consistent with the concept in MSRB Rule G–18.08(b) and with the Commission's defined term of riskless principal in Exchange Act Rule 3a5–1, which exempts banks from the definition of ''dealer'' under the Exchange Act when acting in a riskless principal capacity. *See* 17 CFR 240.3a5–1 (defining riskless principal as a transaction in which, after having received an order to buy from a customer, the bank purchased the security from another person to offset a contemporaneous sale to such customer or, after having received an order to sell from a customer, the bank sold the security to another person to offset a contemporaneous purchase from such customer). Furthermore, the Commission believes that this definition of a riskless principal trade is a commonly used and understood definition of the term. *But see* 17 CFR 240.10b–18 (defining a riskless principal transaction in the context of a safe harbor for issuers from liability under the Exchange Act fraud provisions as a transaction in which a broker or dealer after having received an order from an issuer to buy its security, buys the security as principal in the market at the same price to satisfy the issuer's buy order, where the issuer's buy order must be effected at the same price per share at which the broker or dealer bought the shares to satisfy the issuer's buy order, exclusive of any explicitly disclosed markup or markdown, commission equivalent, or other fee).

[235] This proposed condition is based on the definition of payment for order flow in Exchange Act Rule 10b–10(d)(8), 17 CFR 240.10b–10(d)(8). *See supra* note 43 (stating the definition of payment for order flow under Rule 10b–10(d)(8)).

does not need to separately comply with proposed Rules 1101(a), (b), and (c) so long as the introducing broker establishes, maintains, and enforces policies and procedures that require the introducing broker to regularly review the execution quality obtained from such executing broker, compare it with the execution quality it might have obtained from other executing brokers, and revise its order handling practices, accordingly. The introducing broker would also be required to document the results of this review.

Because proposed Rule 1101(d) would require the introducing broker to establish, maintain, and enforce policies and procedures that provide for regular reviews of the execution quality obtained from its executing broker, as part of its agreement with the executing broker, an introducing broker may wish to consider requiring the executing broker to fully disclose its execution quality reviews of the introducing broker's customer orders to the introducing broker, in lieu of conducting its own independent analysis of the execution quality ultimately received from the executing broker.[236] This aspect of proposed Rule 1101(d) would impose a direct obligation on introducing brokers to regularly review the execution quality obtained from their executing brokers, in addition to what is required under current FINRA and MSRB rules.[237]

In addition, because proposed Rule 1101(d) would require the introducing broker's policies and procedures to provide for comparisons of its executing broker's execution quality with the execution quality it might have obtained from other executing brokers, the introducing broker would need to obtain execution quality information concerning other executing brokers that could handle and execute the introducing broker's customer orders.[238] While the information concerning the execution quality that might be obtained from other executing brokers would not include information concerning the execution of the introducing broker's customer orders, this information would nevertheless better inform the introducing broker's decisions concerning the selection of an executing broker. This aspect of proposed Rule 1101(d) would impose a direct obligation on introducing brokers to conduct comparisons of execution quality, in addition to what is required under current FINRA and MSRB rules.[239] While the broker-dealer would be afforded discretion in how it evaluates the execution quality that could be provided by other executing brokers, the Commission believes that introducing brokers could consider the execution quality and order routing disclosures of these executing brokers along with the information that these executing brokers might provide to the introducing broker directly in connection with this obligation.

Proposed Rule 1101(d) would also require an introducing broker's policies and procedures to address how it would revise its order handling practices, if its execution quality comparison shows that a change is warranted. This aspect of proposed Rule 1101(d) would establish an obligation for an introducing broker to revise its policies and procedures following an execution quality comparison, which is not explicitly required under the current FINRA and MSRB rules.[240] An introducing broker may consider it appropriate to change its routing practices to the extent a material difference exists between the execution quality provided by its existing executing broker and the execution quality that might have been obtained from other executing brokers. Alternatively, the Commission preliminarily believes that an introducing broker could discuss the results of its review with its executing broker and whether it is appropriate for the executing broker to modify its order handling and execution practices in order to provide better execution quality for the introducing broker's customers.[241] If the executing broker were to either provide a reasonable explanation for the execution quality disparity identified by the introducing broker or agree to modify its order handling and execution practices in order to provide better execution quality, it could be appropriate for the introducing broker to continue to retain the services of its executing broker. Should the introducing broker's regular review demonstrate persistent execution quality issues that are not justifiable by the executing broker, the introducing broker should consider retaining the services of another executing broker. As a result, the Commission preliminarily believes that this regular review process would promote competition among executing brokers and help ensure that customer orders are executed consistently with the proposed best execution standard.

Moreover, proposed Rule 1101(d) would require an introducing broker to document the results of its execution quality review,[242] which would assist the introducing broker and regulators by helping to ensure that the introducing broker maintains and retains a robust record of the execution quality its customers receive from its executing

[236] The executing broker's review of execution quality that the introducing broker relies on would be required to be an execution quality review specific to the introducing broker's customer orders. The Commission preliminarily believes that it would not be appropriate for the introducing broker to rely on the executing broker's execution quality review if that review involved the executing broker's aggregate executions, including those of other introducing brokers' customers. As a result, proposed Rule 1101(d) would require the introducing broker to evaluate the execution quality *its* customers received from the executing broker.

[237] *See* FINRA Rule 5310.09(c); MSRB Rule G–18.08(b) (providing that an introducing broker can ''rely on'' its executing broker's execution quality reviews as long as the results and rationale of the review are fully disclosed to the introducing broker and the introducing broker periodically reviews how the review is conducted and the results of the review). Under these rules, broker-dealers are permitted to rely on the execution quality reviews of their executing brokers and are required only to periodically review how the review is conducted and the results of the review. These broker-dealers are not required to compare the execution quality they are receiving to the execution quality that might have been received from another executing broker.

[238] The Commission preliminarily believes that other executing brokers would have an incentive to provide the introducing broker with accurate and comparable execution quality information that the introducing broker could use to evaluate its existing arrangement due to their financial interest in potentially providing the introducing broker with order handling and execution services.

[239] *See supra* note 236.

[240] *See* FINRA Rule 5310.09(c) (''A member that routes its order flow to another member that has agreed to handle that order flow as agent for the customer (*e.g.,* a clearing firm or other executing broker-dealer) can rely on that member's regular and rigorous review as long as the statistical results and rationale of the review are fully disclosed to the member and the member periodically reviews how the review is conducted, as well as the results of the review.''). *See also* MSRB Rule G–18.08(b) (''A dealer that routes its customers' transactions to another dealer that has agreed to handle those transactions as agent or riskless principal for the customer (*e.g.,* a clearing firm or other executing dealer) may rely on that other dealer's periodic reviews as long as the results and rationale of the review are fully disclosed to the dealer and the dealer periodically reviews how the other dealer's review is conducted and the results of the review.''). These provisions do not obligate the broker-dealers that rely on the regular and rigorous review of other broker-dealer under FINRA Rule 5310.09(c) and MSRB Rule G–18.08(b) to modify the order handling arrangements if execution quality analysis merits modification.

[241] As part of this process, the introducing broker and executing broker could assess why execution quality may be different as between the executing broker and other executing brokers, and the reason for these differences may inform the introducing broker's decision as to whether to retain the executing broker or change executing brokers. As discussed above with respect to proposed Rule 1101(c), an executing broker would be required to revise its best execution policies and procedures, including its order handling and routing practices, if warranted by its regular review of the execution quality of the introducing broker's customer orders.

[242] *See* proposed amendments to Rule 17a–4; *infra* section IV.G (describing the recordkeeping obligations applicable to any documentation made pursuant to proposed Regulation Best Execution).

broker over time. This documentation should enable the introducing broker to better evaluate the effectiveness of its executing broker on an ongoing basis. This documentation would also help ensure that regulators have access to information to effectively oversee the introducing broker's efforts to satisfy its obligations under proposed Rule 1101(d).

Request for Comment

The Commission requests comment on proposed Rule 1101(d) relating to the proposed definitions of introducing broker and executing broker, and the proposed exemptions for introducing brokers, and in particular:

109. Are the proposed definitions of introducing broker (including the three proposed conditions to qualify as an introducing broker) and executing broker appropriate? If not, please explain whether and how the definitions should be more broadly or narrowly drawn, including whether certain market participants should be included or excluded from the definitions.

110. Do commenters believe the use of the term ''introducing broker'' in proposed Regulation Best Execution is appropriate? Should the Commission use an alternative term to describe the types of entities contemplated by proposed Rule 1101(d)? If so, what alternative term would be appropriate?

111. Does an introducing broker typically exercise any discretion with respect to how its customer orders are handled and executed by its executing broker, beyond the selection of the executing broker? If so, should the definition of introducing broker be modified in any manner to account for this discretion by the introducing broker? Please describe.

112. Does an introducing broker typically have multiple executing brokers or does it typically have an arrangement with only one executing broker to handle and execute all of its customer orders?

113. Are the proposed conditions concerning the arrangement between the introducing broker and its executing broker appropriate? Please explain.

114. Is it appropriate to require the executing broker to handle and execute all of the introducing broker's customer orders on an agency basis in order for the introducing broker to meet the definition of introducing broker under proposed Rule 1101(d)? Please explain.

115. Do executing brokers, which can include many clearing firms that provide these types of services to other broker-dealers, typically execute transactions to fill an introducing broker's customer orders in a riskless principal capacity? Do these executing brokers often use inventory to fill the introducing broker's customer orders?

116. Would the proposed condition that an executing broker execute customer orders on an agency basis harm liquidity for the introducing broker's customer orders for any asset class or classes? If so, please explain. For example, is the principal trading desk of an executing broker (*e.g.,* clearing firm) in the corporate or municipal bond markets and government securities markets an important source of potential liquidity for the customers of an introducing broker?

117. Does the proposed introducing broker definition and the proposed approach concerning riskless principal trading appropriately capture the manner in which introducing brokers and executing brokers do business in the corporate and municipal bond markets and government securities markets? Please explain.

118. Should riskless principal transactions by an executing broker disqualify the introducing broker from meeting the definition of introducing broker under proposed Rule 1101(d)? Please explain.

119. Is the description of a riskless principal trade in section IV.E.1 above appropriate? Why or why not?

120. In contrast to the discussion of riskless principal trades in section IV.E.1 above, would it be more appropriate to require the two legs of a riskless principal trade to be executed at the same price, exclusive of any explicitly disclosed markup or markdown, commission equivalent, or other fee? For example, should a riskless principal trade for purposes of proposed Rule 1101(d)(2) be defined to mean: a transaction in which the executing broker, after having received an order from the introducing broker on behalf of its customer to buy a security, buys the security from another person as principal to offset a contemporaneous sale to such introducing broker on behalf of a customer at the same price, or after having received an order to sell, the executing broker sold the security to another person to offset a contemporaneous purchase from the introducing broker on behalf of its customer at the same price? Please explain. Would a potential benefit of this alternative definition of riskless principal transaction be that the bond transaction between the introducing broker and its customer would reflect the entire markup or markdown on the customer's trade, which would be disclosed to the customer pursuant to existing FINRA and MSRB confirmation disclosure rules?

121. Do commenters agree that principal trades by an executing broker to fill fractional share orders in NMS stocks and riskless principal trades by an executing broker in fixed income securities should be order handling on an agency basis for purposes of proposed Rule 1101(d)(2)? Why or why not? Are there additional types of principal transactions that should also be considered order handling on an agency basis for purposes of proposed Rule 1101(d)(2)? If so, please describe.

122. Do commenters agree with the proposed requirement that there be no affiliation between an introducing broker and its executing broker in order for the introducing broker to meet the definition of introducing broker under proposed Rule 1101(d)? Why or why not?

123. What is the typical relationship between an introducing broker and its executing broker for handling and executing customer orders in different asset classes?

124. The proposal would prohibit a broker-dealer from receiving any payment for order flow from its executing broker in order to qualify as an introducing broker under proposed Rule 1101(d). Currently, to what extent do introducing brokers accept payment for order flow for their customer orders from an executing broker? What are the common payment for order flow arrangements between introducing brokers and their executing brokers?

125. Do commenters agree with the proposed requirement that there be no payment for order flow between an introducing broker and its executing broker in order for the introducing broker to meet the definition of introducing broker under proposed Rule 1101(d)? Please explain. What are the implications for introducing brokers resulting from the requirement that they not accept payment for order flow from their executing brokers in order to qualify as introducing brokers under proposed Rule 1101(d)?

126. Should an executing broker be prohibited from accepting payment for order flow from other broker-dealers that the executing broker uses to execute the introducing broker's customer orders? Why or why not?

127. Do commenters agree that the proposed exemptions for introducing brokers from proposed Rule 1101(a), (b), and (c) are appropriate? Why or why not?

128. Do commenters believe that the approaches taken by FINRA and the MSRB with respect to the definition of introducing broker are preferable to the

Commission's proposal?[243] Please explain. Would an approach that is more restrictive than the FINRA and MSRB approach but less restrictive than the Commission's proposal be preferable? If so, please explain.

The Commission also seeks comment on the proposed requirement that, to avail itself of the exemptions under proposed Rule 1101(d), an introducing broker must establish, maintain, and enforce policies and procedures that require it to regularly review the execution quality obtained from its executing broker, compare such execution quality with the execution quality it might have obtained from other executing brokers, and revise its routing practices accordingly. In particular:

129. How do introducing brokers currently evaluate the execution quality of their executing brokers? How often is this evaluation typically performed?

130. Would introducing brokers be able to obtain execution quality information concerning other executing brokers? If so, how? Would executing brokers have an incentive to share execution quality information with introducing brokers for which they do not handle orders or handle few orders?

131. Would an introducing broker be able to perform a comparison of execution quality received with execution quality that it might have obtained from other executing brokers? Please explain any challenges in making such a comparison and whether any challenges depend on the asset class or classes involved. Please describe any distinctions that should be drawn among executing brokers handling and executing orders in various asset classes.

132. Should the Commission require that an introducing broker compare the execution quality received with the execution quality it might have obtained from other executing brokers only to the extent that such execution quality information is reasonably accessible to the introducing broker? Please explain.

133. Would introducing brokers have the capacity and resources to independently compare the quality of executions received from their executing brokers to the quality of executions that they might have received from other executing brokers? Are introducing brokers likely to rely on third parties to facilitate this comparison? Please explain.

134. How frequently should an introducing broker be required to perform a comparative analysis of execution quality as proposed in Rule 1101(d)? For example, should it be required quarterly, similar to what FINRA requires under FINRA Rule 5310.09? Alternatively, should the review be required with a different frequency, such as on a monthly, semiannual, or annual basis, instead of quarterly? Please explain.

135. Should introducing brokers be required to evaluate the execution quality of a minimum number of alternative executing brokers when they compare the execution quality received from their own executing brokers? If so, how many and why?

136. Would the proposed documentation requirement improve the utility of an introducing broker's execution quality comparison? Why or why not? Should the Commission require additional documentation to supplement the documentation of the introducing broker's review? If so, please explain.

137. Rather than conducting the execution quality review under proposed Rule 1101(d), should introducing brokers be subject to the regular review of execution quality requirement under proposed Rule 1101(c)? Are there other factors that would make one more appropriate for introducing brokers than the other? Please explain.

138. Do commenters believe there are any concerns with the proposed requirement that an introducing broker's policies and procedures require it to revise its order handling practices to the extent justified by its execution quality reviews? If so, please explain. Should the Commission provide more specificity concerning when order handling practices would be required to be revised? For example, should the Commission specify that order handling practices be revised if there are material differences between the execution quality received from the executing broker and the execution quality that could have been obtained from another executing broker?

139. How do introducing brokers currently address execution quality concerns relating to their executing brokers' order handling? Please describe.

140. Do introducing brokers have a number of executing brokers to choose from when determining the firm they will use to handle and execute their customer orders?

141. Is the approach in FINRA Rule 5310.09(c) and MSRB Rule G–18.08(b) preferable to the Commission's proposal? Why or why not? Would some combination of the FINRA and MSRB approaches and the Commission's proposal be preferable to either? Please explain.

142. Do commenters believe that the Commission should provide staggered compliance dates for proposed Rule 1101(d) for broker-dealers of different sizes, if the Commission adopts proposed Regulation Best Execution? For example, should the Commission provide longer compliance dates for smaller broker-dealers? If so, should the Commission define a smaller broker-dealer as a broker-dealer that qualifies as a ''small entity'' under the Regulatory Flexibility Act pursuant to 17 CFR 240.0–10(c) for this purpose?[244] Or should the Commission define a smaller broker-dealer in a different way? Please explain.

F. Proposed Rule 1102—Annual Report

Proposed Rule 1102 would require a broker-dealer that effects any transaction for or with a customer or a customer of another broker-dealer to, no less frequently than annually, review and assess the design and overall effectiveness of its best execution policies and procedures, including its order handling practices. Such review and assessment would be required to be conducted in accordance with written procedures and would be required to be documented.[245] The broker-dealer also would be required to prepare a written report detailing the results of such review and assessment, including a description of all deficiencies found and any plan to address such deficiencies. The report would be required to be presented to the board of directors (or equivalent governing body) of the broker-dealer. The proposed annual review requirement is designed to require broker-dealers to evaluate whether their best execution policies and procedures continue to work as designed and whether changes are needed to ensure their continued effectiveness.

In assessing the overall effectiveness of its best execution policies and procedures, a broker-dealer should consider its policies and procedures holistically, and may utilize its execution quality reviews and any documentation with respect to conflicted transactions prepared during

[243] *See supra* notes 228–230 and accompanying text.

[244] *See supra* note 151 and accompanying text (describing the broker-dealers that qualify as small entities under the Regulatory Flexibility Act).

[245] The Commission believes that broker-dealers currently have written compliance procedures reasonably designed to review their business activity, which a broker-dealer could update to document the method in which the broker-dealer plans to conduct its review pursuant to proposed Rule 1102.

the course of the review period.[246] Although proposed Rule 1101(c), as discussed in section IV.D above, would require a broker-dealer to implement an at least quarterly review of the execution quality of its customer transactions, the annual review requirement in proposed Rule 1102 would be a broader, more holistic review of the broker-dealer's policies and procedures not focused solely on execution quality. As part of its annual review, a broker-dealer may review the findings of its execution quality reviews in conjunction with its overall review of its policies and procedures, to the extent it would assist the broker-dealer in identifying any inadequacies and supporting any revisions to its best execution policies and procedures, including its order handling practices, as appropriate.[247] Ongoing changes in order handling technology and differing broker-dealer trading models and practices may present a need for a broker-dealer to reconsider its best execution policies and procedures in a way that is not identified during the course of a broker-dealer's regular execution quality reviews conducted pursuant to proposed Rule 1101(c). For example, the proposed annual review process may encourage the broker-dealer to consider investments in new technologies to improve its overall best execution process, despite the fact that the broker-dealer has not identified any issues with its existing execution quality. Accordingly, the Commission believes that the proposed annual review requirement, including the associated written report that would be presented to the broker-dealer's board of directors or equivalent governing body, would create a robust internal compliance process under the oversight of the highest level of a broker-dealer's internal governance to help ensure the broker-dealer maintains robust best execution policies and procedures and complies with proposed Regulation Best Execution. The written report prepared pursuant to proposed Rule 1102 would also help regulators better understand the broker-dealer's compliance with proposed Regulation Best Execution.

FINRA's best execution rule does not require a periodic review of a broker-dealer's best execution policies and procedures.[248] However, FINRA Rule 3130(c) requires a broker-dealer to have a report that describes its processes to: establish, maintain, and review its policies and procedures reasonably designed to achieve compliance with applicable FINRA rules, MSRB rules, and Federal securities laws and regulations; modify such policies and procedures as changes and events dictate; and test the effectiveness of such policies and procedures on a periodic basis, the timing and extent of which is reasonably designed to ensure continuing compliance with FINRA rules, MSRB rules, and Federal securities laws and regulations. FINRA Rule 3130(c) further requires the broker-dealer's chief executive officer(s) (or equivalent officer(s)) to certify to the existence of such processes, and to certify that the report of such processes has been submitted to the broker-dealer's board of directors and audit committee (or equivalent bodies). The Commission understands that, currently, broker-dealers periodically review their policies and procedures (including those related to best execution), although the frequency of review may vary. However, because the Commission is proposing its own best execution rule, proposed Rule 1102 would help ensure the effectiveness of the broker-dealer's best execution policies and procedures that it adopts pursuant to the proposed rules.

MSRB Rule G–18.08(a) requires a broker-dealer to, at a minimum, conduct annual reviews of its policies and procedures for determining the best available market for the executions of its customers' transactions. In conducting these reviews, a dealer must assess whether its policies and procedures are reasonably designed to achieve best execution, taking into account the quality of the executions the dealer is obtaining under its current policies and procedures, changes in market structure, new entrants, the availability of additional pre-trade and post-trade data, and the availability of new technologies, and to make promptly any necessary modifications to such policies and procedures as may be appropriate in light of such reviews. As described above in connection with the FINRA rules, because the Commission is proposing its own best execution rule, proposed Rule 1102 would help ensure the effectiveness of the broker-dealer's best execution policies and procedures that it adopts pursuant to the proposed rules. Moreover, as compared to MSRB Rule G–18.08(a), proposed Rule 1102 would include a specific requirement that a broker-dealer review its order handling practices, require that a report be maintained of this annual review, and require that the broker-dealer provide the annual report to its governing body.

Request for Comment

The Commission requests comment on all aspects of proposed Rule 1102, and in particular:

143. Should a broker-dealer be required to have written procedures for annual (or more frequent) reviews of the overall effectiveness of its best execution policies and procedures, including its order handling practices, and be required to document such review, as proposed? Why or why not?

144. Would the proposed requirement for written procedures for annual (or more frequent) reviews help to ensure the overall effectiveness of a broker-dealer's best execution policies and procedures? Why or why not?

145. Should a broker-dealer be required to prepare a written report detailing the results of its review, including any plan to address deficiencies, as proposed? Why or why not? Should the Commission require specific information to be included in the written report? If so, what specific information should be required?

146. Should the written report of the review be presented to the broker-dealer's board of directors (or equivalent governing body), as proposed? Why or why not?

147. Would the proposed requirement for annual (or more frequent) reviews and for presenting written reports of the reviews to the board of directors help to ensure a broker-dealer's compliance with proposed Regulation Best Execution? Why or why not?

148. Should a broker-dealer's board of directors (or governing body) also be required to approve the best execution policies and procedures that would initially be established under proposed Regulation Best Execution? Please explain.

149. Do commenters agree with the Commission's understanding that, currently, broker-dealers periodically review their best execution policies and procedures? Please describe the rigor of any such reviews, whether broker-dealers document such reviews, and whether broker-dealers present the results of such reviews to their boards of directors (or equivalent governing bodies).

[246] While a broker-dealer that qualifies as an introducing broker under proposed Rule 1101(d) would need to conduct a review and prepare a written report pursuant to proposed Rule 1102, an introducing broker's review should appropriately reflect its obligations under proposed Rule 1101(d), rather than the aspects of proposed Rules 1101(a), (b), and (c) that would be considered as part of the executing broker's annual review.

[247] By utilizing its regular reviews of execution quality as part of its annual review, a broker-dealer may avoid any duplication of efforts to the extent it needs to conduct any execution quality analysis in order to assess the overall effectiveness of its best execution policies and procedures as required by proposed Rule 1102.

[248] FINRA Rule 5310.

150. Do commenters agree with the Commission's understanding that such reviews vary in frequency among broker-dealers? Please describe the frequency of such reviews. Does the frequency of review vary depending on whether the broker-dealer is subject to the FINRA rules or the MSRB rules? Please explain.

151. Should management, a committee, or an expert be designated to conduct the annual review and prepare the report? Should specific experience or expertise be required to conduct the annual review and prepare the report? Would additional specificity in the rule promote accountability over the annual review and report and ensure that adequate resources are devoted to such review and report? Why or why not?

152. Does the annual review raise any particular challenges for smaller broker-dealers? If so, what could the Commission do to mitigate those challenges?

153. Are there any conflicts of interest if the same personnel that designs or implements the policies and procedures also conduct the annual reviews? If so, how can those conflicts be mitigated or eliminated? Should broker-dealers be required to have their policies and procedures periodically audited by an unaffiliated third party to assess their design and effectiveness? Why or why not? If so, should the rule define the term ''affiliate'' to specify the entities that would be eligible to perform such an audit and should the Commission use the definition of ''affiliate'' in proposed Rule 1101(b)(4)(iii) for this purpose? Please explain. What types of unaffiliated third parties might have the necessary specific experience and expertise to review a broker-dealer's best execution policies and procedures? For example, should an unaffiliated consulting firm, accounting firm, or law firm be permitted to provide this service, if required? Should the rule prescribe the types of unaffiliated third parties that would have the requisite experience and expertise? Please explain.

154. Do commenters believe that the Commission should provide staggered compliance dates for proposed Rule 1102 for broker-dealers of different sizes, if the Commission adopts proposed Regulation Best Execution? For example, should the Commission provide longer compliance dates for smaller broker-dealers? If so, should the Commission define a smaller broker-dealer as a broker-dealer that qualifies as a ''small entity'' under the Regulatory Flexibility Act pursuant to 17 CFR 240.0–10(c) for this purpose? [249] Or should the Commission define a smaller broker-dealer in a different way? Please explain.

G. Recordkeeping Requirements Under Rule 17a–4

In connection with proposed Regulation Best Execution, the Commission is proposing new recordkeeping requirements for broker-dealers. Section 17(a)(1) of the Exchange Act requires registered broker-dealers to keep for prescribed periods such records as the Commission prescribes as necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Exchange Act.[250] Rule 17a–4 under the Exchange Act specifies how long broker-dealers must preserve required records and other documents.[251]

Proposed Regulation Best Execution would require broker-dealers to make the following records:

- Policies and procedures under proposed Rules 1101(a), (b), and (d) and Rule 1102;
- Documentation of compliance with the best execution standard for conflicted transactions under proposed Rule 1101(b);
- Documentation of payment for order flow arrangements under proposed Rule 1101(b);
- Documentation of the results of the regular review of execution quality under proposed Rule 1101(c);
- Documentation of the results of the regular review of execution quality by introducing brokers under proposed Rule 1101(d);
- Documentation of the annual review under proposed Rule 1102; and
- Annual report under proposed Rule 1102.

Current Rule 17a–4(e)(7) under the Exchange Act would apply to the policies and procedures required by proposed Regulation Best Execution.[252] The Commission proposes to amend Rule 17a–4 to add new paragraph (b)(17) to require broker-dealers to preserve all other records made pursuant to proposed Rules 1101 and 1102 for a period of not less than three years, the first two years in a readily accessible place.

The Commission preliminarily believes that the preservation of records made pursuant to proposed Regulation Best Execution for this time period would assist broker-dealers in ensuring that they continue to maintain robust best execution practices for an appropriate amount of time. In addition, the preservation and availability of records that support and document broker-dealers' compliance with proposed Regulation Best Execution would also assist the Commission and SROs in assessing the broker-dealer's efforts to comply with proposed Regulation Best Execution.

Request for Comment

The Commission requests comment on the proposed record preservation requirements related to proposed Regulation Best Execution:

155. Should all records made pursuant to proposed Regulation Best Execution be required to be preserved? Please explain.

156. Do commenters agree that the policies and procedures required by proposed Regulation Best Execution should be subject to Rule 17a–4(e)(7) and preserved until three years after the termination of their use? Please explain.

157. Do commenters agree that all other records required by proposed Regulation Best Execution should be subject to Rule 17a–4(b) and preserved for a period of not less than three years, the first two years in a readily accessible place? Please explain.

158. Should the Commission impose additional record preservation requirements related to proposed Regulation Best Execution? Why or why not? If the Commission were to impose additional requirements, what specific records should broker-dealers be required to preserve? Please explain.

V. Economic Analysis

A. Introduction

The Commission is mindful of the economic effects that may result from proposed Regulation Best Execution, including the benefits, costs, and the effects on efficiency, competition, and capital formation.[253] This section

[249] *See supra* note 151 and accompanying text (describing the broker-dealers that qualify as small entities under the Regulatory Flexibility Act).

[250] 15 U.S.C. 78q(a)(1).

[251] 17 CFR 240.17a–4.

[252] Rule 17a–4(e)(7) requires broker-dealers to maintain and preserve in an easily accessible place compliance, supervisory, and procedures manuals (and any updates, modifications, and revisions thereto) describing the policies and practices of the broker-dealer with respect to compliance with applicable laws and rules, and supervision of the activities of associated persons until three years after the termination of the use of the manual. 17 CFR 240.17a–4(e)(7).

[253] Exchange Act Section 3(f) requires the Commission, when it is engaged in rulemaking pursuant to the Exchange Act, and is required to consider or determine whether an action is necessary or appropriate in the public interest, to consider, in addition to the protection of investors, whether the action will promote efficiency, competition, and capital formation. *See* 15 U.S.C.

Continued

analyzes the expected economic effects of proposed Regulation Best Execution relative to the current baseline, which consists of the current market and regulatory framework in existence today.

A broker-dealer's duty of best execution predates the Federal securities laws and, as noted previously, has ''its roots in the common law agency obligations of undivided loyalty and reasonable care that an agent owes to his principal.'' [254] In general terms, the Commission position is, and has been, that ''the duty of best execution requires broker-dealers to execute customers' trades at the most favorable terms reasonably available under the circumstances, *i.e.,* at the best reasonably available price.''[255] FINRA Rule 5310(a) and MSRB Rule G–18(a) codify essentially the same requirement that members must ''use reasonable diligence to ascertain the best market for the subject security and buy or sell [there] so that the resultant price to the customer is as favorable as possible under prevailing market conditions.''

The duty of best execution is a foundational component of the current best execution regulatory framework that helps protect investors in a setting of imperfect markets. The duty serves to counteract market failures that arise, for example, when an agent (in this case, a broker or broker-dealer) has different incentives than a principal (investor), and the principal, particularly the retail investor, is not in a position to monitor the agent. This is known in economics as a principal-agent problem.[256] A principal-agent problem arises when a broker-dealer undertakes costly actions to achieve best execution and the principal (investor) cannot observe the broker-dealer's actions. The broker-dealer in this situation has financial incentives to take (or not take) certain actions to reduce its costs or increase its profits.

The principal-agent problem can be exacerbated by a specific conflict of interest that arises when the broker-dealer executes a customer order in a principal capacity.[257] In these instances, the broker-dealer acting as principal on the trade has a financial incentive to maximize its gains from the trade, which would be at the expense of the counterparty, here the broker-dealer's customer, in a zero-sum game.[258] This conflict of interest should be mitigated because the broker-dealer as agent for its customer also has a duty to ensure that the order was executed at the most favorable terms reasonably available to the customer under the circumstances. However, retail customers typically lack access to the information that would allow them to determine independently whether an order received best execution from a broker-dealer. Further, obtaining and analyzing such information could be costly for retail customers.

The Commission has long taken the position that the ''scope of [the] duty of best execution must evolve as changes occur in the market that give rise to improved executions for customer orders . . . [and that] broker-dealers' procedures for seeking to obtain best execution for customer orders also must be modified to consider price [improvement] opportunities that become 'reasonably available.' '' [259] Current SRO rules that specifically address broker-dealer best execution policies and procedures requirements focus on a retrospective ''regular and rigorous'' review of execution quality. With limited exceptions, such as those for orders involving foreign securities, and securities for which there is limited pricing information or quotations available, existing SRO rules do not establish specific standards concerning a broker-dealer's policies and procedures for complying with the best execution obligations in FINRA Rule 5310(a) and MSRB Rule G–18(a).[260]

The proposal would build on the existing regulatory framework, codify in a Commission rule a best execution standard that is consistent with how the Commission and the courts have described the duty of best execution, enhance the Commission's ability to enforce best execution, and impose detailed policies and procedures obligations on broker-dealers' handling and execution of customer orders, including documented incremental efforts required for a broker-dealer to obtain the most favorable price in conflicted transactions for or with retail customers.[261] These requirements could further help enhance broker-dealers' ability to maintain robust best execution practices, including in situations where broker-dealers have order handling conflicts of interest with retail customers.

The Commission estimates aggregate compliance costs of $165.4 million in one-time costs and $128.9 million in annual costs on broker-dealers as they update, or establish, their policies and procedures for the handling, execution, and review of customer orders. To the extent that broker-dealers already have policies and procedures that are consistent with the proposed rules, aggregate implementation costs would be less than this estimate, and based on the Commission's experience, the Commission preliminarily believes these estimates overstate costs broker-dealers would bear in implementing the proposal.[262] Broker-dealers may also

78c(f). In addition, Exchange Act Section 23(a)(2) requires the Commission, when making rules pursuant to the Exchange Act, to consider among other matters, the impact that any such rule would have on competition, and not to adopt any rule that would impose a burden on competition that is not necessary or appropriate in furtherance of the purposes of the Exchange Act. *See* 15 U.S.C. 78w(a)(2).

[254] *Newton* v. *Merrill, Lynch, Pierce, Fenner & Smith, Inc.,* 135 F.3d 266, 270, n. 30 (3rd Cir. 1998). As the Commission explained when adopting rules governing payment for order flow almost three decades ago, ''[a] broker-dealer's duty to seek to obtain best execution of customer orders derives, in part, from the common law agency duty of loyalty, which obligates an agent to act exclusively in the principal's best interest. Restatement (Second) of Agency section 387 (1958). Thus, when an agent acts on behalf of a customer in a transaction, the agent is under a duty to exercise reasonable care to obtain the most advantageous terms for the customer. *Id.* at section 424.'' Payment For Order Flow Release, *supra* note 33, at n. 15.

[255] Regulation NMS Adopting Release, *supra* note 21, at 37538 (citations omitted). *See also,* Special Study, *supra* note 10, at 623 (''A broker-dealer acting as an agent for a customer in the execution of a transaction assumes the obligations of a fiduciary . . . . A corollary of the fiduciary's duty of loyalty to his principal is his duty to obtain or dispose of property for his principal at the best price discoverable in the exercise of reasonable diligence.'') (citations omitted), *available athttps://www.sechistorical.org/collection/papers/1960/1963_SSMkt_Chapter_07_2.pdf*

[256] *See* Joseph E. Stiglitz, *Principal and Agent, in Allocation, Information and Markets* 241 (John Eatwell *et al.* eds., 1989).

[257] For instance, a broker-dealer may decide to act in a principal capacity in a situation where there is a liquidity externality in that the investor's order lacks a counterparty, though the presence of such an externality is not necessary to the broker-dealer's decision.

[258] ''Trading is a zero-sum game in an important accounting sense. In a *zero-sum game,* the total gains of the winners are exactly equal to the total losses of the losers. Trading is a zero-sum game, because the combined gains and losses of buyers and sellers always sum to zero.'' Larry Harris, *Trading and Exchanges: Market Microstructure for Practitioners* (2002).

[259] *See, e.g., Marc N. Geman,* Securities Exchange Act Release No. 43963 (Feb. 14, 2001) (Commission opinion) (citing Order Execution Obligations Adopting Release, *supra* note 10, 61 FR 48322–48323).

[260] As discussed *supra* in note 129 and the accompanying text, FINRA Rule 3110(b)(1) requires broker-dealers to have policies and procedures for compliance with FINRA rules and Federal securities laws and regulations. MSRB Rule G–18.08 requires broker-dealers to have policies and procedures for determining the best available market for the executions of their customers' transactions. MSRB Rule G–28 requires broker-dealers to have procedures for compliance with MSRB rules and the Exchange Act and rules thereunder. Unlike these FINRA and MSRB rules, proposed Regulation Best Execution would establish specific standards concerning the policies and procedures for complying with the proposed best execution standard, as discussed in sections IV.B.1 and 2 *supra.*

[261] *See supra* section IV.

[262] *See infra* section V.C.2.

incur indirect costs.[263] Some of these costs could be passed through to customers in the form of higher commissions or reduced services.

The Commission has considered the economic effects of proposed Regulation Best Execution and, wherever possible, the Commission has quantified the likely economic effects of proposed Regulation Best Execution. The Commission is providing both a qualitative assessment and quantified estimates of the potential economic effects of the proposal where feasible. The Commission has incorporated data and other information to assist it in the analysis of the economic effects of proposed Regulation Best Execution. However, as explained in more detail below, because the Commission does not have, and in certain cases does not believe it can reasonably obtain, data that may inform the Commission on certain economic effects, the Commission is unable to quantify certain economic effects. Further, even in cases where the Commission has some data, quantification is not practicable due to the number and type of assumptions necessary to quantify certain economic effects, which render any such quantification unreliable. Our inability to quantify certain costs, benefits, and effects does not imply that the Commission believes such costs, benefits, or effects are less significant. The Commission requests that commenters provide relevant data and information to assist the Commission in quantifying the economic consequences of proposed Regulation Best Execution.

B. Baseline

Commission statements and SRO rules, including FINRA Rule 5310 and MSRB Rule G–18, and related SRO interpretive notices and guidance address broker-dealer best execution duties primarily through a broad, principles-based approach. Differences in security characteristics and market structure can cause broker-dealer order handling and execution practices to vary significantly across different asset classes, including the role that conflicts of interests play in the handling and execution of a broker-dealer's retail customer orders. In addition, policies related to the handling of customer orders can impact competition among broker-dealers, trading venues, and broker-dealers that offer order routing and execution services. The baseline against which the costs, benefits, and the effects on efficiency, competition, and capital formation of proposed Regulation Best Execution is measured consists of the current regulatory requirements and SRO guidance for broker-dealers concerning customer best execution, current broker-dealer best execution review processes, the current market structure and broker-dealer practices concerning handling and executing customer orders that may be impacted by proposed Regulation Best Execution,[264] and the structure of the market for broker-dealer services.

1. Current Legal and Regulatory Framework

Although FINRA and the MSRB have established rules and issued guidance directly addressing the duty of best execution that are applicable to their respective members, the Commission has never established its own rule governing a broker-dealer's legal duty of best execution. As described above in section II.A, the duty of best execution that a broker-dealer has today was originally derived from an implied representation that a broker-dealer makes to its customers when it agrees to engage in certain transactions on their behalf. The common law agency obligations of ''undivided loyalty and reasonable care'' that an agent owes to its principal require that a ''broker-dealer seek to obtain for its customer orders the most favorable terms reasonably available under the circumstances.'' [265] Expressed in economic terms, because a ''client-principal seeks his own economic gain and the purpose of the agency is to help the client-principal achieve that objective, the broker-dealer[']s best execution obligation], absent instructions to the contrary, [means that a broker-dealer] is expected to use reasonable efforts to maximize the economic benefit to the client in each transaction.'' [266]

In addition to the duty itself, the current framework consists of examination and monitoring programs conducted by the Commission and FINRA [267] of Commission registrants and FINRA and MSRB members. Best execution is and has been a priority item in these examinations.[268] In addition, FINRA produces monthly status reports for members, known as the best execution Outside-of-the-Inside report card, ''detailing the number of transactions reported to a FINRA [trade reporting] Facility, in which [a] firm participated that were executed Outside-of-the-Inside market in apparent violation of the Best Execution Rule.'' [269]

(a) Commission and Court Statements, Agency Guidance, and Enforcement Activities

In the context of agency rulemaking, adjudication, and Federal court litigation, the Commission and various Federal courts of appeal have articulated what the duty of best execution means and interpreted how the duty applies in various circumstances. For example, the duty of best execution requires a broker-dealer to ''execute customers' trades at the most favorable terms reasonably available under the circumstances, *i.e.,* at the best reasonably available price.'' [270] When considering what the

[263] *See infra* section V.C.2.b).

[264] While proposed Regulation Best Execution would apply to all securities, the Commission preliminarily believes that the proposal would not have economic effects on the market structure or order handling practices in the markets for securities based swaps, asset-backed securities, and repurchase and reverse repurchase agreements because these markets are mostly dominated by institutional investors that do their own order handling. Therefore, the market structure and order handling practices in these markets are not discussed in the economic baseline of this release.

[265] *Newton* v. *Merrill, Lynch, Pierce, Fenner & Smith, Inc.,* 135 F.3d at 270.

[266] *See id.*

[267] The MSRB does not conduct its own enforcement or compliance examinations. MSRB, The Role and Jurisdiction of the MSRB, at 2 (2021) (''the SEC and federal bank regulators [ ] share responsibility for enforcement and compliance examinations''), *available at https://www.msrb.org/sites/default/files/2022-09/Role-and-Jurisdiction-of-MSRB.pdf.*

[268] The Division of Exams 2022 priorities note that best execution in fixed-income securities, best execution obligations in a zero commission environment, and possible effects of conflicts of interest on best execution are focus points of its broker-dealer exam program. Division of Examinations, 2022 Examination Priorities, at 19 and 20, *available at https://www.sec.gov/files/2022-exam-priorities.pdf.* According to FINRA, ''[a]ssessing firms' compliance with their best execution obligations under FINRA Rule 5310 (Best Execution and Interpositioning) is one of the cornerstones of FINRA's oversight activities.'' FINRA, 2022 Report on FINRA's Examination and Risk Monitoring Program, at 2 (Feb. 2022), *available at https://www.finra.org/sites/default/files/2022-02/2022-report-finras-examination-risk-monitoring-program.pdf.*

[269] FINRA, Best Execution Outside-of-the-Inside Report Card, *available at https://www.finra.org/compliance-tools/report-center/equity/best-execution-outside-inside-report-card.* Member firms are told that they should ''make no inference . . . that FINRA staff has or has not determined that the information contained on the Best Execution Outside-of-the-Inside report cards does or does not constitute rule violations.'' *Id.*

[270] Regulation NMS Adopting Release, *supra* note 21, at 37538. *See also* Order Execution and Routing Practice Release, *supra* note 22, at 75418 (price is a critical concern for investors); *Geman* v. *SEC,* 334 F.3d 1183, 1186 (10th Cir. 2003) (''[T]he duty of best execution requires that a broker-dealer seek to obtain for its customer orders the most favorable terms reasonably available under the circumstances.'') (quoting *Newton* v. *Merrill, Lynch, Pierce, Fenner & Smith, Inc.,* 135 F.3d 266, 270 (3d Cir. 1998)); *Kurz* v. *Fidelity Management & Research Co.,* 556 F.3d 639, 640 (7th Cir. 2009) (describing the ''duty of best execution'' as ''getting

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best reasonably available price means in the context of a broker-dealers' best execution analysis, the Commission has articulated a non-exhaustive list of factors that may be relevant to broker-dealers' best execution analysis. These factors include the size of the order, speed of execution, clearing costs, the trading characteristics of the security involved, the availability of accurate information affecting choices as to the most favorable market center for execution and the availability of technological aids to process such information, and the cost and difficulty associated with achieving an execution in a particular market center.[271]

Other Commission statements address what best execution means in the context of various market practices and circumstances. Interpositioning, which occurs when a broker-dealer places a third party between itself and the best market for executing a customer trade in a manner that results in a customer not receiving the best available market price or paying unnecessary expenses, violates the broker-dealer's duty of best execution.[272] When a broker-dealer receives a limit order, the duty of best execution requires the broker-dealer to account for potential material differences in execution quality, such as the likelihood of execution among the various securities markets or market centers to which limit orders may be routed.[273] The Commission has also recognized that it may be impractical for a broker-dealer that handles a heavy volume of orders to make individual determinations regarding where to route each order[274] and that the duty of best execution requires a broker-dealer to assess periodically the quality of competing markets to ensure that its customers' order flow is directed to the markets providing the most beneficial terms.[275]

Although the Commission has not established a set of specific minimum data elements that a broker-dealer would need to acquire to achieve best execution[276] and has acknowledged that it cannot specify the data elements that may be relevant to every specific situation,[277] it has identified the various types of data needed by broker-dealers to fulfill their duty of best execution. For example, information contained in the public quotation system must be considered in seeking best execution of customer orders.[278] In adopting Rules 605 and 606,[279] the Commission recognized that the reports required of market centers would provide statistical disclosures regarding certain factors, such as execution price and speed of execution, relevant to a broker-dealer's order routing decisions and that these public disclosures of execution quality should help broker-dealers fulfill their duty of best execution.[280] More recently, the Commission emphasized that broker-dealers should consider the availability of consolidated market data, including the various elements of data content and the timeliness, accuracy, and reliability of the data in developing and maintaining best execution policies and procedures.[281]

The Commission has also emphasized the importance of price improvement in considering whether a customer order received best execution stating that ''notwithstanding any ambiguity that may have once existed [ ], it should now be clear that a firm must consider the potential for price improvement in carrying out its best execution obligations.'' [282] Relatedly, the Commission has taken the position that simply routing customer order flow for automated executions or internalizing customer orders on an automated basis at the best bid or offer does not necessarily satisfy a broker-dealer's duty of best execution for small orders in non-NMS stock equity securities (and NMS stocks).[283] Rather, broker-dealers handling small orders should look for price improvement opportunities when executing these orders.[284] And the expectation of price improvement for customer orders is particularly important when broker-dealers receive payment for order flow.[285] According to the Commission, a broker-dealer's receipt of payment for order flow is not a violation of its duty of best execution as long as it periodically assesses the quality of the markets to which it routes packaged order flow.[286]

An additional component of the best execution baseline for the Commission is enforcement mechanisms. The Commission has broad statutory authority under the Exchange Act to bring an injunctive action in Federal district court under Exchange Act Section 21(d)(1) whenever any person is engaged or is about to engage in acts or practices constituting a violation of the Federal securities laws and rules and regulations thereunder and, among other things, FINRA and MSRB rules, including best execution rules. Exchange Act Section 21(f) directs the Commission *not* to bring an injunctive action against any person for a SRO rule violation ''unless . . . such self-regulatory organization . . . is unable or unwilling to take appropriate action . . ., or (2) such action is otherwise necessary or appropriate in the public interest or for the protection of investors.'' [287] The Commission's authority to obtain monetary sanctions in Federal district court actions for FINRA and MSRB rule violations is also not co-extensive with its authority to obtain injunctive relief for violations of the Federal securities laws. For example, while the Commission can seek disgorgement and any equitable relief for Federal securities law violations and SRO rule violations, the Commission's authority to obtain civil penalties in a Federal district court action under Section 21(d) extends to violations of ''any provision of th[e

the optimal combination of price, speed, and liquidity for a securities trade'').

[271] *See* Order Execution and Routing Practice Release, *supra* note 22, at 75422; Regulation NMS Adopting Release, *supra* note 21, at 37538.

[272] *See supra* notes 29–30 listing Commission opinions. *See also SEC* v. *Ridenour,* 913 F.2d 515 (8th Cir. 1990) (bond salesman's interpositioning of personal trading between his customers' securities transactions and the market violated the antifraud provisions).

[273] *See* Order Execution Obligations Adopting Release, *supra* note 10, at 48323.

[274] *See* Payment for Order Flow Release, *supra* note 33, at 55009.

[275] *See* Regulation NMS Adopting Release, *supra* note 21, at 37516; Payment for Order Flow Release, *supra* note 33, at 55009.

[276] *See* MDI Adopting Release, *supra* note 38, at 18606.

[277] *Id.*

[278] *See* Order Execution and Routing Practice Release, *supra* note 22, at 75418.

[279] 17 CFR 242.605, 242.606.

[280] *See* Order Execution and Routing Practice Release, *supra* note 22, at 75418. *See also, id.* at 75420 (information provided by these reports is not, by itself, sufficient to support conclusions regarding the provision of best execution, and any such conclusions would require a more in-depth analysis of the broker-dealer's order routing practices than will be available from the disclosures required by the rules).

[281] *See* MDI Adopting Release, *supra* note 38, at 18605–06.

[282] *Marc N. Geman,* Exchange Act Release No. 43963 (Feb. 14, 2001) (C'n opinion) (record did not support a finding that firm fraudulently violated its duty of best execution), *affirmed on other grounds,* 334 F.3d 1183, 1186 (10th Cir. 2003). *See* Order Execution Obligations Adopting Release, *supra* note 10, at 48323. *See also, id.* at 48323 n. 357

[283] *See id.* at 48323.

[284] *See id.*

[285] *See* Payment for Order Flow Release, *supra* note 33, at 55008. *See* Exchange Act Rule 10b–10, 17 CFR 240.10b–10. *See also supra* note 43 (reviewing the definition of payment for order flow).

[286] *See* Payment for Order Flow Release, *supra* note 33, at 55009.

[287] Under Exchange Act Section 21(f), the Commission ''shall not bring any action pursuant to subsection (d) or (e) of this section against any person for violation of, or to command compliance with, the rules of a self-regulatory organization . . . unless it appears to the Commission that (1) such self-regulatory organization . . . is unable or unwilling to take appropriate action against such person in the public interest and for the protection of investors, or (2) such action is otherwise necessary or appropriate in the public interest or for the protection of investors.''

Exchange Act], the rules or regulations thereunder, or a cease-and-desist order entered by the Commission . . . other than [ ] a violation subject to a penalty pursuant to [the Exchange Act provision penalizing insider trading violations].'' [288] Section 21(d)(3) does not include the language in Section 21(d)(1) regarding the ''rules of a registered securities association'' or the ''rules of the Municipal Securities Rulemaking Board.''

The Commission's authority to obtain relief in administrative and cease-and-desist proceedings is more limited. The Commission can institute administrative proceedings pursuant to Exchange Act Sections 15(b)(4) and 15(b)(6), against broker dealers and their associated persons respectively, and pursuant to Exchange Act Sections 15B(c)(2) and 15B(c)(4) against municipal securities dealers and their associated persons respectively, for willful violations, and willful aiding and abetting violations of, among other things, the Federal securities statutes, the rules and regulations thereunder, ''or the rules of the Municipal Securities Rulemaking Board.'' [289] There is no parallel provision for the rules of an SRO or a registered securities association such as FINRA. A cease-and-desist proceeding can be brought only if ''any person is violating, has violated, or is about to violate any provision of [the Exchange Act], or any rule or regulation thereunder.'' [290] There is no parallel provision for the rules of the MSRB [291] or the rules of a Federal securities association.[292]

[288] Exchange Act Section 21(d)(3)(A).

[289] Exchange Act Section 15(b)(4)(D) and (E) and 15(b)(6)(A)(i). Where broker-dealer's best execution-related misconduct has also involved fraud, the Commission may exercise its discretion to bring best execution-based fraud charges pursuant to the Exchange Act's and the Securities Act's antifraud provisions. *See, e.g.,* Linkbrokers Derivatives LLC, Exchange Act Rel. No. 72,846 (Aug. 14, 2014) (settled Section 15(b) and cease-and-desist proceeding alleging antifraud violations of Exchange Act Section 15(c)(1)), *available at https://www.sec.gov/litigation/admin/2014/34-72846.pdf.*

[290] Exchange Act Section 21C(a).

[291] Where the Commission can institute an administrative proceeding under both Sections 15B(c) and 21C, the Commission can order remedies, including a cease-and-desist order, and other sanctions against a municipal securities dealer. *See, e.g., RBC Capital Markets, LLC,* Exchange Act Rel. No. 93,042 (Sept. 17, 2021) (settled action) *available at https://www.sec.gov/litigation/admin/2021/34-93042.pdf.*

[292] In situations where broker-dealer best execution-related misconduct has involved fraud, the Commission can exercise its discretion to bring best execution-based fraud charges pursuant to the Exchange Act's or the Securities Act's antifraud provisions. *See, e.g.,* Robinhood SEC, supra note 69 (settled cease-and-desist proceeding alleging antifraud violations of Securities Act Sections 17(a)(2) and 17(a)(3)) *https://www.sec.gov/litigation/admin/2020/33-10906.pdf*; *Patrick R. Burke,* Exchange Act Rel. No. 76,285 (Oct. 28, 2015) (settled cease-and-desist and Section 15(b) proceeding alleging antifraud violations of Exchange Act Section 10(b) and Rule 10b–5 and Securities Act Section 17(a)), *available at https://www.sec.gov/litigation/admin/2015/33-9968.pdf.*

(b) FINRA Rule 5310 Best Execution Rule and Related Information

As discussed in greater detail in Sections II.C and IV., FINRA has a rule for its members that details their best execution obligations.[293] Specifically, Rule 5310(a)(1) states that ''[i]n any transaction for or with a customer or customer of another broker-dealer, a member and persons associated with a member shall use reasonable diligence to ascertain the best market for the subject security and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.'' [294] FINRA's rule applies ''not only where the member acts as agent for the account of its customer but also where transactions are executed as principal'' [295] and cannot be transferred to others.[296] Interpositioning is expressly prohibited.[297] Like the position taken by the Commission,[298] FINRA's rule lists a set of non-exclusive ''factors that will be considered in determining whether a member has used 'reasonable diligence.'' The five factors listed are:

i. the character of the market for the security (*e.g.,* price, volatility, relative liquidity, and pressure on available communications);
ii. the size and type of transaction;
iii. the number of markets checked;
iv. accessibility of the quotation; and
v. the terms and conditions of the order which result in the transaction, as communicated to the member and persons associated with the member.[299]

FINRA's best execution rule and related guidance [300] addresses how its members' obligations and these factors are accounted for and considered. For example, for debt securities, FINRA Rule 5310.03 explains that the term ''quotation'' in its ''accessibility of the quotation'' factor ''refers to either dollar (or other currency) pricing or yield pricing'' and that ''[i]n the absence of accessibility, members are not relieved from taking reasonable steps and employing their market expertise in achieving the best execution of customer orders.'' [301] FINRA Rule 5310.06 also states that FINRA members ''must have written policies and procedures in place that address how the member will determine the best inter-dealer market for such a security in the absence of pricing information or multiple quotations and must document its compliance with those policies and procedures.''

FINRA Rule 5310.07 also addresses orders involving foreign securities.

[293] Rule 5310, which first became effective in May 2012, consolidated FINRA members' best execution requirements that were based largely on NASD Rule 2320 and NASD Interpretive Guidance with Respect to Best Execution Requirements, NASD IM–2320, as well as new provisions. FINRA, Regulatory Notice 12–13, SEC Approves Consolidated FINRA Best Execution Rule, *available at https://www.finra.org/rules-guidance/notices/12-13.* As previously noted *supra* in note 129, in addition to FINRA's best execution rule, FINRA Rule 3110(b)(1) requires broker-dealers to have procedures for compliance with FINRA rules (including its best execution rule) and Federal securities laws and regulations. Separately, FINRA Rules 3130(b) and (c) require the chief executive officer (or equivalent officer) of a FINRA member to certify annually that the member has in place processes to establish, maintain, review, test and modify written compliance policies and written supervisory procedures reasonably designed to achieve compliance with applicable FINRA rules, MSRB rules, and Federal securities laws and regulations. *See also,* FINRA Regulatory Notice 21–12, *supra* note 174, at 9 (''FINRA has also advised Member firms should have effective procedures in place to ensure they are fulfilling their best execution obligations during extreme market conditions'').

[294] FINRA Rule 5310(a)(1), *available at https://www.finra.org/rules-guidance/rulebooks/finra-rules/5310.* FINRA rule 5310 recodified FINRA's predecessor, the NASD, rule and interpretative material (IM) governing best execution and interpositioning, NASD Rule 2320 and IM–2320. FINRA's most recent regulatory guidance on Rule 5310 is contained in Regulatory Notice 15–46, Best Execution: Guidance on Best Execution Obligations in Equity, Options and Fixed Income Markets (Nov. 2015) (''FINRA Regulatory Notice 15–46''), *available at https://www.finra.org/sites/default/files/notice_doc_file_ref/Notice_Regulatory_15-46.pdf*; and Regulatory Notice 21–23, Best Execution and Payment for Order Flow (June 23, 2021) (''FINRA Regulatory Notice 21–23'') *available at https://www.finra.org/sites/default/files/2021-06/Regulatory-Notice-21-23.pdf.*

[295] FINRA Rule 5310(e). This paragraph also states that a broker-dealer's duty of best execution is ''distinct from the reasonableness of commission rates, markups, or markdowns, which are governed by Rule 2121 and its Supplementary Material.'' *Id.*

[296] FINRA Rule 5310.09(a).

[297] FINRA Rule 5310(a)(2). This subparagraph is one of a number of the rule's specific provisions addressing interpositioning. For a discussion of the related burdens and prohibitions imposed by FINRA in connection with interpositioning, see the discussion of FINRA Rules 5310(b), (c), and (d) in Section IV.A., including the text accompanying *supra* notes 149 and 150.

[298] *See* Order Execution and Routing Practice Release, *supra* note 22, at 75422, and the accompanying discussion.

[299] FINRA Rule 5310(a)(1).

[300] FINRA Rule 5310 includes supplementary material which addresses: (i) the execution of marketable customer orders; (ii) the definition of ''market;'' (iii) debt securities; (iv) executing brokers; (v) the use of another broker, a broker's broker, to execute a customer's orders; (vi) orders involving securities with limited quotation or pricing information; (vii) orders involving foreign securities; (viii) customer instructions for order handling; and (ix) the regular and rigorous review of execution quality. The text of FINRA Rule 5310 is *available at https://www.finra.org/rules-guidance/rulebooks/finra-rules/5310.* Regulatory Notices 15–46 and 21–23 are FINRA guidance documents for its best execution rule.

[301] FINRA Rule 5310.03.

''Even though a security does not trade in the U.S., members still have an obligation to seek best execution for customer orders involving any foreign security.'' [302] ''[A] member that handles customer orders involving foreign securities that do not trade in the U.S. must have specific written policies and procedures in place regarding its handling of customer orders for these securities that are reasonably designed to obtain the most favorable terms available for the customer, taking into account differences that may exist between U.S. markets and foreign markets.'' [303] Referencing two of its factors to be considered, FINRA Rule 5310.07 states that ''the character of the particular foreign market and the accessibility of quotations in certain foreign markets may vary significantly'' and that ''the determination as to whether a member has satisfied its best execution obligations necessarily involves a 'facts and circumstances' analysis.'' [304] Further, for customer orders involving a foreign security FINRA requires its members to ''have specific written policies and procedures in place regarding its handling of customer orders for these securities that are reasonably designed to obtain the most favorable terms available for the customer.'' [305]

FINRA rules address two situations where a member's best execution obligation is modified or no longer applicable. If a broker-dealer ''receives an unsolicited instruction from a customer to route that customer's order to a particular market for execution, the member is not required to make a best execution determination beyond the customer's specific instruction.'' [306] FINRA Rule 5310.04 addresses a specific situation where its best execution rule does not apply. The rule ''does not apply in instances when another broker-dealer is simply executing a customer order against the member's quote.'' The rule explains that ''[t]he duty to provide best execution to customer orders received from other broker-dealers arises *only when an order is routed from the broker-dealer to the member for the purpose of order handling and execution.*'' [307]

FINRA Rule 5310 addresses a broker-dealer's best execution-related obligations to determine order execution quality. FINRA Rule 5310.09(a) requires that ''[a] member that routes customer orders to other broker-dealers for execution on an automated, non-discretionary basis, as well as a member that internalizes customer order flow, must have procedures in place to ensure the member periodically conducts regular and rigorous reviews of the quality of the executions of its customers' orders if it does not conduct an order-by-order review.'' [308] This ''regular and rigorous'' review must be conducted at a minimum no less frequently than quarterly unless, based on a member's business, ''more frequent reviews are needed.'' Reviews are required to be done on a security-by-security and type-of-order basis.[309] Execution quality reviews must compare customer execution quality to the execution quality of other markets that are not used for customer order execution.[310] However, FINRA Rule 5310.09(c) allows a broker-dealer to rely on another broker-dealer's regular and rigorous review if the broker-dealer seeking to rely ''routes its order flow to another member that has agreed to handle that order flow as agent for the customer (*e.g.,* a clearing firm or other executing broker-dealer)'' and ''as long as the statistical results and rationale of the review are fully disclosed to the member and the member periodically reviews how the review is conducted, as well as the results of the review.'' [311] Issues associated with payment for order flow are also addressed in FINRA's best execution rule and guidance. FINRA recently issued best execution guidance that stated that ''firms that provide payment for order flow for the opportunity to internalize customer orders cannot allow such payments to interfere with their best execution obligations.'' [312] For example, ''inducements such as payment for order flow and internalization may not be taken into account in analyzing market quality.'' [313]

''In other words, . . . firms may not negotiate the terms of order routing arrangements for those customer orders in a manner that reduces the price improvement opportunities that otherwise would be available to those customer orders absent payment for order flow.'' [314]

FINRA publishes reports that include the results of its examination program's annual review of member best execution compliance. These reports, covering examinations from 2017 through 2021, include a series of findings and observations on various aspects of Rule 5310.[315] In each year, FINRA observed some noncompliance with Rule 5310. Among the points made in each report, FINRA reported observing some firms that did not: (1) assess execution in competing markets; (2) conduct an adequate review on a type-of-order basis; (3) evaluate certain required factors when conducting regular and rigorous review; and, in more recent

[302] FINRA Rule 5310.07.

[303] *Id.*

[304] *Id.* The rule also states that ''best execution obligations also must evolve as changes occur in the market that may give rise to improved executions [and] members also must regularly review these policies and procedures to assess the quality of executions received and update or revise the policies and procedures as necessary.''

[305] *Id.*

[306] FINRA Rule 5310.08. FINRA does require, however, that the broker-dealer process the ''order promptly in accordance with [its] terms . . . [and] where a customer has directed that an order be routed to another specific broker-dealer,'' that broker-dealer receiving the directed order would be subject to the duty of best execution with respect to the customer's order. *Id.*

[307] FINRA Rule 5310.04 (emphasis added).

[308] FINRA Rule 5310.09(a). FINRA has stated that there are two situations where an order-by-order review would satisfy best execution requirements when a ''regular and rigorous review alone . . . may not'' do so. One involves certain larger-sized security orders. *See* FINRA Regulatory Notice 15–46, *supra* note 294, at 3 (''when routing or internally executing larger-sized orders in any security, regular and rigorous review alone (as opposed to an order-by-order review) may not satisfy best execution requirements, given that the execution of larger-size orders ''often requires more judgment in terms of market timing and capital commitment'' (quoting NASD Notice to Members 01–22 at n. 13)). The other circumstance involves ''any orders that a member firm determines to execute internally'' which, according to FINRA Regulatory Notice 21–23, ''are subject to an order-by-order best execution analysis.'' *Id., supra* note 294, at 3. FINRA guidance includes commentary that advances in technology make ''order-by-order review of execution quality [ ] increasingly possible for a range of orders in equity securities and standardized options. *Id.* Although the text of FINRA Rule 5310 and its interpretive guidance refer to an ''order-by-order *review*'' in contrast to the ''regular and rigorous *review*'' detailed in Rule 5310.09, it is our understanding that FINRA has not directly addressed what an ''order-by-order review'' entails.

[309] FINRA Rule 5310.09(a).

[310] ''[A] member must determine whether any material differences in execution quality exist among the markets trading the security and, if so, modify the member's routing arrangements or justify why it is not modifying its routing arrangements.'' FINRA Rule 5310.09(b). FINRA has identified eight factors for members to consider in order to assure that order flow is directed to markets providing the most beneficial terms for a member's customers' orders. These factors are discussed in the text accompanying *supra* note 299.

[311] FINRA Rule 5310.09(c).

[312] FINRA Regulatory Notice 21–23, *supra* note 294, at 4.

[313] *Id.* FINRA's guidance stated that ''the possibility of obtaining price improvement is a heightened consideration when a broker-dealer receives payment for order flow.'' *Id.* (citation omitted).

[314] *Id.* (citing FINRA Regulatory Notice 15–46, *supra* note 294, at n.25 (''For example, if a firm obtains price improvement at one venue of $0.0005 per share, and it could obtain mid-point price improvement at another venue of $0.025 per share, the firm should consider the opportunity of such midpoint price improvement on that other venue as part of its best execution analysis.'')).

[315] Each of these reports is *available at https://www.finra.org/media-center/reports-studies.* For 2017 through 2019, the reports are titled ''FINRA Report on Examination Findings.'' More recent reports are titled ''Report on FINRA's Examination and Risk Monitoring Program.''

years, (4) consider and address potential conflicts of interest in conflicts of interest relating to routing of orders to affiliated broker-dealers, ATSs, or market centers that provide payment for order flow or other routing inducements.[316]

(c) MSRB Rule G–18 Best Execution Rule and Guidance

The MSRB's adopted its best execution rule, Rule G–18, in 2015 which became effective on March 21, 2016.[317] It is generally modeled after and similar to FINRA Rule 5310.[318] It extends the outline of ''reasonable diligence'' to include ''the information reviewed to determine the current market for the subject security or similar securities,'' provides more granular detail regarding transactions in which the broker-dealer acts in a principal capacity, and directs at least annual reviews of best execution (versus at least quarterly reviews required by FINRA). Unlike FINRA Rule 5310, MSRB Rule G–48(e) provides an exception from the requirements of Rule G–18 for all transactions with sophisticated municipal market professionals, defined in MSRB Rule D–15.[319] According to FINRA and the MSRB, there are two instances where ''material differences'' exist between the MSRB's best execution guidance and FINRA's.[320] They involve the regular and rigorous review of execution quality required by members,[321] and the timeliness of executions consistent with reasonable diligence.[322] MSRB Rule G–18.08(a) requires a broker-dealer to, at a minimum, conduct annual reviews of its policies and procedures for determining the best available market for the execution of its customers' transactions. MSRB Rule G–18.08(b) provides that where a broker-dealer routes its customers' transactions to another broker-dealer, and that broker-dealer has agreed to handle those transactions as agent or riskless principal for the customer, the routing broker-dealer may rely on the other broker-dealer's periodic reviews as long as the results and rationale of the reviews are fully disclosed to the broker-dealer and the broker-dealer periodically reviews how the other broker-dealer's reviews are conducted and the results of such reviews.[323]

The other material difference between FINRA and MSRB best execution rules can be found in MSRB Rule G–18.03. According to this rule, ''[a] dealer must make every effort to execute a customer transaction promptly, taking into account prevailing market conditions. In certain market conditions a dealer may need more time to use reasonable diligence to ascertain the best market for the subject security.'' [324] FINRA Rule 5310 has no similar provision noting the potential need for more time.

MSRB does not have authority to bring enforcement actions itself. Rather, FINRA and the Commission may enforce MSRB rules.

2. Best Execution Review Processes

Policies and procedures for reviewing the execution quality of customer orders vary across broker-dealers. Under the existing SRO rules and guidance, broker-dealers [325] that route to clearing or executing brokers on an agency basis may rely on the best execution review of their clearing firm or executing brokers. Other broker-dealers may use third-party transactions costs analysis (TCA) services and internal review systems, including best execution committees. Currently, broker-dealers review best execution to standards set by FINRA Rule 5310 or MSRB Rule G–18, as applicable.[326] FINRA Rule 5310 requires at least a quarterly review of execution quality. MSRB Rule G–18 requires an annual review of best execution policies and procedures that takes into account execution quality obtained under those policies and procedures, among other things. In performing reviews of customers' order execution quality, broker-dealers compare the execution actually achieved to the execution quality in other markets that were not used. Overall, these processes help broker-dealers to evaluate whether or not access to a specific market will improve customer execution quality given cost of access. FINRA Rule 5310.02 provides a ''market'' definition and states that broker-dealers must not mandate that ''certain trading venues have less relevance than others in the course of determining a firm's best execution obligations.'' What constitutes a relevant/material market to access varies based on the needs of the individual customer order and estimated changes in their transaction costs. A best execution policy including a documented process of venue selection aids this decision.

Introducing brokers perform best execution reviews by evaluating the execution quality achieved by brokers to which they route their customers' orders. As discussed above in this section, introducing brokers [327] may rely on the best execution review processes of their routing or executing brokers and use these to evaluate the execution

[316] *Id.*

[317] The full text of the MSRB rule is *available at https://www.msrb.org/Rules-and-Interpretations/MSRB-Rules/General/Rule-G-18.aspx*. The rule applies to brokers, dealers, and municipal securities dealers. In addition, MSRB Rule G–28 requires broker-dealers to have procedures for compliance with MSRB rules and the Exchange Act and rules thereunder. As previously noted in *supra* note 48, for ease of discussion and consistency, when discussing the MSRB rule, the release refers to these entities collectively as ''broker-dealers.'' The MSRB issued ''Implementation Guidance on MSRB Rule G–18, on Best Execution'' on November 20, 2015 (''MSRB 2015 Guidance''), *available at https://www.msrb.org/~/media/Files/MISC/Best-Ex-Implementation-Guidance.ashx*. An updated version of portions of that guidance from February 7, 2019 (''MSRB Notice 2019–05'') is *available at https://www.msrb.org/-/media/Files/Regulatory-Notices/Announcements/2019-05.ashx??n=1*. The MSRB and FINRA coordinated their issuance of independent guidance in 2015 with each notice including a statement that the guidance being issued was ''consistent in all material respects with guidance on best execution obligations [being published by the other SRO] . . . except where the rule or context otherwise specifically requires.'' MSRB 2015 Guidance, at n. 1; FINRA Regulatory Notice 15–46, *supra* note 294, at n. 1. The MSRB has also issued information for investors *available at https://www.msrb.org/msrb1/pdfs/Best-Execution-Investors-Perspective.pdf*.

[318] *See* sections II.C and IV for detailed discussions of Rule G–18. The discussion in this section of the economic analysis is largely limited to identifying the differences between Rule G–18 and FINRA Rule 5310.

[319] MSRB Rule G–48 and paragraph (e) provide that ''a broker, dealer, or municipal securities dealer's obligations to a customer that it reasonably concludes is a Sophisticated Municipal Market Professional, or SMMP, as defined in Rule D–15, shall be modified'' such that ''[t]he broker, dealer, or municipal securities dealer shall not have any obligation under Rule G–18 to use reasonable diligence to ascertain the best market for the subject security and buy or sell in that market so that the resultant price to the SMMP is as favorable as possible under prevailing market conditions.'' *See supra* note 120.

[320] FINRA Regulatory Notice 15–46, *supra* note 294, at 12 n. 1; MSRB Notice 2019–05, *supra* note 317, at 4 n.1. In addition to these ''material differences,'' the MSRB guidance also expressly states that the provisions of Rule G–18 do not apply to transactions in municipal fund securities.'' MSRB Rule G–18.09. The FINRA guidance has no comparable position.

[321] The MSRB, ''[i]n adopting Rule G–18, and paragraph .08 of the Supplementary Material specifically, [ ] did not include provisions that are contained in FINRA Rule 5310 pertaining to ''regular and rigorous review of execution quality,'' to tailor the rule to the characteristics of the municipal securities market.'' MSRB Notice 2019–05, *supra* note 317, at 7 n.12.

[322] FINRA Regulatory Notice 15–46, *supra* note 294, at 12 n. 1.

[323] For a discussion of how the MSRB has interpreted the obligations of introducing brokers, *see supra* note 229.

[324] MSRB Rule G–18.03.

[325] These broker-dealers can include introducing brokers as proposed to be defined by this rule, but FINRA's rule applies more generally.

[326] *See supra* Section II.C for a detailed discussion of FINRA and MSRB best execution review requirements.

[327] All broker-dealers who route to executing or clearing brokers on an agency basis may use this reliance, per FINRA Rule 5310, for the purposes of best execution.

quality of orders by comparing execution statistics of executing brokers, with which the introducing broker has a relationship. The Commission believes this is currently done by comparing execution statistics in aggregate, rather than on an order-by-order basis, except where an introducing broker is following FINRA's statements in its regulatory notice regarding order-by-order best execution reviews.[328] Introducing brokers typically have pre-arranged agreements with a small number of executing brokers, which vary by introducing broker.[329] This may lead to introducing brokers principally relying on execution statistics from these executing brokers to determine whether customers' orders are receiving best execution. While the FINRA rule requires introducing brokers to review the methodology and results of its executing broker's regular and rigorous review of its execution quality on a quarterly basis, it does not specifically require the introducing broker to compare the execution quality of its executing broker(s) to what it would have received from other executing brokers.[330]

Executing brokers are able to conduct a more thorough review of execution quality of the orders they receive. Executing brokers review execution quality by comparing execution statistics of executions received given particular execution methods, *e.g.,* routing to a particular market center or internalization. The Commission preliminarily believes this review is highly heterogeneous among executing brokers (*i.e.,* some use third party transaction cost analysis (''TCA'') services exclusively while others supplement and verify their own analysis with third party TCA statistics), with some brokers performing very rigorous comparisons of executions using various methods, and other brokers performing a more cursory review.

Some brokers may utilize third-party analysis in their execution quality reviews. In order to evaluate their execution quality, some brokers may send information on their orders to third parties TCA services to produce independent order execution quality statistics. TCA components may include, but are not necessarily limited to, fees, taxes, rebates, spreads, delay costs, price appreciation, market impact, timing risk, and opportunity costs. For example, TCA service providers in the NMS stock and options markets may produce execution quality reports for their clients which contain, in addition to other metrics, information on the percentage of trades receiving price improvement, percentage of trades at or within the NBBO, average savings per share from price improvement, liquidity multiple (*i.e.,* average size of order execution at or better than the NBBO at the time of order routing, divided by average quoted size), execution speed, and effective to quoted spread ratios. In NMS Stocks, broker-dealers may also utilize Rule 605 reports to help evaluate execution quality at different market centers, including market to which they may not route orders.[331]

Some broker-dealers use best execution committees (BECs) to evaluate their execution quality and establish their best execution policies and procedures. Order-by-order reviews are typically reserved for large orders, which likely leaves the execution quality review of retail orders as a task to be done in aggregate. BECs meet periodically, as often as monthly, to review execution quality of all applicable order types, compare order routing practices, policies, and procedures to industry standards, and maintain written documentation for order execution and evaluation. BEC members may consist of senior trading representatives along with members of the broker-dealer's compliance, legal, and operational risk departments.

3. Description of Markets and Broker-Dealer Order Handling and Execution Practices

Broker-dealers execute orders from their customers in a variety of ways, which may depend on the nature of the market, broker-dealer, or customer, or characteristics of the order such as size. Some broker-dealers may act on a purely agency basis by routing orders to the best available quotes set by other broker-dealers or third-party market makers on exchanges and ATSs or at other OTC market centers, some broker-dealers may choose to execute the orders on a principal basis, and some may do both.

Certain conflicts of interest may arise in the handling and execution of customer orders that exacerbate the principal-agent problem between the customer and broker-dealer. Common types of conflicts of interest that may exacerbate the principal-agent problem can involve: (1) a broker-dealer routing a customer order in exchange for a payment or a lower fee; or (2) a broker-dealer seeking to transact in a principal capacity with a customer order, which involves trading off the spread the broker-dealer can earn on the transaction vs the price the customer must pay; or (3) a broker-dealer routing a customer order to a trading venue or broker-dealer with which it may have a relationship, such as a broker-dealer routing a customer order to an affiliated ATS.[332] However, SRO rules address the extent to which certain specific situations presenting conflicts of interest are prohibited from influencing a broker-dealer's duty of best execution. For example FINRA rules and guidance (*e.g.,* FINRA Regulatory Notice 21–23) require that ''member firms may not let payment for order flow interfere with their duty of best execution.'' [333]

The below sections discuss in more detail the trading environment and broker-dealer order handling and execution practices in different asset classes. They also discuss the role that certain conflicts of interest such as PFOF and principal trading play in the handling and execution of retail orders in different asset classes.

(a) NMS Securities

i. NMS Stocks

a. NMS Stocks Trading Services Overview

Market centers compete to attract order flow in NMS stocks. At the same time, market participants compete to provide liquidity in NMS stocks within market centers. As shown in Table 1, in Q1 of 2022, NMS stocks were traded on 16 registered securities exchanges [334]

[328] *See supra* note 308 for further discussion on FINRA's rules and guidance related to broker-dealers reviewing the execution quality of customer orders.

[329] *See* Henry F. Minnerop, *The Role and Regulation of Clearing Brokers-Revisited,* 75 Bus. Lawyer 2201 (Summer 2020), *available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3663233* (retrieved from Elsevier database).

[330] *See* FINRA Rule 5310.09(c), Regular and Rigorous Review of Execution Quality.

[331] *See supra* note 223 and accompanying discussion for more information on Rule 605 reports.

[332] *See supra* Section III.A.

[333] *See supra* Section III.A.2.

[334] Most of these 16 registered securities exchanges are owned by three exchange families. Currently, CBOE Global Markets owns: Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc. (''Cboe BZX''), Cboe EDGA Exchange, Inc., and Cboe EDGX Exchange, Inc. (''Cboe EDGX''); the Nasdaq Inc. owns: Nasdaq BX, Inc. (''Nasdaq BX''), Nasdaq PHLX LLC (''Nasdaq Phlx''), and The Nasdaq Stock Market LLC (''Nasdaq''); and the Intercontinental Exchange Inc. owns: NYSE, NYSE American LLC (''NYSE American''), NYSE Arca, Inc. (''NYSE Arca''), NYSE Chicago, Inc., and NYSE National, Inc. Other registered securities exchanges that trade NMS stocks and do not belong to one of these exchange groups include: Investors Exchange LLC (''IEX''), Long-Term Stock Exchange, Inc., MEMX LLC, and MIAX Pearl, LLC (''MIAX PEARL''). Among these exchanges, eight trade only equities and eight trade both equities and options. The Commission has approved BOX Exchange LLC (''BOX'') to trade certain equity securities that would be NMS stocks on a facility, BSTX LLC

and off-exchange at 32 NMS Stock ATSs and at over 230 other FINRA members, including OTC market makers.[335] OTC market markers include 6 wholesalers that internalize the majority of individual investor marketable orders.[336] These numerous market centers match traders with counterparties, provide a framework for price negotiation and/or provide liquidity to those seeking to trade.

Market centers' primary customers are broker-dealers that route their own orders or their customers' orders for execution. Market centers may compete with each other for these broker-dealers' order flow on a number of dimensions, including execution quality. They also may innovate to differentiate themselves from other trading centers to attract more order flow. While registered exchanges cater to a broader spectrum of investors, ATSs and OTC market makers, including wholesalers, tend to focus more on providing trading services to either institutional or individual investor orders.

TABLE 1—Q1 2022 NMS STOCK SHARE VOLUME PERCENTAGE BY MARKET CENTER TYPE

Market center type	Venue count	Percentage of total share volume	Percentage of off-exchange share volume
Exchanges	16	59.7	.....
NMS Stock ATSs	32	10.2	25.2
Wholesalers [a]	6	23.9	59.4
Other FINRA Members	232	6.3	15.6

This table reports for Q1 2022 the percentage of NMS stock share volume executed by market center type and the percentage of off-exchange share volume by market centers type. Venue Count lists the number of venues in each market center category. Percentage of Total Share Volume is the percentage of all NMS stock share volume (on-exchange plus off-exchange) executed by the type of market center. Percentage of off-Exchange Share Volume is the percentage of off-exchange share volume executed by the type of market center. Exchange share volume and total market volume are based on CBOE Market Volume Data on monthly share volume executed on each exchange and share volume reported in FINRA Trade Reporting Facilities (TRFs).[b] NMS Stock ATSs, wholesalers and Other FINRA members share volume are based on monthly FINRA OTC Transparency data on aggregated NMS stock trading volume executed on individual ATSs and over-the-counter at Non-ATS FINRA members.[c] The Percentage of Off-Exchange Share Volume is calculated by dividing the NMS Stock ATS, wholesaler and FINRA member share volume from the FINRA Transparency Data by the total TRF share volume reported in CBOE Market Volume Data. Percentages do not add up to 100 percent due to rounding.

[a] *See supra* note 336 for details regarding how FINRA member OTC market makers are classified as wholesalers for purposes of this release.

[b] Cboe, U.S. Historical Market Volume Data, *available at https://cboe.com/us/equities/market_statistics/historical_market_volume/.* Trade Reporting Facilities (TRFs) are facilities through which FINRA members report off-exchange transactions in NMS stocks, as defined in SEC Rule 600(b)(47) of Regulation NMS. *See generally* FINRA, Trade Reporting Facility, *available at https://www.finra.org/filing-reporting/trade-reporting-facility-trf.*

[c] FINRA OTC (Non-ATS) Transparency Data, Monthly Statistics, *available at https://otctransparency.finra.org/otctransparency/OtcData;* FINRA OTC (ATS Block)Transparency Data, Monthly Statistics, *available at https://otctransparency.finra.org/otctransparency/AtsBlocksDownload.* The FINRA OTC (Non-ATS) Transparency Data may not contain all share volume transacted by a wholesaler or FINRA member because FINRA aggregates ''[s]ecurity-specific information for firms with 'de minimis' volume outside of an ATS'' and ''publishe[s it] on a non-attributed basis.'' FINRA, OTC (ATS & Non-ATS) Transparency, Overview, *available athttps://www.finra.org/filing-reporting/otc-transparency.*

Table 1 displays NMS stock share volume percentage by market center type for Q1 2022. Exchanges execute approximately 60% of total share volume in NMS stocks, while off-exchange market centers execute approximately 40%. The majority of off-exchange share volume is executed by wholesalers, who execute almost one quarter of total share volume (23.9%) [337] and about 60% of off-exchange share volume.[338] NMS Stock ATSs execute approximately 10% of total NMS stock share volume and 25% of off-exchange share volume. Other FINRA members, besides wholesalers and ATSs, execute approximately 15% of off-exchange share volume. Wholesalers and other OTC market makers also operate single dealer platforms (''SDPs'') where they operate as dealers to internalize marketable institutional orders.[339] One study found that SDPs accounted for approximately 10% of off-exchange

(''BSTX''), but BSTX is not yet operational. *See* Securities Exchange Act Release Nos. 94092 (Jan. 27, 2022), 87 FR 5881 (Feb. 2, 2022) (SR–BOX–2021–06) (approving the trading of equity securities on the exchange through a facility of the exchange known as BSTX); 94278 (Feb. 17, 2022), 87 FR 10401 (Feb. 24, 2022) (SR–BOX–2021–14) (approving the establishment of BSTX as a facility of BOX). BSTX cannot commence operations as a facility of BOX until, among other things, the BSTX Third Amended and Restated Limited Liability Company Agreement approved by the Commission as rules of BOX is adopted. *Id.* at 10407.

[335] *See* Concept Release on Equity Market Structure, Exchange Act Release No. 61358 (Jan. 14, 2010), 75 FR 3593 (Jan. 21, 2010) at 3598–3560 (for a discussion of the types of trading centers); *see also* Form ATS–N Filings and Information, *available at https://www.sec.gov/divisions/marketreg/form-ats-n-filings.htm.* Some academic studies attribute the fragmented nature of this market, in part, to certain provisions of Regulation NMS. *See, e.g.,* Maureen O'Hara & Mao Ye, *Is Market Fragmentation Harming Market Quality?,* 100 J. Fin. 459 (2011); Amy Kwan, et. al., *Is Market Fragmentation Harming Market Quality?,* 115 J. Fin. 330 (2015).

[336] The six OTC market makers that are classified as wholesalers for purposes of this release are the OTC market makers to which the majority of marketable orders originating from retail brokers were routed as identified from information from retail broker Rule 606(a)(1) reports from Q1 2022. Rule 606(a)(1) requires broker-dealers to produce quarterly public reports containing information about the venues to which the broker-dealer regularly routed non-directed orders for execution, including any payment relationship between the broker-dealer and the venue, such as any PFOF arrangements. See 17 CFR 242.606(a)(1).

[337] Of the six wholesalers identified in Q1 2022, two accounted for approximately 66% of wholesalers' total executed share volume of NMS stocks. This result suggests that just two wholesalers account for a very large percentage of order flow coming from individual investors. One study finds that the concentration of wholesaler internalization, as measured by the Herfindahl-Hirschman Index (HHI) of share volume executed across wholesalers, has increased from 2018 to 2021. *See* Edwin Hu & Dermot Murphy, *Competition for Retail Order Flow and Market Quality* (Working paper, June 2022), *available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4070056* (retrieved from Elsevier database).

[338] The share volume reported for wholesalers in FINRA OTC Transparency Data includes both individual investor orders executed by wholesalers in a principal capacity, as well as other orders executed by wholesalers in a principal capacity, such as institutional orders executed on their single dealer platforms. It does not include share volume that they executed in a riskless principal capacity or share volume that was routed and executed at another market center.

[339] Wholesalers and OTC market makers can execute orders itself or instead further route the order to other venues. An SDP always acts as the counterparty to any trade that occurs on the SDP. *See, e.g.,* FINRA, *Investor Insights, Where Do Stocks Trade?* (Dec. 3, 2021), *available at https://www.finra.org/investors/insights/where-do-stocks-trade* .

trading volume in Q1 2022.[340] Exchanges (via their rules) and ATSs determine how orders compete with each other, wherein liquidity suppliers set prices and wait for execution at their prices by liquidity demanders. This interaction between liquidity providers and demanders encompasses order-by-order competition. Unlike exchanges, for which each exchange's rules determine competition in a non-discretionary fashion, wholesalers execute or route orders in a discretionary fashion.[341] While some orders may be routed to a central limit order book against which institutional investors may execute (on the discretion of the wholesaler), institutional investors generally consider order flow routed to a wholesaler to be ''inaccessible.'' [342]

As a proxy for expected execution quality, quoted prices are a dimension on which exchanges compete to attract order flow. Specifically, exchanges are required to post the best bid and ask prices available on the exchange at that time [343] and broker-dealers can observe those prices and choose to route orders to the exchange posting the best prices at a given point in time. However, others who provide trading services, such as ATSs and OTC market makers, do not compete on this dimension.[344] In other words, wholesalers generally do not compete for order flow by posting competitive prices the way exchanges do. They do not display or otherwise advertise the prices at which they are willing to internalize individual investor orders at a given point in time. This suggests that wholesalers attract order flow by offering retail brokers more than just competitive price improvement.[345] In particular, wholesalers bundle their market access services with execution services, thereby fully vertically integrating order handling and execution services for their retail broker customers.

b. Rules Addressing Consolidated Market Data

In 2020, the Commission adopted a new rule and amended existing rules to establish a new infrastructure for consolidated market data (''MDI Rules''),[346] and the regulatory baseline for NMS stocks includes these changes to the current arrangements for consolidated market data. However, as discussed in more detail below, the MDI Rules have not been implemented, and so they have not yet affected market practice. As a result, the data used to measure the baseline below reflects the regulatory structure in place for consolidated market data prior to the implementation of the MDI Rules. Accordingly, this section first will briefly summarize the regulatory structure for consolidated market data prior to the implementation of the MDI Rules. It then will discuss the current status of the implementation of the MDI Rules and provide an assessment of the potential effects that the implementation of the MDI Rules could have on the baseline estimations.

Regulatory Structure for Consolidated Market Data Prior to the MDI Rules

Consolidated market data are made widely available to investors through the national market system, a system set forth by Congress in section 11A of the Exchange Act [347] and facilitated by the Commission in Regulation NMS.[348] Market data are collected by exclusive SIPs, who consolidate that information and disseminate an NBBO and last sale information. For quotation information, only the 16 exchanges that currently trade NMS stocks provide quotation information to the SIPs for dissemination in consolidated market data.[349] FINRA has the only SRO display-only facility (the ADF). No broker-dealer, however, currently uses it to display quotations in NMS stocks in consolidated market data. Disseminated quotation information includes each exchange's current highest bid and lowest offer and the shares available at those prices, as well as the NBBO.

For transaction information, currently all of the national securities exchanges that trade NMS stocks and FINRA provide real-time transaction information to the SIPs for dissemination in consolidated market data. Such information includes the symbol, price, size, and exchange of the transaction, including odd-lot transactions.

Unimplemented Market Data Infrastructure Rules

Among other things, the unimplemented MDI Rules update and expand the content of consolidated market data to include: (1) certain odd-lot information; [350] (2) information about certain orders that are outside of an exchange's best bid and best offer (*i.e.,* certain depth of book data); [351] and (3) information about orders that are participating in opening, closing, and other auctions.[352] The MDI Rules also introduced a four-tiered definition of round lot that is tied to a stock's average closing price during the previous month.[353] For stocks with prices greater than $250, a round lot is defined as consisting of between 1 and 40 shares, depending on the tier.[354] The MDI Rules also introduce a decentralized consolidation model under which competing consolidators, rather than the existing exclusive SIPs, will collect, consolidate, and disseminate certain NMS information.[355]

In the MDI Adopting Release, the Commission established a transition period for implementation of the MDI Rules.[356] The ''first key milestone'' for

[340] *See* Rosenblatt Securities, *US Equity Trading Venue Guide* (May 24, 2022), *available at https://www.rblt.com/market-reports/rosenblatts-2021-us-equity-trading-venue-guide-2.* SDP trading volume would be included in the share volume percentage estimates for wholesalers and other FINRA members in Table 1.

[341] A study estimates that the volume of individual investor orders executed by wholesalers accounted for approximately 16% to 17% of consolidated share volume during Q1 2022. *See* Rosenblatt Securities, *An Update on Retail Market Share in US Equities* (June 24, 2022), *available at https://www.rblt.com/market-reports/trading-talk-an-update-on-retail-market-share-in-us-equities.* However, wholesalers are not completely focused on individual investor order flow and some do offer services to institutional order flow.

[342] *See, e.g.,* Jennifer Hadiaris, *Cowen Market Structure: Retail Trading — What's going on, what may change, and what can you do about it?,* Insights (Mar. 23, 2021), *available at https://www.cowen.com/insights/retail-trading-whats-going-on-what-may-change-and-what-can-institutional-traders-do-about-it/* (''Market makers print most of these shares internally at their firm, so they trade off-exchange. One way we have for isolating retail volume is to look at the share of volume that trades off-exchange, but not in a dark pool. We refer to this as 'inaccessible liquidity.' This is because most institutional orders—whether they are executed via algos directly or by high touch desks—primarily go to exchanges and dark pools.'').

[343] *See* Rule 602 of Regulation NMS.

[344] ATSs typically compete for institutional order flow by offering innovative trading features such as distinct trading protocols and segmentation options. They may also compete on fees. In addition, they could include their ATS access in the broader set of bundled services that the broker-dealer operator of the ATS offers to its institutional investors.

[345] Wholesalers do not compete by quoting price at a given point in time, but instead generally attract order flow by offering prices that are on average better than displayed prices.

[346] *See supra* note 38, discussing MDI Adopting Release.

[347] *See supra* note 13.

[348] 17 CFR 242.600 through 242.614.

[349] *See supra* note 334.

[350] *See* 17 CFR 242.600(b)(59); MDI Adopting Release, *supra* note 38, 86 FR at 18613. The Commission outlined a phased transition plan for the implementation of the MDI Rules, including the implementation of odd-lot order information. *See* MDI Adopting Release, 86 FR at 18698–701.

[351] *See* MDI Adopting Release, *supra* note 38, 86 FR 18596.

[352] *See id.* at 18630.

[353] *See id.* at 18617.

[354] *See id.* The Commission adopted a four-tiered definition of round lot: 100 shares for stocks priced $250.00 or less per share, 40 shares for stocks priced $250.01 to $1,000.00 per share, 10 shares for stocks priced $1,000.01 to $10,000.00 per share, and 1 share for stocks priced $10,000.01 or more per share.

[355] *See id.* at 18637.

[356] *Id.* at 18698–18701.

the transition period was to be an amendment of the effective national market system plan(s), which ''must include the fees proposed by the plan(s) for data underlying'' consolidated market data (''Proposed Fee Amendment'').[357] The compliance date for the MDI Rules was set with reference to the date that the Commission approved the Proposed Fee Amendment.[358] The end of the transition period was to be at least two years after the date the Commission approved the Proposed Fee Amendment.[359]

The MDI Adopting Release did not specify a process for continuing the transition period if the Commission disapproved the Proposed Fee Amendment. On September 21, 2022, the Commission disapproved the Proposed Fee Amendment, because the Participants had not demonstrated that the proposed fees were fair, reasonable and not unreasonably discriminatory.[360] Accordingly, there currently is no date to begin the at-least-two-year period for implementation of the MDI Rules, and there is no date that can be reasonably estimated for the implementation of the MDI Rules to be completed.

Given that the MDI Rules have not yet been implemented, they have not affected market practice and therefore data that would be required for a comprehensive quantitative analysis of a baseline that includes the effects of the MDI Rules is not available. It is possible that the baseline (and therefore the economic effects relative to the baseline) could be different once the MDI Rules are implemented. The following discussion reflects the Commission's assessment of the anticipated economic effects of the MDI Rules as described in the MDI Adopting Release.[361]

The Commission anticipated that the new round lot definition will result in narrower NBBO spreads for most stocks with prices greater than $250 because, for these stocks, fewer odd-lot shares will need to be aggregated together (possibly across multiple price levels)[362] to form a round lot and qualify for the NBBO.[363] The reduction in spreads will be greater in higher-priced stocks because the definition of a round lot for these stocks will include fewer shares, such that even fewer odd-lot shares will need to be aggregated together.[364] This could cause statistics that are measured against the NBBO to change because they will be measured against the new, narrower NBBO. For example, execution quality statistics on price improvement for higher-priced stocks may show a reduction in the number of shares of marketable orders that received price improvement because price improvement will be measured against a narrower NBBO. In addition, the Commission anticipated that the NBBO midpoint in stocks priced higher than $250 could be different under the MDI Rules than it otherwise would be, resulting in changes in the estimates for statistics calculated using the NBBO midpoint, such as effective spreads. In particular, at times when bid odd-lot quotations exist within the current NBBO but no odd-lot offer quotations exist (and vice versa), the midpoint of the NBBO resulting from the rule will be higher than the current NBBO midpoint.[365] More broadly, the Commission anticipated that the adopted rules will have these effects whenever the new round lot bids do not exactly balance the new round lot offers. However the Commission stated that it does not know to what extent or direction such odd-lot imbalances in higher priced stocks currently exist, so it is uncertain of the extent or direction of the change.[366]

The Commission also anticipated that the MDI Rules could result in a smaller number of shares at the NBBO for most stocks in higher-priced round lot tiers.[367] To the extent that this occurs, there could be an increase in the frequency with which marketable orders must walk the book to execute. This would affect statistics that are calculated using consolidated depth information, such as measures meant to capture information about whether orders received an execution of more than the displayed size at the quote, *i.e.,* ''size improvement.''

The MDI Rules may also result in a higher number of odd-lot trades, as the inclusion of odd-lot quotes that may be priced better than the current NBBO in consolidated market data may attract more trading interest from market participants that previously did not have access to this information.[368] However, the magnitude of this effect depends on the extent to which market participants who rely solely on SIP data and lack information on odd-lot quotes choose to receive the odd-lot information and trade on it. The Commission states in the MDI Adopting Release that it believes it is not possible to observe this willingness to trade with existing market data.[369]

The MDI Rules may have implications for broker-dealers' order routing practices. For those market participants that rely solely on SIP data for their routing decisions and that choose to receive the expanded set of consolidated market data, the Commission anticipated that the additional information contained in consolidated market data will allow them to make more informed order routing decisions. This in turn would help facilitate best execution, which would reduce transaction costs and increase execution quality.[370]

The MDI Rules may also result in differences in the baseline competitive standing among different trading venues, for several reasons. First, for stocks with prices greater than $250, the Commission anticipated that the new definition of round lots may affect order flows as market participants who rely on consolidated data will be aware of

[357] *Id.* at 18699.

[358] *See, e.g., id.* at 18700 n. 355 (compliance date for amendment to Rule 603(b) to be 180 calendar days from the date of the Commission's approval of the amendments to the effective national market system plan(s)).

[359] *Id.* at 18700–18701 (specifying consecutive periods of 90 days, 90 days, 90 days, 180 days, 90 days, a period for filing and approval of another national market system plan amendment to effectuate the cessation of the operations of the SIPs (with a 300-day maximum time for Commission action after filing to approve or disapprove the filing).

[360] Securities Exchange Act Release No. 95851 (Sept. 21, 2022) (Order Disapproving the Twenty-Fifth Charges Amendment to the Second Restatement of the CTA Plan and Sixteenth Charges Amendment to the Restated CQ Plan).

[361] *See* MDI Adopting Release, *supra* note 38, 86 FR 18741–18799.

[362] The calculation of the NBBO includes odd-lots that, when aggregated, are equal to or greater than a round lot. As stated in CFR 242.600(b)(21)(ii), ''such aggregation shall occur across multiple prices and shall be disseminated at the least aggressive price of all such aggregated odd-lots.'' For example, if there is one 50-share bid at $25.10, one 50-share bid at $25.09, and two 50-share bids at $25.08, the odd-lot aggregation method would show a protected 100-share bid at $25.09.

[363] For example, if there is one 20-share bid at $250.10, one 20-share bid at $250.09, and two 50-share bids at $250.08, prior to MDI the NBB would be $250.08, as even aggregated together the odd lot volume would not add up to at least a round lot. After MDI, the NBB would be $25.09, as the odd-lot aggregation method would show a protected 40-share round lot bid at $25.09.

[364] *See supra* note 354. An analysis in the MDI Adopting Release showed that the new round lot definition caused a quote to be displayed that improved on the current round lot quote 26.6% of the time for stocks with prices between $250.01 and $1,000, and 47.7% of the time for stocks with prices between $1,000.01 and $10,000. *See* MDI Adopting Release, *supra* note 38, 86 FR 18743.

[365] For example, if the NBB is $260 and the NBO is $260.10, the NBBO midpoint is $260.05. Under the adopted rules a 40 share buy quotation at $260.02 will increase the NBBO midpoint to $260.06. Using this new midpoint, calculations of effective spread will be lower for buy orders, but will be higher for sell orders.

[366] *See* MDI Adopting Release, 86 FR 18750.

[367] However, this effect will depend on how market participants adjust their order submissions. *See id.* at 18746, for further discussion.

[368] *See id.* at 18754.

[369] *See id.*

[370] *See id.* at 18725.

quotes at better prices that are currently in odd-lot sizes, and these may not be on the same trading venues as the one that has the best 100 share quote.[371] Similarly, it anticipated that adding information on odd-lot quotes priced at or better than the NBBO to expanded core data may cause changes to order flow as market participants take advantage of newly visible quotes.[372] However, the Commission stated that it was uncertain about the magnitude of both of these effects.[373] To the extent that it occurs, a change in the flow of orders across trading venues may result in differences in the competitive baseline in the market for trading services.

Second, national securities exchanges and ATSs have a number of order types that are based on the NBBO, and so the Commission anticipated that the changes in the NBBO caused by the new round lot definitions may affect how these order types perform and could also affect other orders with which they interact.[374] The Commission stated that these interactions may affect relative order execution quality among different trading platforms, which may in turn affect the competitive standing among different trading venues, with trading venues that experience an improvement/decline in execution quality attracting/losing order flow.[375] However, the Commission stated that it was uncertain of the magnitude of these effects.[376]

Third, the Commission anticipated that, as the NBBO narrows for securities in the smaller round lot tiers, it may become more difficult for the retail execution business of wholesalers to provide price improvement and other execution quality metrics at levels similar to those provided under a 100 share round lot definition.[377] To the extent that wholesalers are held to the same price improvement standards by retail brokers in a narrower spread environment, the wholesalers' profits from executing individual investor orders might decline,[378] and to make up for lower revenue per order filled in a narrower spread environment, wholesalers may respond by changing how they conduct their business in a way that may affect retail brokers. However, the Commission stated that it was uncertain as to how wholesalers may respond to the change in the round lot definition, and, in turn, how retail brokers may respond to those changes, and so was uncertain as to the extent of these effects.[379] If wholesalers do change how they conduct business, it may impact wholesalers' competitive standing in terms of the execution quality offered, particularly to individual investor orders.

Where implementation of the above-described MDI Rules may affect certain numbers in the baseline, the description of the baseline below notes those effects.

c. Market Access

Some broker-dealers that connect directly to one or more exchanges and other trading centers offer order routing to smaller broker-dealers that may not directly connect to exchanges. This is, in part, driven by the requirement that in order to directly route orders to an exchange, broker-dealers need to be a member of that exchange.[380] It is also driven by economies of scale in being able to distribute high fixed costs related to exchange connectivity and proprietary market data feeds.[381] Most large broker-dealers connect to multiple exchanges.[382] These broker-dealers may use their connections to provide order-routing and execution services, such as access to smart order routers (SORs), to smaller broker dealers who may find direct connections to exchanges prohibitively expensive.[383] To this end, such smaller broker-dealers access exchanges through intermediaries, *i.e.,* larger broker-dealers, allowing these intermediaries to compete with exchanges in the trade execution and order-routing markets.[384] These intermediaries often compete on both the quality of their order execution and the fees they charge.[385]

d. Retail Order Handling in NMS Stocks

The Commission estimates that in 2021 approximately 1,037 retail brokers originated orders from retail investors in NMS stocks.[386] Retail brokers route most of their customers' marketable order flow to wholesalers.[387] Wholesalers do not typically directly charge retail brokers for their order routing and execution services. In fact, they may pay some retail brokers for the opportunity to handle their order flow with PFOF. Wholesalers' vertical integration of routing and execution services for the orders of individual investors provides them flexibility with regard to their handling of order flow. They utilize sophisticated algorithmic trading technology to deliver their services.[388] In particular, wholesalers determine which orders to internalize (*i.e.,* execute in a principal capacity) and which to execute in a riskless principal or agency capacity. Commission analysis indicates that wholesalers

[371] *See id.* at 18744.

[372] *See id.* at 18754.

[373] *See id.* at 18745, 18754.

[374] *See id.* at 18748.

[375] *See id.*

[376] *See id.*

[377] *See id.* at 18747.

[378] Individual investor orders typically feature lower adverse selection than other types of orders, such as institutional orders. It is generally more profitable for any liquidity provider, including wholesalers, to execute against orders with lower adverse selection risk. *See, e.g.,* David Easley, Nicholas M. Kiefer & Maureen O'Hara, *Cream-skimming or profit-sharing? The curious role of purchased order flow,* 51 J. Fin. 811 (1996).

[379] *See id.* at 18748.

[380] Membership on an exchange also gives the broker-dealer access to exchange-provided order routers that re-route orders to other exchanges at a per-order fee.

[381] Broker-dealers may choose to incur these costs in order to gain faster access through direct exchange connectivity as well as proprietary exchange data feeds, both of which may improve order handling and execution capabilities, and thus their competitive position. *See* Section V.B.3.(e) of Market Data Infrastructure Adopting Release (for discussions on broker-dealer competitive trading strategies).

[382] *See* MDI Adopting Release, *supra* note 38, at 86 FR 18740 (for analysis indicating that 50 firms connected to all but one of the exchanges in a sample of FINRA audit trail data from December 2016), *available at https://www.govinfo.gov/content/pkg/FR-2021-04-09/pdf/2020-28370.pdf.*

[383] The number of broker-dealers providing access is thus limited due to the expenses of being an exchange member and ATS subscriber. In addition, membership on an exchange also gives the broker-dealer access to exchange-provided order routers that re-route orders to other exchanges at a per-order fee. Thus, membership on one exchange can effectively provide access, though not directly, to all exchanges.

[384] Providing market access can mean rerouting customer orders and it can also involve sponsoring access for the broker to send customer orders directly to a market center.

[385] The types of fees charged by routing brokers can vary, some charge a per-order/share fee or a fee that is part of other bundled services they may offer.

[386] This number is estimated using CAT data for broker-dealers that originated an order from an ''Individual Customer'' CAT account type in 2021. *See infra* note 422 for more info CAT account types.

[387] Commission analysis of broker-dealer Rule 606 report order routing data in *infra Table 3* indicates that retail brokers route over 90% of their marketable orders to wholesalers.

[388] Wholesalers, similar to other market makers, must establish connections with the numerous venues in which they wish to operate and provide liquidity. They also must design smart order routers that can locate and provide liquidity in real time, as well as maintain fast data processing capabilities that enable them to respond to market conditions while abiding by the relevant trade execution regulations. Wholesalers also face the costs associated with price risk. As wholesalers trade against market participants, they take positions at the opposite side, accumulating inventory. Holding inventory exposes wholesaler profits to inventory (price) risk, where the value of inventory, and hence, that of the wholesaler's holdings, may fluctuate as security prices vary. Scaling up the size of the business to ensure steady incoming flow from opposite sides of the markets is a common strategy pursued by wholesalers. This strategy enables them to execute buy and sell transactions, offsetting order flow from opposite sides, reducing the possibility of accumulating prolonged, unwanted inventory. However, among other costs, scaling up requires more comprehensive, efficient connectivity networks, and adds to the costs of establishing and maintaining such networks.

internalize over 90% of the executed dollar volume from individual investor marketable orders that are routed to them and executed.[389]

One aspect of the wholesaler business model is the segmentation of the order flow of individual investors, which typically have lower adverse selection risk than the orders of other types of market participants.[390] Wholesalers are market makers that can identify orders with low adverse selection risk.[391] Through segmentation, wholesalers typically internalize marketable orders with lower adverse selection risk and generally execute them at prices better than the current NBBO, *i.e.,* because of segmentation, wholesalers are typically able to execute the marketable orders of individual investors at better prices than they would receive if they were routed to an exchange. An analysis of marketable NMS stock orders presented below indicates that the orders that wholesalers internalize present lower adverse selection risk and receive higher execution quality relative to marketable orders wholesalers receive and execute in a riskless principal or agency capacity.[392] Additional results [393] show that, relative to orders executed on exchanges, orders internalized by wholesalers are associated with lower price impacts (*i.e.,* lower adverse selection risk),[394] lower effective half-spreads (*i.e.,* higher price improvement),[395] and higher realized half-spreads (*i.e.,* higher potential profitability).[396] Academic studies have also found that retail orders in NMS stocks benefit from being segmented and internalized by wholesalers, because wholesalers can offer the segmented retail orders more price improvement due to their lower adverse selection risk.[397]

[389] *See* analysis in *infra* Table 7.

[390] Wholesalers and other liquidity providers face adverse selection risk when they accumulate inventory, for example, by providing liquidity to more informed traders, because of the risk of market prices moving away from market makers before they are able to unwind their positions. Wholesalers and other market makers are usually not privy to the motives or information of the investors they are trading with. As such, should the liquidity provider trade with an investor possessing short-lived price information about the security price, it is exposing its inventory to adverse selection risk. Hence, liquidity providers normally choose their trading strategies to minimize their interaction with order flow with increased adverse selection risk. Wholesalers do this by attracting marketable orders of individual investors, known to be the order flow with the lowest adverse selection risk. Pursuing this strategy also requires scaling up the part of the business that interacts with retail order flow.

[391] *See infra* Table 7 and corresponding discussion. Adverse selection is based on various characteristics of the order, including the identity of the originating broker.

[392] *See* analysis in *infra* Table 7.

[393] *See infra* Table 5 and Table 6 for a comparison of exchange and wholesaler execution quality.

[394] ''Price impact'' is the extent to which the NBBO midpoint moves against the liquidity provider for a marketable order in a short time period after the order execution. For Rule 605 reporting, the time period is five minutes after the time of order execution. For the analyses of CAT data provided later in this section, the time period is one minute after the time of order execution, which was chosen to reflect the increase in trading speed in the years since Rule 605 was adopted. By measuring the difference between the transaction price and the prevailing market price for some fixed period of time after the transaction (*e.g.,* one minute), price impact measures the extent of adverse selection costs faced by a liquidity provider. For example, if a liquidity provider provides liquidity by buying shares from a trader who wants to sell, thereby accumulating a positive inventory position, if the liquidity provider wants to unwind this inventory position by selling shares in the market, it will incur a loss if the price has fallen in the meantime. In this case, the price impact measure will be positive, reflecting the liquidity provider's exposure to adverse selection costs.

[395] The effective half-spread is calculated by comparing the trade execution price to an estimate of the stock's value (*i.e.,* the midpoint of the prevailing NBBO at the time of order receipt) and thus captures how much more than the stock's estimated value a trader has to pay for the immediate execution of their order. The effective spread will be smaller (or less positive) when it is closer to the NBBO midpoint, reflecting the order receiving a greater amount of price improvement. *See, e.g.,* Bjorn Hagströmer, *Bias in the Effective Bid-Ask Spread,* 142 J. Fin. Econ. 314 (2021). For the remainder of this analysis, we will use the term ''effective spread'' to refer to the ''effective half-spread.'' *See also* results in Thomas Ernst & Chester S. Spatt, *supra note 77.* Rule 600(b)(8) of Regulation NMS defines ''average effective spread'' as the share-weighted average of effective spreads for order executions calculated, for buy orders, as double the amount of difference between the execution price and the midpoint of the NBB and NBO at the time of order receipt and, for sell orders, as double the amount of difference between the midpoint of the NBB and NBO at the time of order receipt and the execution price.

[396] The realized half-spread is calculated similarly to the effective half-spread, but, instead of using the NBBO midpoint at the time of order receipt, the realized spread calculation uses the NBBO midpoint a short time period after the execution of a marketable order. For Rule 605 reporting, the time period is five minutes after the time of order execution. For the analyses of CAT data provided later in this section, the time period is one minute after the time of order execution. The realized half-spread proxies for the potential profitability of trading for liquidity providers after accounting for the adverse selection risk (*i.e.,* price impact) of the trade. *See, e.g.,* Securities Exchange Act Release No. 43590 (Nov. 17, 2000), 65 FR 75423–75424 (Dec. 1, 2000) (Disclosure of Order Execution and Routing Practices) (''The smaller the average realized spread, the more market prices have moved adversely to the market center's liquidity providers after the order was executed, which shrinks the spread 'realized' by the liquidity providers. In other words, a low average realized spread indicates that the market center was providing liquidity even though prices were moving against it for reasons such as news or market volatility.''); *See also* Larry Harris, Trading and Exchanges: Market Microstructure for Practitioners at 286 (Oxford University Press 2003) (''Informed traders buy when they think that prices will rise and sell otherwise. If they are correct, they profit, and whoever is on the other side of their trade loses. When dealers trade with informed traders, prices tend to fall after the dealer buys and rise after the dealer sells. These price changes make it difficult for dealers to complete profitable round-trip trades. When dealers trade with informed traders, their realized spreads are often small or negative. Dealers therefore must be very careful when trading with traders they suspect are well informed.''). *See also* Joel Hasbrouck, Empirical Market Microstructure: The Institutions, Economics, and Econometrics of Securities Trading at 147 (Oxford University Press 2007) (''The execution cost based on the pretrade bid-ask midpoint (BAM) is also known as the effective cost. Since 2001, the U.S. SEC has required U.S. equity markets to compute effective costs and make summary statistics available on the Web . . . The rule . . . also requires computation of the realized cost . . . . The difference between effective and realized costs is sometimes used as an estimate of the price impact of the trade. The realized cost can also be interpreted as the revenue of the dealer who sold to the customer . . . and then covered his position at the subsequent BAM.''). For the remainder of this analysis, we will use the term ''realized spread'' to refer to the realized half-spread. Rule 600(b)(9) of Regulation NMS generally defines ''average realized spread'' as the share-weighted average of realized spreads for order executions calculated, for buy orders, as double the amount of difference between the execution price and the midpoint of the NBB and NBO five minutes after the time of order execution and, for sell orders, as double the amount of difference between the midpoint of the NBB and NBO five minutes after the time of order execution and the execution price.

[397] *See* Ernst & Spatt, *supra* note 77 and Kothari, S.P., So, E., & Johnson, T. *Commission Savings and Execution Quality for Retail Trades* (Working paper, 2021). *See also* Adams, Kasten, & Kelley, *Do investors save when market makers pay? Retail Execution costs under PFOF models* (Working paper, 2021), *available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3975667* (*retrieved from Elsevier database*).

Segmentation and Routing of Individual Investor Orders in NMS Stocks

Most individual investor orders are non-directed, so individual investor order routing choices are largely made by retail brokers. Specifically, retail brokers choose how to access the market in order to fill their individual investor customers' orders. Wholesalers are the dominant providers of market access for retail brokers and bundle their market access services with execution services.

Retail brokers may route to wholesalers because the cost of sending orders to wholesalers is lower than the various alternatives available to their customers for market access. While some broker-dealers have SORs,[398] exchange memberships, and ATS subscriptions, and are thus able to provide market access to retail brokers, other broker-dealers incur costs in handling order flow for retail brokers in the form of exchange access fees, ATS access fees, and administrative and regulatory costs such as recordkeeping and the risk management controls of Rule 15c3–5. While wholesalers could incur some of these marginal costs as well, they benefit on the margin from individual investor order flow because it gives them the option to internalize the most profitable of that order flow, *i.e.,* the individual investor orders with the lowest adverse selection risk.[399] This ability to capture, identify, and internalize profitable orders from individual investors allows wholesalers to provide market access to retail brokers at low explicit cost, either by providing PFOF or by not charging retail brokers explicitly for market access. This service of obtaining market access on behalf of retail brokers assists retail brokers by allowing them to avoid routing expenses (even in cases where the wholesaler further routes the order instead of internalizing) or costly liquidity searches, and may increase retail brokers' reliance on wholesalers beyond any payment they receive for routing their order flow to wholesalers.

Indeed, Table 2 shows that retail brokers who accept PFOF (''PFOF brokers'') pay less to route their orders to wholesalers than to route them elsewhere.[400] In fact, they are paid to route their order flow to wholesalers for every order type reported in the table. On average, rates paid by wholesalers for both market and marketable limit orders are higher than those paid by alternative venues, with wholesalers paying an average of 13 cents per 100 shares for market orders and 12.6 cents for marketable limit orders across S&P 500 and non-S&P 500 stocks during Q1 2022. In contrast, exchanges, on average, charged PFOF brokers when they routed their marketable order flow to exchanges. This likely indicates that most of the volume that PFOF brokers sent to exchanges was routed to maker-taker exchanges (where fees are assessed on marketable orders).[401] Furthermore, since retail brokers that do not accept PFOF (''non-PFOF brokers'') also incur fees when they route marketable orders to exchanges, they are incentivized to route their marketable order flow to wholesalers, who do not charge them explicit costs to route and execute their orders.

TABLE 2—AVERAGE RULE 606 PAYMENT RATES FOR Q1 2022 TO PFOF BROKERS BY TRADING VENUE TYPE

		Market orders	Marketable limit orders	Non-marketable limit orders	Other orders
S&P 500	Exchange	−5.9	−23.9	30.9	20.8
	OMM—Wholesaler	15.2	21.8	41.1	24.1
	Other	4.5	−0.6	−0.6	7.5
Non-S&P 500	Exchange	−14.9	−15.3	17.9	16.5
	OMM—Wholesaler	12.5	11.8	24.6	10.1
	Other	1.5	−3.7	−4.6	1.5
Combined	Exchange	−12.4	−15.7	19.3	17.1
	OMM—Wholesaler	13.0	12.6	27.1	11.9
	Other	1.7	−3.7	−4.5	2.0

This table shows the average payment rates (in cents per 100 shares) made from different types of trading venues in Q1 2022 to 14 retail PFOF brokers from wholesalers based on their Rule 606 reports. The table breaks out average rates from exchanges, wholesalers, and other trading venues for market orders, marketable limit orders, non-marketable limit orders, and other orders in S&P 500 stocks and non-S&P 500 stocks. Other venues include any other venue to which a retail broker routes an order other than a wholesaler or an exchange. The 43 broker-dealers were identified from the 54 retail brokers used in the CAT retail analysis (*see infra* note 422). This analysis uses the retail broker's Rule 606 report if it publishes one or the Rule 606 report of its clearing broker if it did not publish a Rule 606 report itself (the sample of 43 broker-dealer Rule 606 reports include some broker-dealers that were not included in the CAT analysis because some clearing broker Rule 606 reports are included). Some broker-dealers reported handling orders only on a not held basis and did not have any Rule 606.

[398] Individual investors and professional traders relying on displayed screens to access financial markets generally do not have access to these low-latency (algorithmic, high speed) technologies.

[399] *See infra* Table 7 and corresponding discussion.

[400] In Table 2, average payment rates reported in Rule 606 reports for PFOF brokers in S&P 500 stocks and non-S&P 500 stocks in Q1 2022 are broken down by trading venue and order type, with rates given in cents per 100 shares.

[401] Furthermore, wholesaler rates for non-marketable orders are more than double the rates for marketable orders, averaging 27.1 cents per hundred shares compared to 13 cents for market orders and 12.6 cents for marketable limit orders. Additionally, Table 2 shows that the average payment rates PFOF brokers receive from routing non-marketable limit orders to wholesalers is greater than the average rates they receive from routing them to exchanges. This may be driven by wholesalers passing through exchange rebates for these orders, for which they may receive higher volume-based tiering rates compared to retail brokers, back to broker-dealers.

Table 3 confirms that wholesalers dominate the business of providing market access for retail brokers and that PFOF is a factor in retail broker routing decisions.[402] Data from Table 3 indicates that orders of individual investors for NMS stocks are primarily routed to wholesalers, although, a small fraction of individual investor orders are routed to exchanges and other broker-dealers providing market access or other market centers (*i.e.,* ATSs), some of which may be affiliated with the broker that received the original order.

TABLE 3—RETAIL BROKER ORDER ROUTING IN NMS STOCKS FOR Q1 2022, COMBINING PFOF AND NON-PFOF BROKERS

Venue type	Market (percent)	Marketable limit (percent)	Non-marketable limit (percent)	Other (percent)	Total (percent)
Panel A: Non S&P 500 Stocks					
Other	6.0	4.7	3.1	1.5	3.6
Exchange	0.2	5.5	22.5	0.8	8.5
Wholesaler	93.9	89.8	74.4	97.6	87.9
Total	26.5	12.6	33.6	27.3	100.0
Panel B: S&P 500 Stocks					
Other	6.6	5.9	1.8	1.7	3.6
Exchange	0.2	4.6	25.1	0.8	9.1
Wholesaler	93.3	89.6	73.1	97.5	87.3
Total	30.6	9.6	33.5	26.4	100.0

This table aggregates Rule 606 reports from retail brokers and shows the percentage of market orders, marketable limit orders, non-marketable limit orders, and other orders that retail brokers route to different types of venues in Q1 2022. Other venues include any other venue to which a retail broker routes an order other than a wholesaler or an exchange. Order type classifications are based on the order types broker-dealers are required to include in their Rule 606 reports.

This table aggregates routing information from 43 broker-dealer Rule 606 reports from Q1 2022. The 43 broker-dealers were identified from the 54 retail brokers used in the CAT retail analysis (*see infra* note 422). This analysis uses the retail broker's Rule 606 report if it publishes one or the Rule 606 report of its clearing broker if it did not publish a Rule 606 report itself (the sample of 43 broker-dealer Rule 606 reports include some broker-dealers that were not included in the CAT analysis because some clearing broker Rule 606 reports are included). Some broker-dealers reported handling orders only on a not held basis and did not have any Rule 606 reports. Because Rule 606 only include percentages of where there order flow is routed and not statistics on the number of orders, the reports are aggregated together using a weighting factor based on an estimate of the number of non-directed orders each broker-dealer routes each month. The number of orders is estimated by dividing the number of non-directed market orders originating from a retail broker in a given month (based on estimates from CAT data) by the percentage of market orders as a percent of non-directed orders in the retail broker's Rule 606 report (the weight for a clearing broker consists of the aggregated orders from the introducing brokers in the CAT retail analysis that utilize that clearing broker).

TABLE 4—RETAIL BROKER ORDER ROUTING IN NMS STOCKS FOR Q1 2022

Venue type	Market (percent)	Marketable limit (percent)	Non-marketable limit (percent)	Other (percent)	Total (percent)
Panel A: Non-S&P 500 Stocks Non-PFOF Brokers					
Other	24.1	22.3	4.2	41.6	16.0
Exchange	<0.1	25.3	80.8	19.7	39.8
Wholesaler	76.0	52.4	15.0	38.8	44.2
Total	38.4	12.4	44.2	5.0	100.0
PFOF Brokers					
Other	<0.1	1.2	2.8	0.3	1.1
Exchange	0.2	1.5	5.8	0.2	2.1
Wholesaler	99.7	97.3	91.4	99.5	96.8
Total	24.1	12.7	31.5	31.8	100.0

[402] Table 3 summarizes order routing decisions of 43 of the most active retail brokers about non-directed orders. Table 4 repeats the analysis but separately summarizes routing choices for 14 retail brokers who accept PFOF in equity markets and 29 who do not. Note that some brokers do not accept PFOF for orders in equities but do accept PFOF for orders in options. Consistent with Rule 606, routing statistics are aggregated together in Rule 606 reports based on whether the stock is listed in the S&P500 index. Rule 606 reports collect routing and PFOF statistics based on four different order types for NMS stocks: (1) market orders, resulting in immediate execution at the best available price; (2) marketable limit orders, resulting in immediate execution at the best price that is not worse that the order's quoted limit price; (3) non-marketable limit orders whose quoted limit price less aggressive than the NBBO, often preventing immediate execution; and (4) all other orders. *See supra* note 336 for a summary of the requirements of Rule 606(a)(1) of Regulation NMS.

TABLE 4—RETAIL BROKER ORDER ROUTING IN NMS STOCKS FOR Q1 2022—Continued

Venue type	Market (percent)	Marketable limit (percent)	Non-marketable limit (percent)	Other (percent)	Total (percent)
Panel B: S&P 500 Stocks Non-PFOF Brokers					
Other	24.8	27.0	3.2	23.4	15.4
Exchange	<0.1	19.6	83.2	8.2	39.0
Wholesaler	75.2	53.4	13.6	68.3	45.6
Total	39.0	9.2	43.8	8.0	100.0
PFOF Brokers					
Other	<0.1	0.5	1.3	0.3	0.6
Exchange	0.2	0.9	3.4	0.3	1.3
Wholesaler	99.8	98.6	95.3	99.5	98.2
Total	28.4	9.7	30.7	31.2	100.0

This table aggregates Rule 606 reports from PFOF and non-PFOF retail brokers and separately shows the percentage of market orders, marketable limit orders, non-marketable limit orders, and other orders PFOF brokers and non-PFOF brokers route to different types of venues in Q1 2022. PFOF brokers are retail brokers that receive payments for routing marketable orders to wholesalers. Other venues include any other venue to which a retail broker routes an order other than a wholesaler or an exchange. Order type classifications are based on the order types broker-dealers are required to include in their Rule 606 reports.

This table aggregates routing information from PFOF and non-PFOF broker-dealer Rule 606 reports from Q1 2022. Fourteen retail brokers are identified as PFOF brokers that receive payments for routing orders in NMS stocks to wholesalers. Twenty-nine non-PFOF brokers are identified as retail brokers that do not receive monetary compensation when they route orders in NMS stocks to wholesalers. The 43 broker-dealers were identified from the 54 retail brokers used in the CAT retail analysis (*see infra* note 422). This analysis uses the retail broker's Rule 606 report if it publishes one or the Rule 606 report of its clearing broker if it did not publish a Rule 606 report itself (the sample of 43 broker-dealer Rule 606 reports include some broker-dealers that were not included in the CAT analysis because some clearing broker Rule 606 reports are included). Some broker-dealers reported handling orders only on a not held basis and did not have any Rule 606 reports. Because Rule 606 only include percentages of where there order flow is routed and not statistics on the number of orders, the reports are aggregated together using a weighting factor based on an estimate of the number of non-directed orders each broker-dealer routes each month. The number of orders is estimated by dividing the number of non-directed market orders originating from a retail broker in a given month (based on estimates from CAT data) by the percentage of market orders as a percent of non-directed orders in the retail broker's Rule 606 report (the weight for a clearing broker consists of the aggregated orders from the introducing brokers in the CAT analysis that utilize that clearing broker).

CAT data analysis indicates that about 80% of the share volume and about 74% of the dollar volume of individual investor marketable orders that were routed to wholesalers and executed comes from PFOF brokers.[403] Data from Table 4 indicates that, while retail brokers who accept PFOF from wholesalers tend to send more of their orders to those wholesalers, wholesalers even dominate the market access services for non-PFOF brokers, though non-PFOF brokers route a significantly lower fraction (*i.e.,* 75.2% to 76%) of their market orders to wholesalers, compared to 99.7% to 99.8% of market orders for PFOF brokers. Moreover, non-PFOF brokers route 24.1% to 24.8% of their market orders to other non-exchange market centers, *e.g.,* ATSs, while PFOF brokers route less than 1% of their market orders to these market centers. However, regardless of whether the retail broker accepts PFOF, the order type, or the S&P500 index inclusion of the stock,[404] Table 3 shows that retail brokers route over 87% of their customer orders to wholesalers.

This result suggests that, while PFOF may be a factor in retail brokers' routing decisions, wholesalers likely also compare favorably to other market access (including retail brokers pursuing their own market access) along other dimensions. The routing behavior in Table 4 may, in part, reflect a tendency of non-PFOF brokers to route customer orders to market centers such as their own ATSs for mid-point execution and the lack of an affiliated ATS for PFOF brokers. However, even broker-dealers with their own ATSs do not route the majority of their individual investor order flow to those ATSs and typically do not internalize order flow. Further, retail brokers with membership on multiple exchanges primarily route their marketable orders to wholesalers. These results could point to a lower marginal costs of routing to wholesalers relative to other routing and execution alternatives. Table 5 shows that wholesalers appear to compare favorably to exchanges in the execution quality of orders routed to them, suggesting that execution quality could be another key factor in the decision of retail brokers to route to wholesalers.[405] In particular, marketable orders routed to wholesalers appear to have higher fill rates, lower effective spreads, and lower E/Q ratios.[406] These orders are also more likely to receive price improvement and, conditional on receiving price improvement, receive greater price improvement when routed to wholesalers as compared to exchanges.

In addition, wholesalers may provide additional valuable services to retail brokers that route order flow to them. Based on staff experience, the Commission understands that wholesalers are more responsive to retail brokers that provide them with order flow, including, for example, following customer instructions not to internalize particular orders. More broadly, wholesalers appear to provide retail brokers with a high degree of consistency with regard to execution quality. More specifically, wholesalers receive order flow from retail brokers

[403] *See infra* Table 15.

[404] Rule 606 reports require that broker-dealers separate their disclosure information for S&P 500 stocks, non-S&P 500 stocks, and options.

[405] *See infra* Table 5 and corresponding discussions.

[406] The E/Q ratio is the ratio of a stock's effective spread over quoted spread. A lower value indicates smaller effective spreads (*i.e.,* trading costs) as a percentage of the quoted spread.

that contains orders that vary with regard to quoted spreads and adverse selection risk. While wholesalers receive order flow from retail brokers that contains variation in quoted spreads and adverse selection risk, wholesalers could target an average level of price improvement across this heterogeneous order flow, resulting in a relatively consistent degree of execution quality.

When wholesalers do not internalize an order, they obtain an execution from another market center by either routing in an agency capacity or using what is known as a riskless principal transaction. In a riskless principal transaction, after receiving an order from a retail broker, a wholesaler may send a principal marketable order similar to the retail broker order to an exchange and, upon execution of the principal order at the exchange, execute the original retail broker order at the same price.[407]

Commission analysis shows that wholesalers internalize over 90% of the executed dollar value in NMS stocks from the marketable order flow routed to them by retail brokers, which amounts to more than 80% of share volume.[408] Results also show that the marketable NMS stock orders wholesalers choose to internalize have less adverse selection risk: orders that wholesalers execute in a principal capacity have a price impact of 0.9 bps, compared to a price impact of 4.6 bps for those executed via other methods. This is consistent with the dealer incentive to hold inventory that is less likely to experience adverse changes in price.[409]

Fractional Share Orders

A number of retail brokers allow individual investors to trade and enter orders for fractional shares of a security, *e.g.,* an individual investor could submit an order to buy 0.2 shares of a stock.[410] This type of trading has grown dramatically since 2019, with an increasing number of broker-dealers offering this functionality. Evidence suggests that this growth is in great part due to the rise in direct retail participation in equity markets.[411] It is the Commission's understanding that retail or executing brokers generally trade in a principal capacity against their customers' fractional share orders and in turn, send out principal orders that are in a whole number of shares (*i.e.,* not containing a fractional share component) for execution to manage their inventory risk.

An analysis using CAT data reveals that more than 46 million fractional share orders were executed in March 2022, originating from more than 5 million unique accounts. Over 31 million of these orders were for less than 1 share, and they originated from more than 3.3 million accounts. The overwhelming majority (92%) of fractional share orders were attributed to natural persons, (*i.e.,* individual investors). While fractional shares orders only represented a small fraction (2.1%) of total executed orders, they represent a much higher fraction (15.3%) of executions received by individual investors.

Execution Quality of Individual Investor Marketable Orders

The wholesaler business model relies on segmentation and internalization of marketable order flow of individual investors, which is characterized by low adverse selection risk. An analysis of the execution quality of market and marketable limit orders handled by wholesalers retrieved from Rule 605 reports[412] and presented in Table 5[413] shows that orders in NMS stocks handled by wholesalers are associated with lower price impact[414] compared to those executed on exchanges, indicating that orders handled by wholesalers on average have lower adverse selection costs.[415] This lower adverse selection

[407] *See supra* note 182 for further discussions on riskless principal transactions.

[408] *See* analysis in *infra* Table 7.

[409] *See, e.g.,* David Easley, et. al. *supra* note 378.

[410] Fractional shares often arise from retail brokers allowing individual investors to submit orders for a fixed dollar value.

[411] *See,* Zhi Da, et. al., *Fractional Trading* (working paper, November 18, 2021), *available at https://ssrn.com/abstract=3949697* (retrieved from SSRN Elsevier database). Also see Rick Steves, *Fractional Shares Experts Weigh In Amid Exploding Retail Trading Volumes,* FinanceFeeds (Jun. 7, 2021), *available at https://financefeeds.com/fractional-shares-experts-weigh-in-amid-exploding-retail-trading-volumes/*, which shows that trading volume increased substantially (in one case, more than 1,400%) for brokers after they introduced the use of fractional shares.

[412] Rule 605 requires market centers to make available, on a monthly basis, standardized information concerning execution quality for covered orders in NMS stocks that they received for execution. *See* 17 CFR 242.605. Covered orders are defined in 17 CFR 242.600(b)(22) to include orders (including immediate-or-cancel orders) received by market centers during regular trading hours at a time when a national best bid and national best offer is being disseminated, and, if executed, is executed during regular trading hours, and excludes orders for which the customer requests special handling for execution (such as not held orders). Rule 605 reports contain a number of execution quality metrics for covered orders, including statistics for all non-marketable limit orders with limit prices within ten cents of the NBBO at the time of order receipt as well as separate statistics for market orders and marketable limit orders. Under the Rule, the information is categorized by individual security, one of five order type categories (*see* 17 CFR 242.600(b)(14)), and one of four order size categories, which does not include orders for less than 100 shares or orders greater than or equal to 10,000 shares (*see* 17 CFR 242.600(b)(11)). As such, Rule 605 does not require reporting for orders smaller than 100 shares, including odd-lot orders. Rule 605 requires market centers to report execution quality information for all covered orders that the market center receives for execution, including orders that are executed at another venue (*i.e.,* because they are effectively rerouted to another trading center by the market center).

[413] The following filters were applied to the Rule 605 data to remove potential data errors. Observations where the total shares in covered orders were less than the sum of the canceled shares, share executed at the market center, and share executed away from the market center were deleted. Observations with missing order size code, order type code, total covered shares, or total covered orders were deleted. Realized and effective spread values are set to missing values if the total shares executed at and away from the market center are zero. Per share dollar realized spreads, per share dollar effective spreads, and per share dollar price improvements were winsorized at 20% of the volume weighted average price of the stock for the month as calculated from NYSE Daily TAQ data.

[414] *See supra* note 394 and accompanying text for a definition and discussion of price impact. Table 5 estimates the average price impact associated with marketable orders routed to wholesalers to be 1.2 bps. This means that for a $10 stock the NBBO midpoint would move up (down) by an average of 0.12 cents in the five minutes following the execution of marketable buy (sell) order.

[415] Once implemented, the changes to the current arrangements for consolidated market data in the MDI Adopting Release, 86 FR 18621 may impact the numbers in Table 5, including by reducing those for realized spread, effective spread, and amount of price improvement. The NBBO will narrow in stocks priced greater than $250 because it will be calculated based off a smaller round lot size. This narrower NBBO will decrease price improvement statistics in Rule 605 reports, which is measured against the NBBO. The effects on effective and realized spreads is more uncertain, because they are measured against the NBBO midpoint, which may not change if both the NBB and NBO decrease by the same amount. However, if marketable orders are more likely to be submitted when there are

Continued

cost allows wholesalers to provide these orders with better execution quality, manifested in lower effective spreads [416] and E/Q ratios compared to exchanges.[417] The higher realized spreads [418] associated with orders handled by wholesalers observed in Table 5 suggest that wholesalers have an opportunity to earn higher economic profits than liquidity suppliers on exchanges after accounting for adverse selection costs (*i.e.,* after adjusting for price impact).[419] This is despite the finding that the orders handled by wholesalers eventually execute at better prices than those received by and executed on exchanges, as observed by the lower effective spreads shown in Table 5 for marketable orders handled by wholesalers.

Additionally, the results in Table 5 show that approximately 79% of the executed dollar volume in marketable orders handled by wholesalers are market orders. The Commission believes that these outcomes reflect the heavy utilization of market orders for NMS stocks by individual investors whose orders are primarily handled by wholesalers, contrary to the heavy utilization of limit orders by other market participants.

Table 5 also highlights significantly higher fill rates, *i.e.,* the percentage of the shares in an order that execute in a trade, for marketable orders sent to wholesalers as compared to exchanges.[420] Wholesalers execute the vast majority of orders that they receive against their own capital, *i.e.,* they internalize the vast majority of orders they receive.[421] Wholesalers expose themselves to inventory risk when internalizing order flow, but mitigate this risk by internalizing orders that possess low adverse selection risks.

TABLE 5—COMPARISON OF RULE 605 EXECUTION QUALITY STATISTICS BETWEEN EXCHANGES AND WHOLESALERS FOR NMS COMMON STOCKS AND ETFS IN Q1 2022

	Combined marketable orders		Market		Marketable limit	
	WH	EX	WH	EX	WH	EX
Average Price	$47.89	$58.14	$56.19	$85.45	$30.66	$58.08
Share Volume (billion shares)	106.97	179.49	72.20	0.39	34.77	179.10
Dollar Volume (billion $)	$5,122.91	$10,436.02	$4,056.85	$33.53	$1,066.06	$10,402.49
Fill Rate (%)	69.32%	25.77%	99.79%	58.08%	34.81%	25.77%
Effective Spread (bps)	1.81	2.06	1.47	3.29	3.11	2.06
Realized Spread (bps)	0.61	−0.38	0.39	2.40	1.43	−0.39
Price Impact (bps)	1.20	2.44	1.08	0.90	1.68	2.45
E/Q ratio	0.48	1.01	0.40	1.65	0.83	1.01
Pct of Shares Price Improved	83.17%	8.78%	88.99%	15.95%	61.01%	8.75%
Constrained Amount of Price Improvement (bps)	2.17	1.50	2.33	1.92	1.24	1.50

This table computes aggregated execution quality statistics for marketable orders covered orders received by exchanges and wholesalers from Rule 605 reports for Q1 2022 for NMS common stocks and ETFs. *See supra* note 412 for a definition of covered orders. Individual wholesaler and exchange Rule 605 reports are aggregated together at the stock-month level, into two categories, WH and EX, such that aggregate execution quality data is averaged for, a) wholesalers (WH) and, b) exchanges (EX), for each stock during each month.

The following metrics were calculated: Average Price is the stock's average execution price from the Rule 605 data (Dollar Volume/Share Volume), Share Volume is the total executed shares (in billions) from the Rule 605 data. Dollar Volume is the total executed dollar volume (in billions), calculated as the executed share volume from the Rule 605 data multiplied by the stock's monthly VWAP price, as derived from NYSE Daily Trade and Quote data (TAQ). Fill Rate is the weighted average of the stock-month total executed share volume/total covered shares from the Rule 605 data. Effective Spread is the weighted average of the stock-month percentage effective half spread in basis points (bps). Realized Spread is the weighted average of the stock-month percentage realized half spread in basis points (bps). Price Impact is the weighted average of the stock-month percentage price impact in basis points (bps). E/Q ratio is the weighted average of the stock-month ratio of the effective spread/quoted spread. Pct of Shares Price Improved is the weighted average of the stock-month ratio of shares executed with price improvement/total executed share volume. Conditional Amount of Price Improvement is the weighted average of the stock-month of the amount of percentage price improvement in basis points (bps), conditional on the executed share receiving price improvement.

imbalances on the opposite side of the limit order book (*i.e.,* more marketable buy orders are submitted when there is more size on the offer side of the limit order book than the bid side), then the NBBO midpoint may change such that it is closer to the quote the marketable order executes against, which may decrease the effective and realized spreads in stocks above $250 when Market Data Infrastructure is implemented. It is uncertain how likely this NBBO midpoint is to change. It is also uncertain how or to what degree these changes would differ between exchange and wholesaler Rule 605 reports. If both changed similarly, then there would not be changes in relative differences between their reported spread measures. *See supra* section V.B.3.a).i.b.

[416] *See supra* note 395 for a definition and discussion of effective spreads.

[417] The E/Q ratio is the ratio of a stock's effective spread over quoted spread. A lower value indicates that smaller effective spreads (*i.e.,* trading costs) as a percentage of the quoted spread.

[418] *See supra* note 396 and accompanying text for a definition and discussion of realized spreads as a measure of the economic profits earned by liquidity providers. Realized spreads do not measure the actual trading profits that market makers earn from supplying liquidity. In order to estimate the trading profits that market makers earn, we would need to know at what times and prices the market maker executed the off-setting position for a trade in which it supplied liquidity (*e.g.,* the price at which the market maker later sold shares that it bought when it was supplying liquidity). If market makers offset their positions at a price and time that is different from the NBBO midpoint at the time lag used to compute the realized spread measure (Rule 605 realized spread statistics are measured against the NBBO midpoint 5 minutes after the execution takes place), then the realized spread measure is an imprecise proxy for the profits market makers earn supplying liquidity. Additionally, realized spread metrics do not take into account any transaction rebates or fees, including PFOF, that a market maker might earn or pay, which would also affect the profits they earn when supplying liquidity. Furthermore, realized spreads also do not account for other costs that market makers may incur as part of their business, such as fixed costs for setting up their trading infrastructure and costs for connecting to trading venues and receiving market data.

[419] The execution quality information in Rule 605 combines information about orders executed at a market center with information on orders received for execution at a market center but executed by another market center; *see supra* note 412. As such, the execution quality statistics presented in Table 5 include orders that are effectively rerouted by wholesalers. Furthermore, note that Rule 605 does not specifically require market centers to prepare separate execution quality reports for their SDPs, and as such these calculations reflect all covered market and marketable limit orders in NMS stocks received and executed by wholesalers, including those on SDPs.

[420] Marketable orders may not fully execute if there isn't sufficient liquidity on the exchange to fill the order within its limit price and/or if it contains other instructions that limit their execution, such as if they are designated as IOC orders or their instructions not to route the order to another exchange.

[421] *See* analysis in *infra* Table 7 and corresponding discussion.

Aggregated effective and realized percentage spreads are measured in half spreads in order to show the average cost of an individual investor order and are calculated by dividing the aggregated Rule 605 reported per share dollar amount by twice the stock's monthly volume weighed average price (VWAP), as derived from NYSE Daily Trade and Quote data (TAQ), for trades executed during regular market hours during the month. Percentage price impact is calculated as the aggregated Rule 605 reported per share dollar effective spreads minus per share dollar realized spreads divided by twice the stock's monthly volume weighed average price (VWAP), as derived from NYSE Daily Trade and Quote data (TAQ). Percentage amount of price improvement is calculated as the aggregated Rule 605 reported per share dollar amount of price improvement divided by the stock's monthly volume weighed average price (VWAP), as derived from NYSE Daily Trade and Quote data (TAQ). Percentage spreads and amount of price improvement percentages are reported in basis points (bps). The Combined Market and Marketable Limit order type category is constructed for each security-month-order size category by combining the market and marketable limit order categories and computing the total and share weighted average metrics for the order size category for each security-month.

The sample includes NMS common stocks and ETFs that are present in the CRSP 1925 US Stock Database, Ctr. Rsch. Sec. Prices, U. Chi. Booth Sch. Bus. (2022). The CRSP 1925 US Indices Database, Ctr. Rsch. Sec. Prices, U. Chi. Booth Sch. Bus. (2022), was used to identify if a stock was a member of the S&P 500. The stock did not have to be in the CRSP 1925 US Indices Database to be included in the analysis. NMS Common stocks and ETFs are identified, respectively, as securities in TAQ with a Security Type Code of 'A' and 'ETF'. For each stock-month-order-type (such that aggregate execution quality data is averaged for, (a) wholesalers and, (b) exchanges, for each stock during each month) the per dollar share weighted measures from Rule 605 reports are aggregated together by share-weighting across different trading venues and order-size categories within the stock-month-order-type and venue type (i.e. trading venue Rule 605 reports for exchanges and wholesalers are aggregated into different categories). Percent values are then calculated for each stock month by dividing by the stock's monthly volume weighed average price (VWAP). These percentage stock-month values are averaged together into order-type categories (market orders, marketable limit orders, and the combined market and marketable limit order type category, for both wholesalers and exchanges) based on weighting by the total dollar trading volume for the wholesaler or exchange category in that stock-month-order type, where dollar trading volume is estimated by multiplying the Rule 605 report total executed share volume, *i.e.,* the share volume executed at market center + share volume executed away from the market center, for the stock-month-order type by the stock's monthly VWAP). *See supra* note 413 for a discussion of filters that were applied to the Rule 605 data in this analysis. This analysis uses data from prior to the implementation of the MDI Rules and specific numbers may be different following the implementation of the MDI Rules. *See supra* note 415.

To supplement the analyses using Rule 605 data and test for the robustness of the results that it generated, CAT data[422] was analyzed to look at the execution quality of marketable orders of individual investors in NMS Common Stocks and ETFs that were less than $200,000 in value and that executed and were handled by wholesalers during Q1 2022 (''CAT retail analysis'').[423] This was compared to a sample of CAT data examining the execution quality of executed market and marketable limit orders in NMS Common Stocks and ETFs received by exchanges that were less than $200,000 in value over the same time period (''CAT exchange analysis'').[424]

[422] This analysis used CAT data to examine the execution quality of marketable orders in NMS Common stocks and ETFs that belonged to accounts with a CAT account type of ''Individual Customer'' and that originated from a broker-dealer MPID that originated orders from 10,000 or more unique ''Individual Customer'' accounts during January 2022. The number of unique ''Individual Customer'' accounts associated with each MPID was calculated as the number of unique customer account identifiers with an account customer type of ''Individual Customer'' that originated at least one order during the month of January 2022. The Commission found that 58 broker-dealer MPIDs associated with 54 different broker-dealers originated orders from 10,000 or more unique Individual Customer accounts in January 2022. For the Consolidated Audit Trail, account type definitions are available in Appendix G to the CAT Reporting Technical Specifications for Industry Members (*https://catnmsplan.com/*), for the field name ''accountHolderType.'' Account types represent the beneficial owner of the account for which an order was received or originated, or to which the shares or contracts are allocated. Possible types are: Institutional Customer, Employee, Foreign, Individual Customer, Market Making, Firm Agency Average Price, Other Proprietary, and Error. An Institutional Customer account is defined by FINRA Rule 4512(c) as a bank, investment adviser, or any other person with total assets of at least $50 million. An Individual Customer account means an account that does not meet the definition of an ''institution'' and is also not a proprietary account. Therefore, the CAT account type ''Individual Customer'' includes natural persons as well as corporate entities that do not meet the definitions for other account types. The Commission restricted that analysis to MPIDs that originated orders from 10,000 or more ''Individual Customer'' accounts in order to ensure that these MPIDs are likely to be associated with retail brokers to help ensure that the sample is more likely to contain marketable orders originating from individual investors. NMS Common stocks and ETFs are identified, respectively, as securities in TAQ with a Security Type Code of 'A' and 'ETF'.

[423] Fractional share orders with share quantity less than one share were excluded from the analysis. The analysis included market and marketable limit orders that originated from one the 58 retail broker MPIDs and were received by a market center that was associated with one of the six wholesalers CRD numbers (FINRA's Central Registration Depository number) during some point in the order's lifecycle. Orders that were received by the wholesaler or executed outside of normal market hours were excluded. Orders were also excluded if they had certain special handling codes so that execution quality statistics would not be skewed by orders being limited in handling by special instructions (*e.g.,* pegged orders, stop orders, post only orders). Orders identified in CAT as Market and Limit orders with no special handling codes or one of the following special handling codes were included in the analysis: NH (not held), CASH (cash), DISQ (display quantity), RLO (retail liquidity order), and DNR (do not reduce). These special handling codes were identified based on their common use by retail brokers and descriptions of their special handling codes. The marketability of a limit order was determined based on the consolidated market data feed NBBO at the time a wholesaler first receives the order. Limit orders that were not marketable were excluded. The dollar value of an order was determined by multiplying the order's number of shares by either its limit price, in the case of a limit order, or by the far side quote (*i.e.,* NBO for a market buy order and NBB for a market sell) of the consolidated market data feed NBBO at the time the order was first received by a wholesaler, in the case of a market order. Orders with dollar values greater than or equal to $200,000 were excluded from the analysis. The analysis includes NMS Common Stocks and ETFs (identified by security type codes of 'A' and 'ETF' in NYSE TAQ data) that are also present in CRSP data. Price improvement, effective spreads, realized spreads, quoted spreads, and price impacts were winsorized if they were greater than 20% of a stock's VWAP during a stock-week. *See* Table 6 for a detailed description of the analysis.

[424] The Commission analysis used CAT data to examine the execution quality of market and marketable limit orders in NMS Common Stocks and ETFs that were under $200,000 in value that were received and executed by exchanges during normal market hours in Q1 2022. The analysis employed filters to clean the data and account for potential data errors. The analysis is limited to orders identified in CAT as market and limit orders accepted by exchanges. Orders were excluded from the analysis if they had certain special handling codes, such as post or add-liquidity only orders, midpoint orders, orders that can only execute in opening and closing auctions, orders with a minimum execution quantity, pegged orders, or stop order or stop-loss orders. Orders were also required to execute in normal trades during normal trading hours to be included in the analysis. Normal trades are identified in CAT data by sale conditions ''blank, @, E, F, I, S, Y'' which correspond to regular trades, intermarket sweep orders, odd lot trades, split trades, and yellow flag regular trades. For orders submitted to exchanges, the NBBO the exchange records seeing at the time of order receipt is used to measure the NBBO and NBBO midpoint for calculating statistics that are based on the time of order receipt (*e.g.,* effective spreads, price improvement, quoted spreads, etc.). The marketability of exchange orders was determined based on the NBBO observed by the exchange at the time of order receipt. The dollar value for a market order was calculated as the price of the far side NBBO quote (NBO for a market buy order and NBB for a market sell) times the shares in the order. The dollar value for a limit order was calculated as the price of the limit order times the number of shares in the order. Orders with dollar values greater than or equal to $200,000 were excluded from the analysis. The consolidated market data feed NBBO was used to calculate statistics that use the NBBO or NBBO one minute after execution (*e.g.,* realized spreads, price impacts, etc.). The analysis includes NMS Common Stocks and ETFs (identified by security type codes of 'A' and 'ETF' in NYSE TAQ data) that are also present in CRSP data. Price improvement, effective spreads, realized spreads, quoted spreads, and price impacts were winsorized if they were greater than 20% of a stock's VWAP during a stock-week. *See* Table 6 for a detailed description of the analysis.

Table 6 reports the results from CAT data analysis.[425] In addition to reporting results for all stocks, it also breaks out results based by if a stock is an ETF or is in the S&P 500 or not. Generally, the results from this analysis are consistent with results from the analysis of Rule 605 data from Table 5. Specifically, wholesalers display lower price impacts (WH Price Impact) and E/Q ratios (WH E/Q Ratio), indicating that orders internalized by wholesalers receive better execution quality relative to order executed on exchanges (EX Price Impact and EX E/Q Ratio containing the corresponding statistics for exchanges). Despite this enhanced execution quality, realized spreads of wholesalers (WH Realized Spread) exceed those produced by exchanges (EX Realized Spread).

Table 6 also reports some statistics for wholesalers that are not available in Rule 605 reports, including statistics on midpoint executions (WH Pct Shares Executed at Midpoint) and sub-penny trades (WH Pct of Shares Executed as Subpenny Prices). In all NMS common stock and ETF orders, wholesalers execute approximately 44% of shares at prices at or better than the NBBO midpoint (WH Pct Shares Executed at Midpoint or Better). However, wholesalers also offer less than 0.1 cents price improvement to approximately 18.6% of shares that they execute (WH Pct Shares Executed with <0.1 cent Price Improvement). Wholesalers execute more than 65% of shares at sub-penny prices (WH Pct of Shares Executed as Subpenny Prices), with over 40% of shares being executed at prices with four decimal points (*i.e.,* the fourth decimal place is not equal to zero, which is measured by the WH Pct of Shares Executed at Subpenny Prices with 4 Decimals variable).

TABLE 6—WHOLESALER CAT ANALYSIS OF EXCHANGE INDIVIDUAL INVESTOR ORDER EXECUTION QUALITY FOR MARKETABLE ORDERS IN NMS COMMON STOCKS AND ETFS BY TYPE OF STOCK

Variable	All	SP500	NonSP500	ETF
Panel A: Wholesaler and Exchange Execution Quality				
Average Price	$29.87	$110.31	$10.52	$53.14
WH Principal Execution Rate	90.44%	93.07%	87.66%	88.12%
WH Share Volume (billion shares)	87.11	11.63	63.17	12.31
EX Share Volume (billion shares)	281.90	66.98	140.82	74.10
WH Dollar Volume (billion $)	$2,601.44	$1,282.62	$664.41	$654.41
EX Dollar Volume (billion $)	$16,194.84	$6,479.89	$3,246.09	$6,468.85
WH Effective Spread (bps)	2.11	0.67	6.23	0.76
EX Effective Spread (bps)	3.18	1.52	8.11	1.42
WH Realized Spread (bps)	0.85	0.42	2.00	0.51
EX Realized Spread (bps)	−1.22	−0.28	−3.90	−0.34
WH Price Impact (bps)	1.26	0.25	4.22	0.25
EX Price Impact (bps)	4.40	1.80	12.00	1.75
WH E/Q Ratio	0.39	0.32	0.50	0.41
EX E/Q Ratio	1.04	1.01	0.98	1.17
Panel B: Wholesaler Price Improvement				
WH Pct Executed with Price Improvement	89.95%	93.33%	85.43%	87.93%
WH Conditional Amount Price Improvement (bps)	2.54	1.47	6.16	0.99
WH Pct Shares Executed at Midpoint or Better	44.57%	47.37%	39.76%	43.97%
WH Pct Shares Executed at Midpoint	31.69%	32.47%	28.46%	33.44%
WH Pct Shares Executed at NBBO	8.38%	5.86%	10.97%	10.69%
WH Pct Shares Executed Outside NBBO	1.67%	0.81%	3.61%	1.38%
WH Pct Shares Executed with <0.1 cent Price Improvement	18.64%	16.62%	20.58%	20.64%
WH Pct of Shares Executed as Subpenny Prices	66.98%	65.10%	64.16%	73.55%
WH Pct of Shares Executed at Subpenny Prices without Midpoint Trades	47.60%	46.82%	47.03%	49.68%
WH Pct of Shares Executed at Subpenny Prices with 4 Decimals	41.36%	40.80%	41.76%	42.06%

This table uses CAT data to compare aggregated execution quality statistics for Q1 2022 broken out for different security types for executed marketable orders with order size under $200,000 in NMS Common Stocks and ETFs received by wholesalers from individual investors to similar orders received by exchanges. Aggregated statistics in the table labeled WH are based on analysis of CAT data of executed marketable orders in NMS Common Stocks and ETFs from individual investors for under $200,000 in value belonging to one of 58 retail broker MPIDs that were handled by one of 6 wholesalers during normal market hours in Q1 2022 (see supra note 423 for additional discussions on the CAT data used in the CAT retail analysis). Aggregated statistics in the table labeled EX are based on a corresponding analysis of CAT data of executed marketable orders in NMS Common Stocks and ETFs receive by exchanges that were under $200,000 in value and received and executed during normal market hours in Q1 2022 (see supra note 424 for additional discussions on the CAT data used in CAT exchange analysis).

[425] Certain items in Table 6 may also be affected by the MDI rules once they are implemented. *See supra* note 415.

The following metrics are calculated for all stocks and for each of the stock-types. EX indicates aggregated statistics for executed marketable orders routed to exchanges and WH indicates aggregated statistics for executed marketable orders from individual investors that were routed to wholesalers. Average Price is the average execution price. WH Principal Execution Rate is the percentage of dollar volume of individual investor trades that a wholesaler executed in a principal capacity. Share Volume is the total executed share volume. Dollar Volume is the total executed dollar volume. Effective Spread is the weighted average of the percentage effective half spread in basis points (bps) (measured as average (execution price—NBBO midpoint at time of order receipt) * average transaction price). Realized Spread is the weighted average of the percentage one minute realized spread in bps (measured as average (execution price—NBBO midpoint one minute after execution) * average transaction price). Price Impact is the weighted average of the percentage one-minute price impact spread in bps (measured as average (NBBO midpoint one minute after execution—NBBO midpoint at time of order receipt)/average transaction price). E/Q Ratio is the weighted average of the ratio of the effective dollar spread divided by its quoted spread at the time of order receipt. WH Pct Executed with Price Improvement is the weighted average of the percentage of share volume that is routed to wholesalers and executed at a price better than the NBBO. WH Conditional Amount Price Improvement is the weighted average amount of percentage price improvement given by wholesalers conditional on the order receiving price improvement in bps (measured for a marketable buy order as average (NBO at time of order receipt—execution price) and measured for a marketable sell order as average (execution price—NBB at time of order receipt) and then dividing the difference by the average transaction price). WH Pct Share Executed at Midpoint or Better is the weighted average of the percentage of shares that are routed to a wholesaler and executed at prices equal to or better than the NBBO midpoint at the time of order receipt. WH Pct Share Executed at Midpoint is the weighted average of the percentage of shares that are routed to a wholesaler and executed at a price equal to the NBBO midpoint at the time of order receipt. WH Pct Shares Executed at NBBO is the weighted average of the percentage of share volume routed to a wholesaler and executed at the NBBO at the time of order receipt (executed at the NBB for marketable sell orders and the NBO for marketable buy orders). WH Pct Shares Executed Outside NBBO is the weighted average of the percentage of share volume routed to wholesalers and executed at prices outside the NBBO at the time of order receipt (executed a price less than the NBB for marketable sell orders and a price greater than the NBO for marketable buy orders). WH Pct Shares Executed with <0.1 cent Price Improvement is the weighted average of the percentage of shares that are executed with an amount of price improvement less than 0.1 cents measured against the NBBO at the time of order receipt. WH Pct Shares Executed Subpenny Prices is the weighted average of the percentage of shares that execute at a subpenny price (a dollar execution price with a non-zero value in the third or fourth decimal place). WH Pct Shares Executed at Subpenny without Midpoint Trades is the weighted average of the percentage of shares that execute at a subpenny price (an dollar execution price with a non-zero value in the third or fourth decimal place), excluding executions with subpenny prices that occur at the NBBO midpoint. WH Pct Shares Executed at Subpenny Prices with 4 Decimals is the weighted average of the percentage of shares that execute at a subpenny price where there is a dollar execution price with a non-zero value in the fourth decimal place. Average transaction prices used in calculating the metrics are calculated as the total dollar trading volume divided by the total share trading volume in the category and time period.

For the wholesaler (WH) CAT metrics used in the sample, the analysis includes marketable orders for under $200,000 in value that originate from a customer with a CAT account type of ''individual'' at one of the 58 retail broker MPIDs and are routed to a wholesaler (*see supra* note 422 for more info on CAT account types and retail broker identification methodology and supra note 423 for more details on how the CAT retail analysis sample was constructed). Fractional share orders with share quantity less than one share were excluded from the analysis. Orders were also excluded if they had certain special handling codes. The marketability of a limit order is determined based on the consolidated market data feed NBBO at the time a wholesaler first receives the order.

For the exchange (EX) CAT metrics, executed market and marketable limit orders received by exchanges during normal market hours were over the same period were used to calculate the exchange execution quality statics (*see supra* note 424 for more details on how the CAT exchange sample was constructed). Exchange orders were filtered if they had certain special handling codes. The marketability of exchange orders was determined based on the NBBO observed by the exchange at the time of order receipt.

The dollar value of an order was determined by multiplying the order's number of shares by either its limit price, in the case of a limit order, or by the far-side quote of the NBBO at the time of order receipt, in the case of a market order. The analysis includes NMS Common Stocks and ETFs (identified by security type codes of 'A' and 'ETF' in NYSE TAQ data) that are also present in CRSP data from CRSP 1925 US Stock Database, Ctr. Rsch. Sec. Prices, U. Chi. Booth Sch. Bus. (2022). The CRSP 1925 US Indices Database, Ctr. Rsch. Sec. Prices, U. Chi. Booth Sch. Bus. (2022), was used to identify if a stock was a member of the S&P 500. The stock did not have to be in the CRSP 1925 US Indices Database to be included in the analysis. Time of order receipt is defined as the time the wholesaler or exchange first receives the order. Wholesaler metrics based on the time of order receipt are measured against the NBBO from the consolidated market data feed. Exchange metrics based on time of order receipt are measured against the NBBO the exchange reports observing. Realized spreads for both exchange and wholesaler metrics are calculated with respect to the NBBO midpoint from the consolidated market data feed observed one minute after the time of order execution.

Separately, for both the exchange and wholesaler samples, total share volume, total dollar volume, average transaction price, percentage volume metrics, and share weighted average dollar per share spread, price impact, and price improvement metrics were calculated at a stock-week-order size category level by aggregating together execution quality statistics calculated for individual orders. The order-size categories were defined as orders less than 100 shares, 100–499 shares, 500–1,999 shares, 2,000–4,999, 5,000–9,999 shares, and 10,000+ shares. For each stock-week-order size category, percentage spread, price impact, and price improvement metrics were calculated by dividing the average dollar per share metric by the average transaction price calculated for each stock-week-order size category. E/Q ratios were calculated for each stock-week-order size category by dividing the average dollar per share effective spread by the average dollar per share quoted spread.

Exchange sample metrics for E/Q ratios and percentage spread, price impact, and price improvement metrics for a for each stock-week-order size category were then merged with the corresponding stock-week-order size category in the wholesaler sample. Weighted averages for both wholesaler and exchange metrics and the wholesaler percentage volume metrics are then calculated for the security type in the sample by averaging across stock-week-order size category levels based on their total dollar transaction volume during the sample period in the wholesaler CAT sample (*i.e.,* for both exchanges and wholesalers, using the stock's total dollar trading volume in wholesaler executed transactions as the weight when averaging the share weighted average stock-week- size category values). Weighting the exchange and wholesaler execution metrics by the same weights helps to ensure the samples are comparable across stocks. Total dollar volume and share volume for the exchange and wholesaler samples are calculated by summing across all executions in a security type in each sample. The wholesaler Principal Execution Rate is calculated for a security type in the wholesaler sample by summing the total dollar volume in trades wholesalers executed in a principal capacity across the security type in the wholesaler sample and dividing by the total dollar volume in traded in the security type in the wholesaler sample.

This analysis uses data from prior to the implementation of the MDI Rules and specific numbers may be different following the implementation of the MDI Rules. *See supra* note 415.

Table 7 uses CAT data to summarize how individual investor marketable NMS stock order execution quality varies based on whether the wholesaler executes the order in a principal capacity (*i.e.,* internalizes the order) or effectively reroutes the order (*i.e.,* executes in a riskless principal or handles it in an agency capacity). This analysis supports the interpretation that wholesalers identify and tend to internally execute individual investor orders associated with the lower adverse selection costs.[426] Internalized orders have a lower price impact (0.91 bps as compared to 4.63 bps for those effectively rerouted, measured by WH Price Impact), and lower effective

[426] Certain items in Table 7 may also be affected by the MDI Rules once they are implemented. *See supra* note 415.

spreads (1.77 compared to 5.36 for other transactions, measured by WH Effective Spread). Wholesalers also earn higher realized spreads on the orders they execute as principal (0.86 bps for principal transactions compared to 0.72 bps earned by those providing liquidity for the riskless principal or agency transactions, measured by WH Realized Spread), despite executing them at lower effective spreads.

TABLE 7—WHOLESALER CAT ANALYSIS OF INDIVIDUAL INVESTOR ORDER EXECUTION QUALITY BY WHOLESALER EXECUTION CAPACITY

Variable	Internalized	Effectively rerouted
Average Price	$33.48	$14.78
WH Orders (million)	236.95	34.36
WH Trades (millions)	251.32	74.36
WH Share Volume (billion shares)	70.28	16.83
WH Pct of Executed Share Volume	80.68%	19.32%
WH Dollar Volume (billion $)	$2,352.80	$248.64
WH Pct of Executed Dollar Volume	90.44%	9.56%
WH Effective Spread (bps)	1.77	5.36
WH Realized Spread (bps)	0.86	0.72
WH Price Impact (bps)	0.91	4.63
WH E/Q Ratio	0.35	0.70
WH Pct Executed with Price Improvement	93.37%	57.65%
WH Conditional Amount Price Improvement (bps)	2.45	3.74
WH Pct Shares Executed at Midpoint or Better	46.05%	30.65%
WH Pct Shares Executed at Midpoint	32.23%	26.53%
WH Pct Shares Executed at NBBO	5.51%	35.49%
WH Pct Shares Executed Outside NBBO	1.12%	6.86%
WH Pct Shares Executed with <0.1 cent Price Improvement	20.38%	2.22%

The table summarizes execution quality statistics from the CAT retail analysis based on whether the wholesaler executed the individual investor NMS stock order in a principal capacity or in another capacity (*i.e.,* in an agency or riskless principal capacity). The majority of the other transactions are executed by the wholesaler in a riskless principal capacity. *See supra* Table 6 for additional details on the sample and metrics used in the analysis. Share-weighted percentage metrics are averaged together at the individual execution capacity-stock-week-order-size category level for the wholesaler sample using the methodology in Table 6. Weighted averages for the metrics are then calculated for each execution capacity by averaging across execution capacity-stock-week-order size category levels based on their total dollar transaction volume during the sample period in the wholesaler CAT sample. This analysis uses data from prior to the implementation of the MDI Rules and specific numbers may be different following the implementation of the MDI Rules. *See supra* note 415.

The analysis in Table 7 presents evidence that wholesalers execute 46% of the shares they internalize at prices equal to or better than the midpoint. However, additional analysis of CAT data indicates that there is often midpoint liquidity on exchanges and NMS Stock ATSs when wholesalers internalize individual investor orders at prices worse than the midpoint.

Table 8 uses CAT data from March 2022 to examine the non-displayed liquidity available at the NBBO midpoint on exchanges and NMS Stock ATSs at a moment in time when a wholesaler internalizes an individual investor marketable order at a price less favorable (to the customer) than the NBBO midpoint.[427] The results indicate that, on average,[428] 51% of the shares internalized by wholesalers are executed at prices less favorable than the NBBO midpoint (Wholesaler Pct Exec Shares Worse Than Midpoint). Out of these individual investors shares that were executed at prices less favorable than the midpoint, on average, 75% of these shares could have hypothetically executed at a better price against the non-displayed liquidity resting at the NBBO midpoint on exchanges and NMS Stock ATSs. Under the current market structure, this liquidity is not displayed, so wholesalers may not have been aware of this liquidity and able to execute the individual investor marketable orders against it. Currently, if wholesalers wanted to detect this hidden liquidity, they would have had to ping each individual exchange or NMS Stock ATS to see if midpoint liquidity was available on that venue.[429]

Table 8 also estimates that the additional dollar price improvement that these individual investor marketable orders would have received

[427] More specifically, the analysis uses CAT data to look at the total shares available at the NBBO midpoint that originate from hidden midpoint pegged orders on exchanges and NMS Stock ATSs. The analysis compares the size of an individual investor marketable order that was internalized in a principal capacity by a wholesaler at a price less favorable than the NBBO midpoint (measured at the time the wholesaler received the order) to the total shares of midpoint liquidity (originating from midpoint peg orders) at the NBBO midpoint on exchanges and NMS Stock ATSs at the time the individual investor order is executed in order to hypothetically see how many additional shares could have gotten price improvement if they had executed against the hidden liquidity available at the NBBO midpoint. A midpoint peg order is a type of hidden order whose price automatically adjusts with the NBBO midpoint. The analysis looks at midpoint peg orders on exchanges and ATSs during normal market hours (midpoint peg orders with an Immediate or Cancel or Fill or Kill modifier are excluded). The total potential shares in orders that were available at the NBBO midpoint from midpoint peg orders on exchanges and ATSs was calculated each stock day by adding shares when midpoint peg orders were received by an exchange or ATS and subtracting shares in these orders that were canceled or traded. Shares were also subtracted from the total when a wholesaler internalized an individual investor marketable order at a price worse than the NBBO midpoint and shares were available at the midpoint on exchanges and ATSs that the order could have hypothetically executed against. This ensures that that analysis is not overestimating the available midpoint liquidity (*i.e.,* it ensures that we do not estimate two individual investor 100 share orders could have executed against the same resting 100 share midpoint order). The analysis also kept track of the total amount of dollars of additional price improvement that individual investors would have received if their orders had hypothetically executed against the liquidity available at the NBBO midpoint instead of being internalized by the wholesaler. Note that this analysis might underestimate the total non-displayed liquidity available at the NBBO midpoint because it only looks at orders that pegged to the midpoint and not other orders, such as limit orders with a limit price equal to the NBBO midpoint.

[428] As discussed in Table 8, percentages were computed at a stock-week level and then averaged across stock-weeks by weighting by the total dollar volume the wholesaler internalized during that stock-week.

[429] Pinging for midpoint liquidity at multiple venues could increase the risk of information leakage or that prices may move, possibly resulting in some market participants canceling midpoint orders they posted.

if they had executed against the available midpoint liquidity instead of being internalized. The total amount of additional price improvement that all of these individual investor orders would have received was about 51% of the total dollar price improvement provided by wholesalers to all of the individual investor marketable orders that they internalized (*i.e.,* the marketable orders internalized at prices better or equal to the midpoint plus marketable orders internalized at prices worse than the midpoint).[430]

In addition, the results in Table 8 also indicate the availability of NBBO midpoint liquidity is only slightly lower for less liquid (non-S&P 500 stocks) as liquid (S&P500) stocks. That is, while about 57% of the shares in individual investor marketable orders in non-S&P500 stocks internalized by wholesalers received executions at less favorable prices than the NBBO midpoint, there was nevertheless hidden liquidity available at the NBBO midpoint for about 68% of these non-S&P500 shares. Moreover, the potential additional price improvement that could have been gained by if these individual investor orders had executed against this NBBO midpoint liquidity is almost 55% of the total price improvement provided by wholesalers in these stocks.

TABLE 8—AVAILABLE MIDPOINT LIQUIDITY WHEN WHOLESALER INTERNALIZES A RETAIL TRADE

Stock type	Price group	Liquidity bucket	Wholesaler Pct exec shares worse than midpoint	Pct shares MP price improvement	Additional dollar price improvement Pct
All	All		51.05	74.60	51.05
SP500	All		48.41	72.32	41.43
SP500	(1) <$30		64.36	60.08	50.00
SP500	(2) $30 − $100		47.82	60.36	29.29
SP500	(3) $100+		47.69	75.69	43.27
NonSP500	All		57.45	68.10	54.51
NonSP500	(1) <$30	Low	73.30	49.52	67.63
NonSP500	(1) <$30	Medium	71.30	60.25	82.85
NonSP500	(1) <$30	High	66.77	52.18	59.74
NonSP500	(2) $30 − $100	Low	63.60	80.69	68.88
NonSP500	(2) $30 − $100	Medium	57.71	85.24	61.80
NonSP500	(2) $30 − $100	High	50.24	71.79	44.58
NonSP500	(3) $100+	Low	61.62	84.32	61.49
NonSP500	(3) $100+	Medium	55.40	93.29	55.96
NonSP500	(3) $100+	High	47.15	90.99	45.57
ETF	All		49.93	86.06	58.28
ETF	(1) <$30	Low	66.58	39.75	31.61
ETF	(1) <$30	Medium	57.95	54.91	38.35
ETF	(1) <$30	High	62.24	78.47	88.70
ETF	(2) $30 − $100	Low	61.01	62.00	41.78
ETF	(2) $30 − $100	Medium	53.94	77.54	46.85
ETF	(2) $30 − $100	High	49.87	84.09	49.56
ETF	(3) $100+	Low	52.45	72.28	40.13
ETF	(3) $100+	Medium	47.51	87.20	45.35
ETF	(3) $100+	High	46.93	90.28	48.33

This table summarizes midpoint liquidity available on exchanges and ATSs during March 2022 when a wholesaler internalizes an individual investor marketable order less than $200,000 in an NMS common stock or ETF on a principal basis at a price less favorable than the NBBO midpoint (at the time of the wholesaler receives the order) from one of the 58 retail broker MPIDs in the CAT retail analysis. Stocks are broken out into buckets based on their security type, price, and liquidity. Stock type is based on whether a security is an ETF, or a common stock in the S&P 500 or Non-S&P 500. Price buckets are based on a stock's weekly average VWAP price as estimated from TAQ. Stocks within each security type-price bucket, except S&P 500 stocks, are sorted into three equal liquidity buckets based on the stock's total share trading volume during the week estimated using TAQ data. See supra Table 6 for additional details on the sample and CAT analysis of wholesaler executions of the orders of individual investors.

Wholesaler Pct Exec Shares Worse Than Midpoint is the average percentage of individual investor shares that wholesalers executed on a principal basis at a price less favorable than the NBBO midpoint (measured at the time the wholesaler receives the order). Pct Shares MP Price Improvement is the average percentage of shares that the wholesaler executed at a price less favorable than the NBBO midpoint that could have executed at a better price against resting liquidity available at the NBBO midpoint on exchanges and NMS Stock ATSs at the time the wholesaler executed the order. Additional Dollar Price Improvement Pct is the ratio of the total additional dollars of price improvement of the sample period that individual investors whose orders were executed at a price less favorable than midpoint would have received if their orders would have executed against available midpoint liquidity, divided by the total dollars in price improvement (measured relative to the NBB or NBO at the time of order receipt) that wholesalers provided over the sample period when they internalized individual investor orders (i.e. the total price improvement for orders wholesalers internalized at prices less favorable than the midpoint plus the total price improvement for orders wholesalers internalized at prices more favorable than the midpoint).

[430] This estimate of the potential additional price improvement if orders are executed against midpoint liquidity only accounts for differences in the potential execution prices of the order and does not account for any other differences in costs of executing the order at different venues, such as differences in PFOF or access fees and rebates.

Midpoint liquidity is measured based on resting midpoint peg orders on exchanges and NMS Stock ATSs during normal market hours identified from CAT data. Midpoint peg orders with an Immediate or Cancel or Fill or Kill modifier are excluded. The total potential shares in orders that were available at midpoint on exchanges and ATSs at a point in time were calculated keeping a running total each stock day by adding shares when midpoint peg orders were received by an exchange or NMS Stock ATS and subtracting shares when shares in these midpoint peg orders were canceled or traded. When a wholesaler executes an order at a price less favorable than the NBBO midpoint (at the time the wholesaler receives the order), then the executed shares are compared to the available resting liquidity at the NBBO midpoint. If the NBBO midpoint at the time the order is executed would provide price improvement over the price the wholesaler would have executed the order at, then the shares executed by the wholesaler are subtracted from the total resting shares available at the NBBO midpoint, up to the lesser of the number of shares executed by the wholesaler or the total resting shares available (i.e. the total resting shares will not drop below zero). These are counted as the total shares that would have received additional price improvement at the midpoint. This methodology ensures that that analysis is not overestimating the available midpoint liquidity (i.e. it ensures that we do not estimate two individual investor 100 share orders could have executed against the same resting 100 share midpoint order). NBBO midpoints for both time of order receipt and time of execution are estimated from the consolidated market data feed.

The additional dollars of price improvement individual investors whose orders were executed at a price less favorable than the midpoint would have received if their orders would have executed against available midpoint liquidity was calculated as the difference between the price the wholesaler executed the order at and the NBBO midpoint at the time the wholesaler executed the order (i.e., executed price—NBBO midpoint at the time of execution for a marketable buy order and midpoint—executed price for a marketable sell order) times the number of shares that would have received the additional price improvement.

Weighted averages are calculated for the variables Wholesaler Pct Exec Shares Worse Than Midpoint and Pct Shares MP Price Improvement using the following methodology. Percentages based on share volume are calculate for each stock-week (e.g., total shares executed at a price worse than the midpoint during a stock-week divided by the total shares of individual investor marketable orders executed by a wholesaler in a principal capacity during the stock-week). Weighted averages are then calculated for each stock-type-price-liquidity bucket by averaging these stock-week percentages over the month by weighting each stock-week by the total dollar trade volume internalized by the wholesaler during the stock-week (i.e., using the stock's total dollar trading volume internalized by the wholesaler as the weight when averaging the stock-week percentage values).

The Additional Dollar Price Improvement Pct is not weighted and is calculated as the ratio of the month's total additional dollar price improvement orders executed at a price less favorable than the NBBO would have received if their orders would have executed against available midpoint liquidity, divided by the month's total dollars in price improvement (measured relative the NBBO at the time of order receipt) that wholesalers provided when they executed individual investor orders (i.e. the total price improvement for orders wholesalers internalized at prices less favorable than the midpoint plus the total price improvement for orders wholesalers internalized at prices more favorable than the midpoint.

ii. Listed Options

a. Options Trading Services Overview

Registered exchanges are the sole providers of trading services in the market for listed options, and the Options Clearing Corporation (OCC) is the sole entity clearing trades for exchange-listed options and security futures.[431] All listed options trading occurs on exchanges. Exchanges compete with each other by offering different cost structures to participate on the exchange, and offering differing order types to allow customers advanced trading strategies. Options exchanges offer the ability to route orders to competing options exchanges in the event of a competing option exchange having the best price for a given options order.[432]

There are sixteen options exchanges[433] in the U.S. options market. Each of the sixteen exchanges is operated by one of five exchange groups.[434] Table 9 presents the market share, as measured by contract volume, for each option exchange and each exchange group based on OPRA data from 2022/01/01 to 2022/03/31. Cboe is the exchange with the largest market share,[435] at close to 15%. However, on the exchange group level, the Nasdaq group, with its six exchanges, has the highest market share.

TABLE 9—U.S. OPTIONS EXCHANGE MARKET SHARE

Group	Exchange	Market share (percent)
BOX	BOX	5.78
Cboe	Cboe	14.81
	C2	3.66
	EDGX	4.86
	BZX	7.91
Nasdaq	Nasdaq	7.93
	BX	2.01
	PHLX	10.91
	GEMX	2.32
	ISE	5.63
	MRX	1.69
NYSE	AMEX	6.68
	Arca	12.54
MIAX	MIAX	5.39
	PEARL	4.26
	EMERALD	3.61

There is one ATS in the market for listed options.[436] As the Commission understands, this ATS offers subscribers an RFQ protocol.[437] A customer may accept the quote the ATS returns from the RFQ protocol, after which the order is sent to an exchange for execution.

Most option exchanges do not provide midpoint liquidity, and marketable orders routed to the limit order book can only be executed at the NBBO prices when there is no price improvement order present. The Nasdaq Option Exchange first introduced an order type called price improvement order which allows market participants to enter the order at a non-displayed limit price within the NBBO spread at 1 cent increments regardless of the tick size of the option series. Marketable customer orders are able interact with the resting price improving orders and receive better prices than the prevailing NBBOs.

b. Retail Order Handling in Options

The Commission understands the majority of retail orders for options are handled by wholesalers.[438] Rule 606 data from Q1 2022 show that all but one of the top 15 retail options brokers routed all of their non-directed[439] orders from customers to wholesalers. Some of this flow is routed directly to wholesalers, while some goes through a third-party clearing firm, but is at some point handled by at least one wholesaler. Sometimes retail brokers do route to exchanges, either directly or through a third-party firm.

Table 10 summarizes order routing choices of 45 major retail brokers for non-directed orders for listed options. Routing decisions are summarized

[431] *See What Is OCC?,* The Options Clearing Corporation, *available at https://www.theocc.com/Company-Information/What-Is-OCC.* Listed options can only be traded on a registered options exchange. *See* By-Laws of The Options Clearing Corporation, Article I, Section 1(C)(28) (defining ''confirmed trade'') and Article VI, Section 1.

[432] *See e.g.,* Securities Exchange Act Release No. 60405 (July 30, 2009), 74 FR 39362 (August 6, 2009) (approving the national market system plan relating to options order protection and locked/crossed markets) (File No. 4–546).

[433] Eight exchanges trade only options. Eight trade both options and equities.

[434] Exchange groups are collection of exchanges operated by one parent entity.

[435] This is in part due to the fact that there are several very liquid Cboe-listed only products such as SPX and SPXW.

[436] In contrast to the market for NMS Stocks, ATS trades in NMS Options are still executed on an exchange.

[437] *See,* DASH Financial Technologies, Execution Services: Dash ATS *available at https://dashfinancial.com/execution-services/dash-ats/.*

[438] *See supra* section III.A.

[439] According to the Rule 606 filings for the top 15 retail brokers for listed options, on average non-directed orders made up around 99.13% of all retail orders in Q1 of 2022.

separately for 23 retail brokers who accept PFOF from wholesalers or clearing firms in option markets (PFOF brokers) and those who do not (non-PFOF brokers). Within each category of brokers, routing statistics for each order type [440] is reported separately.

Similar to results for NMS stocks, the composition of order types differ between non-PFOF and PFOF brokers. Market orders and marketable limit orders comprise a smaller proportion of orders routed by non-PFOF brokers than PFOF brokers. For example, market orders make up 9.97% and 14.60% of non-directed orders of non-PFOF and PFOF brokers, respectively. Consequently, the non-marketable limit order type and other order type make up smaller shares of orders routed by PFOF brokers.

Non-PFOF brokers route a significantly lower fraction, 46%, of their customer orders to wholesalers, compared to over 99% of customer orders that PFOF brokers route to wholesalers. Additionally, Non-PFOF brokers also route 17% of customer orders to clearing firms, whereas essentially no orders from PFOF brokers are routed in this manner. Finally, as an alternative to the previously mentioned routing choices, Non-PFOF brokers route a significantly higher fraction, 38%, of customers' orders directly to the exchanges than PFOF brokers, which route less than 0.1% of the order flow to the exchanges.

TABLE 10—RETAIL BROKER ORDER ROUTING IN LISTED OPTIONS FOR MARCH 2022

Venue type	Market (percent)	Marketable limit (percent)	Non-marketable limit (percent)	Other (percent)	Total (percent)
Non-PFOF Retail Brokers					
Clearing firm	4.49	1.46	10.62	0.27	16.84
Exchange	0.01	0.44	5.47	31.70	37.61
Wholesaler	5.48	7.88	47.14	35.01	45.55
Total	9.97	9.25	51.18	20.66	100.00
PFOF Retail Brokers					
Clearing firm	0.00	0.00	0.02	0.01	0.04
Exchange	0.00	0.00	0.06	0.01	0.07
Wholesaler	14.59	8.19	44.71	32.41	99.90
Total	14.60	8.20	44.78	32.42	100.00

This table shows the percentage of market orders, marketable limit orders, non-marketable limit orders, and other orders that retail brokers route to different types of venues in March 2022. Other venues include any other venue to which a retail broker routes an order other than a wholesaler or an exchange. Twenty-three retail brokers are identified as PFOF retail brokers that receive payments for routing orders in listed options to wholesalers or clearing firms. Twenty-two non-PFOF retail brokers are identified as retail brokers that do not receive monetary compensation when they route orders in listed options to wholesalers. The reports are aggregated together using a weighting factor based on an estimate of the number of orders non-directed orders each broker-dealer routes each month. The number of orders is estimated by dividing the number of market orders a retail broker routes according to a CAT analysis by the percentage of market orders the retail broker routes for March 2022.

Similar market forces that drive internalization of orders in the equity markets exist in option markets as well.[441] In the options market, internalization [442] can occur on the limit order book or through price improvement auction mechanisms.[443] Internalization on the limit order book requires the wholesalers' own quotes to be at the NBBOs, and some exchanges develop certain features (*e.g.,* specialist model) [444] to facilitate and improve the internalization rate. From the Consolidated Audit Trail data for March 2022, the Commission estimates that wholesalers internalize 70.6% of the single-leg orders routed to the price improvement auctions and 19.1% of the single-leg orders routed to the limit order books.[445] For multi-leg orders, the internalization rates are 82.4% and 9.27% respectively.[446] Combining single-leg and multi-leg orders, the Commission estimates wholesalers internalize around 31% of the executed orders routed to the option exchange: 73% of orders routed to price improvement auctions and 17% of orders routed to the limit order book.[447]

[440] *See supra* section V.C.2.e.i.

[441] *See supra* section V.B.3.i.(d).

[442] In contrast to the market for NMS Stocks, NMS options are typically internalized after being sent to an exchange. Broker-dealers wishing to internalize orders are able to use the rules of exchanges to internalize some orders completely, through routing to affiliated market makers (partial internalization), or through price improvement auctions (partial internalization), which offer competition advantages over competing market participants.

[443] Price improvement auctions can be used by institutional broker-dealers to seek price improvement opportunities for their institutional clients' orders as well. Some exchanges have developed auctions for large orders with an ''all-or-none'' feature.

[444] ''Specialist model'' is a general term. The term to describe a ''specialist'' varies by exchange. Some exchanges may formally call this ''Designated Market Marker,'' or other similar terms.

[445] A single-leg order involves buying or selling a single options series. For example, buying a call option on XYZ stock with a strike price of $5.00.

[446] A multi-leg order involves buying or selling multiple options series simultaneously. For example, buying a call option on XYZ stock with a strike price of $5.00, and, in the same order, selling a call option on XYZ stock with a strike price of $10.00.

[447] The internalization rate measure throughout this paragraph is based on the contract volume. A given customer's order can be partially internalized. For example, suppose a wholesaler routes an order with 10 contracts to a price improvement auction and is allocated 7 contracts after the auction concludes, then the wholesaler is deemed as internalizing 70% of the order.

TABLE 11—EXECUTION PROTOCOL AND ALLOCATION OF LIMIT ORDER

[Book by options exchange]

Group	Exchange	Specialist	Auction	Pro-rata
BOX	BOX	Y	Y	Y
CBOE	CBOE C2	N	N	Y
	CBOE	Y	Y	Y
	CBOE BZX	N	N	N
	CBOE EDGX	N	Y	Y
MIAX	MIAX	Y	Y	Y
	MIAX Emerald	Y	N	Y
	MIAX PEARL	N	N	N
Nasdaq	Nasdaq BX	Y	Y	Y
	Nasdaq GEMX	Y	Y	Y
	Nasdaq ISE	Y	Y	Y
	Nasdaq MRX	Y	Y	Y
	Nasdaq NOM	N	N	N
	Nasdaq PHLX	Y	N	Y
NYSE	NYSE American	Y	Y	Y
	NYSE Arca	N	Y	N

To internalize a given customer's marketable order on the exchange limit order book, the wholesaler needs to provide a quote that is at the NBBO.[448] This form of internalization may not yield complete internalization of the order because there could be quotes from other market makers, some of whom are quoting at the same price and may have priority over the wholesaler (*e.g.,* the other market makers will have priority if the wholesaler joins the NBBO set by other market makers in a price-time priority exchange or they quote with a larger trading interest than the wholesaler in a pro-rata exchange). Being a specialist enables the wholesaler to further internalize more orders more than a pro-rata allocation model would allow.[449] Some exchanges appoint a firm to be the specialist for each equity option class. According to Table 11, 10 out of 16 option exchanges adopt the specialist model for quoting and executing single-leg orders on the limit order book. The specialist has greater quoting requirements than other exchange members or market makers. To compensate specialists for continuous provision of two-sided quotes to match buyers and sellers, the exchanges reward specialists by allowing the specialist to receive a greater allocation (40%+) of incoming orders if they are at the NBBO and/or provide them with a guarantee of 100% allocation of orders of 5 contracts or less (the ''five-lot rule''). Some exchanges allow executing brokers to route customers' orders in the form of directed orders to the affiliated market makers with heightened allocation (40%+) and small order guarantees with 100% of the orders of one contract. According to the table, all exchanges that adopted the specialist model are pro-rata exchanges, meaning that trading interests are allocated based on the size of the quote in proportion to the total depth on the NBBO. Therefore, when wholesalers are also specialists, wholesalers may receive a disproportionate allocation of the customer order, even though, as the specialist, the wholesaler might not be providing the most depth at the best prices. A recent academic study[450] shows that the execution quality is worse for specialists who pay PFOF than the specialists who do not: the realized spreads for the 400 to 500 share orders, which can be fully internalized by the specialists, are 3 basis points higher when the specialists pay PFOF compared to when the specialists do not pay PFOF, suggesting that the process is not fully efficient.

Another way to internalize customer orders without being a specialist is through price improvement auctions. Some option exchanges[451] provide two-sided price improvement mechanisms for both single-leg and multi-leg orders originated from customers. To start a price improvement auction (PIA), the affiliated market maker (''MM'') of an executing broker usually submits a two-sided order representing a customer's order and its own ''contra'' order, which is on the opposite side of the customer's order, to the exchange. The PIA usually lasts for 0.1 seconds, during which time, the exchange would expose and broadcast the customer order to other exchange members (competing market participants) for price improvement opportunity over the current NBBO price, and the competing market participants then submit responding orders to the auction to the exchange. After the PIA concludes, the allocation of the execution will begin with the best price received from the contra order and responding orders and end with the price where the remaining volume of the customer's order will be filled. In addition to the previously mentioned benefits to specialists, option exchanges have developed certain arrangements or schedules to give wholesalers advantages to conduct operations on the exchange by further facilitating the ability of wholesalers to internalize the customer orders they receive through the auctions. Such preferential advantages include, but are not limited to the following: (1) asymmetric fee schedule in which initiating MMs pay a much smaller transaction fee than competing market participants, (2) price auto-match in which the exchanges allow the PIA initiating exchange members to match the best price among the responding orders from the competing market participants, and (3) guaranteed allocation in which the initiating exchange members are allowed to execute at least 40% of the customer's order exposed in a PIA. Academic studies suggest that the preferential treatment of wholesalers provided by the exchanges leads to less

[448] Internalizing a customer's non-marketable limit order with a price between the prevailing NBBO spread would require the wholesaler to route the customer's order to the limit order book first and then submit an immediate-or-cancel order to fill the limit order. The internalization rate may not be 100% since other market makers can react to the limit order after the exchange books the book in the limit order book.

[449] All the exchanges that appoint specialists are pro-rata exchanges. In a pro-rata exchange, allocations are proportional to the trading interests at the best prices for each options series.

[450] *See* Ernst & Spatt, *supra* note 77.

[451] According to Table 11, 10 out of 16 option exchanges provide price improvement auction mechanisms to wholesalers and other executing brokers.

than fully competitive liquidity provision in auctions.[452]

iii. Payment for Order Flow in NMS Securities [453]

Rule 10b–10(d)(8) defines payment for order flow as any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration to a broker or dealer from any broker or dealer, national securities exchange, registered securities association, or exchange member in return for the routing of customer orders by such broker or dealer to any broker or dealer, national securities exchange, registered securities association, or exchange member for execution.[454] PFOF includes any payments from a wholesaler to a retail broker-dealer in return for order flow. It also includes any exchange rebates paid to a broker-dealer in return for sending orders to the exchange. PFOF has the potential to adversely affect routing decisions to the extent it is not directly passed on to the customer.[455] However, it is also possible that there is a tradeoff between PFOF and execution quality that does not adversely affect order routing decisions.

Studies have found that PFOF may adversely affect order execution quality. For example, one study looked at the effect of exchange rebates in the routing of non-marketable limit orders in the equities markets and found evidence that broker-dealers tend to route customer orders to the venues that pay high rebates, but offer lower execution quality in the form of lower fill rates and longer times to order execution.[456] Similarly, in the options market, a study [457] finds that some brokers tend to route non-marketable limit orders for listed options to exchanges that offer large rebates. The study's analysis indicates that non-marketable limit orders routed to exchanges that pay higher liquidity rebates receive worse execution quality than non-marketable limit orders routed to exchanges that do not offer liquidity rebates. One study finds no relation, potentially as a result of low statistical power.[458] Evidence on the potential adverse effects appears stronger in the options market than in the equity market.[459] Section V.B.3.(a).iii.a presents Commissions analysis.

a. PFOF Amounts and Rates

Table 12 summarizes information on PFOF payments in NMS Stocks and Options for Q1 2022 received by 52 retail broker-dealers and aggregated based on the order type and type of trading venue.[460] Wholesalers paid more than $750 million dollars, about 94% of the total PFOF payments of approximately $850 million. Note also that PFOF for options represent the largest share of these payments (70%), equal to more than $550 million. In addition, PFOF for non-S&P 500 orders was about 24% of total wholesale PFOF disbursements, substantially larger than the 6% share of PFOF paid for S&P 500 orders. Finally, note that wholesaler PFOF for marketable orders (market and marketable limit orders) was equal to 51% of all wholesaler PFOF, while PFOF for non-marketable limit orders equaled about 38% of wholesaler PFOF disbursements.

TABLE 12—AGGREGATED 606 PAYMENTS FOR Q1 2022 TO RETAIL BROKER-DEALERS BY VENUE TYPE, ASSET CLASS, AND ORDER TYPE

	Market orders	Marketable limit orders	Non-marketable limit orders	Other orders	Total
Wholesalers:					
S&P 500	$20,169,292	$6,861,406	$15,675,087	$4,963,329	$47,669,114
Non-S&P 500	74,313,900	45,711,676	53,253,329	14,502,924	187,781,828
Options	69,221,438	185,987,581	235,507,979	70,361,954	561,078,951
Total	163,704,629	238,560,663	304,436,395	89,828,206	796,529,894
National Securities Exchanges:					
S&P 500	−2,883	−1,600,326	4,151,796	−1,058,038	1,490,549
Non-S&P 500	−14,624	−13,794,526	24,538,646	−2,224,848	8,504,649
Options	−54,106	4,838,611	19,019,112	13,334,942	37,138,559
Total	−71,613	−10,556,240	47,709,554	10,052,056	47,133,756
Other Trading Venues:					

[452] *See supra* note 450 and *see also* Terrance Hendershott, Saad Khan, & Ryan Riordan, Option Auctions, (Working paper, May 15, 2022) available at *https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=4110516* (retrieved from Elsevier database).

[453] *See infra* section V.B.3.(c) for a discussion of PFOF in the market for crypto asset securities.

[454] *See supra* note 43 for discussion of payment for order flow definition under Rule 10b–10(d)(8). In certain circumstances, broker-dealers are required to disclose their PFOF arrangements. For example. Rule 10b–10 requires extensive disclosures in confirmations, including specific disclosures about PFOF. Additionally, Rule 606 reports require the disclosure of PFOF arrangements and the average PFOF rates broker-dealers receive on non-directed orders in NMS stocks and options for routing orders to a trading venue.

[455] FINRA has stated that obtaining price improvement is a heightened consideration when a broker-dealer receives payment for order flow and it is especially important to determine that customers are receiving the best price and execution quality opportunities notwithstanding the payment for order flow. *See* FINRA Regulatory Notice 21–23, *supra* note 294.

[456] *See, e.g.,* Robert H. Battalio, Shane A. Corwin & Robert H. Jennings, *Can Brokers Have It All? On the Relation Between Make-Take Fees and Limit Order Execution Quality,* 71 J. Fin. 2193 (2016), *available at https://onlinelibrary.wiley.com/doi/10.1111/jofi.12422/full* (''We identify retail brokers that seemingly route orders to maximize order flow payments by selling market orders and sending limit order to venues paying large liquidity rebates. . . . [W]e document a negative relation between limit order execution quality and rebate/fee level. This finding suggests that order routing designed to maximize liquidity rebates does not maximize limit order execution quality. . . .'').

[457] *See, e.g.,* Robert Battalio, Todd Griffith & Robert Van Ness, *Do (Should) Brokers Route Limit Orders to Options Exchanges That Purchase Order Flow?,* 56 J. Fin. Quan. Anal. 183 (2020).

[458] *See* Christopher Schwarz, et. al., *The 'Actual Retail Price' of Equity Trades* (Working paper, September 14, 2022) (''Schwarz''), *available at https://ssrn.com/abstract=4189239* (retrieved from Elsevier database) do not find a relationship between the amount of PFOF a retail broker receives and the amount of price improvement their customers' orders receive. However, *see infra* note 466 for a discussion comparing the results in Table 16.

[459] *See* Ernst & Spatt, *supra* note 77, at 1 (''We exploit variation in the Designated Market Maker (DMM) assignments at option exchanges to show that retail traders receive less price improvement, and worse prices, from those DMMs who pay PFOF to brokers.''). The paper also finds PFOF amounts from wholesalers in the NMS stock market are small (compared to the options market) and that individual investor orders executed at wholesalers receive meaning price improvement.

[460] The PFOF data was aggregated from Rule 606 reports from the 52 retail brokers. The order types are based on those included in Rule 606 reports. Other Trading Venues includes any other trading center to which a retail broker routes an order other than a wholesaler or an exchange, including ATSs. *See supra* note 404 for more details on what is included in Rule 606 reports.

TABLE 12—AGGREGATED 606 PAYMENTS FOR Q1 2022 TO RETAIL BROKER-DEALERS BY VENUE TYPE, ASSET CLASS, AND ORDER TYPE—Continued

	Market orders	Marketable limit orders	Non-marketable limit orders	Other orders	Total
S&P 500	−14,335	−87,299	514,713	16,715	429,794
Non-S&P 500	41,513	−1,397,974	1,736,516	−5,007	375,049
Options	185,367	−305,579	4,740,343	649,611	5,269,742
Total	212,545	−1,790,852	6,991,572	661,319	6,074,585
Grand Total	163,845,562	226,213,571	359,137,521	100,541,581	849,738,235

This table shows the aggregate payments made from different types of venues in Q1 2022 to 52 broker-dealer based on their Rule 606 reports. The table breaks out payments from exchanges, wholesalers, and other trading venues for market orders, marketable limit orders, non-marketable limit orders, and other orders in S&P 500 stocks, Non-S&P 500 stocks and Options. Other Trading Venues includes any other trading center to which a retail broker routes an order other than a wholesaler or an exchange, including ATSs.

Table 13, Panel A summarizes the total PFOF dollars paid to the 52 broker-dealers in Q1 2022 based on their total assets. The majority of payments, more than 750 million dollars, went to broker-dealers with more than 1 billion dollars in assets. As shown earlier, most of this payment came from the options market.

Table 13, Panel B summarizes the distribution of total PFOF dollars paid to the 52 broker-dealers as a percentage of their total revenue in Q1 2022. On average, the payments reported on Rule 606 reports accounted for 21% of the broker-dealer's total revenue. However, there was considerable variation across broker-dealers. Rule 606 reported payments accounted for less than 5.9% of total revenue for over 50% of the broker-dealers in the sample. However, for the top 10% of broker-dealers by revenue, Rule 606 reported payments accounted for more than 74% their total revenue in Q1 2022.

TABLE 13—RULE 606 REPORT BROKER-DEALER SAMPLE AND PAYMENTS BY ASSET SIZE AND DISTRIBUTION OF PAYMENTS AS PERCENT OF BROKER-DEALER TOTAL REVENUE

Variable	Size of Broker-Dealer (Total Assets)						
	>50bn	1bn–50bn	500mn–1bn	100mn–500mn	10mn–100mn	1mn–10mn	<1mn
Panel A: Broker-Dealers and Payments in Rule 606 Sample by Asset Size							
Number of Firms in 606 Sample	10	20	2	13	7	0	0
Number of Firms with Positive 606 Payments	5	11	1	5	4	0	0
606 Total Dollar Payments	$323,768,783	$437,613,668	$4,122	$72,400,510	$15,951,151	$0	$0
606 Total Equity Payments	$112,360,651	$108,639,249	$4,122	$23,525,311	$1,721,651	$0	$0
606 Total Options Payments	$211,408,132	$328,974,419	$0	$48,875,200	$14,229,501	$0	$0

Panel B: Distribution of Firm Payments Reported in Rule 606 as Percentage of Broker-Dealers' Total Revenue							
	Mean	Std Dev	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl
606 Total Payments % of Total Revenue	20.94%	32.31%	0.02%	0.08%	5.82%	28.66%	74.29%
606 Equity Payments % of Total Revenue	6.67%	11.57%	0.00%	0.02%	1.24%	7.70%	16.23%
606 Options Payments % of Total Revenue	14.28%	27.52%	0.00%	0.02%	2.52%	17.50%	49.96%

This table summarizes total payments from the Q1 2022 Rule 606 Reports for 52 broker-dealers based on their total assets and total revenue. Panel A shows how many broker-dealers fall within each asset size category and the total payments reported on their Rule 606 Reports that they received in the equity and options markets from venues to which they routed orders in Q1 2022. Panel B shows the distribution of the equity and options payments as a percentage of a firm's total revenue for Q1 2022. Total Assets are estimated by Total Assets (allowable and non-allowable) from Part II of the FOCUS filings (Form X–17A–5 Part II) from Q4 2021 and correspond to balance sheet total assets for the broker-dealer. Total Revenue is reported by each broker-dealer during Q1 2022 in their FINRA Supplemental Statement of Income Form.

From the Rule 606 reports of 15 major retail brokers for listed options, we can infer that as of Q4 of 2020, 11 of them had PFOF arrangements with wholesalers, one firm routed the orders directly to the exchanges, one firm routed the orders to its parent firm, and the remaining two firms routed the orders to wholesalers but did not have PFOF arrangements. According to the Rule 606 reports, wholesalers paid $560 million in PFOF to the 11 retail brokers for non-directed orders in listed options in Q1 2022.

Table 14 presents the average payment rates reported in Rule 606 reports for PFOF broker-dealers in listed options in Q1 2022. The statistics are further broken down by trading venue and order type, with rates given in cents per 100 shares.[461] The average PFOF rates are negative for the marketable limit orders and other orders routed to exchanges, but the rate is positive for non-marketable limit orders suggesting the brokers route most of the non-marketable limit orders to the maker-taker exchanges to collect rebates. According to the table, the average PFOF rates paid by clearing firms are smaller but not much smaller than wholesalers across all order types suggesting that clearing firms pass majority of the monetary compensation from wholesalers to the retail brokers with which they have PFOF arrangements.

[461] The PFOF rate is missing for the market orders routed directly to the options exchanges because, according to the rule 606 reports, these brokers neither paid fees nor received rebates from exchanges for the market orders in Q1 2022.

TABLE 14—AVERAGE RULE 606 PAYMENT RATES FOR Q1 2022 TO PFOF BROKER-DEALERS BY VENUE TYPE FOR LISTED OPTIONS

Venue type	Market orders	Marketable limit orders	Non-marketable limit orders	Other orders
Exchange	N/A	−43.1	42.6	−59.6
Clearing firm	38.4	33	35.2	39.8
Wholesaler	39.9	52.5	51.8	40.4

This table shows the average payment rates (in cent per 100 shares) made from different types of venues in Q1 2022 to 23 broker-dealers that received PFOF from wholesalers based on their Rule 606 reports. The table breaks out average rates from wholesalers and clearing firms for market orders, marketable limit orders, non-marketable limit orders, and other orders in listed options. Twenty-three retail brokers are identified as PFOF retail brokers that receive payments for routing orders to wholesalers or clearing firms. This analysis uses the retail broker-dealer's Rule 606 report if it publishes one or the Rule 606 report of its clearing broker if the retail broker did not produce a Rule 606 report itself. The reports are aggregated using a weighting factor equal to the PFOF amount.

b. Empirical Relation Between PFOF and Price Improvement

Although wholesalers provide individual investor orders with price improvement relative to exchanges, the magnitude of this price improvement is not uniform across retail brokers.[462] Analysis in this section shows that two factors driving variation in the price improvement wholesalers provide are the amount of PFOF the wholesaler pays to the retail brokers and the average adverse selection risk posed by the customers of the retail broker.

Commission analysis presented in Table 15 compares average execution quality for PFOF and non-PFOF brokers for executed marketable orders of individual investors under $200,000 in NMS common stocks and ETF orders that are routed to wholesalers.[463] Results are divided between orders that were executed by the wholesaler on a principal basis (*i.e.,* internalized) and those executed via other methods (the majority of which are in a riskless principal capacity).

TABLE 15—COMPARISON OF PFOF AND NON-PFOF BROKER EXECUTION QUALITY IN NMS COMMON STOCKS AND ETFS

	Principal transactions		Other transactions	
	Non-PFOF	PFOF	Non-PFOF	PFOF
Average Price	$41.79	$31.35	$23.90	$12.47
Wholesaler (WH) Share Volume (billion shares)	14.32	55.96	3.40	13.43
WH Dollar Volume (billion $)	$598.44	$1,754.36	$81.23	$167.41
Pct of Executed Dollar Volume	23.00%	67.44%	3.12%	6.44%
WH Effective Spread (bps)	1.50	1.86	4.57	5.75
WH Realized Spread (bps)	0.88	0.85	0.83	0.66
WH Realized Spread Adj PFOF (bps)	0.88	0.43	0.83	−0.55
WH Price Impact (bps)	0.62	1.01	3.74	5.07
WH E/Q Ratio	0.30	0.37	0.78	0.67
WH Pct Executed with Price Improvement	90.59%	94.32%	46.89%	62.87%
WH Conditional Amount Price Improvement (bps)	2.75	2.34	2.31	4.30

The table summarizes execution quality statistics from the CAT retail analysis in Common Stocks and ETFs based on whether the retail broker MPID receives PFOF from wholesalers (PFOF) or does not (Non-PFOF) and whether the wholesaler executed the individual investor order in a principal capacity or in another capacity (*i.e.,* in an agency or riskless principal capacity). A broker-dealer MPID was determined to be a PFOF broker if the broker-dealer reported receiving PFOF on its Q1 2022 606 report, or if the report of its clearing broker reported receiving PFOF in the event that the broker did not publish a Rule 606 report. Broker-dealers or clearing brokers that handled orders on a not held basis and did not disclose PFOF information in their Rule 606 report were classified as PFOF brokers if disclosures on their websites indicated they received PFOF. Twenty-two MPIDs belonging to 19 retail brokers were classified as receiving PFOF. The majority of the other transactions are executed by the wholesaler in a riskless principal capacity. *See supra* Table 6 for additional details on the sample and metrics used in the analysis. WH Realized Spread Adj PFOF is the estimated realized spread in bps earned by the wholesaler after adjusting the realized spread for the estimated PFOF they pay to retail brokers.[a] Share-weighted percentage metrics are averaged together at the individual PFOF-execution capacity-stock-week-order-size category level for the wholesaler sample using the methodology in Table 6. Weighted averages for the metrics are then calculated for each PFOF-execution capacity category by averaging across execution capacity-stock-week-order size category levels based on their total dollar transaction volume during the sample period in the wholesaler CAT sample. This analysis uses data from prior to the implementation of the MDI Rules and specific numbers may be different following the implementation of the MDI Rules. *See supra* note 415

[a] *See infra* note 467 for further details on estimated PFOF retail brokers receive. Realized spreads for marketable orders routed to wholesalers are adjusted for PFOF by subtracting the estimated dollar per share PFOF rate the retail broker receives from the average per share dollar realized spread in the execution capacity-stock-week-order type-order size category and then dividing by the average transaction price to calculate the percentage metric as discussed in further detail in *supra* Table 6.

The results in Table 15 show that wholesaler internalized orders (Principal Transactions) originating from PFOF brokers are associated with (1) higher effective spreads, (2) higher E/Q ratios, and (3) slightly smaller price improvement on orders that achieved at least some price improvement (WH Conditional Amount Price

[462] Several recent working papers found that price improvement varies across retail brokers; *see* Schwarz, *supra* note 458, and Bradford Lynch, *Price Improvement and Payment for Order Flow: Evidence from A Randomized Controlled Trial* (Working paper, June 27, 2022), *available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4189658* (retrieved from Elsevier database) (''Lynch''). These studies only included trades that were initiated by the authors, and do not include other trades that were handled by the brokers in their samples. In contrast, the Commission's analysis is based on the data reflecting all orders routed by 58 broker-dealer MPIDs.

[463] Some brokers that do not accept PFOF for orders in equities accept PFOF for orders in options. Certain items in Table 15 may also be affected by MDI Rules once they are implemented. *See supra* note 415.

Improvement), relative to wholesaler internalized orders originating from non-PFOF brokers. However, the results also show that orders internalized from non-PFOF brokers also have lower adverse selection risk and similar realized spreads (before PFOF is paid), indicating the lower adverse selection risk could explain differences in the observed execution quality.

Because the results in Table 15 are averages across broker-dealers, they cannot disentangle the effects of PFOF on execution quality from differences in the adverse selection risk of different broker-dealers.[464] In order to control for these differences, the Commission analyzed the effects of PFOF and differences broker-dealer adverse selection risk on execution quality in a regression framework that controls for other factors that could affect the price improvement provided by wholesalers.

Table 16 displays regression results from Commission CAT retail analysis of NMS Common stock and ETF orders,[465] and shows that the previous results indicating that brokers that receive PFOF receive inferior execution quality are robust to the inclusion of controls for differences in the type of order flow coming from different broker-dealers.[466] The regression tests whether there is a relationship between execution quality and the amount of PFOF a broker-dealer receives and includes several individual stock- and market-level controls[467] as well as the retail broker's average price impact and size (as measured by percent of executed individual investor dollar volume). Four different measures of execution quality are used for the dependent variable, including E/Q ratio, effective spread, realized spread, and price improvement.[468]

TABLE 16—REGRESSION ANALYSIS SHOWING RELATIONSHIP BETWEEN EXECUTION QUALITY AND PFOF IN NMS COMMON STOCKS AND ETFS

Variables	(1) E/Q ratio	(2) Effective spread (bps)	(3) Realized spread (bps)	(4) Amount price improvement (bps
PFOF Rate	0.0132*** [2.82]	0.217*** [6.31]	0.211*** [7.13]	−0.170*** [−5.52].
Stock Share Volume	0.0379 [0.51]	−0.0462 [−0.14]	−0.886* [−1.65]	−0.533** [−2.53].
Stock VWAP	−0.000028 [−1.06]	0.000233 [0.61]	−0.000450 [−0.78]	0.000014 [0.04].
Stock Return	−0.000273 [−0.21]	−0.0200* [−1.93]	−0.0120 [−0.36]	0.00840 [0.84].
VIX	0.00968*** [7.29]	0.0122* [1.79]	0.0607*** [2.85]	−0.000256 [−0.05].
Market Return	−0.00710** [−2.02]	0.00787 [0.36]	0.00686 [0.15]	−0.0150 [−0.96].
Market Dollar Volume	0.0306*** [9.70]	0.0641*** [3.44]	0.164*** [3.07]	−0.0390*** [−2.69].
Stock Avg Effective spread	0.00700*** [3.34]	0.122*** [6.07]	−0.0455* [−1.94]	0.00746 [0.52].
Stock Avg Realized spread	−0.00169* [−1.87]	−0.00902 [−1.45]	0.0730*** [2.98]	−0.00552 [−1.48].
Stock Quote Volatility	0.457** [2.09]	2.232 [1.05]	−1.799 [−0.65]	4.458** [2.03].
Broker-Dealer Average Price Impact	0.145*** [14.74]	0.414*** [9.83]	0.316*** [8.50]	−0.417*** [−10.21].
Broker-Dealer Pct Volume	−2.45e–05 [−0.07]	−0.00207* [−1.76]	−0.00546*** [−3.77]	0.000124 [0.12].
Average Trade Qspread	−0.00720*** [−10.12]	0.517*** [19.78]	0.378*** [10.84]	0.392*** [21.14].
Wholesaler Fixed Effects	Yes	Yes	Yes	Yes.
Order Size Category Fixed Effects	Yes	Yes	Yes	Yes.
Stock Fixed Effects	Yes	Yes	Yes	Yes.
Observations	13,365,122	13,365,122	13,365,122	12,453,440.

[464] They also cannot disentangle the effects of differences in the stocks traded by PFOF and non-PFOF brokers.

[465] Certain items in this Table 16 may also be affected by the amendments in the MDI Rules once they are implemented. *See supra* note 415.

[466] Schwarz et. al., *supra* note 458, did not find a relationship between the amount of PFOF a retail broker receives and the amount of price improvement its customers' orders receive. However, they noted that the variation in the magnitude of price improvement they saw across retail brokers was significantly greater than the amount of PFOF the retail broker received, which could indicate their sample was not large enough to observe a statistically significant effect. Similarly, when we examine variation in effective spreads across retail brokers based on their average price impact (*i.e.,* their average adverse selection risk), we observe that the differences between the effective spreads of PFOF and non-PFOF brokers as shown in Table 15, *infra,* are significantly smaller than the differences observed across retail brokers based on variation in their average price impacts. Lynch, *supra* note 462, compares the execution quality of similar orders routed to two different retail brokers that receive different amounts of PFOF from wholesalers. The study finds that the retail broker that received a greater amount of PFOF from wholesalers (*i.e.,* had a higher per share PFOF rate reported in their Rule 606 reports) provided less price improvement compared to a similar order routed to a retail broker that received less PFOF. Importantly, both studies only included trades that were initiated by the authors and do not include other trades that were handled by the brokers in their samples, preventing them from examining the attributes of a typical retail order handled by each broker. As such, these studies do not observe the variation in price improvements that reflect differences in the adverse selection risk associated with the order flow of different brokers, and hence, likely conflate the impacts of PFOF with those of adverse selection risk. That is, these studies cannot control for the possibility that a wholesaler would offer smaller price improvement to order flows with higher adverse selection risk. In contrast, the Commission relies on CAT data to examine the adverse selection risk at the broker level, which is a determinant of the amounts of price improvements that a given wholesaler would offer to different brokers. The regression framework in *infra* Table 16 controls for the adverse selection risk of the retail broker and finds that is has a negative relationship with the magnitude of price improvement their customers' orders receive. We also find a negative relationship between the amount of PFOF a broker-dealer receives and the magnitude of the price improvement their customers' orders receive after controlling for the retail broker adverse selection risk.

[467] Broker-dealer cents per 100 shares PFOF rates (dollar PFOF rates) are determined from their Q1 2022 Rule 606 reports (*see supra* Table 2) or the Rule 606 reports of its clearing broker reported receiving PFOF in the event that the broker did not publish a Rule 606 report. A PFOF rate of 20 cents per 100 shares was used for the introducing broker-dealers and clearing broker that reported handled orders on a not held basis and did not disclose PFOF information in their Rule 606 report but disclosed on their website that they received PFOF for their order flow. 20 cents per 100 shares was the PFOF rate that the clearing broker that handles orders on a not held basis disclosed on their website that they received. Twenty-two MPIDs belonging to 19 retail brokers were classified as receiving PFOF. Dollar PFOF rates for each retail broker were merged with the corresponding stock (S&P 500 and non-S&P 500) and order type in the CAT sample. For the regressions in Table 16, percentage PFOF rates are estimated in basis points by dividing the PFOF cents per 100 share values from Rule 606 reports (after converting them to dollar per share values) by the stock-week VWAP for the security in the CAT sample. Stock-level controls include average share volume, VWAP, return, average effective spread, average realized spread, and average quote volatility during a week. Market-level controls include market volatility, market return, and the market's average daily trading volume during week.

[468] The regression also includes variables to control for differences in execution quality across different wholesalers and across different order size categories. The analysis examines trades in Q1 2022 that wholesalers execute in a principal capacity from market and marketable limit orders from individual investors that are under $200,000 in value and are in NMS Common Stocks and ETFs. *See supra* Table 6 for further discussion on the sample. The unit of observation for the regression is the average execution quality provided to trades that are aggregated together based on having the same stock, week, order type, order size category, wholesaler, and retail broker MPID. The coefficients are estimated by weighting each observation by the total dollar volume of trades executed in that observation.

TABLE 16—REGRESSION ANALYSIS SHOWING RELATIONSHIP BETWEEN EXECUTION QUALITY AND PFOF IN NMS COMMON STOCKS AND ETFS—Continued

Variables	(1) E/Q ratio	(2) Effective spread (bps)	(3) Realized spread (bps)	(4) Amount price improvement (bps
Adjusted R-squared	0.279	0.574	0.060	0.594.

This table presents the results of a regression analysis examining the effect of retail brokers receiving PFOF from wholesalers on levels of price improvement and the execution quality of their customers' orders when the wholesaler internalizes the order on a principal basis.

The analysis examines trades in Q1 2022 that wholesalers execute in a principal capacity from market and marketable limit orders from individual investors that are under $200,000 in value and are in NMS Common stocks and ETFs. *See supra* Table 6 for further discussion on the CAT retail sample. The unit of observation for the regression is the average execution quality provided to trades that are aggregated together based on having the same stock, week, order type, order size category, wholesaler, and retail broker MPID. Weighted regression are performed based on the total dollar value executed by the wholesaler in that observation (*i.e.,* total shares executed for all orders that fit within that stock-week-retail broker-wholesaler-order type-order size category). This means that the regression coefficients capture the effect on execution quality on a per-dollar basis.

Dependent variables include: the average E/Q ratio of the shares traded; the average percentage effective spread of the shares traded measured in basis points; the average percentage realized spread of the shares traded measured in basis points; and the average percentage value of the amount of price improvement measured in basis points, conditional on the order being price improved. These variables are from the CAT retail analysis and described in *supra* Table 6.

Explanatory variables include: PFOF Rate is the retail brokers' PFOF rates in bps (the per share rates were determined from retail broker Rule 606 reports and divided by the VWAP of the executed shares in the sample to determine the PFOF rate on a percentage basis, see supra note 467); Broker-Dealer Pct Volume is the retail broker size (in terms of percentage total executed dollar trading volume in the sample); Stock Share Volume is the stock's total traded share volume during the week (from TAQ in billions of shares); Stock VWAP is the VWAP of stock trades during the week (from TAQ); Stock Return is the stock's return during the week (from CRSP 1925 US Stock Database, Ctr. Rsch. Sec. Prices, U. Chi. Booth Sch. Bus. (2022)); VIX is the average value of the VIX index during the week (from CBOE VIX data); Market Return is the average CRSP value weighted market return during the week, Market Dollar Volume is the total market dollar trading volume during the week (from CRSP 1925 US Stock Database, Ctr. Rsch. Sec. Prices, U. Chi. Booth Sch. Bus. (2022)); Stock Avg Effective spread is the stock's share weighted average percent effective half spread during the week measured in basis points (from TAQ); Stock Avg Realized spread is the stock's share weighted average percent realized half spread during the week measured in basis points (from TAQ); Stock Quote Volatility is the stock's average 1 second quote midpoint volatility measured in basis points (from TAQ); Broker-Dealer Average Price Impact is calculated for each Retail Broker MPID's by share weighting their average percentage price impact half spread within an individual NMS common stock or ETF and then averaging across stocks using the weighting of the dollar volume the retail broker MPID executed in each security (see supra Table 6 for additional details on how the metric is constructed); Average Trade Qspread is the average percentage quoted half spread at the time of order submission for orders in that stock-week-retail broker-wholesaler-order type-order size category measured in basis points; wholesaler fixed effects (*i.e.,* indicator variables for each wholesaler that control for time-invariant execution quality differences related to each wholesaler); order-size category fixed effects (*i.e.,* indicator variables for each order-size category that control for time-invariant execution quality differences related to order-size category); and individual stock fixed effects (*i.e.,* indicator variables for each stock that control for time-invariant execution quality differences related to individual stocks). The order size categories include less than 100 shares, 100–499 shares, 500–1,999 shares, 2,000–4,999, 5,000–9,999 shares, and 10,000+ shares. Brackets include t-statistics for the coefficients based on robust standard errors that are clustered at the stock level. ***, **, and * indicate the t-statistics for the coefficients are statistically significant at the 0.01, 0.05, and 0.1 levels, respectively.

This analysis uses data from prior to the implementation of the MDI Rules and specific numbers may be different following the implementation of the MDI Rules. *See supra* note 415

Regression results in Table 16 support the conclusion that wholesalers provide worse execution quality to brokers that receive more PFOF. The coefficients on the PFOF Rate variable indicates that, all else equal, for the orders wholesalers internalize, execution quality declines as the amount of PFOF paid to the retail broker increases. Orders from retail brokers that receive a greater amount of PFOF have higher E/Q ratios and effective spreads and receive less price improvement. The regression results (as measured by the coefficient on the PFOF Rate variable) indicate that, all else equal, wholesalers earn higher realized spreads on orders for which they pay more PFOF. Note that PFOF is not taken out of the realized spread measure, so the realized spread serves as a proxy for wholesaler's economic profits before any fees are taken out.

The regression results in Table 16 also show that the retail broker's adverse selection risk (as measured by the coefficient on the Broker-Dealer Average Price Impact variable) has a statistically significant effect on the execution quality wholesalers give on trades they internalize. The positive coefficient indicates that wholesalers provide worse execution quality to broker-dealers whose customers' orders pose a greater adverse selection risk.

(b) Fixed Income Securities

i. Corporate Debt Securities

The market for corporate debt securities (''corporate bonds'') represents a significant part of the fixed income market. In July 2022, the average daily par value dollar volume of corporate bond trading was $34.2 billion.[469] Estimates put the annualized growth rate of the corporate bond market at 5.2 percent between 2008 and 2019, a growth rate second only to that of U.S. Treasury securities within the fixed income space.[470]

[469] Average daily par value dollar volume is reported by FINRA each month. *See* FINRA Data, TRACE Monthly Volume Files, *available at https://www.finra.org/finra-data/browse-catalog/trace-volume-reports/trace-monthly-volume-files.* The corporate bond market has over 58,000 outstanding issues. Maureen O'Hara and Xing (Alex) Zhou, *Corporate Bond Trading: Finding the Customers' Yachts,* 48 J. Portfolio Mgt Mkt Microstructure 96, 98 (June 2022), *available at https://jpm.pm-research.com/content/early/2022/06/11/jpm.2022.1.373.*

[470] Vega Economics, *Trends in the U.S. Corporate Bond Market Since the Financial Crisis* (Oct. 12, 2020), *available at https://vegaeconomics.com/trends-in-the-us-corporate-bond-market-since-the-financial-crisis.*

Fixed income securities trading venues (*e.g.,* ATSs, non-ATS trading venues (RFQ platforms), voice methods) compete on fees and trading protocols that help expose retail customer orders to attract order flows from retail broker-dealers. Corporate bond ATSs are primarily used by broker-dealers to trade on behalf of retail customers or to rebalance excess inventories.[471] In September 2021, corporate bond trading on ATSs accounted for 7.7 percent of total TRACE-reported corporate bond trading dollar volume (calculated using bond par value).[472] Currently, the Commission understands that there are 12 ATSs with a Form ATS on file trading corporate bonds.[473] Trading protocols offered on corporate bond ATSs include, among other things, limit order books (LOBs), displayed and non-displayed trading interests, and auctions (*e.g.,* RFQ, bids-wanted-in-competition (BWIC), and offers-wanted-in-competition (OWIC)).

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Table 17—Estimated Transaction Costs and Trade Price Dispersion Across Fixed Income Categories

[471] *See, e.g.,* Matthew Kozora, Bruce Mizrach, Matthew Peppe, Or Shachar & Jonathan Sokobin, *Alternative Trading Systems in the Corporate Bond Market,* Fed. Res. B.N.Y. Staff Report No. 938 (Aug. 2020), available at *https://www.newyorkfed.org/medialibrary/sr938.pdf. See,* Louis Craig, Abby Kim & Seung Won Woo, *Pre-trade Information in the Corporate Bond Market,* SEC Division of Economic and Risk Analysis White Paper (Oct. 2020), *available at https://www.sec.gov/files/corporate_bond_white_paper.pdf.* White papers and analyses are prepared by SEC staff in the course of rulemaking and other Commission initiatives. The U.S. Securities and Exchange Commission disclaims responsibility for any private publication or statement of any employee or Commissioner. White papers express the authors' views and do not necessarily reflect those of the Commission, the Commissioners, or other members of the staff. This staff white paper on corporate bond ATSs finds that large dealers (*i.e.,* those in the highest quartile of trading volume and number of bonds traded) are more likely to provide corporate bond quotes on ATSs than smaller dealers.

[472] *See* FINRA, TRACE Monthly Volume Files, *available at https://www.finra.org/finra-data/browse-catalog/trace-volume-reports/trace-monthly-volume-files.* One commenter referenced similar numbers for 2020, stating that corporate bond trades (including both investment-grade and high-yield bonds) on all ATSs represented 6.4 percent of the trade volume and 18.7 percent of the trade count reported to TRACE. *See* MarketAxess Letter, at 1.

[473] In addition, a small percentage of corporate bonds are exchange-traded on trading systems such as NYSE Bonds and the Nasdaq Bond Exchange. *See generally, https://www.nyse.com/markets/bonds.* Trading volume in exchange-traded bonds was reported to be around $19 billion as of January 2020. *See* Eric Uhlfelder, *A Forgotten Investment Worth Considering: Exchange-Traded Bonds,* Wall St. J. (Jan. 6, 2020) *available at https://www.wsj.com/articles/a-forgotten-investment-worth-considering-exchange-traded-bonds-11578279781.* (Retrieved from Factiva database).

	Panel A: Estimated Effective Spread		
Fixed Income Category	**Retail-Sized Trades (≤$100k)**	**Large-Sized Trades (>$100k)**	**Difference**
Agency	0.35	0.15	**0.20**
Asset-Backed	1.05	0.16	**0.89**
CMO	2.29	0.53	**1.76**
Corporate	0.52	0.25	**0.27**
MBS	0.85	0.20	**0.65**
Municipal	0.57	0.29	**0.28**
Treasury	0.07	0.04	**0.03**

	Panel B: Standard Deviation Ratio		
Fixed Income Category	**Retail-Sized Trades (≤$100k)**	**Large-Sized Trades (>$100k)**	**Difference**
Agency	1.66	2.59	**-0.93**
Asset-Backed	1.63	2.75	**-1.12**
CMO	4.42	4.16	**0.26**
Corporate	2.87	1.92	**0.94**
MBS	1.24	3.78	**-2.54**
Municipal	4.56	4.99	**-0.43**
Treasury	1.38	1.11	**0.27**

This table presents summary statistics for trade price dispersion across fixed income categories (agency, asset-backed, collateralized mortgage obligations (CMO), corporate, mortgage backed securities (MBS), municipal, and treasury). The time period is defined as August 1, 2021 through July 31, 2022. Estimated effective spread and average standard deviation ratio are defined below.

Estimated effective spreads are computed daily for each bond as the difference between the average (par volume-weighted) dealer-to-customer buy price and the average (par volume-weighted) dealer-to-customer sell price, and then averaged across bonds using equal weighting. For each trading day, each security must have at least one customer purchase and one customer sale to be eligible for the analysis.

The daily standard deviation in prices is calculated for each CUSIP, for customer and interdealer secondary markets, by averaging buy and sell order deviations separately. The ratio of standard deviations of customer trade prices and interdealer trade prices is then computed for each CUSIP for each day. Next, the standard deviation ratios are averaged with weights based on the total number of trades in each day, across all days and CUSIPs within each fixed income category. Average Standard Deviation Ratio is defined as:

$$Average\ Standard\ Deviation\ Ratio = \sum_{ij \in \Omega} \frac{\sigma_{ij}^{c}}{\sigma_{ij}^{d}} \omega_{ij}$$

- i is the CUSIP, j is the date
- ω_{ij} is a weight based on the number of trades in CUSIP i on day j
- σ_{ij}^{c} $\left(\sigma_{ij}^{d}\right)$ is the standard deviation of customer (interdealer) prices for CUSIP i on day

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The aforementioned changes in bond market structure have fundamentally lowered the cost of trading. Though the corporate bond market remains subject to periodic and security-specific illiquidity constraints, one recent academic study finds that corporate bond transactions costs have decreased by 70% over the past decade.[474] According to Commission analyses, par volume-weighted average effective

[474] *See* O'Hara and Zhou, *supra* note 469.

spreads [475] calculated in the year ending July 2022 in corporate bond markets were approximately 27 basis points. Liquidity often concentrated in the largest and most recently issued bonds.[476] Additional Commission analyses indicate that the top and bottom quartile of corporate bond effective spreads differ by more than 30 bps.

Effective spreads for retail-sized trades are nearly twice as wide as larger size trades (see Panel A of Table 17).[477] The Commission estimates that effective spreads on riskless principal transactions are approximately 12 bps lower for retail-sized corporate bond trades, but the difference between large size trade effective spreads remains wide at 26 bps.

The standard deviation ratio statistics of Panel B in Table 17 show dispersion in the execution quality for corporate bond trades. The standard deviation ratio statistics compare interdealer trade execution prices to those of customers within a given bond-trading day. Even for large trades, a standard deviation ratio of 1.92 suggests that for every dollar of price dispersion in the interdealer market customers see almost twice the dispersion in prices. For retail trades, this difference increases to 2.87 suggesting an even wider range of price execution quality outcomes.[478]

ii. Municipal Securities

The market for municipal securities (''municipal bonds'') represents another important part of the fixed income market. Unlike in the markets for other fixed income securities, which are mostly owned by institutional investors, retail investors play a prominent role in the ownership of municipal bonds, with 40 percent of municipal bonds held by households and nonprofits as of Q1 2022.[479] This is largely due to the tax-exempt status of most municipal bonds, which makes them attractive to households but less attractive to institutional investors such as pension funds, whose holdings are already tax-deferred or tax exempt. Municipal bond markets also tend to be highly localized, as investors that are located in geographic proximity to an issuer are more likely to be informed about that issuer, and tax benefits are often conferred on investors that are located in the same state as the issuer.[480] Daily trading volumes in the municipal bond market averaged around $9 billion during the 2021 calendar year.[481] Average trade sizes in this market tend to be smaller than in other fixed income markets: in July 2022, 81 percent of trades were for $100,000 or less, reflecting the higher presence of retail investors in this market.[482]

Municipal securities trading venues (*e.g.,* ATSs, non-ATS trading venues (RFQ platforms), voice methods) compete on fees and trading protocols that help expose retail customer orders in order to attract order flows from retail broker-dealers. ATSs play an increasingly important role in the municipal bond market. Between August 2016 and April 2021, an estimated 56.4 percent of municipal bond interdealer trades (26 percent in terms of par volume) were executed on ATSs.[483] Municipal bond ATSs are primarily used by broker-dealers to execute trades on behalf of retail customers or to rebalance excess inventories. ATSs may help to reduce search costs. Indeed, one study finds that dealers are more likely to access ATS systems for trades that are more difficult to price and that face substantial search costs, such as smaller size trades and trades involving municipal bonds with complex features.[484] Accordingly, 90 percent of quotes on municipal bond ATSs are offer quotes.[485] On the other hand, the vast majority of RFQs on municipal bond ATSs are requests for bids, reflecting that RFQ protocols are more likely to be used when customers want to sell. Similar to the case of corporate bond markets, RFQs may instead be preferred by traders that want to limit information leakage, such as in case of large size trades. At least 43.6 percent of interdealer trades (74.1 percent in terms of par volume) in the municipal bond market take place via trading methods that are not ATSs, with 38.3 percent taking place on interdealer platforms and 5.3 percent on broker's broker platforms.[486]

Transaction costs in the municipal bond market have typically been large compared to other markets, and academic studies have attributed these large transaction costs to a lack of price transparency and subsequent information asymmetry between dealers and customers.[487] One MSRB staff report suggests that a movement away from voice trading and towards electronic trading may have helped reduce transaction costs for customer trades by 51 percent between 2005 and 2018.[488] The Commission estimates that effective spreads for retail-sized trades remain approximately 23 basis points higher than that of larger municipal bond trades.

Commission estimates in Panel B of Table 17 show average execution price standard deviation ratios, however, which suggest much higher price dispersion for customers in the municipal bond market relative to other fixed income market segments. For retail-sized trades in municipal

[475] Effective spread calculation is defined in Table 17.

[476] *See A Financial System That Creates Economic Opportunities,* Capital Markets, U.S. Department of the Treasury, October 2017, *available at https://www.treasury.gov/press-center/press-releases/documents/a-financial-system-capital-markets-final-final.pdf* (''Treasury Report'') at 85.

[477] Neither FINRA TRACE nor MSRB RTRS data provide explicit identification of trades as ''retail'' in fixed income markets. We use the widely held convention of retail ''size'' trades of being under $100,000 consistent with studies including Lawrence Harris & Anindya Mehta, *Riskless Principal Trades in Corporate Bond Markets* (Aug. 26, 2020), *available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3681652* (retrieved from Elsevier database) and Griffin, *supra* note 66, in the corporate and municipal bond markets, respectively.

[478] Commission analyses for corporate debt securities trades with no remuneration/markups show the dispersion of customer execution prices was 65% greater than that of interdealer trades, suggesting that price dispersion in customer trades may not solely be driven by disparate markups.

[479] *See,* John Bagley, Marcelo Vieira & Ted Hamlin, *Trends in Municipal Securities Ownership,* at 6, Munic. Sec. Rulemaking Bd (June 2022), *available at https://www.msrb.org/sites/default/files/Trends-in-Municipal-Securities-Ownership.pdf.* Data used by this paper is largely from the Federal Reserve's Financial Accounts of the United States. *Id.,* at 2. *See also infra* note 495 and accompanying text.

[480] *See,* Paul Schultz, *The market for new issues of municipal bonds: The roles of transparency and limited access to retail investors,* 106 J. Fin. Econ. 492, 492 (2012).

[481] *See* Municipal Securities Rulemaking Board, Muni Facts, *available at https://www.msrb.org/News-and-Events/Muni-Facts.*

[482] *See* Municipal Securities Rulemaking Board, Municipal Trade Statistics, *available at https://emma.msrb.org/MunicipalTradeStatistics/ByTradeCharacteristic.aspx.*

[483] *See* Simon Z. Wu, *Characteristics of Municipal Securities Trading on Alternative Trading Systems and Broker's Broker Platforms,* Municipal Securities Rulemaking Board (Aug. 2021), (''Wu (2021)''), *available at https://msrb.org/sites/default/files/MSRB-Trading-on-Alternative-Trading-Systems.pdf. See also* Letter from Edward J. Sisk, Chair, Municipal Securities Rulemaking Board, dated March 1, 2021 (''MSRB Letter''), stating that MSRB trade data shows that ATSs were involved in 21 percent of all trades and 55 percent of all inter-dealer trades in the municipal bond market.

[484] *See* Wu (2021), *supra* note 483.

[485] *See* Simon Z. Wu, John Bagley, & Marcelo Vieira, *Municipal Securities Pre-Trade Market Activity: What Has Changed Since 2015?,* Municipal Securities Rulemaking Board (2020), *available at https://www.sec.gov/spotlight/fixed-income-advisory-committee/msrb-staff-analysis-of-municipal-securities-pre-trade-data.pdf.*

[486] *See* Wu (2021), *supra* note 483.

[487] *See, e.g.,* Lawrence E. Harris, & Michael S. Piwowar, *Secondary Trading Costs in the Municipal Bond Market,* 61 J. Fin. 1361 (2006).

[488] *See* Simon Z. Wu, *Transaction Costs for Customer Trades in the Municipal Bond Market: What is Driving the Decline?,* Municipal Securities Rulemaking Board (July 2018), at 15, *available at https://www.msrb.org/sites/default/files/Transaction-Costs-for-Customer-Trades-in-the-Municipal-Bond-Market.pdf.*

securities, the Commission estimates retail-size trades have more than four times the amount of price dispersion as dealers experience. One recent academic specifically examines execution quality in the market for municipal bonds.[489] Consistent with the Commission analysis in Table 17, the study examines bond prices for the same bond on the same trading day and finds significant dispersion in execution quality. Furthermore, the study finds differences in execution quality discrepancies within each broker-dealer in the same bond trading day.[490]

iii. Government Securities

The market for U.S. government securities is large both in terms of the outstanding debt amount and trading volume. According to the Treasury Department, the total amount outstanding for marketable Treasury securities was approximately $23.4 trillion.[491] The Financial Accounts of the United States Z.1 released by the Federal Reserve Board shows that the amount outstanding for Agency- and GSE-Backed Securities is about $10.9 trillion, as of the end of Q1 2022.[492] According to data published by SIFMA, in September 2021, the average daily trading volume in government securities was about $850.1 billion, which is roughly 95 percent of all fixed income securities trading volume in the U.S.[493] This includes $582.1 billion average daily trading volume in U.S. Treasury securities, $265.7 billion in Agency MBSs, and $2.4 billion in other Agency securities.

Government securities are traded through a diverse set of venues, including ATSs, RFQs, and bilateral protocols, such as voice methods. Government securities trading venues (*e.g.,* ATSs, non-ATS trading venues (RFQ platforms), voice methods) compete on fees and trading protocols that help expose retail customer orders in order to attract order flows from retail broker-dealers. Currently, government securities ATSs account for a significant percentage of all U.S. Treasury securities trading activity reported to TRACE.[494] The Commission estimates that ATSs account for approximately 37.8% percent of U.S. Treasury securities trading volume from April 2021 through March 2022. Broker-dealers utilize ATSs to source liquidity in government securities, including the liquidity needed to efficiently fill customer orders outside ATSs. The Commission understands that this means some portion of broker-dealer transactions on government securities ATSs are associated with the dealers' activity in filling customer orders.

Effective spreads for Treasuries in Table 17 are the lowest among all of the presented fixed income securities categories. Effective spreads for retail-sized trades are only 3 bps higher relative to larger trades. Agency securities exhibit relatively higher effective spreads in comparison to U.S. Treasury securities but remain the second least costly fixed income securities category in terms of transaction costs. There is less dispersion in execution quality for U.S. Treasury securities trades. Price dispersion in large size customer trades is small relative to that of interdealer trades (1.11) but is somewhat larger, albeit at an overall level less than other fixed income securities categories, for retail-sized trades (1.38).

iv. Market Access

With respect to fixed income securities trading, executing brokers provide market access to other broker-dealers including retail broker-dealers that qualify as introducing brokers under the FINRA/MSRB rules. The Commission understands executing broker-dealers that provide market access to retail introducing brokers under the FINRA and MSRB rules do not engage in conflicted transactions as defined under the proposal. Furthermore, the Commission understands that these executing brokers would consider factors, such as contemporaneous trade prices (*e.g.,* interdealer prices), quotes, trade prices and quotes of similar fixed income securities, yield curve, matrix prices, and different types of trading protocols (*e.g.,* RFQs and BWICs) in handling orders from other retail broker-dealers and also supply execution quality statistics to their customers. These executing brokers compete on the basis of fees, efficiency in order handling procedures, and efficiency in the selection of trading venues or counterparties, which determine overall execution quality.

v. Retail Order Handling and Execution

Retail investors transacting in fixed income securities most often trade municipal securities, and to a smaller extent, corporate debt securities and U.S. Treasury securities. As of 2021, household holdings of municipal securities hovered above 40 percent [495] of outstanding municipal securities,[496] but this share has been declining.[497] Households owned only roughly one percent of outstanding corporate debt securities in 2021.[498] U.S. Treasury securities have slightly higher household participation, at approximately three percent.

[489] *See, e.g.,* Griffin, *supra* note 66.

[490] The study finds that the range of differences in dealer fixed effects from the worst to best dealer markup is consistently 2% and retail-sized trades have, controlling for bond characteristics, 75 bps higher markups relative to larger trades. Furthermore, the study summarizes by stating that municipal bond ''markup differences represent different prices for the same security from the same dealer at essentially the same time, which would seem to be a clear failure of pricing fairness according to MSRB regulations and guidance.''

[491] *See* Monthly Statement of the Public Debt of the United States, dated July 31, 2020, *available at https://fiscaldata.treasury.gov/datasets/monthly-statement-public-debt/summary-of-treasury-securities-outstanding.*

[492] *See* Financial Accounts of the United States Z.1, First Quarter 2022, at 177, *available at https://www.federalreserve.gov/releases/z1/20220609/z1.pdf.*

[493] *See* SIFMA Fixed Income Trading Volume, *available at https://www.sifma.org/resources/research/us-fixed-income-securities-statistics/.* The stated figures include Treasury Securities, Agency MBS, and Federal Agency Securities.

[494] TRACE aggregation and analysis methods follow those used by Treasury market regulators and FINRA, including adjustments for multiple trade reports for a single transaction and counting only one trade report for an ATS or IDB. The regulatory version of TRACE was used in the analysis. A ''Give-Up'' ID is reported when a principal to a transaction delegates another participant to report a trade on its behalf. When a ''Give-Up'' ID is reported, the corresponding reporting or contra- party is replaced with the ''Give-Up'' ID. This ensures that trades are attributed to the principals to each transaction. System control numbers are used to link corrected, canceled, and reversed trade messages with original new trade messages. In these cases, only corrected trades are kept and all cancellation and reversal messages and their corresponding new trade messages are removed. Special care must be taken when counting market volume. When a FINRA registered broker directly purchases from another FINRA member, two trade messages are created. If those FINRA registered brokers transact through an inter-dealer broker (IDB), four trade messages are created, two for the IDB and one for each member. In both cases, the volume from only one report is needed. To ensure that double counting of transactions does not occur, only the following trade messages are summed to calculate market volume: sales to non-IDB members, sales to identified customers, such as banks, hedge funds, asset managers, and PTFs, and purchases from and sales to customers and affiliates. Any trade in which the contra-party is an IDB is excluded. Thus, in the case of trades involving IDBs, only the IDBs' sale message is added to overall volume.

[495] *See* Financial Accounts of the United States Z.1, Fourth Quarter 2021, *available at https://www.federalreserve.gov/releases/z1/20220310/z1.pdf.*

[496] In the Z.1 Financial Accounts of the United States, estimates for the 'household' sector include non-profits and domestic hedge funds. *See* Financial Accounts of the United States Z.1, Technical Q&As (September 23, 2022), *available at https://www.federalreserve.gov/releases/z1/z1_technical_qa.htm.*

[497] *See* Heather Gillers, *Municipal Bonds Increasingly Held by Funds, Not Individuals,* Wall St. J. (Jun. 29, 2022). *Available at https://www.wsj.com/articles/municipal-bonds-increasingly-held-by-funds-instead-of-individuals-11656408601.*

[498] *See id.*

Households own a similar amount of U.S. agency securities, also at approximately two percent.[499] In general, retail investors do not trade in the market for other fixed income securities, such as asset-backed securities, although broker-dealers offer trading services for these fixed income securities to their retail customers.

The Commission understands that retail investors generally use one broker-dealer for fixed income securities trading services. Broker-dealers execute retail customer orders mostly on a principal basis (*e.g.,* riskless principal trades, internalized trades). Broker-dealers may execute against resting orders (*e.g.,* limit orders displayed on ATSs), conduct RFQs/BWICs/OWICs,[500] and utilize voice methods (*e.g.,* telephone) in handling retail customer orders. For executing small or medium size retail customer orders, a broker-dealer may utilize limit orders or RFQs, while it might utilize voice methods for executing large retail customer orders or orders on illiquid fixed income securities. Only a few broker-dealers offer a trading service to represent a retail customer order in a limit order book. The Commission does not know the number of trading venues (*e.g.,* ATSs, RFQ platforms, broker's broker platforms, single dealer platforms) to which broker-dealers maintain access/connection for executing retail customer orders. The Commission also does not know the number of broker-dealers that access or connect to these venues through each type of interface (*e.g.,* via application programming interface (API), graphical user interface (GUI)). Furthermore, the Commission does not know how broadly broker-dealers expose retail customer orders, for example, via RFQs or limit order books for the purpose of riskless principal transactions and internalization.

The Commission understands that retail customer order handling practices for fixed income securities vary across retail broker-dealers offering different types of trading services and between the sides of the market (customer buy order vs. customer sell order). Some broker-dealers offer self-directed trading to their retail customers, whereas for some broker-dealers, the firm's brokers handle retail customer orders, and some offer both self-directed and broker-assisted trading services. Furthermore, some broker-dealers make only internal inventory, only external inventory (for brokers that do not carry inventory), or both internal and external inventory of fixed income securities available for retail customer trading. The Commission understands that some broker-dealers whose primary service is not focused on fixed income securities trading outsource fixed income securities execution services to another broker (*i.e.,* executing broker). The Commission does not know how many executing brokers perform fixed income securities trading services on behalf of these brokers. The Commission understands that executing brokers maintain access to multiple trading venues (*e.g.,* ATSs, RFQ platforms, broker's broker platforms, single dealer platforms) and generally handle orders from other broker-dealers, for which they provide execution services, on agency or riskless principal basis.

Some broker-dealers ingest offer quotes from internal inventory and/or trading venues (*e.g.,* ATSs, electronic venues) and then display them to their self-directed retail customers or the firm's brokers who handle retail customer orders. These offer quotes displayed to self-directed retail customers typically embed markup. Self-directed retail customers are able to submit buy orders to execute against offer quotes displayed on their systems. The Commission understands that some broker-dealers do not assess the competitiveness of ingested quotes or filter out quotes that may not be reflective of the prevailing market before displaying them to self-directed retail customers. Furthermore, the Commission does not have information about how orders submitted by self-directed retail customers are handled: the Commission does not know how a broker-dealer ensures the displayed quote, against which a self-directed retail customer submitted an order to execute, is reflective of the current market. For a broker-assisted customer buy trade, a broker handling a retail customer order would follow order handling procedures based on the FINRA/MSRB best execution rules. The broker may consider, among other things, prices, such as trade prices, trade prices of similar fixed income securities, internal and/or external offer quotes, offer quotes of similar fixed income securities, matrix prices, and prices derived from yield curve, as well as trading protocols, such as limit order, RFQ, and OWIC, in handling the retail customer buy order. The Commission understands that broker-dealers that carry inventory of fixed income securities may internalize retail customer buy orders by executing them against internal inventory after charging a markup. Broker-dealers may use offer quotes resting on trading venues and/or offer responses to RFQ/OWIC as reference prices to match or improve (via last-look practice) for the purpose of internalization.

Only a few retail broker-dealers display external and/or internal bid quotes of fixed income securities to their self-directed retail customers or the firm's brokers who handle retail customer orders. To the extent that these retail broker-dealers display external and/or internal bid quotes of fixed income securities to their self-directed retail customers, self-directed retail customers are able to submit sell orders to execute against bid quotes displayed on their systems. For a broker-assisted customer sell trade, a broker handling a retail customer order would typically conduct RFQ or BWIC to collect multiple bids. A broker would also consider other pricing sources, such as trade prices, trade prices of similar fixed income securities, bid quotes of similar fixed income securities, matrix prices, and prices derived from yield curve in handling the retail customer sell order. For broker-dealers that carry inventory of fixed income securities, these broker-dealers may internalize customer sell orders by buying the bond from their customer into inventory after charging a markdown to have an opportunity to resell the bond to another customer (earning the bid-ask spread and markup when the broker-dealer resells the bond to another customer). In conducting RFQs or BWICs for the purpose of internalization, the Commission understands that some broker-dealers may use last-look to apply trade desk spreads (in the form of markdown) to external bids but not to internal bids, which results in more favorable comparisons for the internal bids, to win RFQs/BWICs.[501]

vi. Principal Trading

With respect to fixed income securities trading, principal transactions [502] with retail customers, in which broker-dealers engage, include riskless principal [503] and internalized

[499] *See id.*

[500] Bid wanted in competition (BWIC) is a request for bids on a single security or a list of securities, submitted by a market participant (a broker-dealer or an institutional investor) to a number of broker-dealers. Offer wanted in competition (OWIC) is a request for offers on a single security or a list of securities, submitted by a market participant (a broker-dealer or an institutional investor) to a number of broker-dealers.

[501] *See infra* Section V.C.1.b for the discussion of last look practices and application of trade desk spreads.

[502] Principal transactions with retail customers would be subject to the requirements of the proposed rule 1101(b). *See also supra* section IV.E.

[503] These riskless principal trades would include retail customer self-directed trades. Some broker-

trades. With limited transparency in the fixed income securities markets, an internalized trade may represent conflicts of interest between a broker-dealer and its retail customer because the retail customer may not be able to assess broker-dealer compensation (*e.g.,* markup/markdown). Provided that transaction costs of riskless principal transactions are disclosed on a post-trade basis in customer confirmations, these riskless principal transactions represent potentially fewer conflicts of interest compared to internalization. When the transaction costs of riskless principal transactions are disclosed on a pre-trade basis via a markup/markdown schedule, there would be even fewer conflicts of interest between retail customers and broker-dealers handling their orders.[504] A significant portion of customer trades are executed on a principal basis. Table 18 shows that 87% and 80% of the corporate debt securities and municipal securities customer par volume trades, respectively, are executed on a principal basis. Furthermore, Table 18 shows that riskless principal transactions represent 31% and 48% of principal trades in the corporate debt securities and municipal securities markets, respectively.[505] An academic study has found a persistent increase in the frequency of riskless principal trades in the corporate debt securities market since 2014.[506]

TABLE 18—FIXED INCOME DEALER TRADING CAPACITY AND TRADE SIZE

Panel A: Corporate Debt Securities

Corporate bond	Trade size	Type	Total distinct MPIDs	Trades	Trade percent	Par volume (in billions)	Par volume percent
Dealer Buy	Retail Trades (≤$100k).	Agency	446	782,685	7.9	11.82	0.2
		Principal	465	1,466,145	14.8	42.63	0.6
		Riskless Principal	474	553,908	5.6	12.39	0.2
	Large Trades (>$100k).	Agency	241	163,505	1.6	201.03	2.7
		Principal	413	1,596,162	16.1	3,164.41	43.3
		Riskless Principal	392	183,391	1.8	235.28	3.2
Dealer Sell	Retail Trades (≤$100k).	Agency	338	1,052,845	10.6	18.40	0.3
		Principal	460	1,341,692	13.5	47.88	0.7
		Riskless Principal	475	704,699	7.1	19.71	0.3
	Large Trades (>$100k).	Agency	475	172,630	1.7	213.28	2.9
		Principal	458	1,698,176	17.1	3,140.93	43.0
		Riskless Principal	474	209,196	2.1	203.39	2.8
Total				9,925,034	100	7,311	100

Panel B: Municipal Securities

Municipal bond	Trade size	Type	Total distinct MPIDs	Trades	Trade percent	Par volume (in billions)	Par volume percent
Dealer Buy	Retail Trades (≤$100k).	Agency	331	263,505	5.1	6.49	0.3
		Principal	325	737,050	14.4	24.56	1.2
		Riskless Principal	458	847,353	16.5	24.80	1.2
	Large Trades (>$100k).	Agency	188	19,119	0.4	7.16	0.4
		Principal	284	244,097	4.8	458.28	22.5
		Riskless Principal	354	138,851	2.7	194.91	9.6
Dealer Sell	Retail Trades (≤$100k).	Agency	237	319,597	6.2	9.28	0.5
		Principal	339	1,037,384	20.2	35.86	1.8
		Riskless Principal	365	817,050	15.9	24.16	1.2
	Large Trades (>$100k).	Agency	365	34,090	0.7	16.04	0.8
		Principal	384	558,594	10.9	1,115.44	54.7
		Riskless Principal	440	119,447	2.3	123.77	6.1
Total				5,136,137	100	2,041	100

This table presents summary statistics for dealer trading capacity across corporate (using FINRA TRACE data) and municipal (MSRB RTRS) fixed income categories from April 1, 2021 through March 31, 2022. We drop all interdealer trades keeping only customer trades from TRACE and RTRS main data files. We then collapse this file by Buy/Sell indicator, Agency/Principal/Riskless Principal indicator and Trade size bucket. The table reports the total distinct MPIDs in each group the total trade count (with percentage), total Par volume (with percentage), the weighted markup of riskless principal trades, and unweighted markup of riskless principal trades. Riskless principal trade indicators are not provided in the main data but are inferred using trade pairs matched by MPID and trade size over a 15-minute window.

The Commission understands that there may be conflicts of interest in handling retail customer orders in fixed income securities markets, which could result in retail customers not receiving the most favorable prices under

dealers execute self-directed trades of retail customers on a riskless principal basis and charge markups/markdowns for their trading services. Retail customer self-directed trades would not be considered unsolicited instructions from customers under FINRA Rule 5310.08.

[504] Some broker-dealers disclose a markup/markdown schedule broken out by trade size on a pre-trade basis for retail customer self-directed trading on customer facing websites.

[505] Principal trading represents a relatively smaller proportion of retail-sized customer trades in the U.S. Treasury securities market. Commission analyses show trades executed in an agency capacity represent approximately 36.7% of all retail-sized U.S. Treasury securities trades. The commission estimates that riskless principal trades represent 7.9% of principal trades in the U.S. Treasury securities market, whereas the share of riskless principal trades for retail-sized trades is 10.2%.

[506] *See* O'Hara and Zhou, supra note 469. The study suggests that implementation of the Volcker Rule in 2014 led to a large increase in riskless principal capacity trading, particularly among bank broker-dealers who are subject to proprietary trading restrictions under the rule.

prevailing market conditions. A broker-dealer that submits an RFQ[507] on behalf of a retail customer typically has the option of selecting potential counterparties, from which it is requesting prices, on behalf of its customer. Applying counterparty filtering or limiting the number of counterparties in RFQs could result in less competitive prices for retail customer orders.[508] An academic study links competitiveness (*i.e.,* the number of bids and difference between winning and second best bid) directly to price improvement.[509] Another market practice is price matching using the best response to RFQ via ''last look'' or ''pennying'' for the purpose of internalization rather than customer benefit.[510] Such practice would discourage market participants from submitting competitive prices because responders to RFQs are not compensated for submitting competitive quotes (*i.e.,* selected to trade).

(c) Crypto Asset Securities

As discussed Section III.A.3, crypto asset securities, also called digital asset securities, refer to a range of assets that are issued and/or transferred using distributed ledger technology and that meet the definition of a security.[511] The Commission has provided a statement regarding broker-dealers engaging in custody and transactions of crypto asset securities.[512] Broker-dealers transacting in crypto asset securities would be subject to the requirements of this proposal.[513]

Because transaction data and other information on the crypto asset securities market is limited,[514] the Commission does not have a complete understanding of market participants' current practices with respect to order handling and best execution for crypto asset securities, including the extent to which current practices in the market for crypto asset securities are consistent with FINRA Rule 5310.[515]

Most known, off-chain trading activity for crypto asset securities occurs on online, openly accessible centralized platforms. These platforms are typically vertically integrated, combining account holding and trading services. The prevalence of vertically integrated trading platforms distinguishes the crypto asset securities market from other asset markets. These platforms often operate using a centralized limit order book, similar to exchanges for stocks and futures, but the volume is not audited or verified in any known manner.[516] Some platforms that trade crypto asset securities are domiciled and operated outside the U.S.[517] To trade on a centralized crypto asset securities platform, the only prerequisites for a retail investor are to sign up for an account with a location-accessible platform and link his or her bank account or digital asset wallet.[518]

The Commission understands that retail customers represent approximately 30% of trading in crypto asset securities at the largest centralized trading platforms.[519] Instead of trading directly on centralized platforms, some retail customers may choose to place crypto asset securities orders with retail businesses, which could be affiliates of SEC registrants, fintech firms, or even payment applications.[520] Those businesses typically route the order flow to unregistered third-party wholesalers, proprietary traders, or market makers for execution. Some of them provide zero or low commissions for trading crypto assets, and obtain all or a significant portion of their compensation through payments from the wholesalers for directed order flow. The Commission is not certain how these orders are handled (*i.e.,* internalized, routed to centralized platforms, etc.), given the lack of reporting in the crypto asset securities market. It is possible that crypto asset wholesalers internalize most of the order flow they purchased within their own proprietary trading desks and they may route any remaining order flow perceived to be from informed traders to a lit (*i.e.,* transparent order book driven) venue.

The Commission lacks knowledge on the prevalence of broker-dealer activity in this market and the routing behavior of broker-dealers in this market. The Commission likewise has limited information about the pervasiveness of payment for order flow in the crypto asset securities market.[521]

(d) Non-NMS Stock Equity Securities

Non-NMS stock equity securities trade in a market that appears to be a hybrid of the NMS securities market and the fixed income market. The non-NMS stock equities market is informally

[507] The Commission understands that, in general, responding to RFQs is a manual process. Recently, some market participants (*e.g.,* large broker-dealers) automated responses to RFQs for small order sizes.

[508] While filtering practices might be conducted by broker-dealer for order execution efficiency purposes (*i.e.,* evaluating only counterparties who provide firm indications), a broker-dealer must evaluate any efficiency gains directly against filtering quotes that may be more favorable to the end customer. Filtering counterparties to reduce information leakages is likely to produce little benefit for retail trades.

[509] *See* Terrence J. Hendershott, Dmitry Livdan & Norman Schuerhoff, *All-to-All Liquidity in Corporate Bonds,* Swiss Finance Institute Research Paper No. 21–43 (October 27, 2021), *available at https://ssrn.com/abstract=3895270* or *https://dx.doi.org/10.2139/ssrn.3895270.*

[510] The Commission understands that such practice is more common in RFQs on the bid side of the market.

[511] *See, e.g.,* Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, Exchange Act Release No. 81207 (July 25, 2017). *See SEC* v. *W. J. Howey Co.,* 328 U.S. 293 (1946). *See* Framework for ''Investment Contract'' Analysis of Digital Assets, *available at https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets.*

[512] *See* supra III.A.3. Since 2013, the Commission has brought a significant number of enforcement actions against issuers of crypto asset securities and crypto asset security market participants. Such enforcement investigations and actions have been brought for, among other things, violations of the registration requirements of the Securities Act of 1933 for offers and sales of crypto assets to the public as securities, violations of the exchange registration requirements of the Securities Exchange Act of 1934 for operating trading platforms for digital assets that are securities, and violations of the anti-fraud and other provisions of Federal securities laws. *See, e.g.,* Crypto Assets and Cyber Enforcement Actions, *available at https://www.sec.gov/spotlight/cybersecurity-enforcement-actions* for more information about these enforcement actions.

[513] *See supra* section III.A.3 for criteria of applicability to crypto asset securities.

[514] *See, e.g.,* FSOC Report, *supra* note 95, at 119, which notes that the digital asset ''ecosystem is characterized by opacity that creates challenges for the assessment of financial stability risks. Collection and sharing of data, as appropriate, could help reduce this opacity.'' *See also* Raphael Auer et al., *supra* at note 95 (discussing data gaps in the crypto market).

[515] As noted in *supra* Section III.A.3, circumstances have made it difficult for the Commission to have a full picture of the current market for crypto assets.

[516] *See,* for example, Le Pennec, G., Fiedler, I., and Ante, L., *Wash trading at cryptocurrency exchanges,* 43 Finance Research Letters 101982 (2021).

[517] Some platforms that purport to be located outside of US nevertheless seek to cater to US customers, among other ways, by complying with certain requirements set by the CFTC and FinCEN. As of August 30, 2022, only three of the top 25 trading platforms (according to CoinMarketCap) have registered FINRA entities. *See* CoinMarketCap's Top Cryptocurrency Spot Exchanges, *available at https://coinmarketcap.com/rankings/exchanges/* for further exchange level information.

[518] A digital asset wallet is a software, algorithm, or storage medium to store the public and private keys of the digital asset transactions. *See,* for example the definition of wallet in Cryptocurrencies glossary, Fidelity Investments, *available at https://www.fidelity.ca/en/investor/cryptocurrencies-glossary/.*

[519] This estimate comes from two different sources: (1) disclosures from Coinbase's 2021 10–K filings; and (2) a direct statement made by Binance US's CEO at the 2022 Georgetown Financial Market Quality Conference.

[520] Payment apps allow individuals and businesses to transfer funds outside of the traditional banking and payment processing systems. Many of these fintech or payment app entities are not registered with the Commission in any capacity. Thus, this activity is not visible to the Commission.

[521] The Commission understands PFOF rates from wholesalers for crypto assets are significantly higher than the PFOF rates from wholesalers for NMS securities.

referred to as the ''OTC market.'' The securities traded in the non-NMS stock equities market are typically unregistered equities; however, many non-NMS equities traded were formerly registered and formerly exchange listed. Analogous to the fixed income market, there are some securities which are very liquid, and also many securities that are difficult to trade. For FINRA members, non-NMS stock equities trading is subject to FINRA Rule 5310 for execution standards; however, there are other standards that also affect this market (*i.e.,* state law and/or platform/venue requirements). Academic studies have found that differences in regulation can impact market quality.[522] Trading in non-NMS stock equities primarily takes place via dealer-to-dealer trades or on one of several ATSs that specialize in non-NMS stock equities. In the interdealer market, broker-dealers interact directly with one another to fill customer orders or manage inventory. ATSs in the non-NMS stock equities market offer opportunities for broker-dealers to interact in either a traditional limit order book or in a negotiation feature somewhat similar to RFQs in fixed income markets. Some ATSs in this market allow direct participation by any client, including retail clients; however, as the Commission understands, most ATSs are accessible only by dealers.

From the perspective of order handling, retail orders are processed in a manner very similar to NMS stocks. Retail broker-dealers that offer the ability [523] to trade in the non-NMS stock equities market typically route an order to a wholesaler, who may internalize the order, or if the broker-dealer is directly connected to a non-NMS stock equities liquidity source, such as an ATS, may trade in a principal capacity with the customer. Orders that are not routed to wholesalers or internalized directly by the retail broker-dealer may be routed to an ATS to expose the order. From the Commission's analysis of non-NMS stock equities trades in March 2022, 63.2% of non-institutional trades were traded in a principal capacity. As noted in this section, some ATSs allow direct participation of any trader who registers and connects to their platform. Thus, some retail investors may be able to access liquidity without the aid of a broker-dealer in this market. In terms of pricing orders, non-NMS stock equities are not protected by a trade-through rule. Thus, pricing could be highly variable from one trade to the next in a given security. The non-NMS stock equities market is not required by regulation to report individual trades for public dissemination. This market frequently lacks quotes entirely, or lacks displayed quotes that are frequently updated. Despite this lack of mandated transparency, the largest [524] ATS serving this market offers pre-trade and post-trade information (*e.g.,* quotes, transaction prices).[525]

(e) Institutional Customer Order Handling

The Commission understands that institutional investors generally use multiple broker-dealers for NMS stock and options trading services. Institutional broker-dealers typically engage in order splitting when handling large institutional customer orders, often utilizing SORs to break up large, institutional ''parent'' orders into multiple smaller ''child'' orders.[526] It is the Commission's understanding that when an institutional customer gives a large order to be executed on behalf of one account (*e.g.,* a single mutual fund or pension fund), it expects the broker-dealer that handles and executes such large order to do so in a manner that ensures best execution is provided to the ''parent'' order. In other words, to the extent that a parent order is split into smaller ''child'' orders, the institutional customer expects the best execution analysis to evaluate whether the parent order was executed at the most favorable price possible under prevailing market conditions according to customer instructions.[527] A significant portion of institutional customer orders in NMS stocks and options is not held.[528] The Commission understands that institutional customer orders handled on a not held basis may sometimes be executed based on customer-specified standards that may prioritize outcomes other than execution prices, such as reducing the price impact of an order or matching volume weighted average price (VWAP) over a certain time horizon. An academic study looked at order routing by institutional brokers in the equity markets and found that institutional brokers who route more orders to affiliated ATSs are associated with lower execution quality in the form of lower fill rates and higher implementation shortfall costs than institution brokers that route more orders to non-affiliated ATSs.[529]

With respect to fixed income securities trading, the Commission understands that institutional investors, such as mutual funds, pension funds, insurance companies, and banks, in general directly trade with market participants (*e.g.,* broker-dealers) by accessing RFQs, platform-wide RFQs, firm quotes, and indicative quotes on trading venues. Institutional investors generally trade large blocks of fixed income securities via voice with broker-dealers. Furthermore, the Commission understands that institutional investors generally use multiple broker-dealers for trading services. Based on customers' instructions, broker-dealers may represent institutional customer orders by posting firm quotes on many-to-many and one-to-many platforms, or conduct RFQs on behalf of institutional customers.

Institutional investors may utilize third-party vendors to conduct transaction cost analysis and evaluate the performance of their broker-dealers based on those reports. If an institutional investor uses multiple brokers-dealers, it may direct more orders to broker-dealers that have better performance. This may reduce the

[522] *See, e.g.,* Ulf Brüggemann, Aditya Kaul, Christian Leuz & Ingrid M. Werner, *The Twilight Zone: OTC Regulatory Regimes and Market Quality,* 31 Rev. Fin. Stud. 898 (March 2018), *available at https://doi.org/10.1093/rfs/hhx102.* The authors find that increased regulation of OTC trading improves market quality in US OTC stocks.

[523] This ability often costs a premium compared to trading in NMS stocks. Many brokers will still charge commissions for trades in this market.

[524] *See* ATS Transparency *Data Quarterly Statistics,* FINRA.org, *available at https://www.finra.org/filing-reporting/otc-transparency/ats-quarterly-statistics.* This ATS is largest by number of OTC Stocks traded in Q2 2022. FINRA posts records on a quarterly basis listing ATSs trading OTC Stocks and the share volume traded on the ATS.

[525] *See* Anna-Louise Jackson, *What is the OTC Market?,* Forbes Advisor (Jun. 9, 2022), *available at https://www.forbes.com/advisor/investing/otc-market/. See generally,* OTC Markets Group, Inc. and OTC Link ATS, *available at https://www.otcmarkets.com/.*

[526] The small-sized and mid-sized institutional customer orders for options are typically routed to electronic order routing platforms. These platforms allow order entry and provide smart routers and order and position management. Furthermore, these platforms offer customized execution algorithms on an order-by-order basis. *See also* Tyler Beason & Sunil Wahal, *The Anatomy of Trading Algorithms,* (working paper Jan. 21, 2021), *available at https://ssrn.com/abstract=3497001* (retrieved from SSRN Elsevier database) for a discussion of institutional investor parent and child order handling in NMS stocks.

[527] *See supra* note 169.

[528] An analysis in the Rule 606 Adopting Release 83 FR 58338 (Jan 2019), studied orders submitted from customer accounts of 120 randomly selected NMS stocks listed on NYSE during the sample period between December 5, 2016 and December 9, 2016, consisting of 40 large-cap stocks, 40 mid-cap stocks, and 40 small-cap stocks. The analysis found that among the orders received from the institutional accounts, about 69% of total shares and close to 39% of total number of orders in the sample are not held orders, whereas among the orders received from the individual accounts, about 19% of total shares and about 12% of total number of orders in the sample are not held orders. *See* Rule 606 Adopting Release, 83 FR 58393.

[529] *See* Anand, *supra* note 91.

switching costs for institutional investors related to changing broker-dealers and increase competition among broker-dealers to attract institutional orders.

4. Broker-Dealer Services and Revenue

A small subset of broker-dealers hold most customer accounts and control a significant portion of broker-dealer assets. Table 19 shows statistics on broker-dealer customers and total assets. Based on FOCUS data as of Q2 2022, there were approximately 3,498 broker-dealers, 162 of which carry their own customer accounts. These broker-dealers reported carrying over 240 million public customer accounts. Of the total population of these broker-dealers, approximately 2,440 reported retail customer activity.[530] Of the broker-dealers that reported retail customer activity, 144 reported carrying their own customer accounts.[531] A small set of 23 broker-dealers report more than 50 billion dollars in total assets and 119 report between 1 billion and 50 billion in assets. The majority of broker-dealers have less than 10 million dollars in assets, with 1,613 having less than 1 million dollars in assets. However, most customer accounts are concentrated in the 142 large broker-dealers with 1 billion dollars or more in assets: 119 of them are from the category of broker-dealers with assets greater than 1 billion dollars and less than 50 billion dollars and 23 of them are from the category of broker-dealers with assets greater than 50 billion dollars. Ninety eight broker-dealers carry non-customer accounts for other broker-dealers. The majority of these, 66, are large broker-dealers with 1 billion dollars or more in assets. On average, they carry accounts for over 50 other broker-dealers.

TABLE 19—NUMBER OF BROKER-DEALERS AND CUSTOMER ACCOUNTS BY ASSET SIZE

Variable	Size of broker-dealer (total assets)							
	>50bn	1bn–50bn	500mn–1bn	100mn–500mn	10mn–100mn	1mn–10mn	<1mn	Total
Panel A: All Broker-Dealers								
Number of Broker-Dealers	23	119	30	136	523	1,054	1,613	3,498
Number of Broker-Dealers Registered as Investment Advisers	11	22	4	35	95	179	134	480
Number of Broker-Dealers with Investment Adviser Affiliate	19	74	17	87	274	401	445	1,317
Number of Broker-Dealers Carrying Own Customer Accounts	19	59	8	22	26	21	7	162
Total Number of Public Customer Accounts	75,834,917	153,216,558	6,045,929	3,555,383	606,606	887,833	6,668	240,153,894
Total Number of Omnibus Accounts	421,583	525	12	4	33	19	0	422,176
Number of Broker-Dealers Carrying Non-Customer Accounts	18	48	7	9	11	5	0	98
Avg Number Other Broker-Dealers Carrying Customer Accounts For Fully Disclosed Basis	57.5	50.7	30.5	9.0	2.5	1.0		
Avg Number Other Broker-Dealers Carrying Accounts for Omnibus Basis	19.2	26.3	15.3	3.5	2.5		1.0	
Panel B: Retail Broker-Dealers								
Number of Retail Broker-Dealers	19	76	21	109	393	750	1,072	2,440
Number of Broker-Dealers Registered as Investment Advisers	11	21	4	34	92	171	128	461
Number of Broker-Dealers with Investment Adviser Affiliate	17	56	12	76	228	331	350	1,070
Number of Broker-Dealers Carrying Own Customer Accounts	18	51	7	20	22	19	7	144
Total Number of Public Customer Accounts	75,829,888	142,899,902	6,012,125	2,641,879	606,447	880,021	6,668	228,876,930
Total Number of Omnibus Accounts	421,583	524	12	1	33	15	0	422,168
Number of Broker-Dealers Carrying Non-Customer Accounts	17	44	7	8	8	5	0	89
Avg Number Other Broker-Dealers Carrying Customer Accounts For Fully Disclosed Basis	60.9	55.4	30.5	8.0	2.0	1.0		

[530] *See* item 8080 on FOCUS Report Form X–17A–5 Schedule I for additional information on the number of reported public customer accounts.

[531] Retail sales activity is identified from Form BR, which categorizes retail activity broadly (by marking the ''sales'' box) or narrowly (by marking the ''retail'' or ''institutional'' boxes as types of sales activity). We use the broad definition of sales as we believe that many firms will just mark ''sales'' if they have both retail and institutional activity. However, we note that this may capture some broker-dealers that do not have retail activity, although we are unable to estimate that frequency.

TABLE 19—NUMBER OF BROKER-DEALERS AND CUSTOMER ACCOUNTS BY ASSET SIZE—Continued

Variable	Size of broker-dealer (total assets)							
	>50bn	1bn–50bn	500mn–1bn	100mn–500mn	10mn–100mn	1mn–10mn	<1mn	Total
Avg Number Other Broker-Dealers Carrying Accounts for Omnibus Basis	19.2	28.5	15.3	2.0	2.5		1.0	

This table summarizes the number broker-dealers (Panel A) and retail broker-dealers (Panel B), their investment adviser status, their customer account carrying status, and the number of customer and omnibus accounts they carry broken out into groups based on their total assets. The number of Broker-dealers comprises the broker-dealers that had a valid FOCUS Report for Q2 2022 and a valid Form Custody and Form BD for Q2 2022. Total Assets are estimated by Total Assets (allowable and non-allowable) from Part II/IIA of the FOCUS filings (Form X–17A–5 Part II/IIA) from Q4 2021 and correspond to balance sheet total assets for the broker-dealer. The numbers of public and omnibus accounts are from FOCUS Schedule I from Q4 2021. Broker-dealer registration as an investment adviser is from Form Custody from Q2 2022 and includes broker-dealers that are registered as an investment adviser with the Commission or with a state. Broker-dealers carrying customer accounts and non-customer accounts is identified from Form Custody from Q2 2022. Average number of other broker-dealer carrying accounts on a fully disclosed or omnibus basis is the average number of other broker-dealers for which a broker-dealer carrying non-customer accounts holds accounts for and it is determined from Form Custody from Q2 2022. Retail brokers are identified based on retail sales activity from Form BR in Q2 2022, which categorizes retail activity broadly (by marking the ''sales'' box) or narrowly (by marking the ''retail'' or ''institutional'' boxes as types of sales activity). We use the broad definition of sales as we believe that many firms will just mark ''sales'' if they have both retail and institutional activity. However, we note that this may capture some broker-dealers that do not have retail activity, although we are unable to estimate how often it does so.

A small number of broker-dealers with more than 1 billion dollars in revenue account for the majority of broker-dealer assets, revenue, and expenses. Table 20 shows statistics on total assets, total revenues, total expenses, and net income based on broker-dealer asset size. The top 23 brokers, each with assets over $50 billion, have more than 3.8 trillion dollars in assets out of a total of 5.4 trillion dollars across all broker-dealers. The top 142 brokers account for the majority of revenue, earning over 71 billion dollars in Q2 2022 out of total of 97 billion dollars for all broker-dealers. Similarly, the top 142 broker-dealers accounted for the majority of expenses and net income.

TABLE 20—ASSETS, REVENUE AND EXPENSES OF BROKER-DEALERS BY ASSET SIZE

Variable	Statistic	Size of broker-dealer (total assets)						
		>50bn	1bn–50bn	500mn–1bn	100mn–500mn	10mn–100mn	1mn–10mn	<1mn
Total Number of Broker-Dealers		23	119	30	136	523	1,054	1,613
Total Assets ($1,000s).	Mean	$168,631,851	$12,226,934	$737,161	$207,753	$34,340	$3,580	$299
	Median	$85,750,282	$6,628,584	$737,598	$181,812	$25,645	$2,757	$207
	Total	$3,878,532,570	$1,455,005,108	$22,114,818	$28,254,392	$17,959,877	$3,773,694	$481,530
Total Revenue ($1,000s).	Mean	$1,495,923	$315,344	$84,500	$76,247	$17,310	$2,622	$378
	Median	$841,321	$81,517	$25,232	$30,703	$7,638	$1,396	$99
	Total	$34,406,232	$37,525,938	$2,535,011	$10,369,565	$9,036,076	$2,695,264	$508,546
Total Expenses ($1,000s).	Mean	$1,263,904	$283,825	$75,088	$66,749	$15,760	$2,349	$293
	Median	$973,919	$67,638	$22,577	$25,153	$6,213	$1,064	$78
	Total	$29,069,788	$33,775,125	$2,252,648	$9,077,875	$8,242,340	$2,473,435	$470,898
Net Income ($1,000s).	Mean	$219,406	$30,564	$12,941	$9,243	$1,470	$206	$24
	Median	$33,372	$5,377	$4,553	$3,032	$417	$29	−$6
	Total	$5,046,337	$3,637,137	$388,236	$1,257,046	$769,031	$217,453	$37,856

This table estimates average, median and total values for broker-dealer assets, total revenue, total expenses, and net income broken out into groups based on their total assets. Number of Broker-dealers is based on the broker-dealers that had a valid FOCUS Report for Q2 2022. Statistics for Total Assets (allowable and non-allowable), Total Revenue, Total Expenses, and Net Income (after Federal income taxes) are computed from the corresponding items in Part II and Part IIA of the FOCUS filings (Form X–17A–5 Part II/IIA) from Q2 2022.

From the perspective of the number of individual customer accounts, the broker-dealer market appears to be somewhat concentrated, with the top four brokers handling about 106 million accounts, equal to 44% of the industry, while the top eight firms have about 159 million accounts, or 66% of the industry. From the perspective of total assets, the level of concentration is slighter lower, with the top four brokerages having a total of around $2.1 trillion, equal to 39% of all assets held by broker-dealers, and the top eight firms about $2.8 trillion, or 52% of total industry assets. The broker-dealer industry looks less concentrated from the perspective of revenue, with the top four firms earning more than $18 billion, or 19% of the market, and the top eight firms earning $28 billion, or 29% of total industry revenues.

TABLE 21—BROKER DEALER MARKET CONCENTRATION—ASSETS, REVENUES, AND CUSTOMER ACCOUNTS

	Total assets (1,000s)	Total revenue (1,000s)	Customer accounts
4-firm total	$2,112,685,000	$18,039,203	106,463,445
8-firm total	$2,834,007,000	$28,402,354	158,609,487
All broker dealers	$5,406,121,988	$97,076,632	240,153,894
4-firm concentration	39.08%	18.58%	44.33%

TABLE 21—BROKER DEALER MARKET CONCENTRATION—ASSETS, REVENUES, AND CUSTOMER ACCOUNTS—Continued

	Total assets (1,000s)	Total revenue (1,000s)	Customer accounts
8-firm concentration	52.42%	29.26%	66.04%

This table uses FOCUS data analyzed in the previous table to calculate the market share of broker dealers based on firm total assets, total revenue, and customer accounts. The sum of the top four and eight firms for each of these variables is compared to the sum of all broker dealers for each of these three variables (assets, revenue, total accounts) that submitted a Form FOCUS PART II for Q2 2022. Total accounts are from FOCUS Report Schedule I for Q4–2021.

There is significant variation in the sources of broker-dealer revenue. Table 22 reports sources of broker-dealer revenue along with the revenue as a percentage of the broker-dealer's total revenue in Q1 2022. A broker-dealer reports a source of revenue on its supplemental statement of income (SSOI) if it is more than 5% of its total revenue. Larger broker-dealers tend to have more diversified sources of revenue than smaller broker-dealers, with the majority of broker-dealers with 1 billion or more in assets reporting earning revenue in a number of categories. Smaller broker-dealers appear to earn more of their revenue from a limited number of sources, with some broker-dealers with under 10 million dollars in assets on average earning more than 50% of their revenue from one source. Larger broker-dealers appear to earn more money from fees and interest, rebate, and dividend income. Smaller broker-dealers appear to earn more money from fees and commissions and other revenue sources.

TABLE 22—SOURCES OF BROKER-DEALER REVENUE AS A PERCENTAGE OF BROKER-DEALER TOTAL REVENUE BY ASSET SIZE

Revenue source	Statistic	Size of Broker-Dealer (Total Assets)						
		>50bn	1bn–50bn	500mn–1bn	100mn–500mn	10mn–100mn	1mn–10mn	<1mn
Total Broker-Dealers Reporting Revenue		21	100	27	127	511	1,042	1,588
Total Commissions	Count	18	69	21	86	299	518	428
	Mean	10.75%	4.28%	26.47%	27.05%	30.03%	29.40%	26.48%
Revenue from Sale of Investment Company Shares.	Count	11	33	6	54	166	305	375
	Mean	0.79%	3.53%	0.40%	6.97%	6.41%	6.39%	13.80%
Total Revenue From Sale of Insurance Based Products.	Count	9	34	5	44	145	278	320
	Mean	0.22%	3.08%	7.65%	17.10%	24.81%	22.93%	30.67%
Total Net Gains or Losses on Principal Trading.	Count	18	80	19	66	201	224	86
	Mean	4.40%	7.81%	16.42%	3.76%	20.16%	29.47%	50.26%
Capital Gains (Losses on Firm Investments).	Count	8	42	11	43	123	189	141
	Mean	−3.10%	−3.41%	14.38%	−7.26%	−4.97%	19.70%	5.34%
Total Interest/Rebate/Dividend Income.	Count	21	90	22	109	370	604	520
	Mean	43.20%	31.27%	14.99%	5.42%	4.54%	2.68%	14.05%
Total Revenue From Underwritings and Selling Group Participation.	Count	17	65	12	62	187	272	231
	Mean	9.49%	10.67%	14.94%	18.03%	37.33%	39.07%	46.40%
Total Fees Earned	Count	19	82	24	114	434	812	897
	Mean	32.01%	37.00%	42.37%	58.92%	52.46%	56.79%	69.35%
Other Revenue	Count	17	75	18	85	307	513	469
	Mean	3.37%	1.20%	2.88%	8.96%	7.47%	16.93%	30.82%

This table estimates the number of broker-dealers reporting different sources of revenue and the average percentage of the reported revenue source as a percentage of broker-dealer total revenue for Q2 2022 broken out into groups based on the broker-dealer's total assets. The different sources of revenue and total revenue are reported by each broker-dealer during Q2 2022 in their FINRA Supplemental Statement of Income Form (Form SSOI). Form SSOI does not require a broker-dealer to report a revenue or expense section source if the revenue or expenses for that section is less than the greater of $5,000 or 5% of the broker-dealer's total revenue or total expenses, as applicable. Total Assets are estimated by Total Assets (allowable and non-allowable) from Part II of the FOCUS filings (Form X–17A–5 Part II) from Q2 2022 and correspond to balance sheet total assets for the broker-dealer.

Retail brokers compete for customers by providing a range of services that assist their clients in transacting in securities including stocks, bonds, mutual funds, ETFs, options, futures, and crypto asset securities. Retail broker services can broadly be divided into ''discount brokers'' and ''full-service'' brokers. Discount brokers typically provide commission-free trading for online purchases of stocks and ETFs, but often charge fees for purchases of other securities, such as mutual funds, options, and futures. Some discount brokers' affiliates manage proprietary mutual funds and ETFs, which earn them management fees paid by the investors that purchase these funds. Compared to discount brokers, ''full-service'' brokers charge higher commissions that may include compensations for other services, such as investment research and personalized financial guidance.

Some brokers seek to differentiate themselves from other broker-dealers by providing increased access to crypto asset securities futures, forex, or fractional share trading. Brokers also distinguish themselves by the accessibility and functionality of their trading platform, which can be geared towards less experienced or more sophisticated investors. Discount retail brokers can also differentiate themselves by providing more extensive customer service as well as tools for research and education on financial markets. Full-service brokers compete by developing a personalized broker-customer relationship and providing guidance based on the detailed knowledge of the customer's financial goals.

Broker-dealers may incur costs [532] or earn rebates in seeking to fill their

[532] Some exchanges pay rebates to orders that either provide or remove liquidity from their limit

customers' orders. These costs and rebates may be passed on to customers in whole or in part. Some of these costs are indirect: an illiquid or unlisted security may require the broker to search for liquidity either by attempting multiple routings to find a counterparty, or by contacting broker-dealers that may formally (in association with an ATS that specializes in unlisted securities) or informally make markets in unlisted or hard to trade securities. For some unlisted securities, there may be no market maker expected to continually provide two-sided quotes.

C. Economic Effects and Effects on Efficiency, Competition, and Capital Formation

The Commission preliminarily believes that the proposed requirements with respect to introducing brokers could result in better execution quality for retail customer orders to the extent that the proposal leads to changes in broker-dealers' order handling practices. Furthermore, the proposal would enable the Commission to exercise additional enforcement capabilities [533] that the Commission believes would enhance investor protection and improve specific deterrence.[534] The Commission also believes that the documentation requirement with respect to conflicted transactions could help enhance regulatory oversight, as well as promote broker-dealer compliance, and thus, improve investor protection to the extent that the documented information includes information or data that is not currently documented nor available through public or regulatory data sources. However, the Commission lacks detailed data on broker-dealers' current order handling practices and documentation practices that would allow it to predict the extent of changes as a result of this proposal.[535] The Commission therefore cannot ascertain the extent to which these benefits would be realized, as discussed below.

The Commission preliminarily believes that the proposal would result in costs associated with reviewing, updating, and establishing policies and procedures, and to the extent that the proposal leads to changes in broker-dealers' order handling practices, could result in costs associated with implementing changes to order handling practices according to the updated policies and procedures. The proposed requirements for broker-dealers that engage in conflicted transactions could result in further changes to order handling practices, but the extent of those changes is unknown. Due to the diversity of broker-dealer business models and operations and the lack of quantifiable data on how practices vary across broker-dealers, the Commission cannot reasonably estimate how many of these broker-dealers would choose to de-conflict [536] to avoid the costs associated with the proposed requirements that apply solely to conflicted transactions.

The Commission preliminarily believes that the proposal could promote competition in the market for trading services (*e.g.,* exchanges, ATSs, non-ATS trading venues) and also in the market for market access. However, the Commission believes that the proposal could have mixed effects on competition in the market for broker-dealer services. While it could promote competition among broker-dealers, especially on the basis of execution quality, it could also result in higher barriers to entry and potential exit of small broker-dealers.

The Commission assesses the economic effects of the proposed amendments in NMS stocks relative to a regulatory baseline in NMS stocks that includes the implementation of the MDI Rules.[537] Furthermore, the Commission's analysis reflects the Commission's assessment of the anticipated economic effects, including potentially countervailing or confounding economic effects from the MDI Rules in NMS stocks.[538] However, given that the MDI Rules have not yet been implemented, they have not affected market practice and therefore data that would be required for a comprehensive quantitative analysis of the economic effects in NMS stocks that includes the effects of the MDI Rules is not available. It is possible that the economic effects in NMS stocks relative to the baseline could be different once the MDI Rules are implemented.

1. Benefits

The Commission preliminarily believes the proposal, which incorporates and goes beyond the existing best execution regulatory regime set forth by FINRA and MSRB, could promote investor protection (*e.g.,* better execution quality for retail customer orders) by facilitating regulatory oversight and enforcement.[539] The Commission believes that benefits could result from, among other things, the requirements with respect to introducing brokers, the documentation requirements for conflicted transactions, and additional enforcement capabilities of the Commission.

The Commission preliminarily believes that the proposal would enhance investor protection and improve retail customer order execution quality to the extent that the proposal improves broker-dealers' order handling practices. Specifically, broker-dealers could improve their customer order handling practices, resulting from documentation, updates and reviews of both existing and the best execution policies and procedures that would be required under the proposal including the reductions in conflicts of interest when handling retail customer orders. The Commission also believes the proposal would enhance investor protection by enabling the Commission to exercise additional enforcement capabilities and improving specific deterrence through the ability to bring

order books. Some trading venues charge fees to one or both counterparties to the trade.

[533] This full complement of enforcement capabilities is not available to the Commission to enforce FINRA rules.

[534] *See also infra* section V.C.1.

[535] Considering broker-dealers are diverse in business models and practices, the Commission lacks quantifiable data that summarizes how order handling data are currently documented, which might serve as a baseline in assessing the effects of the proposed rule. While CAT includes routing data for NMS securities, no similar database exists for fixed income or other assets covered by the proposed rules. Although the Commission could discuss current routing practices through an analysis of CAT data, it would not capture the information set that a broker-dealer evaluated in making its routing decisions, such as what pricing information it had when it made the routing choice, what venues were considered for the order, or why those venues were considered for the order. The Commission also has no information regarding the broker-dealer's assessment as to how the specific customer and order characteristics affected its decision to handle a customer order in a certain way. Based on its experience, the Commission believes that some larger broker-dealers already maintain documentation on their transactions that exceeds what would be required under the proposed rules, but the Commission does not know the extent to which other broker-dealers also maintain such documentation. Consequently, some broker-dealers would incur fewer costs (and their compliance would result in fewer benefits) than others.

[536] To de-conflict, a broker-dealer might need to deal with the treatment of exchange rebates, payment for order flow, or the nature of its executing brokers' business (*i.e.,* principal versus agency capacity), among other factors.

[537] *See supra* section V.B.3.(a).d.

[538] *See id.* for a discussion of the Commission's anticipated economic effects of the MDI Rules as stated in the MDI Adopting Release.

[539] *See* the discussion of enforcement mechanisms in *supra* section V.B.1.(a). In enforcement situations limited to violations of proposed Regulation Best Execution, the Commission would gain the ability to (i) obtain civil money penalties against defendants in injunctive actions; (ii) order respondents to cease-and-desist and obtain related relief and sanctions; and (iii) in situations limited to violations of proposed Regulation Best Execution involving broker-dealers and associated persons that would not potentially be subject to MSRB best execution rules, obtain relief available under Sections 15(b)(4) and (6).

injunctive actions for violations of this rule, issue cease-and-desist proceedings for allegations of violations of this rule, and, among other things, order remedial actions and sanctions against a broader group of registered persons pursuant to Exchange Act Section 15(b)(4) for willful violations of this rule. Furthermore, improvements in investor protection could result from increased documentation requirements for conflicted transactions, particularly in fixed income and thinly traded non-NMS stock equity securities. The extent of this improvement depends on whether the documented information include information or data that is neither currently documented nor available through public or regulatory data sources. The proposed documentation requirement would help facilitate the Commission's and SRO's enforcement and examinations, as well as promote broker-dealer compliance, and thus, result in better investor protection.

The Commission preliminarily believes the proposal could lead to changes in order handling practices, and in turn, improve the execution quality of retail customer orders, through four mechanisms. First, the proposal would require that introducing brokers that route their orders to executing brokers compare that broker's execution quality to what might have been received from competing executing brokers.[540] The Commission believes that some broker-dealers that currently rely on executing brokers already compare their executing broker's execution quality to the execution quality of competing executing brokers, so these broker-dealers are unlikely to be affected by this element of the proposal. Introducing brokers that do not currently implement rigorous comparison of executing brokers are expected to adjust their routing practices in response to this newly required analysis, or justify in their policies and procedures how they fulfill their best execution duties in light of these analyses. Because FINRA's and MSRB's current policies and procedures requirements do not require this level of detail, the Commission cannot ascertain how many brokers already conduct such a comparison with alternative executing brokers and how many would need to make adjustments. However, any such adjustments could improve the execution quality that retail customers receive for their orders.

Second, the Commission preliminarily believes that the proposal's heightened standards for conflicted transactions could lead to improved prices for retail customers.[541] Under the proposal, broker-dealers that handle retail customer orders and that choose to accept PFOF, to participate in transactions on a principal basis, or to route to affiliated broker-dealers that execute orders would be subject to heightened standards. In response to this proposed requirement, the Commission believes that some broker-dealers that route to executing broker dealers that engage in conflicted transactions could seek to remove such conflicts, for example by no longer accepting payment for order flow or selecting executing brokers that do not execute on a principal basis.[542] The Commission also believes that executing brokers (*e.g.,* wholesalers) in NMS stocks and options could adjust their order handling practices under the proposal in anticipation of increased execution quality analysis by retail broker-dealers, from whom they receive order flow. These executing brokers in NMS stocks and options that routinely pay for retail order flow and/or engage with it on a principal basis could adjust their order handling practices to access additional venues to seek midpoint liquidity, additional price improvement, or offer more price improvement to the orders routed by those retail broker-dealers.[543] Although the Commission cannot quantify the degree of reduction in conflicted transactions that would occur under the proposal because it cannot predict how individual broker-dealers would adjust their business models to comply with the proposal, the Commission preliminarily believes that any resulting reduction in conflicted transactions could improve the prices retail customers realize for their transactions. That said, the Commission acknowledges that some retail customers could pay more for their transactions when in reducing its conflicted transactions, a broker-dealer changes order handling practices to route to destinations, which may not always provide the same price improvement that was previously realized for conflicted transactions.

Third, the Commission preliminarily believes the proposal could result in better execution quality for retail customer orders to the extent that the proposal leads to changes in broker-dealers' order handling practices. Compared to the FINRA and MSRB rules, the Commission believes that the proposal would require greater specificity in the policies and procedures with respect to best execution. Upon reviewing its existing policies and procedures, a broker-dealer could be required to update its policies and procedures to comply with the proposed requirements. To the extent that updated policies and procedures would require corresponding changes in order handling practices, the broker-dealer would adjust its order handling practices for retail customer orders. The Commission acknowledges that many broker-dealers currently may have order handling practices that are consistent with the requirements under the proposed Rule 1101(a).[544] In this case, the Commission does not expect the order handling practices of these broker-dealers to change.[545] On the other hand, many broker-dealers could be required to adjust order handling practices, including conducting more detailed reviews of their practices, under the proposal. However, the Commission lacks detailed information on broker-dealers' current policies and procedures with respect to best execution standards and order handling practices to determine how many broker-dealers would be required to change their order handling practices under the proposal.[546]

Fourth, the Commission preliminarily believes that the proposal could help ensure the effectiveness of broker-dealers' best execution policies and procedures, and thus, result in better execution quality for retail customer orders to the extent that the requirements under the proposed Rule 1102 enhances broker-dealers' current review process with respect to order

[540] While FINRA Rule 5310.09(c) allows an introducing broker, instead of conducting its own regular and rigorous review, to review the methodology and results of its executing broker's regular and rigorous review of its execution quality on a quarterly basis, it does not specifically require the introducing broker to compare the execution quality of its executing broker to what it would have received from other executing brokers. *See supra* section V.B.2.(a) for a discussion on introducing broker best execution review requirements. *See also* FINRA Rule 5310.09(c), Regular and Rigorous Review of Execution Quality.

[541] *See supra* section IV.C about the discussion for the requirements involving conflicted transactions for retail orders and *supra* sections V.C.2.a and V.C.2.b.i describing the conflicts of interest in retail order handling.

[542] *See infra* section V.C.2 for the discussion about costs of broker-dealer efforts to de-conflict versus comply with requirements of conflicted transactions.

[543] *See infra* section V.C.2.b for the discussion of wholesaler costs with respect to conflicted transactions.

[544] *See infra* section IX for proposed Rule 1101(a).

[545] As previously discussed in *supra* section IV.B, the factors that must be included in a broker-dealer's policies and procedures under proposed Rule 1101(a) are generally consistent with the factors that FINRA and the MSRB have identified as relevant to a broker-dealer's best execution determinations.

[546] *See supra* note 535 for the discussion about data availability on broker-dealers' current order handling practices.

handling practices. The Commission acknowledges that many broker-dealers currently may conduct reviews that are consistent with the requirements under the proposed Rule 1102, which includes a specific requirement to review order handling practices. In this case, the Commission does not expect the order handling practices of these broker-dealers to change, and there would thus be no change in execution quality for their retail customer orders.

The Commission does not believe that the order handling practices or execution quality of institutional customer orders would be significantly impacted by the proposal. The Commission understands that institutional customers often utilize multiple broker-dealers in the handling of their orders, which lowers the costs of switching brokers if they exhibit poor execution quality. Furthermore, in general, the Commission believes that there is less conflict in institutional customer order handling because institutional customers have better access (compared to retail customers) to data, which they utilize to monitor and analyze the execution quality that various broker-dealers offer.[547] The Commission believes that (compared to retail brokers) institutional monitoring and lower switching costs encourage broker-dealers to provide increased execution quality in order to compete to attract institutional orders. Thus, the Commission does not expect that broker-dealers would make significant adjustments to their order handling practices for institutional customer orders under the proposal.

(a) NMS Stocks and Options

The Commission preliminarily believes the proposed documentation requirement with respect to conflicted transactions could result in benefits in the NMS stock and options markets. However, a significant amount of information that would help reconstruct market conditions (*e.g.,* NBBO, size at NBBO, trade prices, volume, order level information in CAT) around the time of conflicted transactions is currently available through public and regulatory data sources (*e.g.,* SIP, CAT, OPRA), so those benefits may be small. To the extent that the documented information includes information that is not currently documented nor available through public or regulatory data sources , the proposed documentation requirement would help promote broker-dealer compliance and facilitate enforcement and examination, and thus, result in better investor protection. Furthermore, the Commission believes that any additional documentation could enhance internal review process (*e.g.,* a review by the best execution committee). Documented information could inform broker-dealers in adjusting order handling procedures with respect to conflicted transactions, which would result in better execution quality.

The Commission preliminarily believes that retail customer execution prices in NMS stocks and options could improve to the extent that there is a trade-off between the amount of PFOF a retail broker receives and the price improvement, which wholesalers provide to its customers' orders.[548] Under the proposal, retail broker-dealers accepting PFOF would be subject to the proposed Rule 1101(b), which would require a broker-dealer to establish additional policies and procedures and retain certain documentation with respect to conflicted transactions.[549] The proposed Rule 1101(b) would also require them to document any arrangement, whether written or oral, concerning PFOF, including the parties to the arrangement, all qualitative and quantitative terms concerning the arrangement, and the date and terms of any changes to the arrangement. Additionally, broker-dealers that accept PFOF would not qualify as introducing brokers under the proposed Rule 1101(d), which otherwise would permit these broker-dealers to rely on their executing broker's compliance with the proposed Rules 1101(a), (b), and (c).[550] Some broker-dealers, particularly those with business models that do not rely extensively on payment for retail order flow, could elect to pass any PFOF on to customers rather than complying with provisions of the proposal that apply only to broker-dealers that do not qualify for the relief provided to introducing brokers.[551]

The requirement for a broker-dealer to engage in additional due diligence if it engages in a conflicted transaction for or with a retail customer order could improve execution quality to the extent the requirement promotes competition between broker-dealers to provide best execution to retail broker-dealers that continue to accept PFOF. Because the proposal would require these retail broker-dealers to document their compliance with the best execution standard for conflicted transactions, including all efforts to enforce their best execution policies and procedures for conflicted transactions and the basis and information relied on for their determinations that such conflicted transactions would comply with the best execution standard, broker-dealers that pay for order flow could be incentivized to both improve the execution prices of orders routed to them for execution and to provide more information to broker-dealers routing to them, allowing those broker-dealers to improve their customers' execution prices and more easily comply with the provisions of the proposal that require more extensive documentation of their best execution standards.

To the extent broker-dealers that receive PFOF change their order handling practices to comply with the heightened standards in the proposal, these changes are likely to reduce the profitability of their business model because the orders they are routing may be more likely to be executed on venues that charge for providing liquidity, or do not provide compensation for order flow, or that provide compensation that is less than what these broker-dealers could realize by internalizing order flow, or routing elsewhere under existing procedures. Faced with potentially lower revenues from changing order handling procedures, broker-dealers that pay to receive order flow could choose to make few or no changes to their routing practices and could instead focus on maintaining arrangements with specific broker-dealers[552] (from whom they are already

[547] The Commission understands that institutional customers also utilize third-party vendors to conduct transaction cost analysis and evaluate the performance of their broker-dealers based on those reports. *See also supra* section V.B.3.e) for a discussion about institutional customer order handling practices.

[548] *See supra* section V.B.3.(a).b.

[549] *See supra* section IV.C.

[550] Under proposed Rule 1101(d), principal trades by an executing broker with the introducing broker's customer to fill fractional share orders in NMS stocks would be considered to be handled on an agency basis, and thus, allow it to rely on its executing broker's compliance with the proposed Rules 1101(a), (b), and (c). *See supra* section IV.E. for a discussion on proposed Rule 1101(d) and *supra* section V.B.3.(a).i.d for additional discussion on fractional share orders in NMS stocks.

[551] As explained in *supra* note 183, when all payment for order flow for a customer order from a particular market is passed through to the customer and the broker-dealer retains no part of the payment for order flow associated with that customer order, the broker-dealer would not be engaging in a conflicted transaction under proposed Rule 1101(b) with respect to that customer order. *See also infra* section V.C.2.a for the discussion about the costs of broker-dealer efforts to de-conflict versus comply with requirements of conflicted transactions.

[552] *See infra* section V.C.2.a for the discussion of how broker-dealers who route to other broker-dealers for execution may choose to comply with the proposal. The Commission recognizes that it is possible under the proposal that these broker dealers would reduce their payments for order flow because broker-dealers who route orders to them may choose to stop accepting PFOF in order to meet the definition of ''introducing broker'' in proposed Rule 1101(d). However, the Commission

Continued

receiving orders or could determine that their current PFOF arrangement meets the requirements under the proposal) to meet their obligations under the proposal without significant changes. Some broker-dealers that make payments for order flow could compete on the basis of providing service and information to their broker-dealer customers that help those broker-dealers satisfy their own requirements under the proposal, such as providing additional information on routing practices and data on how they provide the best execution possible. Competition between these broker-dealers could foster innovation that improves prices received by retail customer orders executed under PFOF agreements.

With respect to listed options, the Commission preliminarily believes that retail order execution quality could improve to the extent that the proposal results in broker-dealers adjusting their customer order handling practices consistent with the heightened standards required of conflicted transactions.[553] Some broker-dealers that handle retail options orders and engage in conflicted transactions, such as executing orders on a principal basis or routing to affiliates, may adjust their routing practices to access additional venues or consider additional opportunities for price improvement. This could be driven both by the requirements of proposed Rule 1101(b) to consider additional opportunities for price improvement and in anticipation of increased execution quality analysis by other broker-dealers, for whom they route orders. For example, these broker-dealers may adjust their routing practices to further consider the possibilities of exposing a smaller customer order of 5 contracts or less for price improvement opportunities in auctions or look for liquidity within the NBBO spread instead of routing the customer order to a venue that would allow a market maker to internalize 100% of a given customer order with 5 contracts or less on the limit order book at the best displayed prices without competition from other liquidity providers.[554] Additionally, broker-dealers may route more customer orders to price improvement auctions that are more competitive rather than ones that provide the broker-dealer a better chance at internalizing a larger share of the customers' orders. Furthermore, with regards to non-marketable limit orders, broker-dealers may consider routing more orders to exchanges that have higher likelihood of executions in the form of fill rates and average shorter time to execution rather than to the exchanges that pay the highest liquidity rebates.

(b) Fixed Income Securities

The Commission preliminarily believes that the proposed documentation requirement with respect to conflicted transactions could facilitate regulatory oversight and enforcement and promote broker-dealer compliance with best execution standards, promoting investor protection in the fixed income securities markets. For introducing brokers that utilize trading services of executing brokers, the requirement to review and compare execution quality of various executing brokers could result in better execution quality for retail customer trades to the extent that brokers choose to change their executing brokers to those that offer better execution quality. In general, the proposal would improve execution quality to the extent that the proposal results in enhancements to broker-dealers' order handling procedures. The extent to which customer order execution quality would improve depends on how many and to what extent broker-dealers would adjust their order handling procedures as a result of this proposal. However, the Commission cannot ascertain the extent to which this benefit would be realized because the Commission lacks data on how many broker-dealers would change order handling procedures in response to the proposal.

For very illiquid fixed income securities, execution quality improvement resulting from changes in order handling procedures with respect to conflicted transactions could be limited. Because a broker-dealer transacting in illiquid fixed income securities will only have a few potential counterparties, exposing retail orders to a greater number of trading venues (*e.g.,* through RFQs) may not result in more responses nor more competitive responses. On the other end of the spectrum, the Commission expects little impact on the execution quality of on-the-run U.S. Treasury securities because transaction costs for such securities are already low. The impact is most likely to materialize in fixed income securities that have moderate liquidity, as discussed further below.

The Commission preliminarily believes that the documentation requirement for conflicted transactions under the proposal could facilitate regulatory oversight and promote broker-dealer compliance with best execution standards, promoting investor protection in the fixed income securities markets.[555] To the extent that broker-dealers do not currently document efforts to obtain the most favorable price in conflicted transactions, these broker-dealers would be required to document such information. Compared to the markets for equities and listed options where quotes and trades are widely disseminated, in most fixed income markets only transactions are reported and disseminated publicly. The extent to which the proposed documentation requirement would help facilitate regulatory oversight depends on the types of documented information. To the extent that the documented information includes information or data that is not currently documented nor available through public or regulatory data sources, such as the markets checked, internal and external quotes, and other factors (*e.g.,* trading protocols, prices, immediacy, trade size) considered for the basis of best execution, the proposed documentation requirement would help facilitate regulators' enforcement and examination of a broker-dealer for compliance, and thus, result in better investor protection. Furthermore, the Commission believes that documentation could enhance internal review process (*e.g.,* a review by best the execution committee). Documented information could inform the broker-dealer in adjusting order handling procedures with respect to conflicted transactions, which would result in better execution quality.

The Commission preliminarily believes that the execution quality of retail customer trades in fixed income securities effected by brokers that qualified for relief under the FINRA/MSRB rules by relying on their executing brokers for trading services could improve. Under the proposal, introducing brokers,[556] as defined in proposed Rule 1101(d), and carrying

preliminarily believes this would not increase the profitability of broker-dealers that currently pay to receive order flow because presumably their payments to secure order flow are less than the profits they earn to execute that order flow often in a principal capacity.

[553] *See supra* section IV.C about the discussion for the requirements involving conflicted transactions for retail orders and *supra* Sections V.C.2.a and V.C.2.b.i describing the conflicts of interest in retail order handling.

[554] *See supra* section V.B.3.(a).ii for discussion of the handling of retail orders in the options markets.

[555] FINRA members are currently required to conduct regular and rigorous review of execution quality under FINRA Rule 5310.09. However, the Commission does not know the types of information that broker-dealers document for the purpose of regular and rigorous review of execution quality under FINRA Rule 5310 and MSRB Rule G–18.

[556] These brokers are non-carrying brokers that qualified for relief under the FINRA/MSRB rules.

brokers that currently avail themselves of the relief under the FINRA/MSRB rules and hence rely on their executing brokers for retail customer trading services, would be required to review and compare the execution quality of their executing brokers with the execution quality they might have obtained from other executing brokers and adjust their routing practices accordingly.[557] To the extent that some of these brokers change their executing brokers for trading services to those that offer better execution quality, retail customer trades of the brokers would receive better execution quality.[558] Furthermore, the requirement to review and compare execution quality of executing brokers could promote competition among executing brokers, which could result in better execution quality for retail customer trades.[559]

The Commission preliminarily believes that the proposed requirements with respect to conflicted transactions could result in better execution quality for internalized trades in fixed income securities. To the extent that broker-dealers make changes to order handling procedures (upon reviewing and comparing execution quality across competing markets) and connect to additional trading venues to expose retail customer orders (*e.g.,* via RFQs and BWICs) more broadly across multiple trading venues for the purpose of internalization, the execution quality of internalized trades could improve. Sending RFQ messages more broadly across multiple trading venues may result in better execution quality for internalized trades if a broader exposure of customer order results in more competitive prices for the purpose of internalization (*i.e.,* price-matching using more competitive price). For example, exposing a customer order via RFQs on multiple trading venues could result in more competitive responses to be used as the reference price to match or improve for the purpose of internalization. However, to the extent that broker-dealers continue to engage in last-look practices in RFQs for the purpose of internalization, conducting RFQs on more trading venues may not necessarily result in more responses nor more competitive responses as discussed below.

To the extent that a broker-dealer determines, upon reviewing data, that the use of last-look in RFQs impedes attracting competitive responses, the broker-dealer could discontinue last-look practices or limit the use of last-look to meaningfully improve price in an occasion when RFQ responses are not reflective of the market. For example, a broker-dealer handling a retail customer order may participate in an RFQ by blind bidding/offering and internalize the order only if the broker-dealer is the best bid/offer in the RFQ, or otherwise give up the order to another responder with the best bid/offer. Such RFQ practice could attract more competitive responses thereby improving the execution quality of internalized trades via RFQs.[560] However, the Commission believes that this benefit is not likely to be realized. Broker-dealers would continue to use last-look in conducting RFQs for the purpose of internalization so long as such internalization practice continues to provide profit incentive for those broker-dealers.

In order to justify the continued use of last-look in fixed income securities trading, broker-dealers could provide meaningful price improvement by exercising last-look in RFQs for the purpose of internalization, which would result in better execution quality. To the extent that a broker-dealer's review or assessment reveals that the use of last-look in RFQs impedes attracting competitive responses, the broker-dealer could respond by providing price improvements to the best response bids/offers to compensate for receiving less competitive bids/offers in RFQs as compared to, for instance, in a blind auction as described above.

Broker-dealers' assessment of last-look practices in fixed income securities trading may not affect execution quality for internalized trades via RFQs. Unless a broker-dealer's review or assessment shows a negative impact of last-look practices on the execution quality of internalized trades, the Commission does not expect the broker-dealer to alter nor discontinue last-look practices in RFQs for the purpose of internalization. If the broker-dealer makes no changes, the rule would produce no improvement in the execution quality for internalized trades via RFQs. Specifically, in exercising last-look, a broker-dealer that currently applies trade desk spreads (in the form of markdown/markup) to external bids/offers but not to internal bids/offers, which results in more favorable comparisons for the internal bids/offers, to win RFQs, may continue to apply such practice so long as the execution quality of external trades would be worse than that of internalized trades.

The Commission preliminarily believes that the proposed requirements with respect to conflicted transactions could result in better execution quality for riskless principal trades in fixed income securities. To the extent that broker-dealers make changes to order handling procedures (upon reviewing and comparing execution quality across competing markets) and connect to additional trading venues in order to search or expose retail customer orders more broadly across multiple trading venues, the execution quality of riskless principal trades for retail customers could improve. Broker-dealers could increase the use of RFQs across multiple trading venues to expose retail customer orders in order to obtain competitive prices. Furthermore, as another way to expose retail customer orders more broadly, broker-dealers could represent retail customer orders on limit order systems across multiple trading venues. For example, in case of a retail customer sell order, instead of conducting an RFQ on the bid side of the market, a broker-dealer could represent the customer order by placing a limit order on the offer side of the market for certain fixed income securities (*e.g.,* liquid on-the-run Treasury securities, liquid corporate debt securities) should the broker-dealer determine that the characteristics of the customer order are consistent with this type of order handling (*e.g.,* the customer is not demanding immediacy of execution). This would lower transaction costs of the retail customer because this customer would not pay the bid ask spread if the order is executed at the offer price (compared to executing at the bid price obtained via an RFQ).

In response to the proposed requirements with respect to conflicted transactions, retail broker-dealers could stop executing retail customer fixed income securities orders on a riskless principal basis. To the extent that it is

[557] Carrying brokers that qualified for relief under the FINRA/MSRB rules would not have relief from the requirements of the proposal unless these brokers restructure their business to become non-carrying brokers. Under the proposed rule 1101(c) with respect to regular review of execution quality, these carrying brokers would be required to review and compare the execution quality of their executing brokers with the execution quality they might have obtained from other executing brokers, and adjust their order handling and routing practices accordingly.

[558] The Commission acknowledges that some brokers could already be reviewing and comparing the execution quality, of which various executing brokers offer, in the selection of their executing brokers.

[559] Executing brokers would compete on, among other things, fees, markups/markdowns, and the quality of trading services.

[560] *See infra* section V.C.2.b for the discussion about how the proposal might adversely impact market liquidity. The Commission preliminarily believes that this benefit in the execution quality improvement for retail customer trades may be reduced to the extent that eliminating last-look practices in RFQ for the purpose of internalization adversely affects the principal trading activities of inventory carrying broker-dealers.

more cost effective for broker-dealers to handle retail customer orders on an agency basis rather than a riskless principal basis under the proposal, broker-dealers could change business practices to handle retail customer orders on agency basis and not incur the costs associated with the requirements under conflicted transactions (*e.g.,* trading venue subscription fees and implementation costs associated with changing order handling procedures).[561] In such case, execution quality may not change. In particular, a broker-dealer, whose primary business is retail self-directed trading conducted on riskless principal basis, could change its business practices to handle retail self-directed trading on agency basis to the extent that conducting its self-directed trading business on an agency basis would be less costly compared to doing so on a riskless principal basis.

(c) Non-NMS Stock Equity Securities

There are three possible channels through which benefits of the proposal to the non-NMS stock equities market may derive: (1) requirements with respect to conflicted transactions; (2) the regular review of execution quality of executing brokers used by introducing brokers; and (3) some broker-dealers implementing policies and procedures to comply with this proposal, which may offer improved execution quality to transactions effected by these broker-dealers.[562]

The Commission preliminarily believes that the documentation requirement with respect to conflicted transactions could help facilitate regulatory oversight and enforcement, as well as promote broker-dealer compliance, and thus, enhance investor protection in the non-NMS stock equity securities market. To the extent that the documented information includes additional information beyond what broker-dealers currently record, and which may not be currently available through public or regulatory data sources (*e.g.,* CAT), such as non-firm quotes on trading venues and factors (*e.g.,* immediacy, trade size) considered for the basis of best execution, the proposed documentation requirement would help facilitate Commission and SRO enforcement and examinations, and thus, result in better investor protection. Similarly, the Commission believes that documentation could enhance the internal review process (*e.g.,* a review by best execution committee). Documented information could inform broker-dealers in adjusting order handling procedures with respect to conflicted transactions, which could result in better execution quality.

The proposal would require additional policies and procedures, beyond FINRA Rule 5310 and related FINRA notices[563] that currently address non-NMS stock equities transactions, when engaging in transactions that are executed in a principal capacity, routed to an affiliate for execution, or involve PFOF. Conflicted transactions are ubiquitous in the non-NMS stock equities market. These enhanced policies and procedures may induce broker-dealers to more carefully consider and change routing behavior in handling customer orders. While this proposal does not mandate changes, the changes could arise as broker-dealers are required to maintain policies and procedures that dictate the handling of conflicted transactions. In some cases, this could induce broker-dealers to reduce or eliminate conflicted transactions they participate in due to heightened costs of procedures, such as the documentation requirement. While in other cases, there could be no such inducement of broker-dealers to change order routing behavior. Trading in non-NMS stock equity securities is heavily concentrated in two platforms; however, there are other sources of liquidity beyond those two. This proposal could induce broker-dealers to connect to additional liquidity sources due to the requirements of conflicted transactions of this proposal. To the extent that broker-dealers' enhanced policies and procedures determine that they should connect to additional liquidity sources for conflicted transactions, customers' transaction costs could be lowered through better prices found on the additional sources. Additionally, to the extent that broker-dealers are either no longer routing to wholesalers or internalizing orders based on policies and procedures that resulted in different routing decisions, customer orders could experience price improvement opportunities, as their orders would be exposed to external competition.

Introducing brokers, as defined in proposed Rule 1101(d), would be required to conduct regular reviews of executing brokers they use for their retail customer transactions. This review, which differs from the quarterly review[564] required by FINRA Rule 5310 for all brokers, could cause introducing brokers to seek out additional executing brokers to develop business relationships with. These additional options, from which introducing brokers could choose to route their customer orders, could promote competition among executing brokers in the non-NMS stock equities market. This increased competition could result in better execution quality to the introducing brokers' retail customers in the form of lower transaction costs and increased fill rates for illiquid securities.

(d) Crypto Asset Securities[565]

As mentioned above in Section V.B.3.c, the Commission lacks data on broker-dealer routing behavior, the frequency of crypto asset securities trading in both non-conflicted and conflicted transactions, and many details of trading protocols and crypto asset securities trading platforms. Also, as noted in Section V.B.3.c, this market features many vertically integrated trading platforms, which makes analogous comparison to other asset markets less exact. To the extent that broker-dealers operate in a fashion similar to other asset markets,[566] the Commission preliminarily believes the proposal could drive benefits in the crypto asset securities market through three possible channels: (1) the requirements with respect to conflicted

[561] *See infra* section V.C.2.(a) for discussions about trading venue subscription fees and costs associated with making changes to order handling procedures.

[562] *See* section V.C.1 introduction for more explanation of the general benefit to execution quality that retail customers could experience. In the non-NMS stock equity securities market, the Commission believes a majority of transactions would be subject to the Conflicts of Interest provisions in proposed Rule 1101(b); however, there may be some broker-dealers who could improve execution quality while implementing policies and procedures as explained in section V.C.1.

[563] *See supra* section II.C for details on FINRA rules and notices with respect to the concept of ''best execution.''

[564] When transacting in municipal securities, broker-dealers are subject to MSRB Rule G–18. The rule requires an annual review of policies and procedures, which could take into account execution quality review. The rule in this proposal is substantively different from FINRA Rule 5310 or MSRB Rule G–18.

[565] For purposes of measuring the benefits and costs of the proposed rule on a broker-dealer's duty of best execution in the crypto market, this analysis assumes that market participants are compliant with existing applicable Commission, FINRA, and MSRB rules, including those directly addressing the duty of best execution for the handling and execution of customer orders in securities and government securities. *See supra* section III.A.3. To the extent that some entities engaged in broker-dealer activities with regard to crypto asset securities are not FINRA or Commission registered entities, they may incur additional costs to comply with existing registration obligations that are distinct from the costs associated with the proposed rule and are not discussed in this analysis. Similarly, any benefits from coming into compliance with existing registration obligations are also not discussed in this analysis. *See id.*

[566] The Commission preliminarily believes the closest market comparison may be the non-NMS stock equity securities market; though, no exact comparison to any other asset market is likely with crypto asset securities.

transactions; (2) the regular review of execution quality of executing brokers used by introducing brokers [567]; and (3) some broker-dealers implementing policies and procedures to comply with this proposal, which could offer improved execution quality to all transactions conducted by these broker-dealers.

The Commission preliminarily believes that the documentation requirement with respect to conflicted transactions could help facilitate regulatory oversight and enforcement, as well as promote broker-dealer compliance, and thus, enhance investor protection in the crypto asset securities market. To the extent that documented information includes information or data that is not currently documented nor available through public or regulatory data sources, the proposed documentation requirement would help facilitate enforcement and examination, and thus, result in better investor protection. Furthermore, the Commission believes that documentation could enhance internal review process (*e.g.,* a review by the best execution committee). Documented information could inform broker-dealers in adjusting order handling procedures with respect to conflicted transactions, which would result in better execution quality.

The proposal would also require written policies and procedures beyond those required under FINRA Rule 5310,[568] when engaging in transactions that are executed in a principal capacity, routed to an affiliate for execution, or involve PFOF. While this proposal does not mandate changes, the enhanced policies and procedures required by this proposal may induce brokers to more carefully consider and change routing behavior in handling customer orders. Specifically, as broker-dealers are directed to write and maintain policies and procedures that dictate the handling of currently conflicted transactions, they may review their existing routing behavior. In some cases, this could induce broker-dealers to reduce or eliminate conflicted transactions, in which they participate due to heightened costs of procedures, such as the documentation requirement. To the extent that broker-dealers with enhanced policies and procedures determine that they should connect to additional liquidity sources for conflicted transactions, investors' transaction costs could be lowered through better prices being found on the additional sources. Additionally, to the extent that broker-dealers are either no longer routing to wholesalers or internalizing based on policies and procedures that resulted in different routing decisions, customer orders could experience price improvement opportunities, as their orders would be exposed to external competition.

Introducing brokers,[569] as defined in the proposed Rule 1101(d), would be required to conduct regular review of executing brokers they use to for their customer transactions. This review, which differs from the quarterly review [570] required by FINRA Rule 5310 for all brokers, could cause introducing brokers to seek out additional executing brokers with whom to develop business relationships. These additional options, from which introducing brokers could choose to route their customer orders, could promote competition among executing brokers in the crypto asset securities market. This increased competition could result in better execution quality to the introducing brokers' retail customers in the form of lower transaction costs and increased fill rates for illiquid securities.

2. Costs

In order to comply with the proposal, broker-dealers would collectively incur costs to: update their policies and procedures; review and update those policies and procedures annually; conduct and document regular reviews of best execution compliance; and possibly make operational changes in response to those regular reviews. Assuming all broker-dealers will need to perform each of these activities and do not do so already, and do not have policies and procedures in place that would be consistent with the proposed rules, the Commission estimates one-time compliance costs of up to $165.4 million and annual costs of $128.9 million. To the extent that broker-dealers already have policies and procedures and practices that are consistent with the proposed rules, aggregate implementation costs would be less than these estimates, and based on the Commission's experience, the Commission preliminarily believes these estimates overstate costs broker-dealers would bear in implementing the proposed rules.[571]

The proposal would entail other costs as well, as discussed below. Where possible, the Commission has attempted to estimate these costs. Other costs are discussed qualitatively. The Commission believes it is likely these costs would be passed to broker-dealer customers, and would ultimately be borne by customers.

(a) Compliance Costs for Broker-Dealers

i. Carrying Broker-Dealers

Under the proposal, broker-dealers would fall into three groups: (1) those that qualified for relief from the FINRA Regular and Rigorous Review of Execution Quality under FINRA Rule 5310.09(c) from primary analysis requirements under FINRA/MSRB rules previously and would meet the introducing broker requirements to qualify for the proposed relief under proposed Rule 1101(d); [572] (2) those that did not qualify for relief under FINRA Rule 5310.09(c) and would not qualify for the proposed relief under proposed Rule 1101(d); and (3) those that qualified for relief under FINRA Rule 5310.09(c) previously but would not qualify for the proposed relief under proposed Rule 1101(d). The third group, which may include as many as 144 [573] broker-dealers that carry customer accounts, would be required under the

[567] The Commission understands the crypto asset securities market has several large, vertically integrated platforms. The Commission lacks the data to determine whether entities analogous to introducing brokers are prevalent in this market. However, the discussed benefits are those which the Commission believes could accrue in cases where such market structure exists.

[568] *See supra* section II.C for details on FINRA rules and notices surrounding the concept of ''best execution.''

[569] As noted in the introduction of this section, the Commission lacks data on broker-dealer activities in this market. In this instance, the Commission does not have data on the prevalence of introducing brokers in the crypto asset securities market. This discussion applies to the extent these entities operate in this market.

[570] When transacting in municipal securities, broker-dealers are compelled by MSRB Rule G–18. The rule requires an annual review of policies and procedures, which could take into account execution quality review. The rule in this proposal is substantively different from FINRA Rule 5310 or MSRB Rule G–18.

[571] The one-time costs average $47,298 per broker-dealer; ongoing costs average $36,843 per broker-dealer annually. Again, these estimates assume that all broker-dealers will need to implement new or updated policies and procedures or practices to be consistent with the proposed rules. Based on its experience, the Commission preliminarily believes that some broker-dealers may already have policies and procedures and other practices that are consistent with proposed Rule 1101. If, for example, all 3,273 of the broker-dealers that the Commission estimates would choose to not engage in conflicted transactions have policies and procedures and other practices consistent with proposed Rule 1101, the aggregate total cost of the proposal to all broker-dealers would be $38.8 million in one-time costs and $48.1 million in annual costs. Because not all broker-dealers are likely to already have policies and procedures and other practices that are consistent with proposed Rule 1101, aggregate implementation costs would be higher than these estimates. Accordingly, it is likely that actual costs would fall between these estimates and those cited above.

[572] *See supra* section II.C for the discussion about FINRA Rule 5310.09(c) and *supra* Section IV.E for the discussion about introducing broker requirements under proposed Rule 1101(d).

[573] Based on April-June 2022 FOCUS data.

proposed rule to comply with the policies and procedures and regular review provisions of proposed Rules 1101(a), (b), and (c) because these broker-dealers would not qualify for the introducing broker exemption (because they carry customer accounts). Under the proposal, a broker-dealer that qualified for relief under FINRA Rule 5310.09(c) that does not meet the definition of introducing broker under proposed Rule 1101(d) would be required to incur costs to set up their own best execution policies and procedures, and it would likely no longer be able to rely on an executing broker for its analysis of execution quality, unless the broker-dealer were to revise their business model to no longer carry customer accounts. The Commission's cost estimates below assume that all broker-dealers will implement this review under the proposal. Based on the Commission's experience, the Commission preliminarily believes that many broker-dealers in the first two groups already conduct reviews of execution quality consistent with the requirements of the proposal. Consequently, the Commission believes its cost estimates for compliance overestimate costs broker-dealers will collectively bear to implement the proposal.

ii. Conflicted Broker-Dealers

Conflicted broker-dealers may comply with the proposed requirements in a number of ways. First, they may choose to engage in more rigorous analysis of the execution quality their orders receive than is required of unconflicted broker-dealers, comparing the execution quality of multiple possible broker-dealers that they could route order flow to for execution, as well as execution quality available on other venues where liquidity is reasonably available, and regularly update routing practices based on these analyses. Based on the Commission's experience, the Commission preliminarily believes that some broker-dealers already engage in these practices. However, particularly smaller broker-dealers who continue [574] to accept PFOF from an executing broker-dealer may have previously relied on the best execution obligations of broker-dealers they route to, and under the proposal, would no longer qualify for the relief from such analyses previously provided under FINRA/MSRB rules. For these broker-dealers, performing such analyses might require engaging external consultants to provide such analyses if the broker-dealer's staff does not possess the necessary expertise or if the broker-dealer's staffing is not adequate to support the additional duties required, and might also require engaging external consultants to obtain analyses incorporating the necessary data (such as information on alternative trading system liquidity) to which they may not currently have access. The Commission's cost estimates below assumes that smaller broker-dealers (those carrying less than $100MM in total assets) will incur costs to engage external parties for this review.

The Commission preliminarily believes that due to the prevalence of exchange rebates, many of the 2,440 retail broker-dealers [575] are likely to qualify as conflicted under the proposal. The Commission is able to preliminarily estimate an upper bound on potential implementation costs from these broker-dealers by assuming that all 2,440 retail broker-dealers would remain conflicted after implementation of the proposal,[576] but the Commission preliminarily believes the implementation costs for many broker-dealers are likely to be lower than this estimate because some conflicted broker-dealers receive payments from their conflicted order flow that are less than the implementation costs they would incur under the proposed rule; consequently, the Commission preliminarily believes that some broker-dealers will choose to de-conflict to avoid incurring these costs. For purposes of its analysis, the Commission assumes that broker-dealers with less than $100MM in total assets will comply with the proposal by removing their conflicts.[577] The Commission preliminarily believes that some broker-dealers may continue to use one or more clearing broker-dealers that have previously paid to receive their order flow, and in such cases the primary cost to the broker-dealer would be the lost PFOF revenue. However, if a broker-dealer needed to change the broker-dealer it routed to, or engage the services of another intermediary to handle its order flow in order to remove conflicts, the broker-dealer would likely incur switching costs such as staff time allocated to researching and negotiating with alternative providers of services.[578]

The Commission preliminarily believes that each broker-dealer that would be required under the proposed rules to comply with provisions of the proposal applicable to conflicted broker-dealers would consider its options under the proposed rules strategically. For some firms, the costs of staffing the activities required for compliance would exceed their expected profits from conflicted transactions. The Commission expects these firms would choose to alter their business models to reduce conflicts so compliance changes necessary for conflicted transactions are not required under the proposed rules. It is possible that a consolidation of business would result: some broker-dealers may exit the market, while others would invest further and compete to serve the customers of exiting broker-dealers. Some broker-dealers may reduce conflicts identified under the proposed rules and compete for customer order flow on the basis of their less-conflicted status. To the extent that exiting broker-dealers were able to offer lower-costs than broker-dealers that either reduce conflicts or comply with provisions of the proposal required of conflicted broker-dealers, direct costs such as commissions and fees for these firms' investor customers may increase.

[574] Resolving conflicts is discussed below.

[575] Based on Q2 2022 FOCUS data.

[576] If all 2,440 broker-dealers were to implement the more rigorous requirements required for broker-dealers engaging in conflicted transactions, these broker-dealers would collectively incur $155.3MM in implementation costs averaging $63,637 per broker-dealer. The Commission also assumes each would incur $9,000 per year in costs to update order-handling procedures in response to its annual review of execution quality, for ongoing annual costs of $22.0 MM.

[577] If a broker-dealer has revenue from conflicted transactions that over time sufficiently exceeds the $24,935 in additional implementation costs the Commission estimates conflicted broker-dealers will incur and the $9,000 annual cost to update order-handling procedures, the broker-dealer is likely to choose to continue to engage in conflicted transactions since its revenue from such activities exceeds the additional implementation and ongoing costs necessary to comply while engaging in conflicted transactions. Because the majority of PFOF revenues accrue to a small number of broker-dealers, the Commission preliminarily believes that smaller broker-dealers are unlikely to receive significant PFOF revenue that would justify the additional implementation costs. For some of these broker-dealers, passing the PFOF they receive on to their customers may suffice to de-conflict. *See* note 183, *supra.*

[578] *See infra* note 581 and text for discussion of related costs the broker-dealer would likely incur to operationalize changing a routing destination.

iii. All Broker-Dealers

Broker-dealers would incur costs to update policies and procedures to reflect the proposal. They would incur other costs to regularly review the execution quality of venues or other broker-dealers to which they route customer orders. To the extent that broker-dealers already have policies and procedures that comply with the proposal, aggregate implementation costs would be less than this estimate, and based on the Commission's experience, the Commission preliminarily believes these estimates overstate costs broker-dealers would bear in implementing the proposal. Implementation costs are summarized in Table 23 below.[579]

TABLE 23—TOTAL IMPLEMENTATION COSTS

Required Policies and Procedures		Per registrant ($)		Industry-wide ($)		
		Internal labor	External	Internal labor	External	Total
BDs excluding conflicted retail (3273):						
Update policies and procedures	One time	6,462	32,240	21,150,126	105,521,520	126,671,646
Annual review and update of P&P.	Annual	2,154	8,800	7,050,042	28,802,400	35,852,442
Conduct and document review of execution quality.	Annual	7,642	6,080	25,012,266	19,899,840	44,912,106
Conflicted BDs (225):						
Update policies and procedures	One time	55,701	7,936	12,532,725	1,785,600	14,318,325
Annual review and update of P&P.	Annual	6,421		1,444,725		1,444,725
Conduct and document review of execution quality.	Annual	20,840		4,689,000		4,689,000
Annual Report						
Unconflicted BDs (3273):						
Update procedures for reviewing best ex policies and procedures.	One time	1,795	4,960	5,875,035	16,234,080	22,109,115
Conduct and document regular reviews.	Annual	4,062	7,920	13,294,926	25,922,160	39,217,086
Conflicted BDs (225):						
Update procedures for reviewing best ex policies and procedures.	One time	8,952	1,488	2,014,200	334,800	2,349,000
Conduct and document regular reviews.	Annual	12,278		2,762,550		2,762,550
Total Implementation Costs				41,572,086	123,876,000	165,448,086
Total Annual Costs				54,253,509	74,624,400	128,877,909

Costs in this table are constructed from estimates in Section VI.D. In its economic analysis, the Commission assumes that the 225 retail broker-dealers with over $100MM in total assets are large and will continue to engage in conflicted transactions if the proposed rules are adopted, and follows the Section VI.D estimates for large broker-dealers. The remaining 3,273 broker-dealers are assumed to be unconflicted for purposes of the proposed rules, and this analysis follows the Section VI.D estimates for small broker-dealers. Section VI.D assumes that smaller broker-dealers are less likely to engage in conflicted transactions, but acknowledges some costs associated with conflicted transactions. Furthermore, Section VI.D cost estimates assume broker-dealers will outsource many compliance tasks and thus relies more upon external costs. To the extent that these broker-dealers elect to perform these tasks with internal personnel, their implementation costs are likely to be over-stated in this analysis. Consequently, this analysis is likely to over-estimate compliance costs for unconflicted broker-dealers.

Where internal burden hours appear in Section VI.D, the Commission employed hourly rates to monetize these costs. These hourly rates are based on SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and multiplied by 5.35 to account for bonuses, firm size, employee benefits and overhead, and adjusted with a factor of 1.27 for inflation based on the 27% change in the Consumer Price Index from December 2013 to September 2022. The Commission employed the following hourly rates, with the description employed in Section VI.D in parenthesis: Attorney (legal counsel) $483 per hour; Compliance Attorney (compliance counsel) $424 per hour; General Counsel (general counsel) $693 per hour; CCO (CCO) $616 per hour; Compliance Manager (compliance manager) $359 per hour; Paralegal (legal personnel) $253 per hour; Compliance Manager (compliance personnel) $359 per hour; Operational Specialist (business-line personnel) $159 per hour.

The previous table discusses the costs broker-dealers would incur to comply with the proposal.[580] In the case of conflicted broker-dealers that would be newly required to evaluate execution quality from multiple sources in evaluating execution quality, it is possible they would periodically need to change their routing practices to reflect changes they observe in their data analysis. The Commission preliminarily estimates that each conflicted broker-dealer that changes its routing practices will incur costs of approximately $9,000.[581] The Commission cannot estimate the number of broker-dealers that would need to make this change periodically,

[579] *See infra* Section VI.7 for detailed discussion of these estimates.

[580] *See infra* section VI.D.

[581] The Transaction Fee Pilot required reprogramming of SORs as well. For that pilot, the Commission estimated that the costs of a one-time adjustment to the order routing systems of a broker-dealer would $9,000 per broker-dealer. The Commission preliminarily believes that this estimate remains a reasonable estimate of costs associated with changes that broker-dealers would incur from having to update their routing systems. *See* Securities Exchange Act Release No. 84875 (Dec. 19, 2018), 84 FR 5202 (Feb. 20, 2019) (Transaction Fee Pilot for NMS Stocks).

but the Commission preliminarily estimates that the changes will be no more than $2 million [582] annually in aggregate.

iv. Additional Compliance Costs for NMS Stocks and Options

For NMS stocks, a broker-dealer engaging in conflicted transactions would currently be required to subscribe to SIP data under current SRO best execution rules. To consider a broader range of markets, such broker-dealers might add connections to one or more ATSs, subscribe to more detailed data or consider connecting to ''ping'' destinations (automated systems run by OTC liquidity providers that may elect to internalize any order routed to their system).[583] In making this choice, some broker-dealers may compare their current routing practices to a hypothetical competitor that does the bare minimum and consider their practices compliant with the proposal even if all competitors currently do more than this hypothetical minimum.[584] To the extent broker-dealers believe that their current routing practices are in compliance and do not make changes to routing practices, both the benefits and the costs of the proposed rules would be less than they would be otherwise.

v. Additional Compliance Costs Associated With Fixed Income Securities

With respect to fixed income securities trading, broker-dealers that engage in conflicted transactions could add subscription to one or more trading venues (*e.g.,* ATSs, RFQ platforms, single dealer platforms) to the extent that the benefit (*i.e.,* improvement in execution quality) from adding subscription to trading venue outweighs the costs (*e.g.,* venue subscription fees).[585] The Commission expects that a broker-dealer would subscribe to additional trading venues to take liquidity (as opposed to provide liquidity by posting quotes or responding to RFQs) in executing retail customer orders on riskless principal basis or to discover prices for the purpose of internalization. The Commission understands that subscription fees for liquidity takers are not significant. Furthermore, the broker-dealer would choose to connect to a trading venue via low cost means, for example, web-based graphical user interface (GUI) rather than via more costly application programming interface (API), which may include the costs associated with connectivity and systems reconfiguration (*e.g.,* reconfiguring to adjust API), to the extent that the broker-dealer does not expect to maintain constant connection to execute a large number of customer orders on the venue. To the extent that making changes to business practices to handle customer orders on an agency basis in fixed income securities trading is less costly than incurring costs to comply with the requirements with respect to conflicted transactions, broker-dealers may choose to handle retail customer orders on an agency basis rather than a riskless principal basis. In particular, a broker-dealer whose primary business is retail self-directed trading conducted on a riskless principal basis could change its business practices to convert its self-directed trading business to handling orders on an agency basis. The Commission preliminarily believes that the costs associated with such a conversion could include the costs related to changing risk management practices for intraday capital commitment, compliance systems, recordkeeping practices for orders and transactions, and accounting practices. However, the Commission is uncertain about these costs associated with the business practice changes needed to convert a self-directed trading business from a riskless principal to agency based model and requests comments on the costs.

vi. Additional Compliance Costs for Non-NMS Stock Equity Securities

In the case of non-NMS stock equities, liquidity on ATSs beyond those that specialize in non-NMS stock equities may be rare. For a broker-dealer that currently participates in the non-NMS stock market, adding additional markets may mean subscribing to additional ATSs, or possibly, contacting other broker-dealers that act as liquidity providers of last resort through direct messages thus seeking additional sources of liquidity manually. To the extent that broker-dealers are able to bear the costs of seeking this additional liquidity (through ATS subscriptions or manual negotiation) while maintaining a profitable trading service, broker-dealers in the non-NMS stock equities market could pursue these actions and pass on the costs to customers. In the case of very illiquid non-NMS stock equities, broker-dealers may be left with either no apparent options to add additional markets, or with markets which are prohibitively expensive to consider as additional liquidity sources (such as contacting other broker-dealers or block holders of the security to inquire about their interest in being a counterparty). In such cases, there may not be additional implementation costs for conflicted transactions because alternative markets may not be available.

vii. Additional Compliance Costs Associated With Crypto Asset Securities

Broker-dealers trading crypto assets that are securities may incur costs to comply with the proposed rule.[586] Because the Commission lacks data and other information on existing broker-dealers and their practices in the crypto asset securities market, it is difficult to precisely determine the costs of compliance for such broker-dealers. Generally, the Commission expects the costs of compliance to be most similar

[582] 225 conflicted broker-dealers × $9,000 per order-handling change = $2.025MM annually. The Commission assumes that order-handling changes would be annual because the proposal requires the annual review of the best execution policies and procedures, including order handling practices. Based on the Commission's experience, the Commission preliminarily believes that many broker-dealers, including many that the Commission believes will be unconflicted if the proposal is adopted and implemented, already change order-handling practices regularly for both best-execution and other operational reasons, such as reducing costs. Consequently, the Commission preliminarily believes that this estimate exceeds the annual costs that broker-dealers would bear under the proposal.

[583] The Commission preliminarily believes that larger broker-dealers that are likely to continue engaging in conflicted transaction if the proposed rules are adopted are likely to already connect to a broader range of venues than would be represented by SIP data. The Commission cannot predict how many broker-dealers that elect to engage in conflicted transactions would increase the range of venues to which they connect and what costs they would incur to do so because broker-dealers are diverse in business models and practices and each broker-dealer would need to evaluate its own operational procedures to make such a determination.

[584] Based on staff discussion with market participants, the Commission preliminarily believes that broker-dealers are often not certain what their competitors' routing practices are. Such information is proprietary and generally not publicly available.

[585] In their Form ATS submissions, 15 of 33 ATSs state they have no access, connectivity and/or subscription fees. The Commission preliminarily believes that most ATSs charge fees primarily based on transactions, and subscribers are responsible for any costs related to providing their connectivity. To the extent an ATS does charge subscription fees, broker-dealers are likely to consider those fees in making a determination of whether the liquidity on such an ATS is reasonably available.

[586] Affected parties that effect transactions in the crypto market may include some market participants that may not be currently registered as a broker-dealer but should be under existing regulations. As noted above, this analysis does not account for costs of such market participants to register as broker-dealers or otherwise come into compliance with existing applicable regulation.

to costs associated with trading non-NMS stocks. To the extent that the current market practices of market participants that would need to comply with the proposed rule differ significantly from the practices required under the proposed rule, the costs for compliance with the proposal may be large; this may be the case, for example, for market participants whose practices are not currently consistent with FINRA Rule 5310. On the other hand, market participants with existing best execution policies and procedures, such as those that operate across other asset classes (*e.g.,* NMS securities), may bear incremental lower costs of compliance.

For crypto asset securities that are traded on multiple platforms, conflicted broker-dealers may need to connect to additional platforms to comply with the proposal. In the case of crypto asset securities that are not traded on multiple platforms, broker-dealers would incur costs to directly contact liquidity providers of last resort, such as broker-dealers that might agree to trade the asset if contacted directly. Because transacting manually in this manner involves the time of a professional trader, the cost to make these additional inquiries required by the proposal might be uneconomical, particularly in the case of small trades.

(b) Other Costs

As discussed previously, currently many retail orders in NMS securities are executed without paying commissions.[587] The Commission preliminarily believes that the proportion of retail order flow being executed under PFOF agreements may decrease, although the Commission is uncertain of the magnitude of this reduction.[588] It is possible that reductions in the proportion of retail order flow being executed under such agreements could cause the prevalence of retail commissions to increase because revenues from these agreements may have previously offset retail broker dealer costs that would otherwise be covered by commissions collected from retail investors. This effect may be mitigated if broker-dealers elect to pass exchange rebates to their customers. The Commission preliminarily believes that it is unlikely that the proposal would significantly increase the prevalence of retail commissions because the market to provide retail broker-dealer services is competitive and many of the broker-dealers that the Commission believes will remove their conflicts receive relatively small payments for their order flow.[589]

The Commission further believes that the costs of the rule could advantage larger broker-dealers and may increase barriers to entry and disadvantage smaller broker-dealers, potentially resulting in some of them exiting the market. To the extent that smaller broker-dealers are more likely to provide specialized services and provide innovation, there may be less competition to provide specialized services and less innovation if the proposal is adopted. Investors whose broker-dealers exit the market would face search costs to find alternative broker-dealers that offer the same services; those services may be offered at inferior prices by remaining competitors. Some services may no longer be offered by any competitors if a specialized broker-dealer exits the market, although the Commission preliminarily believes that if there is sufficient demand for such a service, a broker-dealer may make it available to customers when demand is sufficient, as may be the case after one or more broker-dealers exit the market.

While the Commission cannot predict how many retail broker dealers will terminate PFOF arrangements, the Commission preliminarily believes that under the proposal, retail broker-dealers are likely to reduce their use of PFOF agreements for both NMS stocks and listed options because engaging in such agreements would cause the broker dealer to incur heightened best execution obligations under the proposal and satisfying those obligations may cause broker-dealers to incur costs in excess of their PFOF revenue.[590] Since most broker dealers that receive PFOF receive relatively small payments for routing their order flow,[591] smaller broker-dealers in particular may consider curtailing this practice to avoid incurring the additional compliance costs. Furthermore, broker-dealers that currently pay to receive order flow may adjust their business models[592] to rely less on these arrangements. The Commission preliminarily believes this is likely to reduce the share of retail customer order flow that is internalized because some broker-dealers that currently receive PFOF are likely to stop receiving it to become de-conflicted, and some broker-dealers that pay PFOF will internalize fewer of the orders they receive to comply with the proposal. If this occurs, broker-dealers that reduce their reliance on PFOF arrangements would also be likely to see commensurate decreases in their revenue. This increase in costs to execute customer orders may be passed on to retail investors as additional fees to trade, or in the form of commissions.

Similarly, the Commission preliminarily believes that firms that currently pay to receive retail order flow would likely receive less of such directed order flow. While this may be a cost savings to those firms, it is likely to represent a reduction in what was previously a profitable business operation, and the lost profit opportunities are not likely to offset any cost savings. It is possible such firms may choose to compete on other venues (ATSs and exchanges) to participate in this order flow, but the Commission preliminarily believes that profits from such a venture are unlikely to be comparable to the profits of internalization because, on other venues, other broker-dealers would be able to compete with these broker-dealers to provide liquidity to these orders which should reduce the cost of that liquidity to investors.[593] If these firms reduce the capital they currently allocate to providing liquidity, spreads could increase particularly in the short-term because fewer market participants would be competing to provide liquidity. However, the Commission preliminarily believes that the market to provide liquidity to retail orders is competitive and other competitors are

[587] *See supra* Section V.B.3.a

[588] *See supra* Section V.C.1.

[589] In the case of larger broker-dealers that derive significant revenue from PFOF, the Commission preliminarily believes that they will continue to do so and incur the additional compliance costs discussed previously in Table 23.

[590] The Commission lacks data on many broker-dealers' PFOF revenue, but acknowledges that some broker-dealers will realize an indirect cost from forgone PFOF revenue. In the case where a broker-dealer receives PFOF from another broker-dealer or trading venue, this will constitute a transfer from one registrant to another, and will not increase industry costs in aggregate. In cases where a broker-dealer passes PFOF on to its customers to avoid conflicts, this payment may reduce investor trading costs and increase industry costs in aggregate.

[591] Many broker-dealers receive PFOF, but the majority of PFOF is received by a small group of broker-dealers. Consequently, many broker-dealers receive relatively small PFOF payments, although for some broker-dealers these small payments may contribute significantly to profits, depending on other revenue sources. Regardless of this relative magnitude, the costs to comply with the proposal's heightened standards may be prohibitive for broker-dealers that receive relatively modest PFOF revenue, and their compliance costs may exceed the revenue the broker-dealer receives for engaging in conflicted transactions. *See supra* Section V.B.3 and Section V.C.2.(a)i.

[592] If broker-dealers choose to pass exchange rebates on to their customers, they may incur additional costs associated with updating systems to account for these payments.

[593] *See supra* Section V.C.1.

likely to increase their capital provision over time to satisfy demand.[594]

In addition to costs discussed previously, broker-dealers that engage in conflicted transactions would face heightened standards under the proposal. These standards would require them to obtain and assess information beyond what would be required of a broker-dealer that is not conflicted, including price, volume, and execution quality, in identifying a broader range of markets beyond those identified as material potential liquidity sources. The Commission preliminarily believes that this requirement may be interpreted very differently by different broker-dealers, and may prove challenging in markets for some asset classes where the number of potential markets is limited and broker-dealers may effectively be checking all reasonably available prices in current practice.

i. Additional Other Costs in NMS Stocks and Options

In equities, the Commission preliminarily believes that firms that internalize retail order flow provide liquidity to a wide range of securities, including those that are very thinly traded. In fact, fulfillment of these more difficult to fill orders may be part of a service bundle that internalizers provide to broker-dealers that route them their order flow. Generally, thinly traded securities are more risky for liquidity providers because quotation data are relatively sparse compared to more heavily traded securities, such quotations are more likely to be stale, and there may be no market makers that have a duty to maintain two-sided quotes in these securities.[595] It is possible that execution prices may be less favorable for retail investors under the proposal if liquidity providers that previously paid for order flow and fulfilled these difficult to execute orders under such arrangements dedicate less capital to making markets in these securities. It is possible that execution times for these securities may be significantly delayed as broker-dealers would need to search for liquidity to fill these orders, and this delay is an additional factor that a broker-dealer would need to consider in the order's execution quality. It is also possible that execution prices for these transactions may be less favorable than they might be under a PFOF arrangement because the price improvement statistics on these orders are currently included in the criteria retail broker dealers evaluate in choosing executing broker dealers.[596] However, the Commission preliminarily believes that the market to provide liquidity to retail orders, including orders in less liquid securities is competitive. If the proportion of such orders entering the market beyond internalizers increases, it is likely other broker-dealers that provide liquidity to asset markets would increase liquidity provision to this segment of the equities market. The costs realized by investors transacting in these securities may increase, however, because broker-dealers are unlikely to provide additional liquidity unless they can cover their costs and earn appropriate risk-adjusted returns.[597]

In addition to the costs discussed above, the Commission preliminarily believes that in the market for listed options, the NBBO spreads set by resting best displayed liquidity could be wider and the depths at the best market prices could be thinner because of the increasing order flow segmentation under the proposal. Specifically, liquidity providers could deploy less capital to provide the resting displayed liquidity in the limit order books in favor of price improvement auctions or price improving inside the NBBO. Because the proposed rules could result in potentially more efficient price improvement auctions and/or potentially more retail orders being routed to the auctions for price improvement opportunities, order flow routed there could become less impactful and more profitable. At the same time, the orders filled by the lit quotes would become more impactful and impose relatively more adverse selection risk on the liquidity providers who provide resting displayed liquidity, in part due to the increased level of order segmentation. Less capital from liquidity suppliers would make the liquidity in order books thinner and potentially widen the NBBO. Wider NBBO spread and thinner depth would inevitably lead to worse execution quality to the orders that are not exposed to price improvement opportunities. To the extent that the proposal would make a subset of retail customers better off by improving the prices those customers receive, it would correspondingly adversely affect other customers by harming prices and liquidity in displayed quotes.

ii. Additional Other Costs in Fixed Income Securities

With respect to fixed income securities trading, the Commission preliminarily believes that the proposal could adversely affect liquidity. To the extent that broker-dealers no longer practice last-look in conducting RFQs for the purpose of internalization, these broker-dealers could earn less profits from principal trading that relies on broker-dealers' capacity to commit capital for carrying inventory. A reduction in capital commitment for fixed income securities intermediation could result in lower liquidity, particularly for those trades that rely on broker-dealers' capacity to provide immediacy by trading on a principal basis (by taking fixed income securities into inventory). This would result in an increase in pre-arranged trades between a buyer and a seller (so that the broker-dealer can quickly offset its position in the opposite direction), which take a longer time to execute, increasing transaction costs of market participants.

To the extent that broker-dealers handling retail customer orders choose to conduct RFQs to fulfill the proposed requirements with respect to conflicted transactions, this could result in an increase of RFQs to a degree that RFQ messages would overwhelm market participants (*e.g.,* broker-dealers responding to RFQs). This could increase the number of RFQs with no or few responses resulting in less competitive prices and worse execution quality for retail customer trades. However, the Commission preliminarily believes that this effect would be mitigated as more market participants adopt automation in the process for responding to RFQ messages to be responsive to RFQs, and thus, attract more order flow.

3. Efficiency, Competition, and Capital Formation

The Commission has considered the effects of the proposed amendments on

[594] *See infra* Section V.D.3.

[595] *See,* for example, Menkveld, Albert J. and Wang, Ting, *How do designated market makers create value for small-caps?,* 16 Journal of Financial Markets 571 (2013), *available at https://www.sciencedirect.com/science/article/pii/S1386418112000535#aep-abstract-id6*; Craig, Louis, Kim, Abby, and Won Woo, Seung, *Pre-trade Information in the Municipal Bond Market,* (SEC Working Paper, July 2018), *available at dera_wp_pre-trade_information_in_the_municipal_bond_market.pdf (sec.gov)https://www.sec.gov/files/dera_wp_pre-trade_information_in_the_municipal_bond_market.pdf* and Craig et al, *supra* note 471.

[596] Broker-dealers that pay to receive order flow may be providing better execution to difficult to fill orders because the execution in such orders is an element upon which their clients evaluate them. Consequently, outside of PFOF arrangements, such orders might receive inferior execution quality to what they would receive under such an arrangement.

[597] Securities for which it is more difficult to find trading counterparties often are characterized by infrequent trades, less frequent quotations and lower market capitalization. These factors are likely to increase the adverse selection risk liquidity providers face when providing liquidity to the market for these securities.

efficiency, competition, and capital formation, and discussed these effects below.

(a) Competition

i. Market for Trading Services

The Commission preliminarily believes that the proposal would improve competition among trading venues. The proposal requires that broker-dealers consider a wider range of trading venues. In the equity and option markets, the Commission also preliminarily believes that the proposal would reduce the proportion of retail order flow that is internalized. The Commission preliminarily believes that this would increase competitive opportunities for exchanges and other trading venues because more broker-dealers will consider exchanges and ATSs as potential execution venues. In the fixed income securities markets, the proposal could promote competition among trading venues to the extent that broker-dealers expose retail customer orders broadly across multiple trading venues for the purpose of executing riskless principal trades and for the purpose of internalization.

In the market for NMS stock and options trading services, the Commission preliminarily believes that competition would increase. To the extent that the proposal's requirement that broker-dealers incorporate material sources of liquidity into their order handling practices causes broker-dealers to consider additional execution venues such as additional exchanges or ATSs for their orders, competition between trading venues may increase. Other factors that may encourage broker-dealers to more frequently use exchanges and ATSs for trading include the heightened standards for conflicted transactions and the heightened standards for transactions where a PFOF arrangement is in place.

By considering more sources of liquidity and the heightened standards for broker-dealers in conflicted transactions, it allows for venues such as exchanges and ATSs to compete for order flow that may have been internalized by wholesalers before the effects of this rule. The requirement to consider price improvement from midpoint liquidity before internalizing a retail trade could increase competition by resulting in more trading venues competing to offer programs that offer midpoint liquidity to retail orders. There will be increased demand for the services of trading service venues. Given this increased demand, the venues will compete to acquire as much of it as possible. Given this increased demand, it is possible that the fees venues charge may rise, particularly if large venues capture most of the increased order flow.

The Commission preliminarily believes that the proposal would increase competition between broker-dealers to provide liquidity to retail orders by requiring broker-dealers that route to executing brokers to consider a wider range of executing venues. Currently, most retail order flow for which the customer has not specified an execution venue is routed first to an internalizer. Under the proposal, broker-dealers would need to consider a wider range of trading venues and programs (such as retail liquidity programs [598]) before routing customer orders.

The Commission preliminarily believes that the proposal would have limited impact on the market to provide liquidity to unlisted stocks and thinly traded NMS stocks. As the proposal requires brokers to check material sources of liquidity, there will be little change if these sources of liquidity are few to begin with.

The Commission preliminarily believes that the proposal would promote price competition and competition in price improvement mechanisms for listed options. Under current practice, in order to attract order flow from wholesalers, the exchanges that provide the price improvement auction mechanisms often establish asymmetric fee schedules charging the competing liquidity providers higher fees than the wholesaler for participating in the auction. This limits the ability of competing liquidity providers to provide more favorable pricing to compete with the wholesaler in those auctions, resulting in less than fully efficient price improvement offered to the customer. Under the proposal, when considering a price improvement auction, the wholesaler would be required to consider a broad range of price improvement auctions across the exchanges and evaluate the execution quality that may be received from these auctions and how that might be impacted by auction features such as asymmetric fee schedules after controlling for all the other factors such as the allocation model. Therefore, the option exchanges would have incentives to level the playing field by reducing the existing auction transaction fee gap to enhance competition in those auctions to attract the retail order flow.

Currently, there is no mid-point liquidity protocol available across the limit order books operated by the exchanges for listed options, but the Commission is aware that there is at least one option exchange which provides a protocol allowing market participants to provide liquidity on the limit order book within the NBBO prices to interact with incoming marketable orders and provide price improvement against NBBO at the same time. The Commission preliminarily believes that, under this proposal, more exchanges would have incentives to develop protocols which would facilitate liquidity provision within the prevailing NBBO spread because broker-dealers would be required to have policies and procedures that specifically address opportunities for price improvement and other order exposure opportunities. Thus, the wholesaler would need to check or reasonably estimate whether there could be substantial midpoint or within-NBBO liquidity available on the limit order books operated by other exchanges. Some exchanges may even consider establishing protocols to allow customer order flow executed at the midpoint of NBBO prices, which would further increase opportunities for retail orders to receive price improvements.

ii. Market for Broker-Dealer Services

The Commission preliminarily believes that the proposal could have mixed effects on competition in the market for broker-dealer services. Changes in order handling practices that could occur as part of the rule could promote competition between broker-dealers to attract customers. However, the costs of the rule could advantage larger broker-dealers and may increase barriers to entry and disadvantage smaller broker-dealers, potentially resulting in some of them exiting the market.

While modifying their policies and procedures, broker-dealers could change their order handling practices and also the services they utilize from other broker-dealers while handling customer orders. These changes in order handling practices could promote competition among broker-dealers, especially on the basis of execution quality, to attract customers. It could also promote competition among broker-dealers offering services to other broker-dealers to attract new clients.[599]

The Commission preliminarily believes that the proposal may increase barriers to entry and disadvantage smaller broker-dealers because of the increased compliance costs and resulting economies of scale that would result under the proposal. Furthermore,

[598] *See supra* Section V.B.3(a).i.

[599] *See infra* Section V.B.3.a.i for discussion about competition about market for market access.

the proposal could result in consolidation among smaller broker-dealers or these broker-dealers being absorbed (via merger) by larger broker-dealers to take advantage of the economies of scale. Such a change to the competitive landscape could also reduce competition in the market for trading services. In the case of broker-dealers that meet the definition of introducing broker under FINRA rules but do not do so under the proposal, compliance costs may be high.[600] Some of these broker-dealers may adjust their business models to no longer compete as introducing brokers, and new entrants may be discouraged due to elevated costs of complying with the proposal.

Additionally, the proposed rules for conflicted transactions for retail orders and on introducing brokers accepting PFOF may reduce the PFOF retail brokers receive in the equity and options markets. To the extent that these firms do experience a major reduction in their PFOF revenue, they may face pressure to develop other lines of revenue, including the addition of commissions and/or fees for trading and advisory services, although broker dealers that have heavily promoted their commission-free business model would be more reticent to add commissions and/or fees, despite the loss of PFOF.

To the extent that some retail brokers do resume charging commissions, they may be constrained by competitive pressures in the commission rates they can charge. Larger retail brokers that do not accept equity PFOF could continue to provide commission-free trading. This, in turn, would put competitive pressure on the extent to which retail broker-dealers could charge commissions and still retain customers. If the ability of smaller retail brokers to charge commissions is constrained by competition, it could increase the competitive advantage of larger retail brokers, which could raise the barriers to entry for new brokers and cause some smaller retail brokers to exit the market.

The Commission is unable to quantify the likelihood that one or more smaller brokers would cease operating. Even if one or more small brokers were to exit, while the Commission acknowledges that services to niche markets more likely served by smaller broker-dealers might decline, the Commission does not believe this would significantly impact competition in the larger market for generalized broker services because the market is served by multiple large competitors. Additionally, the market would likely still be served by many small competitors. Consequently, if a smaller retail broker were to exit the market, demand is likely to be swiftly met by existing competitors. The Commission recognizes that small brokers may have unique business models that are not currently offered by competitors, but the Commission believes a competitor could create similar business models previously offered by exiting firms if demand were adequate. Moreover, if the services generated by these business models are not provided by existing competitors, it seems likely new entrants would provide them if demand were sufficient.

iii. Market for Market Access

The Commission preliminarily believes that the proposal would increase competition in the market for market access. A number of aspects of the proposal could result in more broker-dealers utilizing the services of a routing or executing broker or engaging in more extensive comparisons of the services and execution quality of different routing or executing brokers. This would increase competition among broker-dealers offering order routing and execution services to other broker-dealers in order to attract new customers.

The introducing broker requirements under Rule 1101(d) would enhance competition the market for market access in two ways. The requirement for introducing brokers to regularly compare the execution quality of their executing broker to that of other executing brokers would promote competition between executing brokers. Broker-dealers that carry customer accounts that currently route their order flow to an executing broker to handle in an principal capacity would not be eligible for the introducing broker relief under Rule 1101(d) and would have to develop policies and procedures for handling customer orders. If they utilized a routing broker as part of developing these policies they would need to compare different routing brokers and develop the criteria for selecting a routing broker as part of their policies and procedures. They would have to also compare their routing broker to the other routing brokers as part of their regular review of their policies and procedures. This could enhance competition among routing brokers in order to attract these broker-dealers as clients.

The heightened standards for broker-dealers handling retail orders engaging in conflicted transactions may also promote competition in the market for market access. The additional requirements for broker-dealers handling retail orders engaging in conflicted transactions may lead to some retail brokers that currently route orders to wholesalers to instead utilize the services of a routing broker to handle their orders.[601] There could be increased competition among routing brokers to provide these conflict-free routing services to retail brokers. Additionally, the heightened standards for broker-dealers that accept PFOF may foster competition between broker-dealers to provide best-execution services to retail broker-dealers that continue to accept PFOF. Because the proposal would require these retail broker-dealers to document their compliance with the best execution standard for conflicted transactions, including all efforts to enforce their best execution policies and procedures for conflicted transactions and the basis and information relied on for their determinations that such conflicted transactions would comply with the best execution standard, this could increase competition among broker-dealers that pay for order flow to provide adequate information to broker-dealers routing to them, allowing those broker-dealers to improve their customers' execution quality. Without such assistance from broker-dealers that pay for order flow, the broker-dealers that provide order flow may be faced with the need to perform significant data analysis on multiple executing broker-dealers if they intend to continue receiving PFOF. For some broker-dealers, the expense of conducting such analysis is likely to exceed the revenue they receive for directing their order flow to executing broker-dealers that pay to receive their order flow. These broker-dealers may choose to stop receiving PFOF or pass all PFOF they receive through to their customers in order to avoid these expenses. Consequently, broker-dealers that pay for order flow are likely to be incentivized to assist their customer broker-dealers in complying with the rule to avoid losing their order flow. It is also possible that broker-dealers that currently receive PFOF may simply maintain their routing practices and stop accepting PFOF to reduce their compliance burden under the proposal.

With respect to fixed income securities trading, the proposed requirements with respect to introducing brokers and regular review of execution quality could promote competition in the market for market access (*i.e.,* amongst executing brokers). Brokers that outsource execution services for fixed income securities

[600] *See supra* Section V.C.2.

[601] *See supra* Section V.C.1.a.

would conduct regular reviews and compare execution quality in the selection of their executing brokers, which would promote competition and innovation in the fixed income market for market access. Executing brokers would compete on fees, efficiency in order handling procedures, and efficiency in the selection of trading venues or counterparties, which in turn, would result in better execution quality for retail customer trades.

(b) Efficiency

The Commission preliminarily believes the proposal would improve price efficiency in asset markets because broker-dealers will need to consider a wider range of markets and execution methodologies when routing customer orders. By facilitating competition between a larger pool of liquidity providers, more liquidity providers may be incentivized to compete to provide liquidity. This would provide a wider range of quotes and facilitate price efficiency to the extent that the expanded liquidity pool provides more informative quotes.

While the Commission preliminarily believes the proposal could improve retail order execution prices,[602] the Commission recognizes that it could take longer for conflicted orders to be executed because broker-dealers might need to consider additional venues before routing an order, and they may need to perform more routings before the order is fulfilled. It is possible that market prices could move unfavorably during this time.

(c) Capital Formation

The Commission preliminarily believes that the proposal may improve capital formation by incentivizing broker-dealers to allocate additional capital to the provision of liquidity. The proposal's requirement that broker-dealers consider additional pricing information and execution venues before routing customer orders and heightened standards for best execution for conflicted transactions may result in more order flow being routed to venues with competitive quotations. If such quotations are more likely to result in executions, particularly with retail order flow that usually carries lower adverse selection costs to broker-dealers,[603] broker-dealers would have greater incentives to provide such quotations.

The Commission also recognizes that liquidity provision in thinly traded and unlisted securities may decrease. Currently, broker-dealers with business models that specialize in internalizing retail order flow may be providing liquidity in very thinly traded securities as part of a bundle of services that they provide to their customers. If the internalization of retail orders decreases as the Commission preliminarily believes it might, broker-dealers may be faced with difficult liquidity searches when their customers wish to trade thinly traded or unlisted securities. It is possible that an increase in retail demand for liquidity in these securities may be met with an increase in liquidity supply from firms that are more willing under the proposal to make markets in these securities than they were when a greater proportion of retail flow was internalized. To the extent that broker-dealers' willingness to make markets in these securities decreases overall, this may increase trading costs for these securities and make it more difficult for companies to go public before they are eligible to be listed on registered exchanges.

D. Reasonable Alternatives

1. SEC Adopts FINRA Rule 5310 and MSRB Rule G–18 Best Execution Rules

As an alternative, the Commission could adopt existing FINRA Rule 5310 and MSRB Rule G–18 rules and associated guidance. This alternative would have lower costs and benefits compared to the proposal, because changes [604] in order handling practices would be unlikely to occur under this alternative compared to the proposal. Under this alternative, improvements to investor protection might be less than those from the proposed rules.

This alternative would not include the enhanced requirements within proposed Rule 1101(b) related to transactions with broker-dealer subject to specified conflicts of interest, which represent the majority of retail transactions in the equity, options, and fixed income markets.[605] Proposed Rule 1101(b) would require a broker-dealer engaging in conflicted transactions to address additional considerations in its best execution policies and procedures, and to document its compliance with the best execution standard for such transactions. To the extent that the proposal would have resulted in improved execution quality for the retail orders by reducing the inefficiencies [606] present in existing conflicted transactions, this alternative would result in less improvement in retail investor execution quality compared to the proposal.

Under this alternative, broker-dealers would still qualify for relief under FINRA Rule 5310.09(c), instead of having to meet the introducing broker requirements to qualify for the propose relief under proposed Rule 1101(d). Broker-dealers that meet the requirements of FINRA's relief but would not have met the requirements of proposed Rule 1101(d) would experience lower compliance costs under this alternative because they would not have to develop or update their own policies or procedures or adjust their business model to de-conflict from their executing broker.[607] The costs of the proposal could advantage larger broker-dealers, increase barriers to entry for new broker-dealers, and disadvantage smaller broker-dealers, which could potentially result in some of them existing the market.[608] The lower compliance costs under this alternative would increase competition among broker-dealers compared to the proposal by lowering barriers to entry for new broker dealers and decreasing the likelihood that smaller broker-dealers would exit the market.[609]

2. Require Order Execution Quality Disclosure for Other Asset Classes

Standardized information on the execution quality available at different market centers and for different executing brokers could aid broker-dealers in their best execution reviews. However, only market centers executing trades in NMS stocks are required to report standardized execution quality statistics under Rule 605.[610] This alternative would require execution quality disclosures from market centers and large broker-dealers in the options and fixed income markets. In addition to execution quality data at the individual security-level, similar to Rule 605 data, the execution quality disclosures would include aggregated

[602] *See supra* Section V.C.1.

[603] *See, e.g.,* Barber, Brad M., and Terrance Odean, *Trading is hazardous to your wealth: The common stock investment performance of individual investors?,* 55 J. Fin. 773 (2000).

[604] *See supra* Sections V.C.1, V.C.2, and V.C.3 for the Commission's projections on the effect of broker-dealers' order handling practices.

[605] *See supra* Section IV.C.1 and Section IV.C.2.

[606] The inefficiencies associated with existing conflicts of interest include, but are not limited to, the trade-off between payment for order flow and price improvement for equities (*See supra* Section V.B.3.a.iii.) and the less than fully competitive price improvement auction mechanisms for options (*See supra* Section V.B.3.a.II.b.).

[607] *See supra* Section V.C.1.

[608] *See supra* Section V.C.3.(a).ii for a discussion of the effects of the proposal on competition between broker-dealers.

[609] *See id.*

[610] The Commission also is proposing to amend the order execution quality disclosures required by Rule 605. *See* Securities Exchange Act Release No. 96494 (Dec. 14, 2022). The Commission encourages commenters to review that proposal to determine whether it might affect their comments on this proposing release.

standardized summary reports of key execution quality statistics, which would allow smaller and less sophisticated investors to analyze and make comparisons between their own broker-dealers and other broker-dealers. Compared to the proposal, these disclosures may better allow investors to evaluate execution quality for their orders within their broker-dealer's overall executions in a given security and facilitate broker-to-broker comparison of order execution beyond equities markets. Although the proposed rule would require each broker-dealer to establish policies and procedures with greater specificity, this does not necessarily mean that the order handling practices reach the same level of efficiency across the broker-dealers. It is possible that some broker-dealers would handle the customer orders less efficiently than others. Under the alternative, broker-dealers, which engage in less efficient order handling practices may recognize the inadequacy when comparing their own execution quality statistics with those disclosed by the more efficient broker-dealers, and improve the order handling practices accordingly to attract order flow. Therefore, increased transparency may reduce differences in execution quality within specific security-time intervals, particularly in the corporate and municipal bond markets. Broker-dealers may be able to incorporate these execution quality statistics into their best execution policies and procedures, which could improve their ability to identify market centers that offer better execution quality, resulting in potentially greater improvements in order handling compared to proposal. This alternative may increase competition among broker-dealers and trading centers in asset classes other than NMS stocks compared to the proposal by promoting competition based more on the basis of publicly available execution quality and less on other inducements to attract more customers/order flow.

However, developing these execution quality disclosures may cause market centers and large broker-dealers in the options and fixed income markets to incur higher startup costs relative to the proposal as market centers would need to develop systems to produce and post such reports. To the extent that certain market centers already have systems or infrastructures in place to produce execution quality metrics, they would incur costs to modify the current systems and/or the format of the reports in order to comply with the standards set forth in the execution quality disclosure requirements. Additionally, execution quality disclosures for the options and fixed income markets may be complex and difficult to produce for a number of reasons. First, the number of individual securities in the options and fixed income markets is significantly larger than in the equity markets. The corporate bond market has approximately 58,000 outstanding issues, more than fourteen times the number of NMS listed equities.[611] This number is small in comparison to the municipal bond market which has approximately one million outstanding issues.[612] Individual equities can have hundreds of individual outstanding options contract identifiers. Second, fixed income and options securities have defined maturities, which might be shorter than a disclosure interval (*i.e.,* a contract with a week expiration relative to a monthly reporting period). This security-level inconsistency may present complications in evaluating time series changes in execution quality. Finally, a broad lack of pre-trade information in fixed income markets make execution quality statistics such as effective-quoted spread ratios difficult, if not impossible, to calculate for many securities.

3. Utilize FINRA and MSRB Approach To Introducing Broker

The Commission could alternatively propose to remove the requirements for introducing and executing brokers related to PFOF, carrying firm status, and affiliation. This definition would more closely align with FINRA and MSRB approach to introducing brokers. FINRA Rule 5310.09(c) applies to a member that routes its order flow to another member that has agreed to handle that order flow as agent for the customer (*e.g.,* a clearing firm or other executing broker-dealer), whereas the proposal would additionally require the firm not to be a carrying firm, accept PFOF from an executing broker, or route customer orders to an affiliated executing broker. Under this alternative, it is likely that most brokers that qualify under FINRA Rule 5310(c) would qualify as introducing brokers under proposed Rule 1101(d). By categorizing more broker-dealers as ''introducing brokers,'' the overall compliance cost carried by the market would be lower as compared to the proposed rule. This alternative would likely cause fewer small broker-dealers, which currently qualify for relief under FINRA Rule 5310.09(c) and MSRB Rule G–18.08(b) and wish to remain conflicted or still carry customer accounts, to change business models to comply with the alternative rule.[613]

The brokers who benefit under this alternative are those who currently qualify for relief under FINRA Rule 5310.09(c) and MSRB Rule G–18.08(b) but fail at least one of the following criteria include in proposed Rule 1101(d): (i) does not carry customer accounts and does not hold customer funds or securities, (ii) has entered into an arrangement with an unaffiliated broker or dealer that has agreed to handle and execute on an agency basis the introducing broker's customer orders (''executing broker''), and (iii) has not accepted any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration from the executing broker in return for the routing of the introducing broker's customer orders to the executing broker. Thus, many current broker-dealers that qualify for relief under the FINRA and MSRB rules, and to some extent their executing brokers, would have lower costs of compliance since there would be no need for those broker-dealers to change their business models. Also, this alternative may lower barriers to entry for some potential introducing brokers. However, under this alternative, the benefits of the proposal would also be diminished. With more broker-dealers meeting the proposal's definition of introducing broker, the benefits compared to the proposal would be lower. Specifically under this alternative, the Commission preliminarily believes that instead of changing their business models to stop being conflicted, introducing brokers and their executing brokers would be more likely to engage in conflicted transactions, and more introducing brokers would receive PFOF. Therefore, the execution quality benefits would be lower since the incentive created by the PFOF would persist, potentially leading to less efficient order routing which may benefit broker-dealers at the expense of retail customers.

4. Ban or Restrict Off-Exchange PFOF

Rather than requiring heightened best execution standards for transactions involving PFOF, alternatively the Commission could ban or restrict off-exchange PFOF in the equity and options markets. Under this alternative, registered exchanges would still be allowed to pay rebates.

[611] *See* O'Hara and Zhou, *supra* note 469.

[612] *See* Muni Facts, Municipal Securities Rulemaking Board, *available at https://www.msrb.org/News-and-Events/Muni-Facts.*

[613] *See supra* Section V.C.1.

Compared to the proposal, this alternative may further reduce conflicts of interest within and improve order handling practices by retail broker-dealers. A 2016 study sponsored by CFA Institute examined changes in equity market execution quality following the Financial Services Authority (FSA) 2012 guidance banning PFOF in the United Kingdom.[614] The study describes internalization under PFOF as a scenario that can increase the probability of conflicted equity and options transactions, particularly for retail investors, in the United Kingdom. The study finds that over the time period from 2010 to 2014, the proportion of retail-sized trades executing at the best quoted price increased from around 65% to more than 90%. The authors claim these findings suggest that the integrity of the order book improved.

Alternatively, rather than an outright ban on PFOF, the Commission could impose specific restrictions on PFOF that could allow retail broker-dealers to pass through payments to end customers in cases where it would permit best execution. For example, a retail broker-dealer may consider two order execution venues with different executable prices: the first venue has a more favorable price, and the second venue provides PFOF to the retail broker-dealer. If the difference in price between the two venues is smaller than the PFOF for the order in question, the retail-broker could return to the customer the portion of PFOF, which is greater than the venue price difference.

A ban or restriction on PFOF would increase the likelihood of higher commissions for retail investors or an increase in the cost of other services offered by retail broker-dealers compared to the proposal. It may also further reduce competition between broker-dealers compared to the proposal. Larger broker-dealers with more diversified business models may be more likely to expand their market share and smaller broker-dealers who are more dependent on PFOF revenue streams may be more likely to exit the market.

5. Require Broker-Dealers To Utilize Best Execution Committees

The Commission considered requiring each broker-dealer to maintain a best execution committee to regularly review the broker-dealer's best execution policies, procedures and the results of its efforts to secure best execution for its customers.

Requiring such a committee and defining its membership might improve execution quality by ensuring sufficient expertise is recruited to establish and monitor the broker-dealer's best execution efforts. Furthermore, requiring such a committee might increase executive attention to best execution, potentially improving execution quality for the broker-dealer's customers.

Requiring such a committee and defining its membership would entail certain costs in addition to those resulting from the proposed rules. First, if the Commission were to define the membership of the committee, it is likely that individual broker-dealers' organizational structures would vary in ways that would make a defined membership structure a poor fit because of, for instance, a single employee performing multiple roles, or individual roles handled by groups rather than a single individual. In addition, broker-dealers are diverse in their business plans and operations and a role that might be considered critical at one broker-dealer (such as managing fixed income executing brokers in thinly traded bonds) might be inapplicable at another broker-dealer that does not trade in these instruments.

If the Commission were to require the committee and not define its membership, broker-dealers might assign to the committee less senior staff or staff whose roles are not germane to achieving best execution for customer orders, significantly limiting the benefits of establishing such a committee. Furthermore, based on the its experience, the Commission believes that broker-dealers, particularly large broker-dealers that are more likely to continue to engage in conflicted transactions if the proposed rules are adopted, may have such a committee already established, further limiting the potential benefits of such a provision.

6. Require Order-by-Order Documentation for Conflicted or All Transactions

The Commission considered requiring each broker-dealer to document on an order-by-order basis, for conflicted or all transactions, the data that it considered as it handled the order. Such a requirement might offer two benefits beyond the benefits of the proposed rules. First, it might improve the quality of the broker-dealer's regular review of its execution practices compared to the proposed rules. Because the broker-dealer would analyze orders on a case-by-case basis, it might identify routing practices that could be changed to improve customer order execution quality. Second, it might improve regulators' ability to oversee the broker-dealer's efforts to provide best execution to its customers relative to the proposed rules as such records would be available to regulators during examinations of the broker-dealer or upon request.

The Commission preliminarily believes that such a requirement would offer greater potential benefits for conflicted transactions because broker-dealers engaging in such transactions have greater incentives to route orders in a manner that might not result in the best execution for customers.

Based on its experience, the Commission believes that some broker-dealers, particularly the largest broker-dealers that are likely to continue to engage in conflicted transactions if the proposed rules are adopted, already maintain this type of documentation for both internal review and operational purposes. Nevertheless, the requirement would be costly. Broker-dealers that do not already retain this data likely have chosen not to do so because the data are not operationally valuable to them for business purposes, and they believe that they are satisfying their best-execution obligations based on other data that they have available. For these broker-dealers, the requirement could impose considerable costs. They would need to alter information technology systems to capture this data, including contemporaneous pricing data and routing records, some of which (such as prices offered in response to a RFQ and much information related to fixed income and digital crypto assets) is not incorporated into other regulatory data sources such as CAT and thus might be stored on systems not integrated with other order routing systems, or systems that capture regulatory data. Processing this data might be computationally demanding, particularly for options, that have very high quotation traffic. Furthermore, creating and maintaining software to produce this documentation would require significant effort by highly skilled programmers, which would further increase the costs associated with such a requirement. As discussed previously,[615] the Commission preliminarily believes that broker-dealers that elect to refrain from conflicted transactions if the proposed rules are adopted are more likely to be smaller broker-dealers and these costs, many of which are fixed, are more likely to result in the broker-dealer changing

[614] *See* Sviatoslav Rosov, *Payment for Order Flow in the United Kingdom: Internalisation [sic], Retail Trading, Trade-Through Protection, and Implications for Market Structure,* CFA Institute (2016), *available at https://www.cfainstitute.org/en/advocacy/policy-positions/payment-for-order-flow-in-the-united-kingdom.*

[615] *See* Section V.C.2.ii, *supra.*

its business model or exiting the market, while the aggregate benefits to investors of such a requirement for smaller broker-dealers is likely to be smaller than for larger broker-dealers that handle more customer orders.

7. Staggered Compliance Dates

The Commission considered an alternative approach where smaller broker-dealers would be given more time to comply with the proposed rules. Having longer to comply might ease implementation for smaller broker-dealers that are less likely to have specialized staff to conduct tasks required for compliance. However, the later compliance date for smaller broker-dealers would also delay the realization of the proposed rules' benefits for investors.

The Commission preliminarily believes that the cost savings of the alternative could be small. Specifically, under the proposed rules, smaller broker-dealers would likely qualify as introducing brokers and would likely de-conflict rather than continue to engage in conflicted transactions and incur the additional costs associated with the rule requirements that introducing brokers are exempt from under Rule 1101(d).[616] Consequently, the Commission preliminarily believes smaller broker-dealers would have fewer requirements to implement under the proposal, mitigating the burden of implementation relative to larger broker-dealers. In addition, the Commission believes that smaller broker-dealers would likely engage external parties for review of proposed policies and procedures and for assistance in conducting annual reviews; this reliance on external resources for implementation activities would likely mitigate the burden of implementation on current staff.[617] These mitigations would limit the potential cost savings of delaying implementation for smaller broker-dealers.

E. Request for Comments

The Commission is sensitive to the potential economic effects, including costs and benefits, of the proposed rule. The Commission has identified certain costs and benefits associated with the proposal and requests comment on all aspects of its preliminary economic analysis, including with respect to the specific questions below. The Commission encourages commenters to identify, discuss, analyze, and supply relevant data, information, or statistics regarding any such costs or benefits. In addition to our general request for comments on the economic analysis associated with the proposed rules and proposed amendments, we request specific comment on certain aspects of the proposal:

159. What are commenters' views of the Commission's economic rationale for the proposed rule?

160. What are commenters' views of the Commission's characterization of the relevant baseline, against which it considered the effects of the proposal?

161. What are commenters' views of the Commission's characterization of the current legal and regulatory framework?

162. What are commenters' views of the Commission's characterization of the conflicts of interest in order handling and a need for heightened best execution requirements with respect to conflicted transactions?

163. What are commenters' views of the Commission's characterization of the conflicts of interest in order handling with respect to PFOF?

164. What are commenters' views of the Commission's characterization of the conflicts of interest in order handling with respect to principal trading?

165. What are commenters' views of the Commission's characterization of order handling and execution?

166. What are commenters' views of the Commission's characterization of retail customer order handling and execution for NMS stocks?

167. What are commenters' views of the Commission's characterization of retail customer order handling and execution for listed options? Do commenters believe that the majority of retail orders are routed to the wholesalers in exchange of payment for order flow by the retail brokers? Do commenters believe whether there is a trade-off between price improvement received for those retail orders and payment for order flow?

168. What are commenters' views of the Commission's characterization of retail customer order handling and execution for fixed income securities? The Commission requests information on the number of trading venues (*e.g.,* ATSs, RFQ platforms, broker's broker platforms, single platforms), to which broker-dealers currently maintain access, for the purpose of executing and exposing retail customer orders. The Commission requests information with respect to how broadly broker-dealers expose retail customer orders. The Commission requests information with respect to how many executing brokers, to which broker-dealers outsource their fixed income securities trading services. The Commission requests information on what broker-dealers currently document (*e.g.,* efforts to apply its best execution policies and procedures for conflicted transactions, the basis and information relied on for its determinations that such conflicted transactions would comply with the best execution standard, identifying the markets checked, internal quotes, external quotes, limit orders on trading venues) with respect to retail customer orders.

169. The Commission requests comments on retail customer order handling and execution for non-NMS stock equity securities. Please provide any relevant details and data on retail customer order handling and execution of non-NMS stock equity securities for assessing the effects of the proposal.

170. What are commenters' views of the Commission's characterization of retail customer order handling and execution for crypto asset securities?

171. What are commenters' views of the Commission's characterization of best execution review process?

172. What are commenters' views of the Commission's characterization of execution quality review?

173. What are commenters' views of the Commission's characterization of best execution committees?

174. What are commenters' views of the Commission's characterization of the competition in the market for broker-dealer services?

175. What are commenters' views of the Commission's characterization of the competition in the market for NMS stock trading services?

176. What are commenters' views of the Commission's characterization of the competition in the market for listed options trading services? Do commenters believe that the current features of price improvement auctions are favoring the wholesalers that bring the order flow and therefore not competitive?

177. What are commenters' views of the Commission's characterization of the competition in the market for fixed income securities trading services?

178. What are commenters' views of the Commission's characterization of the competition in the market for corporate debt securities trading services?

179. What are commenters' views of the Commission's characterization of the competition in the market for municipal securities trading services?

180. What are commenters' views of the Commission's characterization of

[616] *See supra* section V.C.2.a for discussion of carrying and conflicted broker-dealer costs.

[617] *See supra* section V.C.2.a).ii for the discussion about the cost associated with small broker-dealers utilizing external sources.

the competition in the market for U.S. Treasury securities trading services?

181. What are commenters' views of the Commission's characterization of the competition in the market for market access?

182. What are commenters' views of the Commission's assessment of the benefits of the proposal?

183. To what extent do commenters believe that broker-dealers will make changes to their order handling procedures due to regulatory risk? What kind of changes might they make? Does the proposal adequately reflect the costs they would bear? Please provide estimates of the costs if possible.

184. To what extent do commenters believe conflicted broker-dealers will add additional routing destinations to expose orders to venues beyond those identified as material potential liquidity sources for non-conflicted transactions?

185. Are there some markets, in which finding venues beyond those identified as material potential liquidity sources for non-conflicted transactions difficult? Please explain. To what extent will seeking such additional sources of liquidity be cost efficient?

186. What are commenters' views on the Commission's discussion of ATS connectivity charges?

187. What are commenters' views of the Commission's assessment of the effects stemming from changes in order handling procedures?

188. What are commenters' views on the extent to which investor execution quality will change under the proposal? Please explain.

189. To what extent will carrying broker-dealers face additional challenges and bear additional costs to comply with the proposal beyond those already discussed in the Economic Analysis? Will the additional restrictions on carrying broker-dealers improve investor execution quality?

190. To what extent do broker-dealers that would be categorized as ''conflicted'' under the proposal already comply with the heightened standards described by the proposal? Will these broker-dealers face additional challenges and bear additional costs complying with the proposal beyond those already discussed in the Economic Analysis? Please explain.

191. Do commenters agree with the Commission's preliminary belief that broker-dealers that receive relatively small payments for order flow or other incentives that would categorize them as conflicted, may choose to stop receiving those incentives to comply with the proposal? Does the Economic Analysis adequately reflect the cost of the proposal to these broker-dealers? Is the Commission's assumption that broker-dealers with less than $100MM in total assets are likely to de-conflict to avoid the heightened standards associated with conflicted transactions reasonable?

192. Are some broker-dealers likely to pass exchange rebates through to customers in order to avoid being conflicted under the proposal? Are there other ways for broker-dealers to deal with these rebates that would be less costly to implement? What costs would broker-dealers bear to pass exchange rebates through to their customers?

193. When a broker-dealer makes changes to its order routing in response to execution quality analysis, what costs does it incur? Are the Commission's estimates of these costs reasonable?

194. Do commenters believe that broker-dealers that currently pay to receive order flow may assist their broker-dealer clients in complying with the proposal by providing additional information on their policies and procedures to provide best execution? What information would they need to provide and how proprietary is this information?

195. Do commenters believe that broker-dealers that currently pay to receive order flow are significant contributors to the market for liquidity provision in thinly traded securities? Would the proposal disrupt liquidity provision to securities that are thinly traded? In which types of securities would these effects be most pronounced?

196. Do commenters believe that the proposal is likely to increase the prevalence of commissions in retail trading? In which asset classes would such changes be most likely?

197. What are commenters' views of the Commission's assessment of the effects stemming from changes in order handling procedures for NMS stocks?

198. What are commenters' views of the Commission's assessment of the effects stemming from changes in order handling procedures for listed options? Do commenters believe that more retail orders would be routed to price improvement auctions for execution? Do commenters believe that more retail orders would be routed to the exchanges that offer price improvement order types on the limit order books?

199. What are commenters' views of the Commission's assessment of the effects stemming from changes in order handling procedures for on-the-run U.S. Treasury securities?

200. What are commenters' views of the Commission's assessment of the effects stemming from changes in order handling procedures for fixed income securities (excluding on-the-run U.S. Treasury securities)?

201. With respect to fixed income securities trading, do commenters believe that the proposal (*e.g.,* the documentation requirement with respect to conflicted transactions) would enhance internal review (*e.g.,* internal review by best execution committee) of execution quality?

202. With respect to fixed income securities trading, do commenters believe that the proposal would improve the execution quality of retail customer trades by executing brokers? Please explain.

203. The Commission requests comments on the effects stemming from changes in order handling procedures for non-NMS stock equity securities.

204. What are commenters' views of the Commission's description of the non-NMS stock equity market? Please highlight any omitted or misunderstood elements on this market.

205. Do commenters agree with the Commission's characterization of internalization in the non-NMS stock equities market?

206. Do commenters agree with the assertion that the non-NMS stock equity market can offer a high degree of transparency in liquid securities? Please list any sources of pre-trade and post-trade information used when transacting in this market.

207. What are commenters' views on the necessity to connect to any given ATS when transacting in non-NMS stock equities? Please explain the rationale for connecting to an additional ATS in this market. If there are other non-ATS sources of liquidity, please describe them.

208. Do commenters believe the effects of the proposed rule on the non-NMS equity securities market will cause any brokers (introducing or otherwise) to reduce participation in or to exit this market? Please describe the rationale for any response.

209. Do commenters believe the requirements of this rule will have effects on the liquidity in the market for non-NMS stock equities? Please explain.

210. Do commenters believe that execution quality can be accurately measured in the non-NMS equity securities market? If so, please describe methods currently used to achieve execution quality analysis.

211. What are commenters' views of the Commission's assessment of the effects stemming from changes in order handling procedures for crypto asset securities?

212. The Commission requests more information regarding the proportion of

crypto asset security trading that is facilitated by introducing brokers.

213. The Commission requests more information regarding the level and variation of payment for order flow (*i.e.,* transaction rebates) rates in crypto asset security markets.

214. The Commission requests more information regarding the frequency of affiliated ATS routing in crypto asset security markets.

215. The Commission requests more information regarding the frequency of principal trading in crypto asset security markets.

216. What are commenters' views of the Commission's assessment of the costs of the proposal? Please provide as many quantitative estimates to support your position on costs as possible.

217. Does the Economic Analysis account for all compliance costs? If not, what other compliance costs would market participants incur? Please provide as many quantitative estimates to support your position on costs as possible.

218. With respect to fixed income securities trading, do commenters believe that broker-dealers would alter business practices to execute self-directed trades of retail customer on an agency basis rather than riskless principal basis to avoid being subject to the proposed requirements for conflicted transactions? If so, please provide quantitative cost estimates for converting retail self-directed trading business from riskless principal based to agency based.

219. The Commission requests comments on the costs associated with subscribing to a fixed income ATS (*e.g.,* subscription fees, connectivity fees, API). Please provide quantitative cost estimates if possible.

220. What are commenters' views of the Commission's assessment of the effects of the proposal on efficiency, competition and capital formation?

221. What are commenters' views of the Commission's assessment of the proposal's effects on competition?

222. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for trading services?

223. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for trading services for NMS stocks?

224. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for trading services for listed options? In particular, would the proposed rule result in the exchanges improving the level of competition and efficiency of the price improvement auction mechanisms by offering more symmetric fee schedule and allocation model? Would the proposed rule result in certain options exchanges starting to introduce order types to allow liquidity provision at the midpoint of the NBBO spread?

225. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for trading services for fixed income securities?

226. The Commission requests comments on the proposal's effects on the competition in the market for trading services for non-NMS stock equity securities.

227. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for trading services for crypto asset securities?

228. What are commenters' views of the Commission's assessment of the proposal's effects on competition in the market for broker-dealer services?

229. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for broker-dealer services for NMS stocks?

230. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for broker-dealer services for listed options?

231. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for broker-dealer services for fixed income securities?

232. The Commission requests comments on the proposal's effects on the competition in the market for broker-dealer services for non-NMS stock equity securities.

233. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for broker-dealer services for crypto asset securities?

234. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for market access?

235. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for market access for NMS stocks?

236. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for market access for listed options?

237. What are commenters' views of the Commission's assessment of the proposal's effects on the competition in the market for market access for fixed income securities?

238. The Commission requests comments on the proposal's effects on the competition in the market for market access for non-NMS stock equity securities.

239. What are commenters' views of the Commission's assessment on the competition in the market for market access for crypto asset securities?

240. What are commenters' views on the likelihood of broker-dealers reducing their participation in or leaving certain markets due to compliance costs of the proposal? Which markets would be most affected? Are there particular groups of investors that may be underserved by these markets if the proposal is adopted?

241. What are commenters' views of the economic effects on the market structure or order handling practices in the markets for securities based swaps, asset-backed securities, and repurchase and reverse repurchase agreements?

242. What are commenters' views of the Commission's assessment of the effects of the proposal on efficiency?

243. What are commenters' views of the Commission's assessment of the effects of the proposal on capital formation?

244. What are commenters' views of the Commission's assessment of the effects of an alternative to adopt FINRA Rule 5310 and MSRB Rule G–18 best execution rules?

245. What are commenters' views of the Commission's assessment of the effects of an alternative to require order execution quality disclosure for other asset classes?

246. What are commenters' views of the Commission's assessment of the effects of an alternative to utilize FINRA's and MSRB's definition of introducing brokers?

247. What are commenters' views of the Commission's assessment of the effects of an alternative to ban or restrict off-exchange PFOF?

248. Are there any additional reasonable alternatives that the Commission should consider? If so, please discuss that alternative and provide the benefits and costs of that alternative relative to the baseline and to the proposal.

VI. Paperwork Reduction Act

Certain provisions of proposed Rules 1101 and 1102, as well as proposed Rule 17a–4(b)(17), contain ''collection of information requirements'' within the meaning of the Paperwork Reduction Act of 1995 (''PRA'').[618] The

[618] 44 U.S.C. 3501 *et seq.*

Commission is submitting these collections of information to the Office of Management and Budget (''OMB'') for review in accordance with 44 U.S.C. 3507(d) and 5 CFR 1320.11. The titles for these collections of information are: (1) ''Regulation Best Execution''; and (2) Rule 17a–4—Records to be Preserved by Certain Exchange Members, Brokers and Dealers (OMB control number 3235–0279).[619] An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the agency displays a currently valid control number.

A. Summary of Collection of Information

Proposed Rules 1101 and 1102, as well as proposed Rule 17a–4(b)(17), would include a collection of information within the meaning of the PRA for broker-dealers, as described below in this section VI.A. Further, the proposed Rule 17a–4(b)(17) would impose new record retention obligations on broker-dealers subject to Regulation Best Execution.

1. Required Policies and Procedures and Related Obligations

As detailed above,[620] proposed Rule 1101 would require that a broker-dealer that engages in any transaction for or with a customer or a customer of another broker-dealer establish, maintain, and enforce written policies and procedures reasonably designed to comply with the proposed best execution standard. These policies and procedures would be required to address: (1) how a broker-dealer will comply with the best execution standard; (2) how the broker-dealer will determine the best market and make routing or execution decisions for customer orders; (3) additional considerations applicable to conflicted transactions with retail customers; and (4) to the extent applicable, the obligations of introducing brokers that meet the definition in proposed Rule 1101(d).

In particular, these policies and procedures must address how the broker-dealer will comply with the best execution standard, including by obtaining and assessing reasonably accessible information, including information about price, volume, and execution quality, concerning the markets trading the relevant securities; identifying markets that may be reasonably likely to provide the most favorable prices for customer orders; and incorporating these material potential liquidity sources into the broker-dealer's order handling practices and ensuring that the broker-dealer can efficiently access each such material potential liquidity source.[621] The policies and procedures must also address how the broker-dealer will determine the best market and make routing or execution decisions for customer orders, including by: (1) assessing reasonably accessible and timely information with respect to the best displayed prices, opportunities for price improvement, including midpoint executions, and order exposure opportunities that may result in the most favorable price; (2) assessing the attributes of customer orders and considering the trading characteristics of the security, the size of the order, the likelihood of execution, the accessibility of the market, and any customer instructions in selecting the market most likely to provide the most favorable price; and (3) in determining the number and sequencing of markets to be assessed, reasonably balancing the likelihood of obtaining a better price with the risk that delay could result in a worse price.[622]

For conflicted transactions, as described in more detail above,[623] proposed Rule 1101(b) would require written policies and procedures to address additional considerations.[624] The broker-dealer's policies and procedures would need to additionally address: (1) how the broker-dealer will obtain and assess information beyond that required by proposed Rule 1101(a)(1)(i), including additional information about price, volume, and execution quality, in identifying a broader range of markets beyond those identified as material potential liquidity sources and (2) how the broker-dealer will evaluate a broader range of markets, beyond those identified as material potential liquidity sources, that might provide the most favorable price for customer orders, including a broader range of order exposure opportunities and markets that may be smaller or less accessible than those identified as material potential liquidity sources. The broker-dealer must additionally document, in accordance with written procedures, its compliance with the best execution standard for conflicted transactions, including all efforts taken to enforce the policies and procedures required by proposed Rule 1102(b) for conflicted transactions, and the basis and information relied on for its determination that such conflicted transactions would comply with the best execution standard. The broker-dealer would also have to document any arrangement, whether written or oral, concerning payment for order flow, including the parties to the arrangement, all qualitative and quantitative terms concerning the arrangement, and the date and terms of any changes to the arrangement.

A broker-dealer would also have to, no less frequently than quarterly, review the execution quality of its transactions for or with customers or customers of another broker-dealer and how such execution quality compares with the execution quality the broker-dealer might have obtained from other markets, revise its best execution policies and procedures, including its order handling practices, accordingly, and document the results of this review.[625]

To the extent that it has an arrangement with an executing broker for the handling of is customer orders, an introducing broker, as defined in proposed Rule 1101(d), would not have to comply with all of the requirements of proposed Rule 1101. Instead, as described above,[626] proposed Rule 1101(d) would provide that an introducing broker that routes customer orders to an executing broker would not need to separately comply with proposed Rules 1101(a), (b), and (c), so long as the introducing broker establishes, maintains, and enforces policies and procedures that require the introducing broker to regularly review the execution quality obtained from its executing broker, compare that execution quality with the execution quality it might have obtained from other executing brokers, and revise its order handling practices, accordingly. An introducing broker would additionally be required to document the results of its review.

Finally, any broker-dealer subject to proposed Rule 1101 would be required under proposed Rule 17a–4(b)(17) to preserve the records made under proposed Rule 1101.[627] Accordingly, a broker-dealer would be required to preserve those records for a period of not less than three years, the first two years in an easily accessible place.

[619] *See* 17 CFR 240.17a–4. The proposed amendment to Rule 17a–4(b)(17) would amend the existing PRA for Rule 17a–4.

[620] *See supra* sections IV.B–IV.E.

[621] *See* proposed Rule 1101(a)(1).

[622] *See* proposed Rule 1101(a)(2).

[623] *See supra* section IV.C.

[624] *See* proposed Rule 1101(b).

[625] *See* proposed Rule 1101(c).

[626] *See supra* section IV.E.

[627] Any written policies and procedures developed pursuant to proposed Rule 1101 would be required to be preserved pursuant to existing Rule 17a–4(e)(7).

2. Annual Report

As detailed above,[628] proposed Rule 1102 would require that a broker-dealer that effects any transaction for or with a customer or a customer of another broker-dealer, no less frequently than annually, review and assess the design and overall effectiveness of its best execution policies and procedures, including its order handling practices. The broker-dealer must prepare a written report detailing the results of such review and assessment, including a description of all deficiencies found and any plan to address deficiencies, and the report must be presented to the broker-dealer's board of directors (or equivalent governing body). The broker-dealer would be required to preserve a copy of each such report, and the documentation for each such review and assessment, pursuant to proposed Rule 17a–4(b)(17).[629]

B. Proposed Use of Information

Generally, the collections of information required under proposed Rules 1101 and 1102, as described below in this section VI.B, would enable a broker-dealer to comply with its obligations under proposed Regulation Best Execution, allow the broker-dealer to identify any inadequacies and make any revisions to its policies and procedures, including order handling practices, as appropriate to ensure the broker-dealer's continued effective compliance with the best execution standard, and create documentation that the Commission and SROs could use for purposes of examinations and investigations.

Records retained in accordance with proposed Rule 17a–4(b)(17) would assist a broker-dealer in supervising and assessing internal compliance with Regulation Best Execution and assist the Commission and SROs in connection with examinations and investigations.

1. Required Policies and Procedures and Related Obligations

The collection of information pursuant to proposed Rule 1101 would require written documentation of a broker-dealer's policies and procedures reasonably designed to comply with the best execution standard in proposed Rule 1100. Generally, these policies and procedures would provide a documented process for handling customer orders that a broker-dealer would use to ensure its ongoing compliance with the best execution standard. In addition, these written policies and procedures would assist the Commission and SROs in conducting examinations and investigations for compliance with the proposed rules, including the proposed best execution standard. Any ongoing collections of information pursuant to proposed Rule 1101, including a conflicted broker-dealer's documentation of its best execution determinations and its payment for order flow arrangements in accordance with written procedures, a broker-dealer's documentation of the results of its execution quality reviews, and an introducing broker's documentation of its executing broker execution quality reviews, would assist the broker-dealer in its ongoing efforts to transact for or with customers consistent with its best execution policies and procedures, and in turn ensure compliance with the best execution standard. Ongoing collections of information would also assist the Commission and SROs in examinations and investigations by ensuring that appropriate documentation is available to determine whether a broker-dealer is adhering to its best execution policies and procedures and otherwise in compliance with all applicable requirements of proposed Regulation Best Execution.

2. Annual Report

The collection of information pursuant to proposed Rule 1102 would also provide appropriate documentation of a broker-dealer's continued efforts to comply with the best execution standard and would help to ensure that the broker-dealer's best execution policies and procedures remain effective. In particular, the requirement of proposed Rule 1102 to document the results of a broker-dealer's annual review of its best execution policies and procedures would enable the broker-dealer, including its governing body, to identify any inadequacies and make any changes to the broker-dealer's best execution policies and procedures, including its order handling practices, as appropriate in order to further its compliance with the proposed rules. The collection of information pursuant to proposed Rule 1102 would also create documentation of such compliance that the Commission and SROs could use for purposes of investigations and examinations.

C. Respondents

The respondents to proposed Rules 1101, 1102, and 17a–4(b)(17) would be broker-dealers that engage in securities transactions for or with a customer, or a customer of another broker-dealer. Based on FOCUS Report data,[630] the Commission estimates that, as of June 30, 2022, there were 3,498 broker-dealers.[631] The Commission preliminarily believes that nearly all of these broker-dealers would engage in customer transactions and be subject to these rules. Accordingly, for purposes of the PRA, the Commission estimates 3,498 respondents. The Commission requests comment on the accuracy of these estimated figures.

D. Total Initial and Annual Reporting and Recordkeeping Burdens

1. Required Policies and Procedures and Related Obligations

(a) Initial Costs and Burdens

The Commission preliminarily believes that broker-dealers generally already have policies and procedures in place to achieve compliance with the best execution rules of FINRA and the MSRB, as applicable, although these policies and procedures differ based on each broker-dealer's business model. For purposes of the PRA, the Commission must consider the burden on respondents to bring their best execution policies and procedures into compliance with the proposed rule, which in certain cases would impose additional and more specific obligations. The extent to which a respondent would be burdened by the proposed collection of information under the proposed rule would depend on the best execution policies and procedures that have already been established by a respondent as well as the respondent's business model. To the extent broker-dealers' existing best execution policies and procedures already substantially address the requirements of proposed Rule 1101, these broker-dealers likely would only require limited updates to their policies and procedures to meet the additional obligations specified in the proposed rule. To initially comply with this obligation, the Commission preliminarily believes that broker-dealers would employ a combination of in-house and outside legal and compliance counsel to update existing policies and procedures. The Commission assumes that, for purposes of this analysis, the associated costs and burdens would differ between small and large broker-dealers, as large broker-

[628] *See supra* section IV.F.

[629] Any written procedures developed pursuant to proposed Rule 1102 would be required to be preserved pursuant to existing Rule 17a–4(e)(7).

[630] FOCUS Reports, or ''Financial and Operational Combined Uniform Single'' Reports, are monthly, quarterly, and annual reports that broker-dealers are generally required to file with the Commission and/or SROs pursuant to Exchange Act Rule 17a–5. *See* 17 CFR 240.17a–5.

[631] The data are obtained from FOCUS Reports, Part II filed for the second quarter of 2022.

dealers generally offer more products and services and are more likely to engage in conflicted transactions, and therefore would need to develop a more extensive set of policies and procedures. Based on FOCUS Report data, the Commission estimates that, as of June 30, 2022, approximately 761 broker-dealers are small entities under the Regulatory Flexibility Act.[632] Therefore, the Commission estimates that 2,737 broker-dealers would qualify as large broker-dealers for purposes of this analysis.[633]

Although the exact nature and extent of the policies and procedures that a broker-dealer would be required to establish likely would vary depending upon the business model of the broker-dealer,[634] the Commission broadly estimates that a large broker-dealer, which the Commission assumes is more likely to need to satisfy the heightened requirements applicable to conflicted transactions, would incur a one-time average internal burden of 85 hours for in-house legal and in-house compliance counsel to update existing policies and procedures to comply with proposed Rule 1101.[635] The Commission additionally estimates a one-time burden of 12 hours for a general counsel at a large broker-dealer and 12 hours for a Chief Compliance Officer to review and approve the updated policies and procedures, for a total of 109 burden hours.[636] In addition, the Commission estimates a cost of approximately $7,936 for outside counsel to review the updated policies and procedures on behalf of a large broker-dealer.[637] The Commission therefore estimates the aggregate burden for large broker-dealers to be 298,333 burden hours,[638] and the aggregate cost for large broker-dealers to be approximately $21.72 million.[639]

In contrast, the Commission preliminarily believes small broker-dealers would primarily rely on outside counsel to update existing policies and procedures, as small broker-dealers generally have fewer in-house legal and compliance personnel. Moreover, the Commission believes small broker-dealers would be less likely to engage in conflicted transactions subject to the additional procedural obligations of proposed Rule 1101(b), and would be more likely to qualify as introducing brokers and be exempt from complying with proposed Rule 1101(a), (b), and (c), and therefore would need to develop a less extensive set of policies and procedures. Accordingly, the Commission estimates that only 65 hours of outside legal counsel services would be required to update such small broker-dealers' policies and procedures, for a total one-time cost of approximately $32,240 per small broker-dealer,[640] and an aggregate cost of approximately $24.53 million for all small broker-dealers.[641] The Commission additionally estimates in-house compliance personnel would require 18 hours to review and approve the updated policies and procedures, for an aggregate burden of 13,698 hours.[642]

The Commission preliminarily believes that broker-dealers would utilize their existing recordkeeping systems to preserve any documents necessary to comply with proposed Rule 17a–4(b)(17). Accordingly, the Commission estimates that broker-dealers will incur no new initial burdens or costs to retain the records made pursuant to proposed Rule 17a–4(b)(17). Nevertheless, the Commission requests comment on this assumption and whether the requirements of proposed Rule 17a–4(b)(17) would pose additional initial burdens or costs on broker-dealers.

The Commission therefore estimates the total initial aggregate burden to be 312,031 hours,[643] and the total initial aggregate cost to be approximately $46.25 million.[644]

(b) Ongoing Costs and Burdens

On an ongoing basis, a respondent would have to maintain and review its best execution policies and procedures to ensure their effectiveness as well as to address any deficiencies found and to accommodate the addition of, among other things, new products or services, new business lines, or new markets or trading characteristics for a particular security. Proposed Rule 1101(c) would also require a broker-dealer to, no less frequently than quarterly, review the execution quality of its transactions for or with customers or customers of another broker-dealer, and how such execution quality compares with the execution quality the broker-dealer might have obtained from other markets, and to revise is best execution policies and procedures accordingly. Broker-dealers would also have to document the results of this review. Additionally, proposed Rule 1101(b) would require broker-dealers that engage in conflicted transactions to document, in accordance with written procedures, their compliance with the best execution standard for conflicted transactions, including all efforts to enforce their best execution policies and procedures for conflicted transactions and the basis and information relied on for their determinations that such conflicted transactions would comply with the best execution standard, as well as to document their payment for order flow arrangements. Moreover, in lieu of the requirements of proposed Rules 1101(a), (b), and (c), proposed Rule 1101(d) would require an introducing broker relying on that rule to establish, maintain, and enforce policies and procedures that require the introducing broker to regularly review the execution quality obtained from its executing broker, compare it with the execution quality it might have obtained from other executing brokers, and revise its order handling practices, accordingly. The introducing broker would have to document the results of this review.

Once a broker-dealer has established written policies and procedures reasonably designed to achieve best execution, the Commission estimates

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[632] *See infra* note 691 (describing the definition of the term ''small entity'').

[633] This calculation was made as follows: (3,498 total broker-dealers) − (761 small broker-dealers) = 2,737 large broker-dealers.

[634] For purposes of the PRA, the burden to establish policies and procedures means those a respondent is required to establish pursuant to proposed Rules 1101(a), (b), and (d).

[635] This estimate would be broken down as follows: 67 hours for in-house legal counsel + 18 hours for in-house compliance counsel to update existing policies and procedures = 85 burden hours.

[636] This estimate is based on the following calculation: (85 hours of review for in-house legal and in-house compliance counsel) + (12 hours of review for general counsel) + (12 hours of review for Chief Compliance Officer) = 109 burden hours.

[637] The Commission's estimates of the relevant wage rates for outside legal services of $496/hour take into account staff experience, a variety of sources including general information websites, and adjustments for inflation. This cost estimate is therefore based on the following calculation: (16 hours of review) × ($496/hour for outside counsel services) = $7,936 in outside counsel costs.

[638] This estimate is based on the following calculation: (109 burden hours of review per large broker-dealer) × (2,737 large broker-dealers) = 298,333 aggregate burden hours.

[639] This estimate is based on the following calculation: ($7,936 for outside counsel costs per large broker-dealer) × (2,737 large broker-dealers) = $21.72 million in outside counsel costs.

[640] This cost estimate is based on the following calculation: (65 hours of review) × ($496/hour for outside counsel services) = $32,240 in outside counsel costs.

[641] This cost estimate is based on the following calculation: ($32,240 for outside attorney costs per small broker-dealer) × (761 small broker-dealers) = $24.53 million in outside counsel costs.

[642] This estimate is based on the following calculation: (18 burden hours) × (761 small broker-dealers) = 13,698 aggregate burden hours.

[643] This estimate is based on the following calculation: (298,333 aggregate burden hours for large broker-dealers) + (13,698 aggregate burden hours for small broker-dealers) = 312,031 total aggregate burden hours.

[644] This estimate is based on the following calculation: ($21.72 million in aggregate costs for large broker-dealers) + ($24.53 million in aggregate costs for small broker-dealers) = $46.25 million total aggregate costs.

that large broker-dealers would each annually incur an internal burden of 25 hours to review and update existing policies and procedures:[645] 9 hours for legal personnel, 8 hours for compliance personnel, and 8 hours for business-line personnel. The Commission further estimates that large broker-dealers would each annually incur an internal burden of 100 hours to conduct and document their reviews of execution quality pursuant to proposed Rule 1101(c) and document their efforts to obtain best execution for any conflicted transactions and their payment for order flow arrangements pursuant to proposed Rule 1101(b): 10 hours for legal personnel, 20 hours for compliance personnel, and 70 hours for business-line personnel. The Commission therefore estimates an ongoing, aggregate burden for large broker-dealers of approximately 342,125 hours.[646] Because the Commission assumes that large broker-dealers would rely on internal personnel, rather than outside counsel, to update their policies and procedures on an ongoing basis, to conduct and document their execution quality reviews, and to document their efforts to obtain best execution for conflicted transactions, the Commission estimates large broker-dealers would not incur additional ongoing costs.

The Commission assumes for purposes of this analysis that small broker-dealers would mostly rely on outside legal counsel and outside compliance consultants for review and update of their policies and procedures.[647] The Commission preliminarily estimates that outside legal counsel would require approximately 11 hours per year to update policies and procedures, for an annual cost of approximately $5,456 for each small broker-dealer.[648] The estimated aggregate, annual ongoing cost for outside legal counsel to update policies and procedures for all small broker-dealers would be approximately $4.15 million.[649] In addition, the Commission estimates that small broker-dealers would require 11 hours of outside compliance services per year to update their policies and procedures, for an ongoing cost of approximately $3,344 per year,[650] and an aggregate ongoing cost of approximately $2.54 million.[651] The Commission further estimates that small broker-dealers would require 20 hours of outside compliance services per year to conduct and document their reviews of execution quality and document their efforts to obtain best execution for conflicted transactions and payment for order flow arrangements, for an ongoing cost of approximately $6,080 per year,[652] and an aggregate ongoing cost of approximately $4.63 million.[653] The total aggregate, ongoing cost for small broker-dealers is therefore estimated at approximately $11.32 million per year.[654] For purposes of this analysis, the Commission assumes that small broker-dealers would engage in fewer conflicted transactions than large broker-dealers and be more likely to comply with the regular review required by proposed Rule 1101(d) for introducing brokers in lieu of the regular review required by proposed Rule 1101(c).

In addition to the ongoing costs described above, the Commission additionally estimates small broker-dealers would incur an internal burden of approximately 6 hours for an in-house compliance manager to review and approve the updated policies and procedures per year. The Commission further estimates that small broker-dealers would incur an internal burden of approximately 30 hours per year for in-house business-line personnel to conduct and document their reviews of execution quality and document their efforts to obtain best execution for conflicted transactions and payment for order flow arrangements. In addition, the Commission estimates that small-broker dealers would incur an internal burden of approximately 8 hours per year for in-house compliance personnel to review the execution quality reviews and documentation of efforts to obtain best execution for conflicted transactions and payment for order flow arrangements. The Commission estimates that the ongoing burden for business-line personnel, in-house compliance personnel and in-house compliance manager review for each small broker dealer would be 44 hours and the ongoing, aggregate burden for all small broker-dealers would be 33,484 hours for business-line personnel, in-house compliance personnel, and in-house compliance manager review.[655]

The Commission estimates that the approximate ongoing burden associated with the recordkeeping requirements of proposed Rule 17a–4(b)(17) for any records made in compliance with proposed Rule 1101 would be 15,968 burden hours per year.[656] The Commission does not believe that the ongoing costs associated with ensuring compliance with the retention schedule would change from the current costs of ensuring compliance with existing Rule 17a–4. However, the Commission requests comment regarding whether there would be additional costs relating to ensuring compliance with record retention and retention schedules pursuant to Rule 17a–4.

The Commission therefore estimates the total ongoing aggregate burden to be 391,577 hours,[657] and the total ongoing

[645] *See supra* note 634.

[646] This estimate is based on the following calculation: (125 burden hours per large broker-dealer) × (2,737 large broker-dealers) = 342,125 aggregate ongoing burden hours.

[647] *See supra* note 640.

[648] This estimate is based on the following calculation: (11 hours per small broker-dealer) × ($496/hour for outside counsel services) = $5,456 in outside counsel costs.

[649] This estimate is based on the following calculation: ($5,456 in outside counsel costs per small broker-dealer) × (761 small broker-dealers) = $4.15 million in aggregate, ongoing outside legal costs.

[650] The Commission believes that performance of this function will most likely be equally allocated between a senior compliance examiner and a compliance manager. Based on industry sources, Commission staff preliminarily estimates that the costs for these positions in the securities industry are $264 and $344 per hour, respectively, for an average of $304 per hour. This cost estimate is based on the following calculation: (11 hours of review) × ($304/hour for outside compliance services) = $3,344 in outside compliance service costs.

[651] This estimate is based on the following calculation: ($3,344 in outside compliance costs per small broker-dealer) × (761 small broker-dealers) = $2.54 million in aggregate, ongoing outside compliance costs.

[652] This cost estimate is based on the following calculation: (20 hours of review) × ($304/hour for outside compliance services) = $6,080 in outside compliance service costs.

[653] This estimate is based on the following calculation: ($6,080 in outside compliance costs per small broker-dealer) × (761 small broker-dealers) = $4.63 million in aggregate, ongoing outside compliance costs.

[654] This estimate is based on the following calculation: ($4.15 million for outside legal counsel costs) + ($2.54 million for outside compliance costs for policies and procedures) + ($4.63 million for outside compliance costs for regular reviews and documentation) = $11.32 million total aggregate ongoing costs.

[655] This estimate is based on the following calculation: (6 hours in-house compliance manager review per small broker-dealer) + (30 hours business-line personnel review per small broker-dealer) + (8 hours in-house compliance personnel review per small broker-dealer) = 44 hours per small broker dealer × (761 small broker-dealers) = 33,484 aggregate ongoing burden hours.

[656] Because the Commission assumes broker-dealers would utilize their existing recordkeeping systems to preserve any records made in compliance with proposed Rule 1101, the Commission estimates that the burdens associated with such record retention would be minimal. Accordingly, the Commission estimates the aggregate ongoing burden based on the following calculation: (5 burden hours in-house compliance personnel per large broker-dealer × 2,737 large broker-dealers) + (3 burden hours in-house compliance personnel per small broker-dealer × 761 small broker-dealers) = 15,968 aggregate ongoing burden hours.

[657] This estimate is based on the following calculation: (342,125 aggregate ongoing burden hours for large broker-dealers for proposed Rule 1101) + (33,484 aggregate ongoing burden hours for small broker-dealers for proposed Rule 1101) + (15,968 aggregate ongoing burden hours for all

aggregate cost to be approximately $11.32 million per year.[658]

The Commission acknowledges that policies and procedures required by proposed Rule 1101 may vary greatly by broker-dealer, given the differences in size and the complexity of broker-dealer business models. Accordingly, the need to update policies and procedures might also vary greatly. The Commission requests comment regarding the accuracy of the estimated burden hours and costs necessary to comply with the proposal.

2. Annual Report

(a) Initial Costs and Burdens

Proposed Rule 1102 would require a broker-dealer to, no less frequently than annually, review and assess the design and overall effectiveness of its best execution policies and procedures, including its order handling practices. A broker-dealer would be required to conduct the review and assessment in accordance with written procedures, as well as document the review and assessment. The broker-dealer would also have to prepare a written report detailing the results of such review and assessment, including a description of all deficiencies found any plan to address deficiencies, and the report would be required to be presented to the board of directors (or equivalent governing body) of the broker-dealer. The broker-dealer would be required to preserve a copy of each such report and documentation for each such review and assessment pursuant to proposed Rule 17a–4(b)(17).

The Commission preliminarily believes that a respondent should currently have written compliance procedures reasonably designed to review its business activity. Proposed Rule 1102 would initially require a respondent to update such written compliance procedures to document the method in which the respondent plans to conduct its review and assessment pursuant to proposed Rule 1102.

The Commission broadly estimates that a large broker-dealer would incur a one-time average internal burden of 15 hours for in-house legal and in-house compliance counsel to update its existing compliance procedures for reviewing and assessing the design and overall effectiveness of its best execution policies and procedures.[659] The Commission additionally estimates a one-time burden of 2 hours for a general counsel at a large broker-dealer and 1 hour for a Chief Compliance Officer to review and approve the updated compliance procedures, for a total of 18 burden hours per large broker-dealer.[660] In addition, the Commission estimates a cost of approximately $1,488 for outside counsel to review the updated compliance procedures on behalf of a large broker-dealer.[661] The Commission therefore estimates the aggregate burden for large broker-dealers to be 49,266 burden hours,[662] and the aggregate cost for large broker-dealers to be approximately $4.1 million.[663]

In contrast, the Commission believes small broker-dealers would primarily rely on outside counsel to update existing compliance procedures, as small broker-dealers generally have fewer in-house legal and compliance personnel. The Commission estimates that a small broker-dealer would require an average of 10 hours of outside legal counsel services to update the compliance procedures, for a total one-time cost of approximately $4,960 per small broker-dealer,[664] and an aggregate cost of approximately $3.77 million for all small broker-dealers.[665] The Commission additionally believes in-house compliance personnel at each small broker-dealer would require 5 hours to review and approve the updated compliance procedures, for an aggregate burden of 3,805 hours.[666]

The Commission preliminarily believes that both large and small broker-dealers would utilize their existing recordkeeping systems to preserve any documents necessary to comply with proposed Rule 17a–4(b)(17). Accordingly, the Commission estimates that broker-dealers will incur no new initial burdens or costs to retain the records made pursuant to proposed Rule 1102. Nevertheless, the Commission requests comment on this assumption and whether the requirements of proposed Rule 17a–4(b)(17) would pose additional initial burdens or costs on broker-dealers.

The Commission therefore estimates the total initial aggregate burden to be 53,071 hours,[667] and the total initial aggregate cost to be approximately $7.87 million.[668]

(b) Ongoing Costs and Burdens

Proposed Rule 1102 would require a broker-dealer to review and assess, no less frequently than annually, the design and overall effectiveness of its best execution policies and procedures, including its order handling and routing practices. Such review and assessment would be required to be conducted in accordance with written procedures and would be required to be documented. A broker-dealer would be required to prepare a written report detailing the results of such review and assessment, including a description of all deficiencies found and any plan to address deficiencies, and the report would have to be presented to the board of directors (or equivalent governing body) of the broker-dealer. The broker-dealer would be required to preserve a copy of each such report and documentation for each such review and assessment pursuant to proposed Rule 17a–4(b)(17).

The ongoing burden of complying with proposed Rule 1102 would include a respondent's documentation of its reviews and assessments of the design and overall effectiveness of its best execution policies and procedures and the preparation of its written reports.

broker-dealers for proposed Rule 17a–4(b)(17)) = 391,577 total aggregate ongoing burden hours.

[658] This estimate is based on the following calculation: ($11.32 million per year in total aggregate ongoing costs for small broker-dealers) + ($0 ongoing costs for large broker-dealers) = $11.32 million per year in total aggregate ongoing costs.

[659] This estimate would be broken down as follows: 10 hours for in-house legal counsel + 5 hours for in-house compliance counsel to update existing policies and procedures = 15 burden hours.

[660] This estimate is based on the following calculation: (15 hours of review for in-house legal and in-house compliance counsel) + (2 hours of review for general counsel) + (1 hour of review for Chief Compliance Officer) = 18 burden hours.

[661] The Commission's estimates of the relevant wage rates for outside legal services of $496/hour take into account staff experience, a variety of sources including general information websites, and adjustments for inflation.'' This cost estimate is therefore based on the following calculation: (3 hours of review) × ($496/hour for outside counsel services) = $1,488 in outside counsel costs.

[662] This estimate is based on the following calculation: (18 burden hours of review per large broker-dealer) × (2,737 large broker-dealers) = 49,266 aggregate burden hours.

[663] This estimate is based on the following calculation: ($1,488 for outside counsel costs per large broker-dealer) × (2,737 large broker-dealers) = $4.1 million in outside counsel costs.

[664] This cost estimate is based on the following calculation: (10 hours of review) × ($496/hour for outside counsel services) = $4,960 in outside counsel costs.

[665] This cost estimate is based on the following calculation: ($4,960 for outside attorney costs per small broker-dealer) × (761 small broker-dealers) = $3.77 million in outside counsel costs.

[666] This estimate is based on the following calculation: (5 burden hours) × (761 small broker-dealers) = 3,805 aggregate burden hours.

[667] This estimate is based on the following calculation: (49,266 aggregate burden hours for large broker-dealers) + (3,805 aggregate burden hours for small broker-dealers) = 53,071 total aggregate burden hours.

[668] This estimate is based on the following calculation: ($4.1 million in aggregate costs for large broker-dealers) + ($3.77 million in aggregate costs for small broker-dealers) = $7.87 million total aggregate costs.

The Commission estimates that large broker-dealers would each annually incur an internal burden of 40 hours to conduct and document its annual reviews and assessments (5 hours for legal personnel, 15 hours for compliance personnel, and 20 hours for business-line personnel). The Commission estimates that large broker-dealers would each annually incur an internal burden of 8 hours to prepare the annual report (4 hours for legal personnel and 4 hours for compliance personnel) for a total ongoing burden of 48 hours per large broker-dealer. The Commission therefore estimates an ongoing, aggregate burden for large broker-dealers of approximately 131,376 hours.[669] Because the Commission assumes that large broker-dealers would rely on internal personnel to prepare the annual report, the Commission estimates that large broker-dealers would incur no ongoing costs.

The Commission assumes for purposes of this analysis that small broker-dealers would mostly rely on outside legal counsel and outside compliance consultants to conduct the annual reviews and assessments and prepare the annual report, with final review and approval from an in-house compliance manager. The Commission preliminarily estimates that outside counsel would require approximately 5 hours per year to conduct and document its annual reviews and assessments, for an annual cost of approximately $2,480 for each small broker-dealer.[670] The estimated aggregate, annual ongoing cost for outside legal counsel to conduct and document the annual reviews and assessments for small broker-dealers would be approximately $1.88 million.[671] In addition, the Commission expects that small broker-dealers would require 10 hours of outside compliance services per year to conduct and document its annual reviews and assessments, for an ongoing cost of approximately $3,040 per small broker-dealer per year,[672] and an aggregate ongoing cost of approximately $2.31 million.[673] The Commission preliminarily estimates that outside counsel would require approximately 3 hours per year to prepare the annual report, for an annual cost of approximately $1,488 for each small broker-dealer.[674] The estimated aggregate, annual ongoing cost for outside legal counsel to prepare the annual report for small broker-dealers would be approximately $1.13 million.[675] In addition, the Commission preliminarily estimates that each small broker-dealer would require 3 hours of outside compliance services per year to prepare the annual report, for an ongoing cost of approximately $912 per year,[676] and an aggregate ongoing cost of approximately $694,032 for all small broker-dealers.[677] The total aggregate, ongoing cost for small broker-dealers is therefore estimated at approximately $6.01 million per year.[678]

In addition to the costs described above, the Commission additionally estimates each small broker-dealer would incur an internal burden of approximately 12 hours for business-line personnel to conduct and document the annual reviews and assessments, and 4 hours per year for in-house compliance personnel to review the reviews and assessments and preparation of the annual report. The Commission further estimates small broker-dealers would incur an internal burden of approximately 2 hours for an in-house compliance manager to review and approve the annual report. The ongoing, aggregate burden for small broker-dealers would be 13,698 hours for in-house business-line personnel, compliance personnel, and compliance manager review.[679]

The Commission estimates that the approximate ongoing burden associated with the recordkeeping requirement of proposed Rule 17a–4(b)(17) for any records made in compliance with proposed Rule 1102 would be 6,235 burden hours per year.[680] The Commission does not believe that the ongoing costs associated with ensuring compliance with the retention schedule would change from the current costs of ensuring compliance with existing Rule 17a–4. However, the Commission requests comment regarding whether there would be additional costs relating to ensuring compliance with record retention and retention schedules pursuant to Rule 17a–4.

The Commission therefore estimates the total ongoing aggregate burden to be 151,309 hours,[681] and the total ongoing aggregate cost to be approximately $6.01 million per year.[682]

The Commission acknowledges that policies and procedures may vary greatly by broker-dealer, given the differences in size and the complexity of broker-dealer business models. Accordingly, the need to update policies and procedures and conduct an annual review and assessment might also vary greatly. The Commission requests comment regarding the accuracy of the estimated burden hours and costs necessary to comply with the proposal.

[669] This estimate is based on the following calculation: (48 burden hours per large broker-dealer) × (2,737 large broker-dealers) = 131,376 aggregate ongoing burden hours.

[670] This estimate is based on the following calculation: (5 hours per small broker-dealer) × ($496/hour for outside counsel services) = $2,480 in outside counsel costs.

[671] This estimate is based on the following calculation: ($2,480 in outside counsel costs per small broker-dealer) × (761 small broker-dealers) = $1.88 million in aggregate, ongoing outside legal costs.

[672] This cost estimate is based on the following calculation: (10 hours per small broker-dealer) × ($304/hour for outside compliance services) = $3,040 in outside compliance service costs.

[673] This estimate is based on the following calculation: ($3,040 in outside compliance costs per small broker-dealer) × (761 small broker-dealers) = $2.31 million in aggregate, ongoing outside compliance costs.

[674] This estimate is based on the following calculation: (3 hours per small broker-dealer) × ($496/hour for outside counsel services) = $1,488 in outside counsel costs.

[675] This estimate is based on the following calculation: ($1,488 in outside counsel costs per small broker-dealer) × (761 small broker-dealers) = $1.13 million in aggregate, ongoing outside legal costs.

[676] This cost estimate is based on the following calculation: (3 hours per small broker-dealer) × ($304/hour for outside compliance services) = $912 in outside compliance service costs.

[677] This estimate is based on the following calculation: ($912 in outside compliance costs per small broker-dealer) × (761 small broker-dealers) = $694,032 in aggregate, ongoing outside compliance costs.

[678] This estimate is based on the following calculation: ($1.88 million for outside legal counsel costs to conduct and document the annual review and assessment) + ($2.31 million for outside compliance costs to conduct and document the annual review and assessment) + ($1.13 million for outside legal counsel to prepare the annual report) + ($694,032 for outside compliance costs to prepare the annual report) = $6.01 million total aggregate ongoing costs.

[679] This estimate is based on the following calculation: (12 hours business-line personnel review per small broker-dealer) + (4 hours compliance personnel review per small broker-dealer) + (2 hours compliance manager review per small broker-dealer) × (761 small broker-dealers) = 13,698 aggregate ongoing burden hours.

[680] Because the Commission assumes broker-dealers would utilize their existing recordkeeping systems to preserve any records made in compliance with proposed Rule 1102, the Commission estimates that the burdens associated with such record retention would be minimal. Accordingly, the Commission estimates the aggregate ongoing burden based on the following calculation: (2 burden hours in-house compliance personnel per large broker-dealer × 2,737 large broker-dealers) + (1 burden hour in-house compliance personnel per small broker-dealer × 761 small broker-dealers) = 6,235 aggregate ongoing burden hours.

[681] This estimate is based on the following calculation: (131,376 aggregate ongoing burden hours for large broker-dealers for proposed Rule 1102) + (13,698 aggregate ongoing burden hours for small broker-dealers for proposed Rule 1102) + (6,235 aggregate ongoing burden hours for all broker-dealers for proposed Rule 17a–4(b)(17)) = 151,309 total aggregate ongoing burden hours.

[682] This estimate is based on the following calculation: ($6.01 million per year in total aggregate ongoing costs for small broker-dealers) + ($0 ongoing costs for large broker-dealers) = $6.01 million per year in total aggregate ongoing costs.

A. Total Paperwork Burden

Based on the foregoing, the Commission preliminarily estimates that the total initial aggregate burden for all broker-dealers to comply with proposed Rules 1101 and 1102, as well as proposed Rule 17a–4(b)(17), would be 365,102 hours,[683] and the total initial aggregate cost would be approximately $54.12 million.[684] The Commission preliminarily estimates that the total ongoing aggregate burden for all broker-dealers to comply with proposed Rules 1101 and 1102, as well as proposed Rule 17a–4(b)(17), would be 558,854 hours per year,[685] and the total ongoing aggregate cost would be approximately $17.33 million per year.[686]

PRA SUMMARY TABLE

	Initial PRA burden hours	Ongoing annual PRA burden hours (after first year)	Total PRA burden hours in first year	Initial PRA costs (million)	Ongoing annual PRA costs (after first year) (million)	Total PRA costs in first year (million)
Industry-Wide Burden due to Policies and Procedures under Proposed Rule 1101	312,031	72,991	385,022	$46.25	$6.69	$52.94
Industry-Wide Burden due to Regular Review and Documentation under Proposed Rule 1101	0	302,618	302,618	0	4.63	4.63
Total Industry-Wide Burden due to Proposed Rule 1101	312,031	375,609	687,640	46.25	11.32	57.57
Industry-Wide Burden due to Compliance Procedures under Proposed Rule 1102	53,071	0	53,071	7.87	0	7.87
Industry-Wide Burden due to Annual Review and Documentation, under Proposed Rule 1102	0	118,612	118,612	0	4.19	4.19
Industry-Wide Burden due to Annual Report under Proposed Rule 1102	0	26,462	26,462	0	1.82	1.82
Total Industry-Wide Burden due to Proposed Rule 1102	53,071	145,074	198,145	7.87	6.01	13.88
Total Industry-Wide Burden due to Proposed Rule 17a–4(b)(17)	0	22,203	22,203	0	0	0

B. Collection of Information is Mandatory

All of the collection of information would be mandatory.

C. Confidentiality of Responses to Collection of Information

The collection of information would not be required to be made public but would not be confidential.

D. Retention Period for Recordkeeping Requirements

A broker-dealer would be required to preserve a copy of its policies and procedures under proposed Regulation Best Execution in a manner consistent with, and for the periods specified in, Rule 17a–4(e)(7). A broker-dealer would be required to preserve a copy of its other records under proposed Regulation Best Execution in a manner consistent with, and for the periods specified in, the proposed amendments to Rule 17a–4(b).

E. Request for Comment

Pursuant to 44 U.S.C. 3506(c)(2)(B), the Commission solicits comments to:

- Evaluate whether the proposed collections of information are necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility;
- Evaluate the accuracy of our estimates of the burden of the proposed collection of information;
- Determine whether there are ways to enhance the quality, utility, and clarity of the information to be collected; and
- Evaluate whether there are ways to minimize the burden of collection of information on those who are to respond, including through the use of automated collection techniques or other forms of information technology.

Persons submitting comments on the collection of information requirements should direct them to the Office of Management and Budget, Attention: Desk Officer for the Securities and Exchange Commission, Office of Information and Regulatory Affairs, Washington, DC 20503, and should also send a copy of their comments to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549–1090, with reference to File Number S7–32–22. Requests for materials submitted to OMB by the Commission with regard to this collection of information should be in writing, with reference to File Number S7–32–22 and be submitted to the Securities and Exchange Commission, Office of FOIA/PA Services, 100 F Street NE, Washington, DC 20549–2736. As OMB is required to make a decision concerning the collection of information between 30 and 60 days after publication, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication.

VII. Consideration of Impact on the Economy

For purposes of the Small Business Regulatory Enforcement Fairness Act of 1996 (''SBREFA''),[687] the Commission must advise the OMB as to whether the proposed regulation constitutes a ''major'' rule. Under SBREFA, a rule is considered ''major'' where, if adopted, it results or is likely to result in: (1) an annual effect on the economy of $100 million or more (either in the form of an

[683] 365,102 hours = 312,031 hours (Required policies and procedures) + 53,071 hours (Annual review).

[684] $54.12 million = $46.25 million (Required policies and procedures) + $7.87 million (Annual review).

[685] 558,854 hours = 391,577 (Required policies and procedures) + 145,074 hours (Annual review) + 22,203 hours (Rule 17a–4(b)(17)).

[686] $17.33 million = $11.32 million (Required policies and procedures) + $6.01 million (Annual review).

[687] Public Law 104–121, Title II, 110 Stat. 857 (1996) (codified in various sections of 5 U.S.C., 15 U.S.C., and as a note 5 U.S.C. 601).

increase or decrease); (2) a major increase in costs or prices for consumers or individual industries; or (3) significant adverse effect on competition, investment, or innovation. If a rule is ''major,'' its effectiveness will generally be delayed for 60 days pending Congressional review. The Commission requests comment on the potential impact of Regulation Best Execution on the United States economy on an annual basis, on any potential increases in costs or prices for consumers or individual industries, and any potential effect on competition, investment, or innovation. Commenters are requested to provide empirical data and other factual support for their views to the extent possible.

VIII. Initial Regulatory Flexibility Act Analysis

The Regulatory Flexibility Act (''RFA'') [688] requires Federal agencies, in promulgating rules, to consider the impact of those rules on small entities. Section 603(a) [689] of the Administrative Procedure Act,[690] as amended by the RFA, generally requires the Commission to undertake a regulatory flexibility analysis of all proposed rules, or proposed rule amendments, to determine the impact of such rulemaking on ''small entities.'' [691] Under Section 605(b) of the RFA, a Federal agency need not undertake a regulatory flexibility analysis of proposed rules where, if adopted, they would not have a significant economic impact on a substantial number of small entities.[692]

A. Reasons for and Objectives of the Proposed Action

As discussed above in section III.B, the Commission is proposing Regulation Best Execution to further the goals of the national market system and reinforce broker-dealer best execution obligations.

The proposed rule would set forth the standard of best execution, and proposed Rule 1101 would require a broker-dealer to establish, maintain, and enforce written policies and procedures that address specific elements that are designed to promote the best execution of customer orders, and comply with certain execution quality review and documentation requirements.[693] More specifically, proposed Rule 1101(a)(1) would require that a broker-dealer's policies and procedures address how it will: (1) obtain and assess reasonably accessible information concerning the markets trading the relevant securities; (2) identify markets that may be material potential liquidity sources; and (3) incorporate the material potential liquidity sources into its order handling practices and ensure efficient access to each such material potential liquidity source. Proposed Rule 1101(a)(2) would require a broker-dealer's policies and procedures to address how it will: (1) assess reasonably accessible and timely information, including information with respect to the best displayed prices, opportunities for price improvement, and order exposure opportunities that may result in the most favorable price; (2) assess the attributes of customer orders and consider the trading characteristics of the security, the size of the order, the likelihood of execution, the accessibility of the market, and any customer instructions in selecting the market most likely to provide the most favorable price; and (3) reasonably balance the likelihood of obtaining a better price with the risk that delay could result in a worse price when determining the number and sequencing of markets to be assessed.

Proposed Rule 1101(b) would require a broker-dealer's policies and procedures for conflicted transactions to address how it will: (1) obtain and assess information beyond that required by proposed Rule 1101(a)(1)(i) in identifying a broader range of markets beyond the material potential liquidity sources; and (2) evaluate a broader range of markets beyond the material potential liquidity sources. Proposed Rule 1101(b) would also require broker-dealers that engage in conflicted transactions with retail customers to document in accordance with their written procedures their compliance with the best execution standard for conflicted transactions, including all efforts to enforce their best execution policies and procedures for conflicted transactions and the basis and information relied on for its determinations that such conflicted transactions would comply with the best execution standard. Additionally, proposed Rule 1101(b)(3) would require broker-dealers that engage in conflicted transactions to document their payment for order flow arrangements.

Proposed Rule 1101(c) would require broker-dealers to no less frequently than quarterly review the execution quality of customer orders, and how such execution quality compares with the execution quality that might have been obtained from other markets, and revise their best execution policies and procedures, including order handling practices, accordingly.

Proposed Rule 1101(d) would exempt an introducing broker that routes customer orders to an executing broker from separately complying with proposed Rules 1101(a), (b), and (c), so long as the introducing broker establishes, maintains, and enforces policies and procedures that require the introducing broker to regularly review the execution quality obtained from its executing broker, compare it with the execution quality it might have obtained from other executing brokers, and revise its order handling practices accordingly. An introducing broker would additionally be required to document the results of its review.

Proposed Rule 1102 would require each broker-dealer no less frequently than annually to conduct a review and assessment of the design and overall effectiveness of its best execution policies and procedures, and document such review and assessment in a report that would be provided to the broker-dealer's governing body.

Proposed amendments to Rule 17a–4 under the Exchange Act would specify the record preservation requirements for records made under proposed Regulation Best Execution.

B. Legal Basis

Pursuant to the Exchange Act, 15 U.S.C. 78a *et seq.,* and particularly sections 2, 3(b), 5, 10, 11A, 15, 15A, 17, 23(a), 24, and 36 thereof, 15 U.S.C. 78b, 78c(b), 78e, 78j, 78k–1, 78o, 78o–1, 78q, 78w(a), 78x, and 78mm, the Commission is proposing amendments to § 240.17a–4 and new §§ 242.1100 through 242.1102.

C. Small Entities Subject to the Proposed Rule

For purposes of a Commission rulemaking in connection with the RFA, a broker-dealer will be a small entity if it: (1) had total capital (net worth plus subordinated liabilities) of less than $500,000 on the date in the prior fiscal year as of which its audited financial statements were prepared pursuant to Rule 17a–5(d) under the Exchange Act,[694] or, if not required to file such statements, had total capital (net worth plus subordinated liabilities) of less than $500,000 on the last business day of the preceding fiscal year (or in the

[688] 5 U.S.C. 601 *et seq.*

[689] 5 U.S.C. 603(a).

[690] 5 U.S.C. 551 *et. seq.*

[691] Although section 601(b) of the RFA defines the term ''small entity,'' the statute permits agencies to formulate their own definitions. The Commission has adopted definitions for the term small entity for the purposes of Commission rulemaking in accordance with the RFA. Those definitions, as relevant to this proposed rulemaking, are set forth in Rule 0–10 under the Exchange Act, 17 CFR 240.0–10.

[692] *See* 5 U.S.C. 605(b).

[693] *See supra* section III.B.

[694] *See* 17 CFR 240.17a–5(d).

time that it has been in business, if shorter); and (2) is not affiliated with any person (other than a natural person) that is not a small business or small organization.[695]

As discussed in section VI, the Commission estimates that approximately 3,498 broker-dealers would be subject to proposed Regulation Best Execution. Based on FOCUS Report data, the Commission estimates that as of June 30, 2022, approximately 761 of those broker-dealers might be small entities for purposes of this analysis. For purposes of this RFA analysis, the Commission refers to broker-dealers that might be small entities under the RFA as ''small entities,'' and the Commission continues to use the term ''broker-dealers'' to refer to broker-dealers generally, as the term is used elsewhere in this release.

D. Projected Compliance Requirements of the Proposed Rule for Small Entities

The RFA requires a description of the projected reporting, recordkeeping, and other compliance requirements of proposed Regulation Best Execution, including an estimate of the classes of small entities that would be subject to the requirements and the type of professional skill necessary to prepare the required reports and records. Following is a discussion of the associated costs and burdens of compliance with proposed Regulation Best Execution, as incurred by small entities. As described above in section IV, the proposed rules would require a broker-dealer to establish, maintain, and enforce written policies and procedures reasonably designed to comply with the proposed best execution standard, as well as additional policies and procedures for conflicted transactions and tailored policies and procedures applicable to introducing brokers. The proposed rules would also set forth documentation requirements related to conflicted transactions and execution quality reviews. Moreover, the proposed rules would require a broker-dealer to review and assess, no less frequently than annually, the design and overall effectiveness of its best execution policies and procedures, including its order handling practices, and prepare a written report that is provided to its board of directors or equivalent governing body detailing the results. Finally, proposed amendments to Rule 17a–4 would set forth record preservation requirements for records made under proposed Regulation Best Execution.

1. Required Policies and Procedures and Related Obligations

To initially comply with these requirements, the Commission preliminarily believes that small entities would primarily rely on outside counsel to update existing policies and procedures, as small broker-dealers generally have fewer in-house legal and compliance personnel. As discussed in section VI above, the Commission preliminarily believes the initial costs associated with this requirement for small entities would be $32,240 per small entity (reflecting an estimated 65 hours of outside legal counsel services), and an aggregate cost of $24.53 million for all small entities.[696] The Commission additionally estimates in-house compliance personnel would require 18 hours to review and approve the updated policies and procedures, for an aggregate burden of 13,698 hours.[697]

The Commission preliminarily believes that small broker-dealers would mostly rely on outside legal counsel and outside compliance consultants to review and update their policies and procedures on a periodic basis. The Commission preliminarily estimates that outside legal counsel would require approximately 11 hours per year, totaling approximately $5,456 annually for each small entity for an estimated aggregate ongoing cost of approximately $4.15 million. In addition, the Commission estimates that small entities would require 11 hours of outside compliance services per year to update their policies and procedures for an ongoing cost of approximately $3,344 per year, and the estimated aggregate ongoing cost to be $2.54 million. In addition, the Commission estimates that small entities would require 20 hours of outside compliance services per year to conduct and document their review of execution quality and document all their efforts to obtain best execution for conflicted transactions, including the basis and information relied on for its determinations, and payment for order flow arrangement for an ongoing cost of approximately $6,080 per year, and an aggregate ongoing cost of approximately $4.63 million. The total aggregate ongoing cost for small entities is therefore estimated at approximately $11.32 million per year. Separately, the Commission estimates that small entities would incur approximately six internal burden hours for an in-house compliance manager to review and approve the updated policies and procedures per year and incur an internal burden of approximately 30 hours per year for in-house business-line personnel to conduct and document their execution quality reviews and document all their efforts to obtain best execution for conflicted transactions and payment for order flow arrangements. The Commission further estimates that small entities would incur an internal burden of approximately 8 hours per year for in-house compliance personnel to review the regular reviews of execution quality and documentation of efforts to obtain best execution for conflicted transactions and payment for order flow arrangements. Thus, the Commission estimates that the ongoing burden for each small entity would be 44 hours and the ongoing, aggregate annual burden for all small entities to be 33,484 hours.[698]

Finally, the Commission preliminarily believes that small entities would utilize their existing recordkeeping systems to preserve any documents necessary to comply with proposed Rule 1101. Thus, the Commission estimates that broker-dealers will incur no new initial burdens or costs to retain the records made pursuant to proposed Regulation Best Execution. Separately, the Commission estimates that the approximate ongoing burden associated with the recordkeeping requirements of proposed Rule 17a–4(b)(17) for any records made in compliance will proposed Rule 1101 pursuant to the proposed rule would be three burden hours per small entity for an ongoing aggregate annual burden for all small entities of approximately 2,283 hours. The Commission does not believe that the ongoing costs associated with ensuring compliance with retention schedule would change from the current costs of ensuring compliance with existing Rule 17a–4.

2. Annual Report

As discussed above in sections VI, the Commission believes small entities would primarily rely on outside counsel to update their existing compliance procedures for the annual reviews and assessments under proposed Rule 1102. The Commission estimates that small entities would require approximately 10 hours of outside legal counsel services to update the compliance procedures, for total one-time costs of $4,960 per small entity, and an aggregate cost of $3.77 million for all small entities.[699]

Additionally, the Commission believes that the in-house compliance personnel would require approximately

[695] *See* 17 CFR 240.0–10(c).

[696] *See supra* notes 640–641.

[697] *See supra* note 642.

[698] *See supra* note 655.

[699] *See supra* notes 664–665.

five hours to review and approve the updated compliance procedure for an aggregate burden of 3,805 hours.[700]

The Commission preliminarily estimates that outside legal counsel would require approximately five hours to conduct and document annual reviews and assessments for an approximate cost of $2,480 per year for each small entity.[701] The estimated aggregate, ongoing cost for outside legal counsel to conduct and document the annual reviews and assessments would be approximately $1.88 million.[702] Additionally, the Commission expects that an additional 10 hours of outside compliance services would be required to conduct and document its annual reviews and assessments, for an ongoing cost of approximately $3,040 per small entity each year and an aggregate ongoing cost of approximately $2.31 million.[703] Separately, the Commission preliminarily estimates that outside counsel would require approximately three hours to prepare the annual report, resulting in an annual cost of $1,488 per year, and an aggregate ongoing cost of approximately $1.13 million per year.[704] In addition, the Commission preliminarily estimates that outside compliance services would require three hours per year to prepare the annual report, for an ongoing cost of approximately $912 per small entity each year and an aggregate ongoing cost of approximately $694,032 per year.[705] Together the aggregate, ongoing cost for small entities subject to the proposed rule is estimated at approximately $6.01 million per year.[706]

In addition to these costs, the Commission additionally estimates each small entity would incur an internal burden of approximately 12 hours for business-line personnel to conduct and document the annual reviews and assessments, and four hours per year for in-house compliance personnel to review the reviews and assessments and preparation of the annual report. The Commission further estimates an internal burden of approximately two hours for an in-house compliance manager to review and approval the annual report for an ongoing, aggregate burden of 13,698 hours.

Finally, the Commission estimates that small entities would incur no new initial burdens or costs to retain the records made pursuant to proposed Rule 1102. Additionally, the Commission estimates that the approximate ongoing burden associated with the recordkeeping requirement of proposed Rule 17a–4(b)(17) for any records made in compliance with proposed Rule 1102 would be one burden hour per small entity for an ongoing aggregate burden of 761 hours.

E. Duplicative, Overlapping, or Conflicting Federal Rules

An analysis under the RFA requires a Federal agency to identify, to the extent practicable, all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rules. The Commission believes that there are no Federal rules that duplicate, overlap, or conflict with proposed Regulation Best Execution and the proposed amendments to Rule 17a–4.

F. Significant Alternatives

An RFA analysis requires a discussion of alternatives to the proposed rule that would minimize the impact of small entities while accomplishing the stated objectives of the applicable statutes. The analysis should include: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.

The Commission considered whether it would be necessary or appropriate to establish different compliance or reporting requirements or timetables; or to clarify, consolidate, or simplify compliance and reporting requirements under the proposed rule for small entities. Because proposed Regulation Best Execution is designed to further enhance broker-dealers' ability to maintain robust best execution practices and result in more vigorous efforts by broker-dealers to achieve best execution, including in situations where broker-dealers have order handling conflicts of interest with retail customers, the Commission preliminarily believes that small entities should be covered by the proposed rules. The proposed rule includes performance standards. The Commission also preliminarily believes that the proposed rules are flexible enough for small broker-dealers to comply without the need for the establishment of different compliance or reporting requirements or timetables[707] for small entities, or exempting them from the proposed rule's requirements.

However, the Commission is proposing that broker-dealers that meet the definition of introducing broker would be subject to different and more tailored requirements under proposed Rule 1101. Specifically, under proposed Rule 1101(d), an entity that meets the definition of introducing broker and routes customer orders to an executing broker would not need to separately comply with proposed Rules 1101(a), (b), and (c), so long as the introducing broker establishes, maintains, and enforces policies and procedures that require the introducing broker to regularly review the execution quality obtained from such executing broker, compare it with the execution quality it might have obtained from other executing brokers, and revise its order handling practices accordingly. As discussed above,[708] the Commission believes that small broker-dealers would be more likely to qualify as introducing brokers. As such, certain small entities would be exempt from complying with proposed Rules 1101(a), (b), and (c). To the extent a small broker-dealer does not qualify as an introducing broker, the Commission believes a small broker-dealer would be less likely to engage in conflicted transactions and be subject to the additional obligations of proposed Rule 1101(b) than a large broker-dealer.

The Commission also considered a number of potential regulatory alternatives to proposed Regulation Best Execution, including: (1) adoption of FINRA Rule 5310 and MSRB Rule G–18 best execution rules; (2) requiring order execution quality disclosure for other asset classes; (3) defining ''introducing broker'' to include those entities that quality for relief under FINRA and MSRB rules; (4) banning or restricting off-exchange payment for order flow; (5) requiring broker-dealers to utilize best execution committees; (6) requiring order-by-order documentation for conflicted or all transactions; and (7) providing staggered compliance dates for certain broker-dealers. For a more detailed discussion of these regulatory alternatives, *see* Section V, *supra.*

[700] *See supra* note 666.

[701] *See supra* note 670.

[702] *See supra* note 671.

[703] *See supra* note 672–673.

[704] *See supra* notes 674–675.

[705] *See supra* notes 676–677.

[706] *See supra* note 678.

[707] Proposed Regulation Best Execution does not include different timetables for small broker-dealers because the Commission preliminarily believes that customers of small broker-dealers would benefit from the protections offered by proposed Regulation Best Execution, just as customers of broker-dealers that are not small entities.

[708] *See supra* section VI.

1. Adopt FINRA Rule 5310 and MSRB Rule G–18 Concerning Best Execution

As discussed above, the Commission considered adopting FINRA Rule 5310 and MSRB Rule G–18 regarding best execution and their associated guidance.[709] Under this alternative, the overall costs and benefits to small entities would be lower than compared to the proposal. This alternative would not include the additional requirements related to transactions with broker-dealer conflicts of interest, which represent the majority of retail transactions in the equity, options, and fixed income markets.[710] Under this alternative, conflicted broker-dealers that would qualify for relief under the current FINRA rule would experience lower compliance costs as they would not be required to develop or update their own policies and procedures or adjust their business model to de-conflict from their executing broker. The cost of the proposal could provide an advantage to larger broker-dealers as compared to smaller broker-dealers. The lower compliance cost under this alternative would increase competition among broker-dealers compared to the proposed rule by lowering barriers to entry for new broker-dealers and decrease the likelihood that smaller broker-dealers would exit the market.

The Commission preliminarily believes that adopting FINRA or the MSRB's best execution rules would be less effective than the proposed rule because broker-dealers (including small entities) would not be required to establish the comprehensive and detailed policies and procedures relating to all aspects of a broker-dealer's best execution practices, including additional requirements for broker-dealers with conflicts of interest, that would be required under the proposal. The Commission preliminarily believes that the proposed policies and procedures-based best execution framework, along with regular reviews and related documentation, would help broker-dealers maintain robust best execution practices and result in vigorous efforts by broker-dealers to achieve best execution, including in situations where broker-dealers have order handling conflicts of interest with retail customers. The Commission also preliminarily believes that detailed policies and procedures, regular reviews, and related documentations would allow broker-dealers to effectively assess their best execution practices and assist the Commission and SROs to effectively examine and enforce broker-dealers' compliance with the proposed rules.

2. Require Order Execution Quality Disclosure for Other Asset Classes

As discussed in section V, as an alternative, the Commission could require execution quality disclosures from market centers and broker-dealers in the options and fixed income markets. In addition to execution quality data at the individual security-level, similar to Rule 605 data, the execution quality disclosures could include aggregated standardized summary reports of key execution quality statistics, which could permit smaller and less sophisticated investors to analyze and compare their broker-dealers against other broker-dealers. This alternative may permit investors to better evaluate execution quality for their orders within their broker-dealer's overall executions in a given security and facilitate broker-to-broker comparisons of order execution beyond just the equities markets.

Under the alternative, broker-dealers that engage in less efficient order handling practices may recognize the inadequacy when comparing their own execution quality statistics with those disclosed by more efficient broker-dealers, and improve the order handling practices accordingly to attract order flow.

However, developing these execution quality disclosures may cause market centers and broker-dealers in the options and fixed income markets to incur higher startup costs relative to the proposal as market centers would need to develop systems to produce and post such reports. To the extent that certain market centers already have systems or infrastructures in place to produce execution quality metrics, they would incur costs to modify their current systems and/or the format of their current reports in order to comply with the potential execution quality disclosure requirements. Additionally, execution quality disclosures for the options and fixed income markets may be complex and difficult to produce for a number of reasons.[711]

3. Define ''Introducing Broker'' To Include Those Entities That Qualify for Relief Under FINRA and MSRB Rules

The Commission could alternatively propose to remove the requirements for introducing and executing brokers related to remuneration, carrying firm status, and affiliation.[712] This alternative would more closely align with the FINRA and MSRB rules concerning a broker-dealer that routes its order flow to another broker-dealer that has agreed to handle that order flow as agent or riskless principal for the customer. Under this alternative, it is likely that most broker-dealers that currently qualify for relief under the FINRA and MSRB rules would continue to do so. By categorizing to allow more broker-dealers to be classified as ''introducing brokers,'' the overall compliance cost carried by the market would be lower as compared to the proposal. This alternative would likely cause fewer small broker-dealers that currently qualify for relief under the FINRA or MSRB rule, and wish to continue to receive remuneration, carry customer accounts, or route to affiliates, to incur the expenses associated with the full obligations of proposed Regulation Best Execution.

The broker-dealers who could benefit under this alternative are those that currently qualify for relief under the FINRA and MSRB rules but fail at least one of the criteria in proposed Rule 1101(d). Thus, current ''introducing brokers,'' and to some extent their executing brokers, would have lower compliance costs since there would be no requirement to change their business models or set-up their own best execution policies and procedures to comply with the proposal. Additionally, this alternative may lower barriers to entry for some potential introducing brokers. However, under this alternative, as discussed in section V above, the benefits of the proposed rule would be diminished. The Commission preliminarily believes that instead of changing their business models, introducing brokers would be more likely to receive payment for order flow from their executing brokers or route customer orders to affiliated executing brokers. Therefore, the benefits of the alternative would be lower since the incentive created by the payment for order flow or routing to an affiliated executing broker would still exist, leading to order routing which may benefit the broker-dealers at the expense of retail customers.

4. Ban or Restrict Off-Exchange Payment for Order Flow

Rather than requiring heightened best execution standards for transactions involving payment for order flow, alternatively the Commission could ban or restrict off-exchange payment for order flow in the equity and options markets. Under this alternative, registered securities exchanges would still be allowed to pay rebates. In

[709] *See supra* section V.

[710] *See* section IV.C.2.a.

[711] *See supra* section V.

[712] *See supra* section IV.E.

contrast to the proposed rule, this alternative may reduce conflicts of interest and improve order handling practices by retail broker-dealers. Separately, the Commission could impose specific restrictions on payment for order flow that could allow retail broker-dealers to pass through payments to end customers in cases where it would permit best execution. A ban or restriction on payment for order flow could increase the likelihood of higher commissions for retail investors or an increase in the cost of other services offered by retail broker-dealers. It may also reduce competition between broker-dealers as larger broker-dealers with more diversified business models may be more likely to expand their market share and smaller broker-dealers who are more dependent on payment for order flow revenue streams may be more likely to exit the market.

5. Require Broker-Dealers To Utilize Best Execution Committees

The Commission considered requiring each broker-dealer to maintain a best execution committee to regularly review the broker-dealers' best execution policies, procedures and the results of its efforts to secure best execution for its customers. Requiring such a committee and defining its membership might improve execution quality by ensuring sufficient expertise is recruited to establish and monitor the broker-dealer's best execution efforts. Furthermore, requiring such a committee might increase executive attention on best execution, potentially improving execution quality for the broker-dealer's customers.

Requiring such a committee and defining its membership would entail certain costs. First, if the Commission were to define the membership of the committee, it is likely that individual broker-dealers' organizational structures would vary in ways that would make a defined membership structure a poor fit because of, for instance, a single employee performing multiple roles, or individual roles handled by groups rather than a single individual. In addition, broker-dealers are diverse in their business plans and operations and a role that might be considered critical at one broker-dealer (such as managing fixed income executing brokers in thinly traded bonds) might be inapplicable at another broker-dealer that does not trade in these instruments. If the Commission were to require the committee and not define its membership, broker-dealers might assign to the committee less senior staff or staff whose roles are not germane to achieving best execution for customer orders, significantly limiting the benefits of establishing such a committee. Furthermore, based on its experience, the Commission believes that many broker-dealers, particularly large broker-dealers that are more likely to continue to engage in conflicted transactions if the proposed rules are adopted, often have such a committee already established, further limiting the potential benefits of such a provision.

6. Require Order-by-Order Documentation for Conflicted or All Transactions

The Commission considered requiring each broker-dealer to document, for conflicted or all transactions, the data that it considered as it handled the order. Such a requirement might offer two benefits. First, it might improve the quality of the broker-dealer's regular review of its execution practices compared to the proposed rules. Because the broker-dealer could analyze orders on a case-by-case basis, it might identify routing practices that could be changed to improve customer order execution quality. Second, it might improve regulators' ability to supervise the broker-dealers efforts to provide best execution to its customers relative to the proposed rules as such records would be available to regulators during examinations of the broker-dealer or upon request for other regulatory purposes.

The Commission preliminarily believes that such a requirement would offer greater potential benefits for conflicted transactions because broker-dealers engaging in such transactions have greater incentives to route orders in a manner that might not result in the best prices for customers. Based on its experience, the Commission believes that some broker-dealers, particularly the largest broker-dealers that are likely to continue to engage in conflicted transactions if the proposed rules are adopted, already maintain this type of documentation for both internal review and operational purposes. Nevertheless, the requirement would be costly. Broker-dealers that do not already retain this data likely have chosen not to do so because the data are not operationally valuable to them for business purposes, and they believe that they are satisfying their best-execution obligations based on other data that they have available for review. For these broker-dealers, the requirement could impose considerable costs. For example, they would need to alter their information technology systems to capture this data, including contemporaneous pricing data and routing records, some of which (such as prices offered in response to a RFQ and information related to fixed income and crypto asset securities) is not incorporated into other regulatory data sources such as CAT and thus might be stored on systems not integrated with other order routing systems, or systems that capture regulatory data. Processing this data might be computationally demanding, particularly for broker-dealers who trade options, as they have very high quotation traffic. Furthermore, creating and maintaining software to produce this documentation would require significant effort by highly skilled programmers which would further increase the costs associated with such a requirement. As discussed previously,[713] the Commission preliminarily believes that broker-dealers that elect to refrain from conflicted transactions if the proposed rules are adopted are more likely to be smaller broker-dealers and these costs, many of which are fixed, are more likely to result in the broker-dealer changing its business model or exiting the market, while the aggregate benefits to investors of such a requirement for smaller broker-dealers is likely to be smaller than for larger broker-dealers that handle more customer orders.

7. Staggered Compliance Dates

The Commission also considered whether there should be staggered compliance dates that take into consideration the concerns of smaller broker-dealers that may need additional time to comply with the proposed rule. Because the Commission preliminarily believes that smaller broker-dealers would primarily rely on outside legal counsel to update existing policies and procedures and outside compliance services to conduct and document their quarterly reviews of execution quality and document their efforts to obtain best execution for conflicted transactions and payment for order flow arrangements, the Commission does not believe that the proposal would unduly burden a smaller broker-dealer's internal resources. Furthermore, the Commission believes small broker-dealers would be less likely to engage in conflicted transactions subject to the additional procedural obligations of proposed Rule 1101(b), and would be more likely to qualify as introducing brokers and be exempt from complying with proposed Rules 1101(a), (b), and (c), and therefore would need to develop a less extensive set of policies and procedures.

[713] *See supra* section V.C.2.ii.

G. General Request for Comment

The Commission encourages written comments regarding this initial regulatory flexibility analysis. In particular, the Commission seeks comment on the number of small entities that would be affected by proposed Regulation Best Execution, and whether the effect on small entities would be economically significant. The Commission requests that commenters describe the nature of any impact on small entities and provide empirical data to support the extent of such impact. The Commission also requests comment on the proposed compliance burdens and the effects these burdens would have on small entities.

Statutory Authority and Text of the Proposed Rule

Pursuant to the Exchange Act, 15 U.S.C. 78a *et seq.,* and particularly sections 2, 3(b), 5, 10, 11A, 15, 15A, 17, 23(a), 24, and 36 thereof, 15 U.S.C. 78b, 78c(b), 78e, 78j, 78k–1, 78o, 78o–1, 78q, 78w(a), 78x, and 78mm, the Commission is proposing amendments to § 240.17a–4 and new §§ 242.1100 through 242.1102.

List of Subjects in 17 CFR Parts 240 and 242

Brokers, Reporting and recordkeeping requirements, Securities.

Text of the Proposed Rules

In accordance with the foregoing, Title 17, Chapter II of the Code of Federal Regulations is proposed to be amended as follows:

PART 240—GENERAL RULES AND REGULATIONS, SECURITIES EXCHANGE ACT OF 1934

■ 1. The authority citation for part 240 continues to read as follows:

Authority: 15 U.S.C. 77c, 77d, 77g, 77j, 77s, 77z–2, 77z–3, 77eee, 77ggg, 77nnn, 77sss, 77ttt, 78c, 78c–3, 78c–5, 78d, 78e, 78f, 78g, 78i, 78j, 78j–1, 78k, 78k–1, 78l, 78m, 78n, 78n–1, 78o, 78o–4, 78o–10, 78p, 78q, 78q–1, 78s, 78u–5, 78w, 78x, 78dd, 78ll, 78mm, 80a–20, 80a–23, 80a–29, 80a–37, 80b–3, 80b–4, 80b–11, and 7201 *et seq.,* and 8302; 7 U.S.C. 2(c)(2)(E); 12 U.S.C. 5221(e)(3); 18 U.S.C. 1350; Pub. L. 111–203, 939A, 124 Stat. 1376 (2010); and Pub. L. 112–106, sec. 503 and 602, 126 Stat. 326 (2012), unless otherwise noted.

■ 2. Amend § 240.17a–4 by adding a new paragraph (b)(17) to read as follows:

§ 240.17a–4 Records to be preserved by certain exchange members, brokers and dealers.

* * * * *

(b) * * *

(17) All records made pursuant to §§ 242.1101 and 242.1102, other than required policies and procedures, as applicable.

* * * * *

PART 242—REGULATIONS M, SHO, ATS, AC, NMS, SBSR, AND BEST EXECUTION, AND CUSTOMER MARGIN REQUIREMENTS FOR SECURITY FUTURES

■ 3. The authority citation for part 242 is amended to read as follows:

Authority: 15 U.S.C. 77g, 77q(a), 77s(a), 78b, 78c(b), 78e, 78g(c)(2), 78i(a), 78j, 78k–1, 78l, 78m, 78n, 78o(b), 78o(c), 78o(g), 78o–1, 78q, 78w(a), 78x, 78dd–1, 78mm, 80a–23, 80a–29, and 80a–37.

■ 4. The heading of part 242 is revised to read as set forth above.

■ 5. Part 242 is amended by adding Regulation Best Execution, §§ 242.1100 through 242.1102, to read as follows:

Regulation Best Execution

Sec.

§ 242.1100 The best execution standard.

In any transaction for or with a customer, or a customer of another broker, dealer, government securities broker, government securities dealer, or municipal securities dealer (collectively, for purposes of Regulation Best Execution, ''broker or dealer''), a broker or dealer, or a natural person who is an associated person of a broker or dealer, shall use reasonable diligence to ascertain the best market for the security, and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions (for purposes of Regulation Best Execution, ''most favorable price''). A broker or dealer, or a natural person who is an associated person of a broker or dealer, is not subject to this standard when:

(a) Another broker or dealer is executing a customer order against the broker or dealer's quotation;

(b) An institutional customer, exercising independent judgment, executes its order against the broker or dealer's quotation; or

(c) The broker or dealer receives an unsolicited instruction from a customer to route that customer's order to a particular market for execution and the broker or dealer processes that customer's order promptly and in accordance with the terms of the order.

§ 242.1101 Required policies and procedures; related obligations.

A broker or dealer that engages in any transaction for or with a customer or a customer of another broker or dealer shall establish, maintain, and enforce written policies and procedures reasonably designed to comply with the best execution standard as set forth in § 242.1100 (for purposes of Regulation Best Execution, ''best execution policies and procedures'').

(a) *Requirements.* Such policies and procedures shall address:

(1) How the broker or dealer will comply with the best execution standard by:

(i) Obtaining and assessing reasonably accessible information, including information about price, volume, and execution quality, concerning the markets trading the relevant securities;

(ii) Identifying markets that may be reasonably likely to provide the most favorable prices for customer orders (''material potential liquidity sources''); and

(iii) Incorporating material potential liquidity sources into its order handling practices, and ensuring that the broker or dealer can efficiently access each such material potential liquidity source.

(2) How the broker or dealer will determine the best market and make routing or execution decisions for customer orders that it receives by:

(i) Assessing reasonably accessible and timely information with respect to the best displayed prices, opportunities for price improvement, including midpoint executions, and order exposure opportunities that may result in the most favorable price;

(ii) Assessing the attributes of customer orders and considering the trading characteristics of the security, the size of the order, the likelihood of execution, the accessibility of the market, and any customer instructions in selecting the market most likely to provide the most favorable price; and

(iii) In determining the number and sequencing of markets to be assessed, reasonably balancing the likelihood of obtaining better prices with the risk that delay could result in a worse price.

(b) *Conflicts of Interest.* In any transaction for or with a retail customer, where the broker or dealer executes an order as principal, including riskless principal; routes an order to, or receives an order from, an affiliate for execution; or provides or receives payment for order flow as defined in § 240.10b–10(d)(8) of this chapter (each, a ''conflicted transaction''):

(1) The broker or dealer's best execution policies and procedures additionally shall address how the

broker or dealer will obtain and assess information beyond that required by paragraph (a)(1)(i) of this section, including additional information about price, volume, and execution quality, in identifying a broader range of markets beyond those identified as material potential liquidity sources;

(2) The broker or dealer's best execution policies and procedures additionally shall address how the broker or dealer will evaluate a broader range of markets, beyond those identified as material potential liquidity sources, that might provide the most favorable price for customer orders, including a broader range of order exposure opportunities and markets that may be smaller or less accessible than those identified as material potential liquidity sources; and

(3) The broker or dealer shall document its compliance with the best execution standard for conflicted transactions, including all efforts to enforce its best execution policies and procedures for conflicted transactions and the basis and information relied on for its determinations that such conflicted transactions would comply with the best execution standard. Such documentation shall be done in accordance with written procedures. The broker or dealer shall also document any arrangement, whether written or oral, concerning payment for order flow, including the parties to the arrangement, all qualitative and quantitative terms concerning the arrangement, and the date and terms of any changes to the arrangement.

(4) For purposes of this paragraph (b):

(i) ''Any transaction for or with a retail customer'' means any transaction for or with the account of a natural person or held in legal form on behalf of a natural person or group of related family members. For purposes of this definition, a ''group of related family members'' means a group of natural persons with any of the following relationships: child, stepchild, grandchild, great grandchild, parent, stepparent, grandparent, great grandparent, spouse, domestic partner, sibling, stepbrother, stepsister, niece, nephew, aunt, uncle, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive and foster relationships; and any other natural person (other than a tenant or employee) sharing a household with any of the foregoing natural persons;

(ii) A broker or dealer executes an order as ''riskless principal'' if, after having received an order to buy from a customer, the broker or dealer purchases the security from another person to offset a contemporaneous sale to the customer or, after having received an order to sell, the broker or dealer sells the security to another person to offset a contemporaneous purchase from the customer; and

(iii) ''Affiliate'' means, with respect to a specified person, any person that, directly or indirectly, controls, is under common control with, or is controlled by, the specified person. For purposes of this definition, ''control'' means the power, directly or indirectly, to direct the management or policies of the broker or dealer whether through ownership of securities, by contract, or otherwise. A person is presumed to control a broker or dealer if that person is a director, general partner, or officer exercising executive responsibility (or having similar status or performing similar functions); directly or indirectly has the right to vote 25 percent or more of a class of voting securities or has the power to sell or direct the sale of 25 percent or more of a class of voting securities of the broker or dealer; or in the case of a partnership, has contributed, or has the right to receive upon dissolution, 25 percent or more of the capital of the broker or dealer.

(c) *Regular Review of Execution Quality.* A broker or dealer shall, no less frequently than quarterly, review the execution quality of its transactions for or with customers or customers of another broker or dealer, and how such execution quality compares with the execution quality the broker or dealer might have obtained from other markets, and revise its best execution policies and procedures, including its order handling practices, accordingly. The broker or dealer shall document the results of this review.

(d) *Introducing Brokers.* An introducing broker that routes customer orders to an executing broker does not need to separately comply with paragraphs (a), (b), and (c) of this section so long as the introducing broker establishes, maintains, and enforces policies and procedures that require the introducing broker to regularly review the execution quality obtained from such executing broker, compare it with the execution quality it might have obtained from other executing brokers, and revise its order handling practices accordingly. The introducing broker shall document the results of this review. For purposes of this provision, introducing broker means a broker or dealer that:

(1) Does not carry customer accounts and does not hold customer funds or securities;

(2) Has entered into an arrangement with an unaffiliated broker or dealer that has agreed to handle and execute on an agency basis all of the introducing broker's customer orders (''executing broker'') (For purposes of this paragraph, principal trades by an executing broker with the introducing broker's customer to fill fractional share orders in NMS stocks and riskless principal trades (as defined in paragraph (b)) by an executing broker in fixed income securities will be considered to be handled on an agency basis); and

(3) Has not accepted any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration from the executing broker in return for the routing of the introducing broker's customer orders to the executing broker.

§ 242.1102 Annual report.

A broker or dealer that effects any transaction for or with a customer or a customer of another broker or dealer shall, no less frequently than annually, review and assess the design and overall effectiveness of its best execution policies and procedures, including its order handling practices. Such review and assessment shall be conducted in accordance with written procedures and shall be documented. The broker or dealer shall prepare a written report detailing the results of such review and assessment, including a description of all deficiencies found and any plan to address deficiencies. The report shall be presented to the board of directors (or equivalent governing body) of the broker or dealer.

By the Commission.

December 14, 2022.

J. Matthew DeLesDernier,

Deputy Secretary.

[FR Doc. 2022–27644 Filed 1–26–23; 8:45 am]

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Part III

Environmental Protection Agency

40 CFR Parts 50, 53, and 58
Reconsideration of the National Ambient Air Quality Standards for Particulate Matter; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 50, 53, and 58

[EPA–HQ–OAR–2015–0072; FRL–8635–01–OAR]

RIN 2060–AV52

Reconsideration of the National Ambient Air Quality Standards for Particulate Matter

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: Based on the Environmental Protection Agency's (EPA's) reconsideration of the air quality criteria and the national ambient air quality standards (NAAQS) for particulate matter (PM), the EPA proposes to revise the primary annual $PM_{2.5}$ standard by lowering the level. The Agency proposes to retain the current primary 24-hour $PM_{2.5}$ standard and the primary 24-hour PM_{10} standard. The Agency also proposes not to change the secondary 24-hour $PM_{2.5}$ standard, secondary annual $PM_{2.5}$ standard, and secondary 24-hour PM_{10} standard at this time. The EPA also proposes revisions to other key aspects related to the PM NAAQS, including revisions to the Air Quality Index (AQI) and monitoring requirements for the PM NAAQS.

DATES: Comments must be received on or before March 28, 2023.

Public Hearings: The EPA will hold a virtual public hearing on this proposed rule. This hearing will be announced in a separate **Federal Register** document that provides details, including specific dates, times, and contact information for these hearings.

ADDRESSES: You may submit comments, identified by Docket ID No. EPA–HQ–OAR–2015–0072, by any of the following means:

- *Federal eRulemaking Portal: https://www.regulations.gov/* (our preferred method). Follow the online instructions for submitting comments.
- *Email: a-and-r-Docket@epa.gov*. Include the Docket ID No. EPA–HQ–OAR–2015–0072 in the subject line of the message.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, Air and Radiation Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- *Hand Delivery or Courier (by scheduled appointment only):* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this document. Comments received may be posted without change to *https://www.regulations.gov*, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: Dr. Lars Perlmutt, Health and Environmental Impacts Division, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Mail Code C539–04, Research Triangle Park, NC 27711; telephone: (919) 541–3037; fax: (919) 541–5315; email: *perlmutt.lars@epa.gov*.

SUPPLEMENTARY INFORMATION:

General Information

Preparing Comments for the EPA

Follow the online instructions for submitting comments. Once submitted to the Federal eRulemaking Portal, comments cannot be edited or withdrawn. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written submission. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.,* on the web, the cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets*.

When submitting comments, remember to:

- Identify the action by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Explain why you agree or disagree, suggest alternatives, and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- Provide specific examples to illustrate your concerns and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified.

Availability of Information Related to This Action

All documents in the dockets pertaining to this action are listed on the *www.regulations.gov* website. This includes documents in the docket for the proposed decision (Docket ID No. EPA–HQ–OAR–2015–0072) and a separate docket, established for the Integrated Science Assessment (ISA) (Docket ID No. EPA–HQ–ORD–2014–0859) that has been adopted by reference into the docket for this proposed decision. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and may be viewed with prior arrangement with the EPA Docket Center. Additionally, a number of the documents that are relevant to this proposed decision are available through the EPA's website at *https://www.epa.gov/naaqs/particulate-matter-pm-air-quality-standards*. These documents include the Integrated Science Assessment for Particulate Matter (U.S. EPA, 2019a), available at *https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=347534*, the Supplement to the 2019 Integrated Science Assessment for Particulate Matter (U.S. EPA, 2022a), available at *https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=354490*, and the Policy Assessment for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter (U.S. EPA, 2022b), available at *https://www.epa.gov/naaqs/particulate-matter-pm-standards-integrated-science-assessments-current-review*.

Table of Contents

The following topics are discussed in this preamble:

Executive Summary

This document presents the Administrator's proposed decisions for the reconsideration of the 2020 final decision on the primary (health-based) and secondary (welfare-based) National Ambient Air Quality Standards (NAAQS) for Particulate Matter (PM). More specifically this document summarizes the background and rationale for the Administrator's proposed decisions to revise the primary annual $PM_{2.5}$ standard by lowering the level from 12.0 μg/m³ to within the range of 9.0 to 10.0 μg/m³ while taking comment on alternative annual standard levels down to 8.0 μg/m³ and up to 11.0 μg/m³; to retain the current primary 24-hour $PM_{2.5}$ standard (at a level of 35 μg/m³) while taking comment on revising the level as low as 25 μg/m³; to retain the primary 24-hour PM_{10} standard, without revision; and, not to change the secondary PM standards at this time, while taking comment on revising the level of the secondary 24-hour $PM_{2.5}$ standard as low as 25 μg/m³. In reaching his proposed decisions, the Administrator has considered the currently available scientific evidence in the 2019 Integrated Science Assessment (2019 ISA) and the Supplement to the 2019 ISA (ISA Supplement), quantitative and policy analyses presented in the Policy Assessment (PA), and advice from the Clean Air Scientific Advisory Committee (CASAC). The EPA solicits comment on the proposed decisions described here and on the array of issues associated with the reconsideration of these standards, including the judgments of public health, public welfare and science policy inherent in the proposed decisions, and requests commenters also provide the rationales upon which views articulated in submitted comments are based.

The EPA has established primary and secondary standards for $PM_{2.5}$, which includes particles with diameters generally less than or equal to 2.5 μm, and PM_{10}, which includes particles with diameters generally less than or equal to 10 μm. The standards include two primary $PM_{2.5}$ standards, an annual average standard, averaged over three years, with a level of 12.0 μg/m³ and a 24-hour standard with a 98th percentile form, averaged over three years, and a level of 35 μg/m³. It also includes a primary PM_{10} standard with a 24-hour averaging time, and a level of 150 μg/m³, not to be exceeded more than once per year on average over three years. Secondary PM standards are set equal to the primary standards, except that the level of the secondary annual $PM_{2.5}$ standard is 15.0 μg/m³.

The last review of the PM NAAQS was completed in December 2020. In that review, the EPA retained the primary and secondary NAAQS, without revision (85 FR 82684, December 18, 2020). Following publication of the 2020 final action, several parties filed petitions for review and petitions for reconsideration of the EPA's final decision.

In June 2021, the Agency announced its decision to reconsider the 2020 PM NAAQS final action.[1] The EPA is reconsidering the December 2020 decision because the available scientific evidence and technical information indicate that the current standards may not be adequate to protect public health and welfare, as required by the Clean Air Act. The EPA noted that the 2020 PA concluded that the scientific evidence and information called into question the adequacy of the primary $PM_{2.5}$ standards and supported consideration of revising the level of the primary annual $PM_{2.5}$ standard to below the current level of 12.0 μg/m³ while retaining the primary 24-hour $PM_{2.5}$ standard (U.S. EPA, 2020a). The EPA also noted that the 2020 PA concluded that the available scientific evidence and information did not call into question the adequacy of the primary PM_{10} or secondary PM standards and supported consideration of retaining the primary PM_{10} standard and secondary PM standards without revision (U.S. EPA, 2020a).

The proposed decisions presented in this document on the primary $PM_{2.5}$ standards have been informed by key aspects of the available health effects evidence and conclusions contained in the 2019 ISA and ISA Supplement, quantitative exposure/risk analyses and policy evaluations presented in the PA, advice from the CASAC[2] and public comment received as part of this reconsideration.[3] The health effects evidence available in this reconsideration, in conjunction with the full body of evidence critically evaluated in the 2019 ISA, supports a causal relationship between long- and

[1] The press release for this announcement is available at: *https://www.epa.gov/newsreleases/epa-reexamine-health-standards-harmful-soot-previous-administration-left-unchanged*.

[2] In 2021, the Administrator announced his decision to reestablish the membership of the CASAC. The Administrator selected seven members to serve on the chartered CASAC, and appointed a PM CASAC panel to support the chartered CASAC's review of the draft ISA Supplement and the draft PA as a part of this reconsideration (see section I.C.6.b below for more information).

[3] More information regarding the CASAC review of the draft ISA Supplement and the draft PA, including opportunities for public comment, can be found in the following **Federal Register** notices: 86 FR 54186, September 30, 2021; 86 FR 52673, September 22, 2021; 86 FR 56263, October 8, 2021; 87 FR 958, January 7, 2022.

short-term exposures and mortality and cardiovascular effects, and the evidence supports a likely to be a causal relationship between long-term exposures and respiratory effects, nervous system effects, and cancer. The longstanding evidence base, including animal toxicological studies, controlled human exposure studies, and epidemiologic studies, reaffirms, and in some cases strengthens, the conclusions from past reviews regarding the health effects of $PM_{2.5}$ exposures. Epidemiologic studies available in this reconsideration demonstrate generally positive, and often statistically significant, $PM_{2.5}$ health effect associations. Such studies report associations between estimated $PM_{2.5}$ exposures and non-accidental, cardiovascular, or respiratory mortality; cardiovascular or respiratory hospitalizations or emergency room visits; and other mortality/morbidity outcomes (e.g., lung cancer mortality or incidence, asthma development). The scientific evidence available in this reconsideration, as evaluated in the 2019 ISA and ISA Supplement, includes a number of epidemiologic studies that use various methods to characterize exposure to $PM_{2.5}$ (e.g., ground-based monitors and hybrid modeling approaches) and to evaluate associations between health effects and lower ambient $PM_{2.5}$ concentrations. There are a number of recent epidemiologic studies that use varying study designs that reduce uncertainties related to confounding and exposure measurement error. The results of these analyses provide further support for the robustness of associations between $PM_{2.5}$ exposures and mortality and morbidity. Moreover, the Administrator notes that recent epidemiologic studies strengthen support for health effect associations at lower $PM_{2.5}$ concentrations, with these new studies finding positive and significant associations when assessing exposure in locations and time periods with lower mean and 25th percentile concentrations than those evaluated in epidemiologic studies available at the time of previous reviews. Additionally, the experimental evidence (*i.e.,* animal toxicological and controlled human exposure studies) strengthens the coherence of effects across scientific disciplines and provides additional support for potential biological pathways through which $PM_{2.5}$ exposures could lead to the overt population-level outcomes reported in epidemiologic studies for the health effect categories for which a causal relationship (*i.e.,* short- and long-term $PM_{2.5}$ exposure and mortality and cardiovascular effects) or likely to be causal relationship (*i.e.,* short- and long-term $PM_{2.5}$ exposure and respiratory effects; and long-term $PM_{2.5}$ exposure and nervous system effects and cancer) was concluded.

The available evidence in the 2019 ISA continues to provide support for factors that may contribute to increased risk of $PM_{2.5}$-related health effects including lifestage (children and older adults), pre-existing diseases (cardiovascular disease and respiratory disease), race/ethnicity, and socioeconomic status. For example, the 2019 ISA and ISA Supplement conclude that there is strong evidence that Black and Hispanic populations, on average, experience higher $PM_{2.5}$ exposures and $PM_{2.5}$-related health risk than non-Hispanic White populations. In addition, studies evaluated in the 2019 ISA and ISA Supplement also provide evidence indicating that communities with lower socioeconomic status (SES), as assessed in epidemiologic studies using indicators of SES including income and educational attainment are, on average, exposed to higher concentrations of $PM_{2.5}$ compared to higher SES communities.

The quantitative risk assessment, as well as policy considerations in the PA, also inform the proposed decisions on the primary $PM_{2.5}$ standards. The risk assessment in this consideration focuses on all-cause or nonaccidental mortality associated with long- and short-term $PM_{2.5}$ exposures. The primary analyses focus on exposure and risk associated with air quality that might occur in an area under air quality conditions that just meet the current and potential alternative standards. The risk assessment estimates that the current primary $PM_{2.5}$ standards could allow a substantial number of $PM_{2.5}$-associated premature deaths in the United States, and that public health improvements would be associated with just meeting all of the alternative (more stringent) annual and 24-hour standard levels modeled. Additionally, the results of the risk assessment suggest that for most of the U.S., the annual standard is the controlling standard and that revision to that standard has the most potential to reduce $PM_{2.5}$ exposure related risk. Further analyses comparing the reductions in average national $PM_{2.5}$ concentrations and risk rates within each demographic population estimate that the average percent $PM_{2.5}$ concentrations and risk reductions are slightly greater in the Black population than in the White population when meeting a revised annual standard with a lower level. The analyses are summarized in this document and described in detail in the PA.

In its advice to the Administrator, the CASAC concurred with the draft PA that the currently available health effects evidence calls into question the adequacy of the primary annual $PM_{2.5}$ standard. With regard to the primary annual $PM_{2.5}$ standard, the majority of the CASAC concluded that the level of the standard should be revised within the range of 8.0 to 10.0 $\mu g/m^3$, while the minority of the CASAC concluded that the primary annual $PM_{2.5}$ standard should be revised to a level of 10.0 to 11.0 $\mu g/m^3$. With regard to the primary 24-hour $PM_{2.5}$ standard, the majority of the CASAC concluded that the primary 24-hour $PM_{2.5}$ was not adequate and that the level of the standard should be revised to within the range of 25 to 30 $\mu g/m^3$, while the minority of the CASAC concluded that the primary 24-hour $PM_{2.5}$ standard was adequate and should be retained, without revision.

In considering how to revise the suite of standards to provide the requisite degree of protection, the Administrator recognizes that the current annual standard and 24-hour standard, together, are intended to provide public health protection against the full distribution of short- and long-term $PM_{2.5}$ exposures. Further, he recognizes that changes in $PM_{2.5}$ air quality designed to meet either the annual or the 24-hour standard would likely result in changes to both long-term average and short-term peak $PM_{2.5}$ concentrations. Based on the current evidence and quantitative information, as well as consideration of CASAC advice and public comment thus far in this reconsideration, the Administrator proposes to conclude that the current primary $PM_{2.5}$ standards are not adequate to protect public health with an adequate margin of safety.

The Administrator also notes that the CASAC was unanimous in its advice regarding the need to revise the annual standard. In considering the appropriate level for a revised annual standard, the Administrator provisionally concludes that a standard set within the range of 9.0 to 10.0 $\mu g/m^3$ would reflect his placing the most weight on the strongest available evidence while appropriately weighing the uncertainties. In addition, the Administrator recognizes that some members of CASAC advised, and the PA concluded, that the available scientific information provides support for considering a range that extends up to 11.0 $\mu g/m^3$ and down to 8.0 $\mu g/m^3$.

With regard to the primary 24-hour $PM_{2.5}$ standard, the Administrator finds it is less clear whether the available scientific evidence and quantitative

information calls into question the adequacy of the public health protection afforded by the current 24-hour standard. He notes that a more stringent annual standard is expected to reduce both average (annual) concentrations and peak (daily) concentrations. Furthermore, he notes that the CASAC did not reach consensus on whether revisions to the primary 24-hour $PM_{2.5}$ standard were warranted at this time. The majority of the CASAC recommended that the level of the current primary 24-hour $PM_{2.5}$ should be revised to within the range of 25 to 30 $\mu g/m^3$, while the minority of the CASAC recommended retaining the current standard. The Administrator proposes to conclude that the 24-hour standard should be retained, particularly when considered in conjunction with the protection provided by the suite of standards and the proposed decision to revise the annual standard to a level of 9.0 to 10.0 $\mu g/m^3$.

The EPA solicits comment on the Administrator's proposed conclusions, and on the proposed decision to revise the primary annual $PM_{2.5}$ standard and retain the primary 24-hour $PM_{2.5}$ standard, without revision. The Administrator is conscious of his obligation to set primary standards with an adequate margin of safety and preliminarily determines that the proposed decision balances the need to provide protection against uncertain risks with the obligation to not set standards that are more stringent than necessary. The requirement to provide an adequate margin of safety was intended to address uncertainties associated with inconclusive scientific and technical information and to provide a reasonable degree of protection against hazards that research has not yet identified. Reaching decisions on what standards are appropriate necessarily requires judgments of the Administrator about how to consider the information available from the epidemiologic studies and other relevant evidence. In the Administrator's judgment, the proposed suite of primary $PM_{2.5}$ standards reflects the appropriate consideration of the strength of the available evidence and other information and their associated uncertainties and the advice of the CASAC. The final rulemaking will reflect the Administrator's ultimate judgments as to the suite of primary $PM_{2.5}$ standards that are requisite to protect the public health with an adequate margin of safety. Consistent with these principles, the EPA also solicits public comment on alternative annual standard levels down to 8.0 $\mu g/m^3$ and up to 11.0 $\mu g/m^3$, on an alternative 24-hour standard level as low as 25 $\mu g/m^3$ and on the combination of annual and 24-hour standards that commenters may believe is appropriate, along with the approaches and scientific rationales used to support such levels. For example, the EPA solicits comments on the uncertainties in the reported associations between daily or annual average $PM_{2.5}$ exposures and mortality or morbidity in the epidemiologic studies, the significance of the 25th percentile of ambient concentrations reported in studies, the relevance and limitations of international studies, and other topics discussed in section II.D.3.b.

The primary PM_{10} standard is intended to provide public health protection against health effects related to exposures to $PM_{10-2.5}$, which are particles with a diameter between 10 µm and 2.5 µm. The proposed decision to retain the current 24-hour PM_{10} standard has been informed by key aspects of the available health effects evidence and conclusions contained in the 2019 ISA, the policy evaluations presented in the PA, advice from the CASAC and public comment received as part of this reconsideration. Specifically, the health effects evidence for $PM_{10-2.5}$ exposures is somewhat strengthened since past reviews, although the strongest evidence still only provides support for a suggestive of, but not sufficient to infer, causal relationship with long- and short-term exposures and mortality and cardiovascular effects, short-term exposures and respiratory effects, and long-term exposures and cancer, nervous system effects, and metabolic effects. In reaching his proposed decision, the Administrator recognizes that, while the available health effects evidence has expanded, recent studies are subjected to the same types of uncertainties that were judged to be important in previous reviews. He also recognizes that the CASAC generally agreed with the draft PA that it was reasonable to retain the primary 24-hour PM_{10} standard given the available scientific evidence, including PM_{10} as an appropriate indicator. He proposes to conclude that the newly available evidence does not call into question the adequacy of the current primary PM_{10} standard, and he proposes to retain that standard, without revision.

This reconsideration of the secondary PM standards focuses on visibility, climate, and materials effects.[4] The Administrator's proposed decision to not change the current secondary standards at this time has been informed by key aspects of the currently available welfare effects evidence as well as the conclusions contained in the 2019 ISA and ISA Supplement; quantitative analyses of visibility impairment; policy evaluations presented in the PA; advice from the CASAC; and public comment received as part of this reconsideration. Specifically, the welfare effects evidence available in this reconsideration is consistent with the evidence available in previous reviews and supports a causal relationship between PM and visibility, climate, and materials effects. With regard to climate and materials effects, while the evidence has expanded since previous reviews, uncertainties remain in the evidence and there are still significant limitations in quantifying potential adverse effects from PM on climate and materials for purposes of setting a standard. With regard to visibility effects, the results of quantitative analyses of visibility impairment are similar to those in previous reviews, and suggest that in areas that meet the current secondary 24-hour $PM_{2.5}$ standard that estimated light extinction in terms of a 3-year visibility metric would be at or well below the upper end of the range for the target level of protection (*i.e.,* 30 deciviews (dv)). The CASAC generally agreed with the draft PA that substantial uncertainties remain in the scientific evidence for climate and materials effects. In considering the available scientific evidence for climate and materials effects, along with CASAC advice, the Administrator proposes to conclude that it is appropriate to retain the existing secondary standards and that it is not appropriate to establish any distinct secondary PM standards to address non-visibility PM-related welfare effects. With regard to visibility effects, while the Administrator notes that the CASAC did not recommend revising either the target level of protection for the visibility index or the level of the current secondary 24-hour $PM_{2.5}$ standard, the Administrator

[4] Consistent with the 2016 Integrated Review Plan (U.S. EPA, 2016), other welfare effects of PM, such as ecological effects, are being considered in the separate, on-going review of the secondary NAAQS for oxides of nitrogen, oxides of sulfur and PM. Accordingly, the public welfare protection provided by the secondary PM standards against ecological effects such as those related to deposition of nitrogen- and sulfur-containing compounds in vulnerable ecosystems is being considered in that separate review. Thus, the Administrator's conclusion in this reconsideration of the 2020 final decision will be focused only and specifically on the adequacy of public welfare protection provided by the secondary PM standards from effects related to visibility, climate, and materials and hereafter ''welfare effects'' refers to those welfare effects.

recognizes that, should an alternative level be considered for the visibility index, that the CASAC recommends also considering revisions to the secondary 24-hour $PM_{2.5}$ standard. In considering the available evidence and quantitative information, with its inherent uncertainties and limitations, the Administrator proposes not to change the secondary PM standards at this time, and solicits comment on this proposed decision. In addition, the Administrator additionally solicits comment on the appropriateness of a target level of protection for visibility below 30 dv and down as low as 25 dv, and of revising the level of the current secondary 24-hour $PM_{2.5}$ standard to a level as low as 25 $\mu g/m^3$.

Any proposed revisions to the PM NAAQS, if finalized, would trigger a process under which states (and tribes, if they choose) make recommendations to the Administrator regarding designations, identifying areas of the country that either meet or do not meet the new or revised PM NAAQS. Those areas that do not meet the PM NAAQS will need to develop plans that demonstrate how they will meet the standards. As part of these plans, states have the opportunity to use tools to advance environmental justice, in this case for overburdened communities in areas with high PM concentrations above the NAAQS, as provided in current PM NAAQS implementation guidance to meet requirements (80 FR 58010, 58136, August 25, 2016). The EPA is not proposing changes to any of the current PM NAAQS implementation programs in this proposed rulemaking, and therefore is not requesting comment on any specific proposals related to implementation or designations.

On other topics, the EPA proposes to make two sets of changes to the $PM_{2.5}$ sub-index of the AQI. First, the EPA proposes to continue to use the approach used in the revisions to the AQI in 2012 (77 FR 38890, June 29, 2012) of setting the lower breakpoints (50, 100 and 150) to be consistent with the levels of the primary $PM_{2.5}$ annual and 24-hour standards and proposes to revise the lower breakpoints to be consistent with any changes to the primary $PM_{2.5}$ standards that are part of this reconsideration. In so doing, the EPA proposes to revise the AQI value of 50 within the range of 9.0 and 10.0 $\mu g/m^3$ and proposes to retain the AQI values of 100 and 150 at 35.4 $\mu g/m^3$ and 55.4 $\mu g/m^3$, respectively. Second, the EPA proposes to revise the upper AQI breakpoints (200 and above) and to replace the linear-relationship approach used in 1999 (64 FR 42530, August 4, 1999) to set these breakpoints, with an approach that more fully considers the $PM_{2.5}$ health effects evidence from controlled human exposure and epidemiologic studies that has become available in the last 20 years. The EPA also proposes to revise the AQI values of 200, 300 and 500 to 125.4 $\mu g/m^3$, 225.4 $\mu g/m^3$, and 325.4 $\mu g/m^3$, respectively. The EPA proposes to finalize these changes to the $PM_{2.5}$ AQI in conjunction with the Agency's final decisions on the primary annual and 24-hour $PM_{2.5}$ standards, if proposed revisions to such standards are promulgated. The EPA is soliciting comment on the proposed revisions to the AQI. In addition, the EPA also proposes to revise the daily reporting requirement from 5 days per week to 7 days per week, while also reformatting appendix G and providing clarifications.

With regard to monitoring-related activities, the EPA proposes revisions to data calculations and ambient air monitoring requirements for PM to improve the usefulness of and appropriateness of data used in regulatory decision making and to better characterize air quality in communities that are at increased risk of $PM_{2.5}$ exposure and health risk. These proposed changes are found in 40 CFR part 50 (appendices K, L, and N), part 53, and part 58 with associated appendices (A, B, C, D, and E). These proposed changes include addressing updates in data calculations, approval of reference and equivalent methods, updates in quality assurance statistical calculations to account for lower concentration measurements, updates to support improvements in PM methods, a revision to the $PM_{2.5}$ network design to account for at-risk populations, and updates to the Probe and Monitoring Path Siting Criteria for NAAQS pollutants.

In setting the NAAQS, the EPA may not consider the costs of implementing the standards. This was confirmed by the Supreme Court in *Whitman* v. *American Trucking Associations,* 531 U.S. 457, 465–472, 475–76 (2001), as discussed in section II.A of this document. As has traditionally been done in NAAQS rulemaking, the EPA prepared a Regulatory Impact Analysis (RIA) to provide the public with information on the potential costs and benefits of attaining several alternative $PM_{2.5}$ standard levels. In NAAQS rulemaking, the RIA is done for informational purposes only, and the proposed decisions on the NAAQS in this rulemaking are not based on consideration of the information or analyses in the RIA. The RIA fulfills the requirements of Executive Orders 13563 and 12866. The RIA estimates the costs and monetized human health benefits of attaining three alternative annual $PM_{2.5}$ standard levels and one alternative 24-hour $PM_{2.5}$ standard level. Specifically, the RIA examines the proposed annual and 24-hour alternative standard levels of 10/35 $\mu g/m^3$ and 9/35 $\mu g/m^3$, as well as the following two more stringent alternative standard levels: (1) An alternative annual standard level of 8 $\mu g/m^3$ in combination with the current 24-hour standard (*i.e.,* 8/35 $\mu g/m^3$), and (2) an alternative 24-hour standard level of 30 $\mu g/m^3$ in combination with the proposed annual standard level of 10 $\mu g/m^3$ (*i.e.,* 10/30 $\mu g/m^3$). The RIA presents estimates of the costs and benefits of applying illustrative national control strategies in 2032 after implementing existing and expected regulations and assessing emissions reductions to meet the current annual and 24-hour particulate matter NAAQS (12/35 $\mu g/m^3$).

I. Background

A. Legislative Requirements

Two sections of the Clean Air Act (CAA) govern the establishment and revision of the NAAQS. Section 108 (42 U.S.C. 7408) directs the Administrator to identify and list certain air pollutants and then to issue air quality criteria for those pollutants. The Administrator is to list those pollutants ''emissions of which, in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare''; ''the presence of which in the ambient air results from numerous or diverse mobile or stationary sources''; and for which he ''plans to issue air quality criteria. . . .'' (42 U.S.C. 7408(a)(1)). Air quality criteria are intended to ''accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of [a] pollutant in the ambient air. . . .'' (42 U.S.C. 7408(a)(2)).

Section 109 [42 U.S.C. 7409] directs the Administrator to propose and promulgate ''primary'' and ''secondary'' NAAQS for pollutants for which air quality criteria are issued [42 U.S.C. 7409(a)]. Section 109(b)(1) defines primary standards as ones ''the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health.'' [5] Under

[5] The legislative history of section 109 indicates that a primary standard is to be set at ''the maximum permissible ambient air level . . . which

Continued

section 109(b)(2), a secondary standard must ''specify a level of air quality the attainment and maintenance of which, in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of [the] pollutant in the ambient air.'' [6]

In setting primary and secondary standards that are ''requisite'' to protect public health and welfare, respectively, as provided in section 109(b), the EPA's task is to establish standards that are neither more nor less stringent than necessary. In so doing, the EPA may not consider the costs of implementing the standards. See generally *Whitman* v. *American Trucking Associations,* 531 U.S. 457, 465–472, 475–76 (2001). Likewise, ''[a]ttainability and technological feasibility are not relevant considerations in the promulgation of national ambient air quality standards.'' *American Petroleum Institute* v. *Costle,* 665 F.2d 1176, 1185 (D.C. Cir. 1981); *accord Murray Energy Corporation* v. *EPA,* 936 F.3d 597, 623–24 (D.C. Cir. 2019).

The requirement that primary standards provide an adequate margin of safety was intended to address uncertainties associated with inconclusive scientific and technical information available at the time of standard setting. It was also intended to provide a reasonable degree of protection against hazards that research has not yet identified. See *Lead Industries Association* v. *EPA,* 647 F.2d 1130, 1154 (D.C. Cir 1980); *American Petroleum Institute* v. *Costle,* 665 F.2d at 1186; *Coalition of Battery Recyclers Ass'n* v. *EPA,* 604 F.3d 613, 617–18 (D.C. Cir. 2010); *Mississippi* v. *EPA,* 744 F.3d 1334, 1353 (D.C. Cir. 2013). Both kinds of uncertainties are components of the risk associated with pollution at levels below those at which human health effects can be said to occur with reasonable scientific certainty. Thus, in selecting primary standards that include an adequate margin of safety, the Administrator is seeking not only to prevent pollution levels that have been demonstrated to be harmful but also to prevent lower pollutant levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. The CAA does not require the Administrator to establish a primary NAAQS at a zero-risk level or at background concentration levels, see *Lead Industries Ass'n* v. *EPA,* 647 F.2d at 1156 n.51, *Mississippi* v. *EPA,* 744 F.3d at 1351, but rather at a level that reduces risk sufficiently so as to protect public health with an adequate margin of safety.

In addressing the requirement for an adequate margin of safety, the EPA considers such factors as the nature and severity of the health effects involved, the size of the sensitive population(s), and the kind and degree of uncertainties. The selection of any particular approach to providing an adequate margin of safety is a policy choice left specifically to the Administrator's judgment. See *Lead Industries Ass'n* v. *EPA,* 647 F.2d at 1161–62; *Mississippi* v. *EPA,* 744 F.3d at 1353.

Section 109(d)(1) of the Act requires the review every five years of existing air quality criteria and, if appropriate, the revision of those criteria to reflect advances in scientific knowledge on the effects of the pollutant on public health and welfare. Under the same provision, the EPA is also to review every five years and, if appropriate, revise the NAAQS, based on the revised air quality criteria.

Section 109(d)(2) addresses the appointment and advisory functions of an independent scientific review committee. Section 109(d)(2)(A) requires the Administrator to appoint this committee, which is to be composed of ''seven members including at least one member of the National Academy of Sciences, one physician, and one person representing State air pollution control agencies.'' Section 109(d)(2)(B) provides that the independent scientific review committee ''shall complete a review of the criteria . . . and the national primary and secondary ambient air quality standards . . . and shall recommend to the Administrator any new . . . standards and revisions of existing criteria and standards as may be appropriate. . . .'' Since the early 1980s, this independent review function has been performed by the Clean Air Scientific Advisory Committee (CASAC) of the EPA's Science Advisory Board.

As previously noted, the Supreme Court has held that section 109(b) ''unambiguously bars cost considerations from the NAAQS-setting process.'' *Whitman* v. *Am. Trucking Associations,* 531 U.S. 457, 471 (2001). Accordingly, while some of these issues regarding which Congress has directed the CASAC to advise the Administrator are ones that are relevant to the standard setting process, others are not. Issues that are not relevant to standard setting may be relevant to implementation of the NAAQS once they are established.[7]

B. Related PM Control Programs

States are primarily responsible for ensuring attainment and maintenance of ambient air quality standards once the EPA has established them. Under section 110 and Part D, Subparts 1, 4 and 6 of the CAA, and related provisions and regulations, states are to submit, for the EPA's approval, state implementation plans (SIPs) that provide for the attainment and maintenance of such standards through control programs directed to sources of the pollutants involved. The states, in conjunction with the EPA, also administer the prevention of significant deterioration of air quality program that covers these pollutants (see 42 U.S.C. 7470–7479). In addition, Federal programs provide for or result in nationwide reductions in emissions of PM and its precursors under Title II of the Act, 42 U.S.C. 7521–7574, which involves controls for motor vehicles and nonroad engines and equipment; the new source performance standards under section 111 of the Act, 42 U.S.C. 7411; and the national emissions standards for hazardous pollutants under section 112 of the Act, 42 U.S.C. 7412.

C. Review of the Air Quality Criteria and Standards for Particulate Matter

1. Reviews Completed in 1971 and 1987

The EPA first established NAAQS for PM in 1971 (36 FR 8186, April 30, 1971), based on the original Air Quality

will protect the health of any [sensitive] group of the population,'' and that for this purpose ''reference should be made to a representative sample of persons comprising the sensitive group rather than to a single person in such a group.'' S. Rep. No. 91–1196, 91st Cong., 2d Sess. 10 (1970).

[6] Under CAA section 302(h) (42 U.S.C. 7602(h)), effects on welfare include, but are not limited to, ''effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.''

[7] Some aspects of the CASAC's advice may not be relevant to the EPA's process of setting primary and secondary standards that are requisite to protect public health and welfare. Indeed, were the EPA to consider costs of implementation when reviewing and revising the standards ''it would be grounds for vacating the NAAQS.'' Whitman, 531 U.S. at 471 n.4. At the same time, the CAA directs the CASAC to provide advice on ''any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance'' of the NAAQS to the Administrator under section 109(d)(2)(C)(iv). In *Whitman,* the Court clarified that most of that advice would be relevant to implementation but not standard setting, as it ''enable[s] the Administrator to assist the States in carrying out their statutory role as primary *implementers* of the NAAQS.'' *Id.* at 470 (emphasis in original). However, the Court also noted that the CASAC's ''advice concerning certain aspects of 'adverse public health . . . effects' from various attainment strategies is unquestionably pertinent'' to the NAAQS rulemaking record and relevant to the standard setting process. *Id.* at 470 n.2.

Criteria Document (AQCD) (DHEW, 1969).[8] The Federal reference method (FRM) specified for determining attainment of the original standards was the high-volume sampler, which collects PM up to a nominal size of 25 to 45 μm (referred to as total suspended particulates or TSP). The primary standards were set at 260 μg/m^3, 24-hour average, not to be exceeded more than once per year, and 75 μg/m^3, annual geometric mean. The secondary standards were set at 150 μg/m^3, 24-hour average, not to be exceeded more than once per year, and 60 μg/m^3, annual geometric mean.

In October 1979 (44 FR 56730, October 2, 1979), the EPA announced the first periodic review of the air quality criteria and NAAQS for PM. Revised primary and secondary standards were promulgated in 1987 (52 FR 24634, July 1, 1987). In the 1987 decision, the EPA changed the indicator for particles from TSP to PM_{10}, in order to focus on the subset of inhalable particles small enough to penetrate to the thoracic region of the respiratory tract (including the tracheobronchial and alveolar regions), referred to as thoracic particles.[9] The level of the 24-hour standards (primary and secondary) was set at 150 μg/m^3, and the form was one expected exceedance per year, on average over three years. The level of the annual standards (primary and secondary) was set at 50 μg/m^3, and the form was annual arithmetic mean, averaged over three years.

2. Review Completed in 1997

In April 1994, the EPA announced its plans for the second periodic review of the air quality criteria and NAAQS for PM, and in 1997 the EPA promulgated revisions to the NAAQS (62 FR 38652, July 18, 1997). In the 1997 decision, the EPA determined that the fine and coarse fractions of PM_{10} should be considered separately. This determination was based on evidence that serious health effects were associated with short- and long-term exposures to fine particles in areas that met the existing PM_{10} standards. The EPA added new standards, using $PM_{2.5}$ as the indicator for fine particles (with $PM_{2.5}$ referring to particles with a nominal mean aerodynamic diameter less than or equal to 2.5 μm). The new primary standards were as follows: (1) an annual standard with a level of 15.0 μg/m^3, based on the 3-year average of annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors;[10] and (2) a 24-hour standard with a level of 65 μg/m^3, based on the 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations at each monitor within an area. Also, the EPA established a new reference method for the measurement of $PM_{2.5}$ in the ambient air and adopted rules for determining attainment of the new standards. To continue to address the health effects of the coarse fraction of PM_{10} (referred to as thoracic coarse particles or $PM_{10-2.5}$; generally including particles with a nominal mean aerodynamic diameter greater than 2.5 μm and less than or equal to 10 μm), the EPA retained the primary annual PM_{10} standard and revised the form of the primary 24-hour PM_{10} standard to be based on the 99th percentile of 24-hour PM_{10} concentrations at each monitor in an area. The EPA revised the secondary standards by setting them equal in all respects to the primary standards.

Following promulgation of the 1997 PM NAAQS, petitions for review were filed by several parties, addressing a broad range of issues. In May 1999, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) upheld the EPA's decision to establish fine particle standards, holding that ''the growing empirical evidence demonstrating a relationship between fine particle pollution and adverse health effects amply justifies establishment of new fine particle standards.'' *American Trucking Associations, Inc.* v. *EPA,* 175 F. 3d 1027, 1055–56 (D.C. Cir. 1999). The D.C. Circuit also found ''ample support'' for the EPA's decision to regulate coarse particle pollution, but vacated the 1997 PM_{10} standards, concluding that the EPA had not provided a reasonable explanation justifying use of PM_{10} as an indicator for coarse particles. *American Trucking Associations* v. *EPA,* 175 F. 3d at 1054–55. Pursuant to the D.C. Circuit's decision, the EPA removed the vacated 1997 PM_{10} standards, and the pre-existing 1987 PM_{10} standards remained in place (65 FR 80776, December 22, 2000). The D.C. Circuit also upheld the EPA's determination not to establish more stringent secondary standards for fine particles to address effects on visibility. *American Trucking Associations* v. *EPA,* 175 F. 3d at 1027.

The D.C. Circuit also addressed more general issues related to the NAAQS, including issues related to the consideration of costs in setting NAAQS and the EPA's approach to establishing the levels of NAAQS. Regarding the cost issue, the court reaffirmed prior rulings holding that in setting NAAQS the EPA is ''not permitted to consider the cost of implementing those standards.'' *American Trucking Associations* v. *EPA,* 175 F. 3d at 1040–41. Regarding the levels of NAAQS, the court held that the EPA's approach to establishing the level of the standards in 1997 (*i.e.,* both for PM and for the ozone NAAQS promulgated on the same day) effected ''an unconstitutional delegation of legislative authority.'' *American Trucking Associations* v. *EPA,* 175 F. 3d at 1034–40. Although the court stated that ''the factors EPA uses in determining the degree of public health concern associated with different levels of ozone and PM are reasonable,'' it remanded the rule to the EPA, stating that when the EPA considers these factors for potential non-threshold pollutants ''what EPA lacks is any determinate criterion for drawing lines'' to determine where the standards should be set.

The D.C. Circuit's holding on the cost and constitutional issues were appealed to the United States Supreme Court. In February 2001, the Supreme Court issued a unanimous decision upholding the EPA's position on both the cost and constitutional issues. *Whitman* v. *American Trucking Associations,* 531 U.S. 457, 464, 475–76. On the constitutional issue, the Court held that the statutory requirement that NAAQS be ''requisite'' to protect public health with an adequate margin of safety sufficiently guided the EPA's discretion, affirming the EPA's approach of setting standards that are neither more nor less stringent than necessary.

The Supreme Court remanded the case to the D.C. Circuit for resolution of any remaining issues that had not been addressed in that court's earlier rulings. Id. at 475–76. In a March 2002 decision, the D.C. Circuit rejected all remaining challenges to the standards, holding that the EPA's $PM_{2.5}$ standards were reasonably supported by the administrative record and were not ''arbitrary and capricious.'' *American*

[8] Prior to the review initiated in 2007 (see below), the AQCD provided the scientific foundation (*i.e.,* the air quality criteria) for the NAAQS. Beginning in that review, the Integrated Science Assessment (ISA) has replaced the AQCD.

[9] PM_{10} refers to particles with a nominal mean aerodynamic diameter less than or equal to 10 μm. More specifically, 10 μm is the aerodynamic diameter for which the efficiency of particle collection is 50 percent.

[10] The 1997 annual $PM_{2.5}$ standard was compared with measurements made at the community-oriented monitoring site recording the highest concentration or, if specific constraints were met, measurements from multiple community-oriented monitoring sites could be averaged (*i.e.,* ''spatial averaging''). In the last review (completed in 2012) the EPA replaced the term ''community-oriented'' monitor with the term ''area-wide'' monitor. Area-wide monitors are those sited at the neighborhood scale or larger, as well as those monitors sited at micro- or middle-scales that are representative of many such locations in the same core-based statistical area (CBSA) (78 FR 3236, January 15, 2013).

Trucking Associations v. *EPA,* 283 F. 3d 355, 369–72 (D.C. Cir. 2002).

3. Review Completed in 2006

In October 1997, the EPA published its plans for the third periodic review of the air quality criteria and NAAQS for PM (62 FR 55201, October 23, 1997). After the CASAC and public review of several drafts, the EPA's National Center for Environmental Assessment (NCEA) finalized the AQCD in October 2004 (U.S. EPA, 2004a). The EPA's Office of Air Quality Planning and Standards (OAQPS) finalized a Risk Assessment and Staff Paper in December 2005 (Abt Associates, 2005; U.S. EPA, 2005).[11] On December 20, 2005, the EPA announced its proposed decision to revise the NAAQS for PM and solicited public comment on a broad range of options (71 FR 2620, January 17, 2006). On September 21, 2006, the EPA announced its final decisions to revise the primary and secondary NAAQS for PM to provide increased protection of public health and welfare, respectively (71 FR 61144, October 17, 2006). With regard to the primary and secondary standards for fine particles, the EPA revised the level of the 24-hour $PM_{2.5}$ standards to 35 μg/m^3, retained the level of the annual $PM_{2.5}$ standards at 15.0 μg/m^3, and revised the form of the annual $PM_{2.5}$ standards by narrowing the constraints on the optional use of spatial averaging. With regard to the primary and secondary standards for PM_{10}, the EPA retained the 24-hour standards, with levels at 150 μg/m^3, and revoked the annual standards.[12] The Administrator judged that the available evidence generally did not suggest a link between long-term exposure to existing ambient levels of coarse particles and health or welfare effects. In addition, a new reference method was added for the measurement of $PM_{10–2.5}$ in the ambient air in order to provide a basis for approving Federal equivalent methods (FEMs) and to promote the gathering of scientific data to support future reviews of the PM NAAQS.

Several parties filed petitions for review following promulgation of the revised PM NAAQS in 2006. These petitions addressed the following issues: (1) Selecting the level of the primary annual $PM_{2.5}$ standard; (2) retaining PM_{10} as the indicator of a standard for thoracic coarse particles, retaining the level and form of the 24-hour PM_{10} standard, and revoking the PM_{10} annual standard; and (3) setting the secondary $PM_{2.5}$ standards identical to the primary standards. On February 24, 2009, the D.C. Circuit issued its opinion in the case *American Farm Bureau Federation* v. *EPA,* 559 F. 3d 512 (D.C. Cir. 2009). The court remanded the primary annual $PM_{2.5}$ NAAQS to the EPA because the Agency had failed to adequately explain why the standards provided the requisite protection from both short- and long-term exposures to fine particles, including protection for at-risk populations. *Id. at* 520–27. With regard to the standards for $PM_{10,}$ the court upheld the EPA's decisions to retain the 24-hour PM_{10} standard to provide protection from thoracic coarse particle exposures and to revoke the annual PM_{10} standard. *Id.* at 533–38. With regard to the secondary $PM_{2.5}$ standards, the court remanded the standards to the EPA because the Agency failed to adequately explain why setting the secondary PM standards identical to the primary standards provided the required protection for public welfare, including protection from visibility impairment. *Id.* at 528–32. The EPA responded to the court's remands as part of the next review of the PM NAAQS, which was initiated in 2007 (discussed below).

4. Review Completed in 2012

In June 2007, the EPA initiated the fourth periodic review of the air quality criteria and the PM NAAQS by issuing a call for information (72 FR 35462, June 28, 2007). Based on the NAAQS review process, as revised in 2008 and again in 2009,[13] the EPA held science/policy issue workshops on the primary and secondary PM NAAQS (72 FR 34003, June 20, 2007; 72 FR 34005, June 20, 2007), and prepared and released the planning and assessment documents that comprise the review process (*i.e.,* integrated review plan (IRP) (U.S. EPA, 2008), ISA (U.S. EPA, 2009a), REA planning documents for health and welfare (U.S. EPA, 2009a, U.S. EPA, 2009c), a quantitative health risk assessment (U.S. EPA, 2009a, U.S. EPA, 2009c), a quantitative health risk assessment (U.S. EPA, 2010b) and an urban-focused visibility assessment (U.S. EPA, 2010a), and PA (U.S. EPA, 2011). In June 2012, the EPA announced its proposed decision to revise the NAAQS for PM (77 FR 38890, June 29, 2012).

In December 2012, the EPA announced its final decisions to revise the primary NAAQS for PM to provide increased protection of public health (78 FR 3086, January 15, 2013). With regard to primary standards for $PM_{2.5}$, the EPA revised the level of the annual $PM_{2.5}$ standard [14] to 12.0 μg/m^3 and retained the 24-hour $PM_{2.5}$ standard, with its level of 35 μg/m^3. For the primary PM_{10} standard, the EPA retained the 24-hour standard to continue to provide protection against effects associated with short-term exposure to thoracic coarse particles (*i.e.,* $PM_{10–2.5}$). With regard to the secondary PM standards, the EPA generally retained the 24-hour and annual $PM_{2.5}$ standards [15] and the 24-hour PM_{10} standard to address visibility and non-visibility welfare effects.

As with previous reviews, petitioners challenged the EPA's final rule. Petitioners argued that the EPA acted unreasonably in revising the level and form of the annual standard and in amending the monitoring network provisions. On judicial review, the revised standards and monitoring requirements were upheld in all respects. *NAM v EPA,* 750 F.3d 921 (D.C. Cir. 2014).

5. Review Completed in 2020

In December 2014, the EPA announced the initiation of the current periodic review of the air quality criteria for PM and of the $PM_{2.5}$ and PM_{10} NAAQS and issued a call for information (79 FR 71764, December 3, 2014). On February 9 to 11, 2015, the EPA's NCEA and OAQPS held a public workshop to inform the planning for the review of the PM NAAQS (announced in 79 FR 71764, December 3, 2014). Workshop participants, including a wide range of external experts as well as the EPA staff representing a variety of areas of expertise (e.g., epidemiology, human and animal toxicology, risk/

[11] Prior to the review initiated in 2007, the Staff Paper presented the EPA staff's considerations and conclusions regarding the adequacy of existing NAAQS and, when appropriate, the potential alternative standards that could be supported by the evidence and information. More recent reviews present this information in the Policy Assessment.

[12] In the 2006 proposal, the EPA proposed to revise the 24-hour PM_{10} standard in part by establishing a new $PM_{10–2.5}$ indicator for thoracic coarse particles (*i.e.,* particles generally between 2.5 and 10 μm in diameter). The EPA proposed to include any ambient mix of $PM_{10–2.5}$ that was dominated by resuspended dust from high density traffic on paved roads and by PM from industrial sources and construction sources. The EPA proposed to exclude any ambient mix of $PM_{10–2.5}$ that was dominated by rural windblown dust and soils and by PM generated from agricultural and mining sources. In the final decision, the existing PM_{10} standard was retained, in part due to an ''inability . . . to effectively and precisely identify which ambient mixes are included in the [$PM_{10–2.5}$] indicator and which are not'' (71 FR 61197, October 17, 2006).

[13] The history of the NAAQS review process, including revisions to the process, is discussed at*https://www.epa.gov/naaqs/historical-information-naaqs-review-process.*

[14] The EPA also eliminated the option for spatial averaging.

[15] Consistent with the primary standard, the EPA eliminated the option for spatial averaging with the annual standard.

exposure analysis, atmospheric science, visibility impairment, climate effects), were asked to highlight significant new and emerging PM research, and to make recommendations to the Agency regarding the design and scope of the review. This workshop provided for a public discussion of the key science and policy-relevant issues around which the EPA structured the review of the PM NAAQS and of the most meaningful new scientific information that would be available in the review to inform understanding of these issues.

The input received at the workshop guided the EPA staff in developing a draft IRP, which was reviewed by the CASAC Particulate Matter Panel and discussed on public teleconferences held in May 2016 (81 FR 13362, March 14, 2016) and August 2016 (81 FR 39043, June 15, 2016). Advice from the CASAC, supplemented by the Particulate Matter Panel, and input from the public were considered in developing the final IRP (U.S. EPA, 2016). The final IRP discusses the approaches to be taken in developing key scientific, technical, and policy documents in the review and the key policy-relevant issues that frame the EPA's consideration of whether the primary and/or secondary NAAQS for PM should be retained or revised.

In May 2018, the Administrator issued a memorandum describing a ''back-to-basics'' process for reviewing the NAAQS (Pruitt, 2018). This memo announced the Agency's intention to conduct the review of the PM NAAQS in such a manner as to ensure that any necessary revisions were finalized by December 2020. Following this memo, on October 10, 2018, the Administrator additionally announced that the role of reviewing the key assessments developed as part of the ongoing review of the PM NAAQS (*i.e.,* drafts of the ISA and PA) would be performed by the seven-member chartered CASAC (*i.e.,* rather than the CASAC Particulate Matter Panel that reviewed the draft IRP).[16]

The EPA released the draft ISA in October 2018 (83 FR 53471, October 23, 2018). The draft ISA was reviewed by the chartered CASAC at a public meeting held in Arlington, VA, in December 2018 (83 FR 55529, November 6, 2018) and was discussed on a public teleconference in March 2019 (84 FR 8523, March 8, 2019). The CASAC provided its advice on the draft ISA in a letter to the EPA Administrator dated April 11, 2019 (Cox, 2019a). The EPA took steps to address these comments in the final ISA, which was released in December 2019 (U.S. EPA, 2019a).

The EPA released the draft PA in September 2019 (84 FR 47944, September 11, 2019). The draft PA was reviewed by the chartered CASAC and discussed in October 2019 at a public meeting held in Cary, NC. Public comments were received via a separate public teleconference (84 FR 51555, September 30, 2019). A public meeting to discuss the chartered CASAC letter and response to charge questions on the draft PA was held in Cary, NC, in December 2019 (84 FR 58713, November 1, 2019), and the CASAC provided its advice on the draft PA, including its advice on the current primary and secondary PM standards, in a letter to the EPA Administrator dated December 16, 2019 (Cox, 2019b). With regard to the primary standards, the CASAC recommended retaining the current 24-hour $PM_{2.5}$ and PM_{10} standards but did not reach consensus on the adequacy of the current annual $PM_{2.5}$ standard. With regard to the secondary standards, the CASAC recommended retaining the current standards. In response to the CASAC's comments, the 2020 final PA incorporated a number of changes (U.S. EPA, 2020a), as described in detail in section I.C.5 of the 2020 proposal document (85 FR 24100, April 30, 2020).

On April 14, 2020, the EPA proposed to retain all of the primary and secondary PM standards, without revision. These proposed decisions were published in the **Federal Register** on April 30, 2020 (85 FR 24094, April 30, 2020). The EPA's final decision on the PM NAAQS was published in the **Federal Register** on December 18, 2020 (85 FR 82684, December 18, 2020). In the 2020 rulemaking, the EPA retained the primary and secondary $PM_{2.5}$ and PM_{10} standards, without revision.

Following publication of the 2020 final action, several parties filed petitions for review and petitions for reconsideration of the EPA's final decision. The petitions for review were filed in the D.C. Circuit and the Court consolidated the cases. In order to consider whether reconsideration of the 2020 final action was warranted, the EPA moved for two 90-day abeyances in these consolidated cases, which the Court granted. After the EPA announced that it is reconsidering the 2020 final decision, the EPA filed a motion with the Court to hold the consolidated cases in abeyance until March 1, 2023, which the court granted on October 1, 2021.

6. Reconsideration of the 2020 PM NAAQS Final Action

On January 20, 2021, President Biden issued an ''Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis'' (Executive Order 13990; 86 FR 7037, January 25, 2021),[17] which directed review of certain agency actions. An accompanying fact sheet provided a non-exclusive list of agency actions that agency heads should review in accordance with that order, including the 2020 Particulate Matter NAAQS Decision.[18]

a. Decision To Initiate a Reconsideration

On June 10, 2021, the Agency announced its decision to reconsider the 2020 PM NAAQS final action.[19] The EPA is reconsidering the December 2020 decision because the available scientific evidence and technical information indicate that the current standards may not be adequate to protect public health and welfare, as required by the Clean Air Act. The EPA noted that the 2020 PA concluded that the scientific evidence and information supported revising the level of the primary annual $PM_{2.5}$ standard to below the current level of 12.0 $\mu g/m^3$ while retaining the primary 24-hour $PM_{2.5}$ standard (U.S. EPA, 2020a). The EPA also noted that the 2020 PA concluded that the available scientific evidence and information supported retaining the primary PM_{10} standard and secondary PM standards without revision (U.S. EPA, 2020a).

b. Process for Reconsideration of the 2020 PM NAAQS Decision

In its announcement of the reconsideration of the PM NAAQS, the Agency explained that, in support of the reconsideration, it would develop a supplement to the 2019 ISA and a revised PA. The EPA also explained that the draft ISA Supplement and draft PA would be reviewed at a public meeting by the CASAC, and the public would have opportunities to comment on these documents during the CASAC review process, as well as to provide input during the rulemaking through the

[16] Announcement available at: *https://www.regulations.gov/document/EPA-HQ-OAR-2015-0072-0223.*

[17] See *https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/.*

[18] See *https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/fact-sheet-list-of-agency-actions-for-review/.*

[19] The press release for this announcement is available at: *https://www.epa.gov/newsreleases/epa-reexamine-health-standards-harmful-soot-previous-administration-left-unchanged.*

public comment process and public hearings on the proposed rulemaking.

On March 31, 2021, the Administrator announced his decision to reestablish the membership of the CASAC to ''ensure the agency received the best possible scientific insight to support our work to protect human health and the environment.'' [20] Consistent with this memorandum, a call for nominations of candidates to the EPA's chartered CASAC was published in the **Federal Register** (86 FR 17146, April 1, 2021). On June 17, 2021, the Administrator announced his selection of the seven members to serve on the chartered CASAC.[21] [22] Additionally, a call for nominations of candidates to a PM-specific panel was published in the **Federal Register** (86 FR 33703, June 25, 2021). The members of the PM CASAC panel were announced on August 30, 2021.[23]

The draft ISA Supplement was released in September 2021 (U.S. EPA, 2021a; 86 FR 54186, September 30, 2021). The CASAC PM panel met at a virtual public meeting in November 2021 to review the draft ISA Supplement (86 FR 52673, September 22, 2021). A virtual public meeting was then held in February 2022, and during this meeting the chartered CASAC considered the CASAC PM panel's draft letter to the Administrator on the draft ISA Supplement (87 FR 958, January 7, 2022). The chartered CASAC provided its advice on the draft ISA Supplement in a letter to the EPA Administrator dated March 18, 2022 (Sheppard, 2022b). The EPA took steps to address these comments in the final ISA Supplement, which was released in May 2022 (U.S. EPA, 2022a; hereafter referred to as the ISA Supplement throughout this document).

The evidence presented within the 2019 ISA, along with the targeted identification and evaluation of new scientific information in the ISA Supplement, provides the scientific basis for the reconsideration of the 2020 PM NAAQS final decision. The ISA Supplement focuses on a thorough evaluation of some studies that became available after the literature cutoff date of the 2019 ISA that could either further inform the adequacy of the current PM NAAQS or address key scientific topics that have evolved since the literature cutoff date for the 2019 ISA. In selecting the health effects to evaluate within the ISA Supplement, the EPA focused on health effects for which the evidence supported a ''causal relationship'' because those were the health effects that were most useful in informing conclusions in the 2020 PA (U.S. EPA, 2022a, section 1.2.1).[24] Consistent with the rationale for the focus on certain health effects, in selecting the non-ecological welfare effects to evaluate within the ISA supplement, the EPA focused on the non-ecological welfare effects for which the evidence supported a ''causal relationship'' and for which quantitative analyses could be supported by the evidence because those were the welfare effects that were most useful in informing conclusions in the 2020 PA.[25] Specifically, for non-ecological welfare effects, the focus within the ISA Supplement is on visibility effects. The ISA Supplement also considers recent health effects evidence that addresses key scientific topics where the literature has evolved since the 2020 review was completed, specifically since the literature cutoff date for the 2019 ISA.[26]

Building on the rationale presented in section 1.2.1, the ISA Supplement considers peer-reviewed studies published from approximately January 2018 through March 2021 that meet the following criteria:

Health Effects

○ U.S. and Canadian epidemiologic studies for health effect categories where the 2019 ISA concluded a ''*causal relationship*'' (*i.e.,* short- and long-term $PM_{2.5}$ exposure and cardiovascular effects and mortality).

▪ U.S. and Canadian epidemiologic studies that employed alternative methods for confounder control or conducted accountability analyses (*i.e.,* examined the effect of a policy on reducing $PM_{2.5}$ concentrations).

• Welfare Effects

○ U.S. and Canadian studies that provide new information on public preferences for visibility impairment and/or developed methodologies or conducted quantitative analyses of light extinction.

• Key Scientific Topics

○ Experimental studies (*i.e.,* controlled human exposure and animal toxicological) conducted at near-ambient $PM_{2.5}$ concentrations experienced in the U.S.

○ U.S.- and Canadian-based epidemiologic studies that examined the relationship between $PM_{2.5}$ exposures and severe acute respiratory syndrome coronavirus 2 (SARS–CoV–2) infection and coronavirus disease 2019 (COVID–19) death.

○ At-Risk Populations:

▪ U.S.- and Canadian-based epidemiologic or exposure studies examining potential disparities in either $PM_{2.5}$ exposures or the risk of health

[20] The press release for this announcement is available at: *https://www.epa.gov/newsreleases/administrator-regan-directs-epa-reset-critical-science-focused-federal-advisory.*

[21] The press release for this announcement is available at: *https://www.epa.gov/newsreleases/epa-announces-selections-charter-members-clean-air-scientific-advisory-committee.*

[22] The list of members of the chartered CASAC and their biosketches are available at: *https://casac.epa.gov/ords/sab/f?p=113:29:1706195567016:::RP,29:P29_COMMITTEEON:CASAC.*

[23] The list of members of the PM CASAC panel and their biosketches are available at: *https://casac.epa.gov/ords/sab/f?p=105:14:9979229564047:::14:P14_COMMITTEEON:2021%20CASAC%20PM%20Panel.*

[24] As described in section 1.2.1 of the ISA Supplement: ''In considering the public health protection provided by the current primary $PM_{2.5}$ standards, and the protection that could be provided by alternatives, [the U.S. EPA, within the 2020 PM PA] emphasized health outcomes for which the ISA determined that the evidence supports either a *'causal'* or a *'likely to be causal'* relationship with $PM_{2.5}$ exposures'' (U.S. EPA, 2020a). Although the 2020 PA initially focused on this broader set of evidence, the basis of the discussion on potential alternative standards primarily focused on health effect categories where the 2019 PM ISA concluded a *'causal relationship'* (*i.e.,* short- and long-term $PM_{2.5}$ exposure and cardiovascular effects and mortality) as reflected in Figures 3–7 and 3–8 of the 2020 PA (U.S. EPA, 2020a).'' As described in section 1.2.1 of the ISA Supplement: ''In considering the public health protection provided by the current primary $PM_{2.5}$ standards, and the protection that could be provided by alternatives, [the U.S. EPA, within the 2020 PM PA] emphasized health outcomes for which the ISA determined that the evidence supports either a *'causal'* or a *'likely to be causal'* relationship with $PM_{2.5}$ exposures'' (U.S. EPA, 2020a). Although the 2020 PA initially focused on this broader set of evidence, the basis of the discussion on potential alternative standards primarily focused on health effect categories where the 2019 PM ISA concluded a *'causal relationship'* (*i.e.,* short- and long-term $PM_{2.5}$ exposure and cardiovascular effects and mortality) as reflected in Figures 3–7 and 3–8 of the 2020 PA (U.S. EPA, 2020a).''

[25] As described in section 1.2.1 of the ISA Supplement: ''The 2019 PM ISA concluded a *'causal relationship'* for each of the welfare effects categories evaluated (*i.e.,* visibility, climate effects and materials effects). While the 2020 PA considered the broader set of evidence for these effects, for climate effects and material effects, it concluded that there remained 'substantial uncertainties with regard to the quantitative relationships with PM concentrations and concentration patterns that limit[ed] [the] ability to quantitatively assess the public welfare protection provided by the standards from these effects' (U.S. EPA, 2020a).''

[26] These key scientific topics include experimental studies conducted at near-ambient concentrations, epidemiologic studies that employed alternative methods for confounder control or conducted accountability analyses, studies that assess the relationship between $PM_{2.5}$ exposure and severe acute respiratory syndrome coronavirus 2 (SARS–CoV–2) infection and coronavirus disease 2019 (COVID–19) death; and in accordance with recent EPA goals on addressing environmental justice, studies that examine disparities in $PM_{2.5}$ exposure and the risk of health effects by race/ethnicity or socioeconomic status (SES) (U.S. EPA, 2022a, section 1.2.1).

effects by race/ethnicity or socioeconomic status (SES).

Given the narrow scope of the ISA Supplement, it is important to recognize that the evaluation does not encompass the full multidisciplinary evaluation presented within the 2019 ISA that would result in weight-of-evidence conclusions on causality (*i.e.,* causality determinations). The ISA Supplement critically evaluates and provides key study specific information for those recent studies deemed to be of greatest significance for informing preliminary conclusions on the PM NAAQS in the context of the body of evidence and scientific conclusions presented in the 2019 ISA. In its review of the draft ISA Supplement, the CASAC noted that they found ''the Draft ISA Supplement to be a well-written, comprehensive evaluation of the new scientific information published since the 2019 PM ISA'' (Sheppard, 2022b, p. 2 of letter). Furthermore, the CASAC stated that ''the final Integrated Science Assessment (ISA) Supplement . . . deserve[s] the Administrator's full consideration and [is] adequate for rulemaking'' (Sheppard, 2022b, p. 2 of letter). However, recognizing the limited scope of the draft ISA Supplement, the CASAC stated that ''[a]lthough this limitation is appropriate for the targeted purpose of the Draft ISA Supplement . . . this limiting of scope applies only to this document and is not intended to establish a precedent for future ISAs'' (Sheppard, 2022b, p. 2 of letter).

The draft PA was released in October 2021 (86 FR 56263, October 8, 2021). The CASAC PM panel met at a virtual public meeting in December 2021 to review the draft PA (86 FR 52673, September 22, 2021). A virtual public meeting was then held in February 2022 and March 2022, and during this meeting the chartered CASAC considered the CASAC PM panel's draft letter to the Administrator on the draft PA (87 FR 958, January 7, 2022). The chartered CASAC provided its advice on the draft PA in a letter to the EPA Administrator dated March 18, 2022 (Sheppard, 2022a). The EPA took steps to address these comments in revising and finalizing the PA. The PA considers the scientific evidence presented in the 2019 ISA and ISA Supplement and considers the quantitative and technical information presented in the 2020 PA, along with updated and newly available analyses since the completion of the 2020 review. For those health and welfare effects for which the ISA Supplement evaluated recently available evidence and for which updated quantitative analyses were supported (*i.e.,* $PM_{2.5}$-related health effects and visibility effects), the PA includes consideration of this newly available scientific and technical information in reaching preliminary conclusions. For those health and welfare effects for which newly available scientific and technical information were not evaluated (*i.e.,* $PM_{10–2.5}$-related health effects and non-visibility effects), the conclusions presented in the PA rely heavily on the information that supported the conclusions in the 2020 PA. The final PA was released in May 2022 (U.S. EPA, 2022b; hereafter referred to as the PA throughout this document).

D. Air Quality Information

This section provides a summary of basic information related to PM ambient air quality. It summarizes information on the distribution of particle size in ambient air (section I.D.1), sources and emissions contributing to PM in the ambient air (section I.D.2), monitoring ambient PM in the U.S. (section I.D.3), ambient PM concentrations and trends in the U.S. (I.D.4), characterizing ambient $PM_{2.5}$ concentrations for exposure (section I.D.5), and background PM (section I.D.6). Additional detail on PM air quality can be found in Chapter 2 of the PA (U.S. EPA, 2022b).

1. Distribution of Particle Size in Ambient Air

In ambient air, PM is a mixture of substances suspended as small liquid and/or solid particles (U.S. EPA, 2019a, section 2.2) and distinct health and welfare effects have been linked with exposures to particles of different sizes. Particles in the atmosphere range in size from less than 0.01 to more than 10 μm in diameter (U.S. EPA, 2019a, section 2.2). The EPA defines $PM_{2.5}$, also referred to as fine particles, as particles with aerodynamic diameters generally less than or equal to 2.5 μm. The size range for $PM_{10–2.5}$, also called coarse or thoracic coarse particles, includes those particles with aerodynamic diameters generally greater than 2.5 μm and less than or equal to 10 μm. PM_{10}, which is comprised of both fine and coarse fractions, includes those particles with aerodynamic diameters generally less than or equal to 10 μm. In addition, ultrafine particles (UFP) are often defined as particles with a diameter of less than 0.1 μm based on physical size, thermal diffusivity or electrical mobility (U.S. EPA, 2019a, section 2.2). Atmospheric lifetimes are generally longest for $PM_{2.5}$, which often remains in the atmosphere for days to weeks (U.S. EPA, 2019a, Table 2–1) before being removed by wet or dry deposition, while atmospheric lifetimes for UFP and $PM_{10–2.5}$ are shorter and are generally removed from the atmosphere within hours, through wet or dry deposition (U.S. EPA, 2019a, Table 2–1; U.S. EPA, 2022b, section 2.1).

2. Sources and Emissions Contributing to PM in the Ambient Air

PM is composed of both primary (directly emitted particles) and secondary particles. Primary PM is derived from direct particle emissions from specific PM sources while secondary PM originates from gas-phase precursor chemical compounds present in the atmosphere that have participated in new particle formation or condensed onto existing particles (U.S. EPA, 2019a, section 2.3). As discussed further in the 2019 ISA (U.S. EPA, 2019a, section 2.3.2.1), secondary PM is formed in the atmosphere by photochemical oxidation reactions of both inorganic and organic gas-phase precursors. Precursor gases include sulfur dioxide (SO_2), nitrogen oxides (NO_X), and volatile organic compounds (VOC) (U.S. EPA, 2019a, section 2.3.2.1). Ammonia also plays an important role in the formation of nitrate PM by neutralizing sulfuric acid and nitric acid. Sources and emissions of PM are discussed in more detail the PA (U.S. EPA, 2022b, section 2.1.1). Briefly, anthropogenic sources of PM include both stationary (*e.g.,* fuel combustion for electricity production and other purposes, industrial processes, agricultural activities) and mobile (*e.g.,* diesel- and gasoline-powered highway vehicles and other engine-driven sources) sources. Natural sources of PM include dust from the wind erosion of natural surfaces, sea salt, wildfires, primary biological aerosol particles (PBAP) such as bacteria and pollen, oxidation of biogenic hydrocarbons, such as isoprene and terpenes to produce secondary organic aerosol (SOA), and geogenic sources, such as sulfate formed from volcanic production of SO_2. Wildland fire, which encompass both wildfire and prescribed fire, accounts for over 30% of emissions of primary $PM_{2.5}$ emissions (U.S. EPA, 2021).

In recent years, the frequency and magnitude of wildfires have increased (U.S. EPA, 2019a). The magnitude of the public health impact of wildfires is substantial both because of the increase in $PM_{2.5}$ concentrations as well as the duration of the wildfire smoke season, which is considered to range from May to November. Wildfire can make a large contribution to air pollution (including $PM_{2.5}$), and wildfire events can threaten public safety and life. The impacts of wildfire events can be mitigated through

management of wildland vegetation, including through prescribed fire. Prescribed fire (and some wildfires) can mimic the natural processes necessary to maintain fire dependent ecosystems, minimizing catastrophic wildfires and the risks they pose to safety, property and air quality (see, e.g., 81 FR 58010, 58038, August 24, 2016). Landowners, land managers and government public safety agencies are strongly motivated to reduce the frequency and severity of human caused wildfires. Additionally, land managers, landowners, air agencies and communities may be able to lessen the impacts of wildfires by working collaboratively to take steps to minimize fuel loading in areas vulnerable to fire. Fuel load minimization steps can consist of both prescribed fire and mechanical treatments, such as using mechanical equipment to reduce accumulated understory (81 FR 68249, October 3, 2016). There are specific Federal plans of the Department of the Interior [27] and United States Forest Service [28] to increase fuel load minimization efforts in areas at high risk of wildfire. The recently passed Bipartisan Infrastructure Law [29] and Inflation Reduction Act [30] further direct agencies and provide funding for such efforts at the Federal level as well as at state, Tribal, local, and private landowner levels.[31]

Wildfire events produce high PM emissions that impact the PM concentrations in ambient air to the extent that such days with high PM concentrations from wildfire smoke events may affect the design values in a given area. The annual and daily design values affected by potential exceptional events associated with wildfire smoke may qualify to be excluded from design value calculations used for comparison to the NAAQS. The EPA's Exceptional Events Rule (81 FR 68216, October 3, 2016) describes the process by which exceedances caused by fire events, including certain prescribed fires, can be excluded from the design values. It should be noted that potential exceptional events associated with prescribed fires on wildland may also qualify to be excluded from design value calculations used for comparison to the NAAQS under the Exceptional Events Rule (as described in more detail in section VIII below).

While the EPA is not proposing changes to implementation as a part of this proposal (as described in more detail in section VIII below), the EPA acknowledges that increases in $PM_{2.5}$ emissions due to increases in wildfire and prescribed fire on wildland present a number of challenges relevant to the implementation of the PM NAAQS, particularly if one or more standards are strengthened. Stakeholders have expressed concern about the growing health challenges associated with such emissions, the importance of prescribed fire for managing fire-dependent ecosystems and reducing fuel loads, and the potential for further increases in the frequency and magnitude of wildfires due to climate change. Though such issues are outside the scope of this proposal, the EPA acknowledges that these topics may arise in the context of implementation of any revised $PM_{2.5}$ NAAQS and intends to work with stakeholders to address these issues.

3. Monitoring of Ambient PM

To promote uniform enforcement of the air quality standards set forth under the CAA and to achieve the degree of public health and welfare protection intended for the NAAQS, the EPA established PM Federal Reference Methods (FRMs) for both PM_{10} and $PM_{2.5}$ (appendices J and L to 40 CFR part 50). Amended following the 2006 and 2012 PM NAAQS reviews, the current PM monitoring network relies on FRMs and automated continuous Federal Equivalent Methods (FEMs), in part to support changes necessary for implementation of the revised PM standards. The requirement for measuring ambient air quality and reporting ambient air quality data and related information are the basis for appendices A through E to 40 CFR part 58. More information on PM ambient monitoring networks is available in section 2.2 of the PA (U.S. EPA, 2022b).

The $PM_{2.5}$ monitoring program is one of the major ambient air monitoring programs with a robust, nationally consistent network of ambient air monitoring sites providing mass and/or chemical speciation measurements. For most urban locations, $PM_{2.5}$ monitors are sited at the neighborhood scale,[32] where $PM_{2.5}$ concentrations are reasonably homogeneous throughout an entire urban sub-region. In each CBSA with a monitoring requirement, at least one $PM_{2.5}$ monitoring station representing area-wide air quality is sited in an area of expected maximum concentration. By ensuring the area of expected maximum concentration in a CBSA has a site compared to both the annual and 24-hour NAAQS, all other similar locations are thus protected. Sites that represent relatively unique microscale, localized hot-spot, or unique middle scale impact sites are only eligible for comparison to the 24-hour $PM_{2.5}$ NAAQS.

There are three main methods components of the $PM_{2.5}$ monitoring program: filter-based FRMs measuring $PM_{2.5}$ mass, FEMs measuring $PM_{2.5}$ mass, and other samplers used to collect the aerosol used in subsequent laboratory analysis for measuring $PM_{2.5}$ chemical speciation. The FRMs are primarily used for comparison to the NAAQS, but also serve other important purposes, such as developing trends and evaluating the performance of FEMs. $PM_{2.5}$ FEMs are typically continuous methods used to support forecasting and reporting of the Air Quality Index (AQI) but are also used for comparison to the NAAQS. Samplers that are part of the Chemical Speciation Network (CSN) and Interagency Monitoring of Protected Visual Environments (IMPROVE) network are used to provide chemical composition of the aerosol and serve a variety of objectives. More detail on of each of these components of the $PM_{2.5}$ monitoring program and of recent changes to $PM_{2.5}$ monitoring requirements are described in detail in the PA (U.S. EPA, 2022b, section 2.2.3).

4. Ambient Concentrations and Trends

This section summarizes available information on recent ambient PM concentrations in the U.S. and on trends

[27] See U.S. Department of the Interior, ''Infrastructure Investment and Jobs Act Wildfire Risk Five-Year Monitoring, Maintenance, and Treatment Plan'' (April 2022), available at: *https://www.doi.gov/sites/doi.gov/files/bil-5-year-wildfire-risk-mmt-plan.04.2022.owf_.final_.pdf.*

[28] See U.S. Department of Agriculture, Forest Service, ''Confronting the Wildfire Crisis: A Strategy for Protecting Communities and Improving Resilience in America's Forests'', FS–1187d (April 2022) available at: *https://www.fs.usda.gov/sites/default/files/Confronting-Wildfire-Crisis.pdf.*

[29] Inflation Reduction Act, Public Law 117–169 available at *https://www.congress.gov/117/plaws/publ169/PLAW-117publ169.pdf.*

[30] Infrastructure Investment and Jobs Act, Public Law 117–58, available at *https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf.*

[31] Inflation Reduction Act, Public Law 117–169 available at *https://www.congress.gov/117/plaws/publ169/PLAW-117publ169.pdf.*

[32] For $PM_{2.5}$, neighborhood scale is defined as follows: Measurements in this category would represent conditions throughout some reasonably homogeneous urban sub-region with dimensions of a few kilometers and of generally more regular shape than the middle scale. Homogeneity refers to the particulate matter concentrations, as well as the land use and land surface characteristics. Much of the $PM_{2.5}$ exposures are expected to be associated with this scale of measurement. In some cases, a location carefully chosen to provide neighborhood scale data would represent the immediate neighborhood as well as neighborhoods of the same type in other parts of the city. $PM_{2.5}$ sites of this kind provide good information about trends and compliance with standards because they often represent conditions in areas where people commonly live and work for periods comparable to those specified in the NAAQS. In general, most $PM_{2.5}$ monitoring in urban areas should have this scale.

in PM air quality. Sections I.D.4.a and I.D.4.b summarize information on $PM_{2.5}$ mass and components, respectively. Section I.D.4.c summarizes information on PM_{10}. Sections I.D.4.d and I.D.4.e summarize the more limited information on $PM_{10-2.5}$ and UFP, respectively. Additional detail on PM air quality and trends can be found in the PA (U.S. EPA, 2022b, section 2.3).

a. $PM_{2.5}$ Mass

At monitoring sites in the U.S., annual $PM_{2.5}$ concentrations from 2017 to 2019 averaged 8.0 μg/m³ (with the 10th and 90th percentiles at 5.9 and 10.0 μg/m³, respectively) and the 98th percentiles of 24-hour concentrations averaged 21.3 μg/m³ (with the 10th and 90th percentiles at 14.0 and 29.7 μg/m³, respectively) (U.S. EPA, 2022b, section 2.3.2.1). The highest ambient $PM_{2.5}$ concentrations occur in the western U.S., particularly in California and the Pacific Northwest (U.S. EPA, 2022b, Figure 2–15). Much of the eastern U.S. has lower ambient concentrations, with annual average concentrations generally at or below 12.0 μg/m³ and 98th percentiles of 24-hour concentrations generally at or below 30 μg/m³ (U.S. EPA, 2022b, section 2.3.2.1).

Recent ambient $PM_{2.5}$ concentrations reflect the substantial reductions that have occurred across much of the U.S. (U.S. EPA, 2022b, section 2.3.2.1). From 2000 to 2019, national annual average $PM_{2.5}$ concentrations declined from 13.5 μg/m³ to 7.6 μg/m³, a 43% decrease (U.S. EPA, 2022b, section 2.3.2.1).[33] These declines have occurred at urban and rural monitoring sites, although urban $PM_{2.5}$ concentrations remain consistently higher than those in rural areas (Chan et al., 2018) due to the impact of local sources in urban areas. Analyses at individual monitoring sites indicate that declines in ambient $PM_{2.5}$ concentrations have been most consistent across the eastern U.S. and in parts of coastal California, where both annual average and 98th percentiles of 24-hour concentrations declined significantly (U.S. EPA, 2022b, section 2.3.2.1). In contrast, trends in ambient $PM_{2.5}$ concentrations have been less consistent over much of the western U.S., with no significant changes since 2000 observed at some sites in the Pacific Northwest, the northern Rockies and plains, and the southwest, particularly for 98th percentiles of 24-hour concentrations (U.S. EPA, 2022b, section 2.3.2.1). As noted below, some sites in the northwestern U.S. and California, where wildfire have been relatively common in recent years, have experienced high concentrations over shorter periods (*i.e.,* 2-hour averages).

The recent deployment of $PM_{2.5}$ monitors near major roads in large urban areas provides information on $PM_{2.5}$ concentrations near an important emissions source. For 2016–2018, Gantt et al. (2021) reported that 52% and 24% of the time near-road sites reported the highest annual and 24-hour $PM_{2.5}$ design value[34] in the CBSA, respectively. Of the CBSAs with the highest annual design values at near-road sites reported by Gantt et al. (2021), those design values were, on average, 0.8 μg/m³ higher than at the highest measuring non-near-road sites (range is 0.1 to 2.1 μg/m³ higher at near-road sites). Although most near-road monitoring sites do not have sufficient data to evaluate long-term trends in near-road $PM_{2.5}$ concentrations, analyses of the data at one near-road-like site in Elizabeth, NJ,[35] show that the annual average near-road increment has generally decreased between 1999 and 2017 from about 2.0 μg/m³ to about 1.3 μg/m³ (U.S. EPA, 2022b, section 2.3.2.1).

Ambient $PM_{2.5}$ concentrations can exhibit a diurnal cycle that varies due to impacts from intermittent emission sources, meteorology, and atmospheric chemistry. The $PM_{2.5}$ monitoring network in the U.S. has an increasing number of continuous FEM monitors reporting hourly $PM_{2.5}$ mass concentrations that reflect this diurnal variation. The 2019 ISA describes a two-peaked diurnal pattern in urban areas, with morning peaks attributed to rush-hour traffic and afternoon peaks attributed to a combination of rush hour traffic, decreasing atmospheric dilution, and nucleation (U.S. EPA, 2019a, section 2.5.2.3, Figure 2–32). Because a focus on annual average and 24-hour average $PM_{2.5}$ concentrations could mask sub-daily patterns, and because some health studies examine PM exposure durations shorter than 24-hours, it is useful to understand the broader distribution of sub-daily $PM_{2.5}$ concentrations across the U.S. The PA presents information on the frequency distribution of 2-hour average $PM_{2.5}$ mass concentrations from all FEM $PM_{2.5}$ monitors in the U.S. for 2017–2019. At sites meeting the current primary $PM_{2.5}$ standards, these 2-hour concentrations generally remain below 10 μg/m³, and rarely exceed 30 μg/m³. Two-hour concentrations are higher at sites violating the current standards, generally remaining below 16 μg/m³ and rarely exceeding 80 μg/m³ (U.S. EPA, 2022b, section 2.3.2.2.3). The extreme upper end of the distribution of 2-hour $PM_{2.5}$ concentrations is shifted higher during the warmer months, generally corresponding to the period of peak wildfire frequency (April to September) in the U.S. At sites meeting the current primary standards, the highest 2-hour concentrations measured rarely occur outside of the period of peak wildfire frequency. Most of the sites measuring these very high concentrations are in the northwestern U.S. and California, where wildfires have been relatively common in recent years (see U.S. EPA, 2022b, Appendix A, Figure A–1). When the period of peak wildfire frequency is excluded from the analysis, the extreme upper end of the distribution is reduced (U.S. EPA, 2022b, section 2.3.2.2.3).

b. $PM_{2.5}$ Components

Based on recent air quality data, the major chemical components of $PM_{2.5}$ have distinct spatial distributions. Sulfate concentrations tend to be highest in the eastern U.S., while in the Ohio Valley, Salt Lake Valley, and California nitrate concentrations are highest, and relatively high concentrations of organic carbon are widespread across most of the continental U.S. (U.S. EPA, 2022b, section 2.3.2.3). Elemental carbon, crustal material, and sea salt are found to have the highest concentrations in the northeast U.S., southwest U.S., and coastal areas, respectively.

An examination of $PM_{2.5}$ composition trends can provide insight into the factors contributing to overall reductions in ambient $PM_{2.5}$ concentrations. The biggest change in $PM_{2.5}$ composition that has occurred in recent years is the reduction in sulfate concentrations due to reductions in SO_2 emissions. Between 2000 and 2015, the nationwide annual average sulfate concentration decreased by 17% at urban sites and 20% at rural sites. This change in sulfate concentrations is most evident in the eastern U.S. and has resulted in organic matter or nitrate now being the greatest contributor to $PM_{2.5}$ mass in many locations (U.S. EPA, 2019a, Figure 2–19). The overall reduction in sulfate concentrations has contributed substantially to the decrease in national average $PM_{2.5}$ concentrations as well as the decline in the fraction of PM_{10} mass accounted for by $PM_{2.5}$ (U.S.

[33] See *https://www.epa.gov/air-trends/particulate-matter-pm25-trends* for up-to-date $PM_{2.5}$ trends information.

[34] A design value is considered valid if it meets the data handling requirements given in appendix N to 40 CFR part 50.

[35] The Elizabeth Lab site in Elizabeth, NJ, is situated approximately 30 meters from travel lanes of the Interchange 13 toll plaza of the New Jersey Turnpike and within 200 meters of travel lanes for Interstate 278 and the New Jersey Turnpike.

EPA, 2019a, section 2.5.1.1.6; U.S. EPA, 2022b, section 2.3.1).

c. PM_{10}

At long-term monitoring sites in the U.S., the 2017–2019 average of 2nd highest 24-hour PM_{10} concentration was 68 μg/m^3 (with 10th and 90th percentiles at 28 and 124 μg/m^3, respectively) (U.S. EPA, 2022b, section 2.3.2.4).[36] The highest PM_{10} concentrations tend to occur in the western U.S. Seasonal analyses indicate that ambient PM_{10} concentrations are generally higher in the summer months than at other times of year, though the most extreme high concentration events are more likely in the spring (U.S. EPA, 2019a, Table 2–5). This is due to fact that the major PM_{10} emission sources, dust and agriculture, are more active during the warmer and drier periods of the year.

Recent ambient PM_{10} concentrations reflect reductions that have occurred across much of the U.S. (U.S. EPA, 2022b, section 2.3.2.4). From 2000 to 2019, 2nd highest 24-hour PM_{10} concentrations have declined by about 46% (U.S. EPA, 2022b, section 2.3.2.4).[37] Analyses at individual monitoring sites indicate that annual average PM_{10} concentrations have generally declined at most sites across the U.S., with much of the decrease in the eastern U.S. associated with reductions in $PM_{2.5}$ concentrations (U.S. EPA, 2022b, section 2.3.2.4). Annual 2nd highest 24-hour PM_{10} concentrations have generally declined in the eastern U.S., while concentrations in much of the midwest and western U.S. have remained unchanged or increased since 2000 (U.S. EPA, 2022b, section 2.3.2.4).

Compared to previous reviews, data available from the NCore monitoring network in the current reconsideration allows a more comprehensive analysis of the relative contributions of $PM_{2.5}$ and $PM_{10–2.5}$ to PM_{10} mass. $PM_{2.5}$ generally contributes more to annual average PM_{10} mass in the eastern U.S. than the western U.S. (U.S. EPA, 2022b, Figure 2–23). At most sites in the eastern U.S., the majority of PM_{10} mass is comprised of $PM_{2.5}$. As ambient $PM_{2.5}$ concentrations have declined in the eastern U.S. (U.S. EPA, 2022b, section 2.3.2.2), the ratios of $PM_{2.5}$ to PM_{10} have also declined. For sites with days having concurrently very high $PM_{2.5}$ and PM_{10} concentrations (U.S. EPA, 2022b, Figure 2–24), the $PM_{2.5}/PM_{10}$ ratios are typically higher than the annual average ratios. This is particularly true in the northwestern U.S. where the high PM_{10} concentrations can occur during wildfires with high $PM_{2.5}$ (U.S. EPA, 2022b, section 2.3.2.4).

d. $PM_{10–2.5}$

Since the 2012 review, the availability of $PM_{10–2.5}$ ambient concentration data has greatly increased because of additions to the $PM_{10–2.5}$ monitoring capabilities to the national monitoring network. As illustrated in the PA (U.S. EPA, 2022b, section 2.3.2.5), annual average and 98th percentile $PM_{10–2.5}$ concentrations exhibit less distinct differences between the eastern and western U.S. than for either $PM_{2.5}$ or PM_{10}.

Due to the short atmospheric lifetime of $PM_{10–2.5}$ relative to $PM_{2.5}$, many of the high concentration sites are isolated and likely near emission sources associated with wind-blown and fugitive dust. The spatial distributions of annual average and 98th percentile concentrations of $PM_{10–2.5}$ are more similar than that of $PM_{2.5}$, suggesting that the same dust-related emission sources are affecting both long-term and episodic concentrations (U.S. EPA, 2022b, Figure 2–25). The highest concentrations of $PM_{10–2.5}$ are in the southwest U.S. where widespread dry and windy conditions contribute to wind-blown dust emissions. Additionally, compared to $PM_{2.5}$ and PM_{10}, changes in $PM_{10–2.5}$ concentrations have been small in magnitude and inconsistent in direction (U.S. EPA, 2022b, Figure 2–25). The majority of $PM_{10–2.5}$ sites in the U.S. do not have a concentration trend from 2000–2019, reflecting the relatively consistent level of dust emissions across the U.S. during the same time period (U.S. EPA, 2022b, section 2.3.2.5).[38]

e. UFP

Compared to $PM_{2.5}$ mass, there is relatively little data on U.S. particle number concentrations, which are dominated by UFP. In the published literature, annual average particle number concentrations reaching about 20,000 to 30,000 cm^3 have been reported in U.S. cities (U.S. EPA, 2019a). In addition, based on UFP measurements in two urban areas (New York City, Buffalo) and at a background site (Steuben County) in New York, there is a pronounced difference in particle number concentration between different types of locations (U.S. EPA, 2022b, Figure 2–26; U.S. EPA, 2019a, Figure 2–18). Urban particle number counts were several times higher than at the background site, and the highest particle number counts in an urban area with multiple sites (Buffalo) were observed at a near-road location (U.S. EPA, 2022b, section 2.3.2.6).

Long-term trends in UFP are not routinely available at U.S. monitoring sites. At one background site in Illinois with long-term data available, the annual average particle number concentration declined between 2000 and 2019, closely matching the reductions in annual $PM_{2.5}$ mass over that same period (U.S. EPA, 2022b, section 2.3.2.6). In addition, a small number of published studies have examined UFP trends over time. While limited, these studies also suggest that UFP number concentrations have declined over time along with decreases in $PM_{2.5}$ (U.S. EPA, 2022b, section 2.3.2.6). However, the relationship between changes in ambient $PM_{2.5}$ and UFPs cannot be comprehensively characterized due to the high variability and limited monitoring of UFPs (U.S. EPA, 2022b, section 2.3.2.6).

5. Characterizing Ambient $PM_{2.5}$ Concentrations for Exposure

Epidemiologic studies use various methods to characterize exposure to ambient $PM_{2.5}$. The methods used to estimate $PM_{2.5}$ concentrations can vary from traditional methods using monitoring data from ground-based monitors to newer methods using more complex hybrid modeling approaches. Studies using hybrid modeling approaches aim to broaden the spatial coverage, as well as estimate more spatially-resolved ambient $PM_{2.5}$ concentrations, by expanding beyond just those areas with monitors and providing estimates in areas that do not have ground-based monitors (*i.e.,* areas that are generally less densely populated and tend to have lower $PM_{2.5}$ concentrations) and at finer spatial resolutions (*e.g.,* 1 km x 1 km grid cells). As such, the hybrid modeling approaches tend to broaden the areas captured in the exposure assessment, and in doing so, the studies that utilize these methods tend to report lower mean $PM_{2.5}$ concentrations than monitor-based approaches. Further, other aspects of the approaches applied in the various epidemiologic studies to

[36] The form of the current 24-hour PM_{10} standard is one-expected-exceedance, averaged over three years.

[37] For more information, see *https://www.epa.gov/air-trends/particulate-matter-pm10-trends#pmnat.*

[38] PM from dust emissions in the National Emissions Inventory (NEI) remain fairly consistent from year-to-year, except when there are severe weather incursions or there is a dust event that transports or causes major local dust storms to occur (particularly in the western U.S.). These dust events and weather incursions needed to effect dust emissions on a national level are not common and only seldomly occur. In the emissions trends analysis presented in the PA (U.S. EPA, 2022b, section 2.1.1), dust is included in the NEI sector labeled ''miscellaneous.''

estimate $PM_{2.5}$ exposure and/or to calculate the related study-reported mean concentration (*i.e.,* population weighting, trim mean approaches) can affect those data values. More detail related to hybrid modeling methods, performance of the methods, and how the reported mean concentrations compare across approaches is provided in section 2.3.3.2 of the PA (U.S. EPA, 2022b). The subsections below discuss the characterization of $PM_{2.5}$ concentrations based on monitoring data (I.D.5.a) and using hybrid modeling approaches (I.D.5.b).

a. Predicted Ambient $PM_{2.5}$ and Exposure Based on Monitored Data

Ambient concentrations of $PM_{2.5}$ are often characterized using measurements from national monitoring networks due to the accuracy and precision of the measurements and the public availability of data. For applications requiring $PM_{2.5}$ characterizations across large areas or provide complete coverage from the site measurements, data interpolation and averaging techniques (such as Average Nearest Neighbor tools, and area-wide or population-weighted averaging of monitors) are sometimes used (U.S. EPA, 2019a, chapter 3).

For an area to meet the NAAQS, all valid design values [39] in that area, including the highest annual and 24-hour values, must be at or below the levels of the standards. Because the monitoring network siting requirements are specified to capture the high $PM_{2.5}$ concentrations (U.S. EPA, 2022b, section 2.2.3), areas meeting an annual $PM_{2.5}$ standard with a particular level would be expected to have long-term average monitored $PM_{2.5}$ concentrations (*i.e.,* averaged across space and over time in the area) somewhat below that standard level. Analyses in the PA indicate that, based on recent air quality in U.S. CBSAs, maximum annual $PM_{2.5}$ design values are often 10% to 20% higher than annual average concentrations (*i.e.,* averaged across multiple monitors in the same CBSA) (U.S. EPA, 2022b, section 2.3.3.1, Figures 2–28 and 2–29). This means that the $PM_{2.5}$ design value in an area is associated with a distribution of $PM_{2.5}$ concentrations in that area, and based on monitoring siting requirements, should represent the highest concentration location applicable to be monitored under the $PM_{2.5}$ NAAQS. This difference between the maximum annual design value and the average concentration in an area can vary, depending on factors such as the number of monitors, monitor siting characteristics, and the distribution of ambient $PM_{2.5}$ concentrations. Given that higher $PM_{2.5}$ concentrations have been reported at some near-road monitoring sites relative to the surrounding area (U.S. EPA, 2022b, section 2.3.2.2.2), recent requirements for $PM_{2.5}$ monitoring at near-road locations in large urban areas (U.S. EPA, 2022b, section 2.2.3.3) may increase the ratios of maximum design values to average annual design values in some areas. Such ratios may also depend on how the averages are calculated (*i.e.,* averaged across monitors versus across modeled grid cells, as described below in section I.5.b). Compared to annual design values, the analysis in the PA indicates a more variable relationship between maximum 24-hour $PM_{2.5}$ design values and annual average concentrations (U.S. EPA, 2022b, section 2.3.3.1, Figure 2–29).

b. Comparison of $PM_{2.5}$ Fields in Estimating Exposure and Relative to Design Values

Two types of hybrid approaches that have been utilized in several key $PM_{2.5}$ epidemiologic studies in the 2019 ISA and ISA Supplement include neural network approaches and a satellite-based method with regression of residual $PM_{2.5}$ with land-use and other variables to improve estimates of $PM_{2.5}$ concentration in the U.S. As such, the PA further compares these two types of approaches across various scales (*e.g.,* CBSA versus nationwide), taking into account population weighting approaches utilized in epidemiologic studies when estimating $PM_{2.5}$ exposure (U.S. EPA, 2022b, section 2.3.3.2.4). Additionally, the PA assesses how average $PM_{2.5}$ concentrations computed in epidemiologic studies using these hybrid surfaces compare to the maximum design values measured at ground-based monitors. For this assessment, the PA evaluates the DI2019 [40] and HA2020 [41] hybrid surfaces, surfaces that are used in several of the key epidemiologic studies in the PA. This analysis is intended to help inform how the magnitude of the overall study reported mean $PM_{2.5}$ concentrations in epidemiologic studies may be influenced by the approach used to compute that mean and how that value might compare to monitor reported concentrations.

In estimating exposure, some studies focus on estimating concentrations in urban areas, while others examine the entire U.S. or large portions of the country. In general, the areas that are not included in the CBSA-only analysis tend to be more rural or less densely populated areas, tend to have lower $PM_{2.5}$ concentrations, and likely correspond to those locations where monitoring data availability is limited or nonexistent (U.S. EPA, 2022b, section 2.3.3.2.4, Figure 2–37). To evaluate the differences in mean $PM_{2.5}$ concentrations across different spatial scales, the PA analysis compares the DI2019 and HA2020 surfaces. At the national scale, the two surfaces generally produce similar average annual $PM_{2.5}$ concentrations, with the DI2019 surface being slightly higher compared to the HA2020 surface. The average annual $PM_{2.5}$ concentrations are also slightly higher using the DI2019 surface compared to the HA2020 surface when the analyses are conducted for CBSAs. Also, regardless of which surface is used, the average annual and 3-year average of the average annual $PM_{2.5}$ concentrations for the CBSA-only analyses are somewhat higher than for the nationwide analyses (4–8% higher) (U.S. EPA, 2022b, section 2.3.3.2.4, Table 2–5).[42] Overall, these analyses suggest that there are only slight differences in the average $PM_{2.5}$

[39] For the annual $PM_{2.5}$ standard, design values are calculated as the annual arithmetic mean $PM_{2.5}$ concentration, averaged over 3 years. For the 24-hour standard, design values are calculated as the 98th percentile of the annual distribution of 24-hour $PM_{2.5}$ concentrations, averaged over three years (appendix N of 40 CFR part 50).

[40] This analysis includes an updated version of the surface used in Di et al. (2016). Predictions in Di et al. (2016) were for 2000 to 2012 using a neural network model. The Di et al. (2019) study improved on that effort in several ways. First, a generalized additive model was used that accounted for geographic variations in performance to combine predictions from three models (neural network, random forest, and gradient boosting) to make the final optimal $PM_{2.5}$ predictions. Second, the datasets were updated that were used in model training and included additional variables such as 12-km community multiscale air quality (CMAQ) modeling as predictors. Finally, more recent years were included in the Di et al. (2019) study.

[41] The HA2020 field is based on the V4.NA.03 product available at: *https://sites.wustl.edu/acag/datasets/surface-pm2-5/*. The name ''HA2020'' comes from the references for this product (Hammer et al., 2020; van Donkelaar et al., 2019).

[42] For the national scale, 3-year averages of the average annual $PM_{2.5}$ concentrations generally range from about 5.3 $\mu g/m^3$ to 8.1 $\mu g/m^3$, compared to the CBSA scale, which ranges from 5.7 $\mu g/m^3$ to 8.7 $\mu g/m^3$. (U.S. EPA, 2022b, section 2.3.3.2.4, Table 2–6).

concentrations depending on the hybrid modeling method employed, though including other hybrid modeling methods in this comparison could result in larger differences.

The PA next evaluates how the averages of the hybrid model surfaces compare to regulatory design values using both the DI2019 and HA2020 surfaces and how population weighting influences the mean $PM_{2.5}$ concentration.[43] As presented in the PA, the results using the DI2019 and HA2020 surfaces are similar for the average annual $PM_{2.5}$ concentrations, for each 3-year period. When population weighting is not applied, the average annual $PM_{2.5}$ concentrations generally range from 7.0 to 8.6 $\mu g/m^3$. When population weighting is applied, the average annual $PM_{2.5}$ concentrations are slightly higher, ranging from 8.2 to 10.2 $\mu g/m^3$. As with CBSAs versus the national comparison above, population weighting results in a higher average $PM_{2.5}$ concentration than when population weighting is not applied (U.S. EPA, 2022b, section 2.3.3.2.4, Table 2–7). For the CBSAs included in the population weighted analyses, the average maximum annual design values generally range from 9.5 to 11.7 $\mu g/m^3$. The results are similar for both the DI2019 and HA2020 surfaces and the maximum annual $PM_{2.5}$ design values measured at the monitors are often 40% to 50% higher than average annual $PM_{2.5}$ concentrations predicted by hybrid modeling methods when population weighting is not applied. However, when population weighting is applied, the ratio of the maximum annual $PM_{2.5}$ design values to the predicted average annual $PM_{2.5}$ concentrations are lower than when population weighting is not applied, with monitored design values generally 15% to 18% higher than population-weighted hybrid modeling average annual $PM_{2.5}$ concentrations (U.S. EPA, 2022b, section 2.3.3.2.4, Table 2–7).

6. Background PM

In this reconsideration, background PM is defined as all particles that are formed by sources or processes that cannot be influenced by actions within the jurisdiction of concern. U.S. background PM is defined as any PM formed from emissions other than U.S. anthropogenic (*i.e.,* manmade) emissions. Potential sources of U.S. background PM include both natural sources (*i.e.,* PM that would exist in the absence of any anthropogenic emissions of PM or PM precursors) and transboundary sources originating outside U.S. borders. Background PM is discussed in more detail in the PA (U.S. EPA, 2022b, section 2.4). At annual and national scales, estimated background PM concentrations in the U.S. are small compared to contributions from domestic anthropogenic sources.[44] For example, based on zero-out modeling in the last review of the PM NAAQS, annual background $PM_{2.5}$ concentrations were estimated to range from 0.5–3 $\mu g/m^3$ across the sites examined. In addition, speciated monitoring data from IMPROVE sites can provide some insights into how contributions from different sources, including sources of background PM, may have changed over time. Such data suggests the estimates of background concentrations using speciated monitoring data from IMPROVE monitors are around 1–3 $\mu g/m^3$ and have not changed significantly since the 2012 review. Contributions to background PM in the U.S. result mainly from sources within North America. Contributions from intercontinental events have also been documented (*e.g.,* transport from dust storms occurring in deserts in North Africa and Asia), but these events are less frequent and represent a relatively small fraction of background PM in most of the U.S. (U.S. EPA, 2022b, section 2.4).

II. Rationale for Proposed Decisions on the Primary $PM_{2.5}$ Standards

This section presents the rationale for the Administrator's proposed decision to revise the primary annual $PM_{2.5}$ standard and retain the primary 24-hour $PM_{2.5}$ standard. This rationale is based on a thorough review of the scientific evidence generally published through January 2018,[45] as presented in the 2019 ISA (U.S. EPA, 2019a), on the human health effects of $PM_{2.5}$ associated with long- and short-term exposures [46] to $PM_{2.5}$ in the ambient air. Additionally, this rationale is based on a thorough evaluation of some studies that became available after the literature cutoff date of the 2019 ISA, as evaluated in the ISA Supplement, that could either further inform the adequacy of the current PM NAAQS or address key scientific topics that have evolved since the literature cutoff date for the 2019 ISA, generally through March 2021 (U.S. EPA, 2022b).[47] The Administrator's rationale also takes into account: (1) the PA evaluation of the policy-relevant information in the 2019 ISA and ISA Supplement and presentation of quantitative analyses of air quality and health risks; (2) CASAC advice and recommendations, as reflected in discussions of the drafts of the ISA Supplement and PA at public meetings and in the CASAC's letters to the Administrator; and (3) public comments received during the development of these documents.

In presenting the rationale for the Administrator's proposed decisions and its foundations, section II.A provides background and introductory information for this reconsideration of the primary $PM_{2.5}$ standards. It includes background on the 2020 final decision to retain the primary $PM_{2.5}$ standards (section II.A.1) and also describes the general approach for this reconsideration (section II.A.2). Section II.B summarizes the key aspects of the currently available health effects evidence, focusing on consideration of

[43] For this analysis, the PA includes CBSAs with three or more valid design values for the 3-year period. The regulatory design values for the CBSAs were calculated for each 3-year period for the CBSAs with 3 or more design values in each of the 3-year periods. Using the maximum design value for each CBSA and by each 3-year period, the ratio of maximum design values to modeled average annual $PM_{2.5}$ concentrations were calculated, for each 3-year period. More details about the analytical methods used for this analysis are described in section A.6 of Appendix A in the PA (U.S. EPA, 2022b).

[44] Sources that contribute to natural background PM include dust from the wind erosion of natural surfaces, sea salt, wildland fires, primary biological aerosol particles such as bacteria and pollen, oxidation of biogenic hydrocarbons such as isoprene and terpenes to produce secondary organic aerosols (SOA), and geogenic sources such as sulfate formed from volcanic production of SO_2 and oceanic production of dimethyl-sulfide (U.S. EPA, 2022b, section 2.4). While most of these sources release or contribute predominantly to fine aerosol, some sources including windblown dust, and sea salt also produce particles in the coarse size range (U.S. EPA, 2019a, section 2.3.3).

[45] In addition to the 2020 review's opening ''call for information'' (79 FR 71764, December 3, 2014), the 2019 ISA identified and evaluated studies and reports that have undergone scientific peer review and were published or accepted for publication between January 1, 2009, through approximately January 2018 (U.S. EPA, 2019a, p. ES–2). References that are cited in the 2019 ISA, the references that were considered for inclusion but not cited, and electronic links to bibliographic information and abstracts can be found at: *https://hero.epa.gov/hero/particulate-matter.*

[46] Short-term exposures are defined as those exposures occurring over hours up to 1 month, whereas long-term exposures are defined as those exposures occurring over 1 month to years (U.S. EPA, 2019a, section P.3.1).

[47] The ISA Supplement represents an evaluation of recent studies that are of greatest policy relevance to the reconsideration of the 2020 final decision on the PM NAAQS. Specifically, the ISA Supplement focuses on studies of health effects for which the evidence in the 2019 ISA supported a ''causal relationship'' (*i.e.,* short- and long-term $PM_{2.5}$ exposure and mortality and cardiovascular effects) because those were the health effects that were most useful in informing conclusions in the 2020 PA. The ISA Supplement does not include an evaluation of studies for other $PM_{2.5}$-related health effects (U.S. EPA, 2022b).

the key policy-relevant aspects. Section II.C summarizes the risk information for this reconsideration, drawing on the quantitative analyses for $PM_{2.5}$, presented in the PA. Section II.D presents the Administrator's proposed conclusions on the current primary annual and 24-hour $PM_{2.5}$ standards (section II.D.3), drawing on both the evidence-based and risk-based considerations (section II.D.2) and advice from the CASAC (section II.D.1).

A. General Approach

This reconsideration of the 2020 final decision on the primary $PM_{2.5}$ standards relies on using the EPA's assessment of the current scientific evidence and associated quantitative analyses to inform the Administrator's judgment regarding primary $PM_{2.5}$ standards that protect public health with an adequate margin of safety. The EPA's assessments are primarily documented in the 2019 ISA, ISA Supplement, and PA, all of which have received CASAC review and public comment (83 FR 53471, October 23, 2018; 83 FR 55529, November 6, 2018; 85 FR 4655, January 27, 2020; 86 FR 52673, September 22, 2021; 86 FR 54186, September 30, 2021; 86 FR 56263, October 8, 2021; 87 FR 958, January 7, 2022; 87 FR 22207, April 14, 2022; 87 FR 31965, May 26, 2022). In bridging the gap between the scientific assessments of the 2019 ISA and ISA Supplement and the judgments required of the Administrator in determining whether the current standards provide the requisite public health protection, the PA evaluates policy implications of the evaluation of the current evidence in the 2019 ISA and ISA Supplement, and the risk information documented in the PA. In evaluating the public health protection afforded by the current standards, the four basic elements of the NAAQS (indicator, averaging time, level, and form) are considered collectively.

The final decision on the adequacy of the current primary $PM_{2.5}$ standards is a public health policy judgment to be made by the Administrator. In reaching conclusions with regard to the standards, the decision will draw on the scientific information and analyses about health effects and population risks, as well as judgments about how to consider the range and magnitude of uncertainties that are inherent in the scientific evidence and analyses. This approach is based on the recognition that the available health effects evidence generally reflects a continuum, consisting of levels at which scientists generally agree that health effects are likely to occur, through lower levels at which the likelihood and magnitude of the response become increasingly uncertain. This approach is consistent with the requirements of the NAAQS provisions of the Clean Air Act and with how the EPA and the courts have historically interpreted the Act (summarized in section I.A above). These provisions require the Administrator to establish primary standards that, in the judgment of the Administrator, are requisite to protect public health with an adequate margin of safety. In so doing, the Administrator seeks to establish standards that are neither more nor less stringent than necessary for this purpose. The Act does not require that primary standards be set at a zero-risk level, but rather at a level that avoids unacceptable risks to public health, including the health of sensitive groups.[48]

The subsections below provide background and introductory information. Background on the 2020 decision to retain the current standards, including the rationale for that decision, is summarized in section II.A.1. This is followed, in section II.A.2, by an overview of the general approach for the reconsideration of the 2020 final decision. Following this introductory section and subsections, the subsequent sections summarize current information and analyses, including that newly available in this reconsideration. The Administrator's proposed conclusions on the primary $PM_{2.5}$ standards, based on the current information, are provided in section II.D.3.

1. Background on the Current Standards

The current primary $PM_{2.5}$ standards were retained in 2020 based on the scientific evidence and quantitative risk analyses available at that time, as well as the Administrator's judgments regarding the available scientific information, the appropriate degree of public health protection for the standards, and the available risk information regarding the exposures and risk that may be allowed by the current standards (85 FR 82718, December 18, 2020). With the 2020 final decision, the EPA retained the primary 24-hour $PM_{2.5}$ standard, with its level of 35 $\mu g/m^3$, and the primary annual $PM_{2.5}$ standard, with its level of 12.0 $\mu g/m^3$, this decision was informed by the scientific evidence evaluated in the 2019 ISA, the evidence and quantitative risk information in the 2020 PA, the advice and recommendations of the CASAC, and public comments on the proposed decision (85 FR 24094, April 30, 2020).

The health effects evidence base available in the 2020 review included extensive evidence from previous reviews as well as the evidence that had emerged since the prior review had been completed in 2012. This evidence base, spanning several decades, documents the relationship between short- and long-term $PM_{2.5}$ exposure and mortality or serious morbidity effects. The evidence available in the 2019 ISA reaffirmed, and in some cases strengthened, the conclusions from the 2009 ISA regarding the health effects of $PM_{2.5}$ exposures (U.S. EPA, 2009a). Much of the evidence came from epidemiologic studies conducted in North America, Europe, or Asia examining short-term and long-term exposures that demonstrated generally positive, and often statistically significant, $PM_{2.5}$ health effect associations with a range of outcomes including non-accidental, cardiovascular, or respiratory mortality; cardiovascular or respiratory hospitalizations or emergency department visits; and other mortality/morbidity outcomes (*e.g.,* lung cancer mortality or incidence, asthma development). Experimental evidence, as well as evidence from panel studies, strengthened support for potential biological pathways through which $PM_{2.5}$ exposures could lead to health effects reported in many population-based epidemiologic studies, including support for pathways that could lead to cardiovascular, respiratory, nervous system, and cancer-related effects. Based on this evidence, the 2019 ISA concludes there to be a causal relationship between long- and short-term $PM_{2.5}$ exposure and mortality and cardiovascular effects, as well as likely to be causal relationships between long- and short-term $PM_{2.5}$ exposures and respiratory effects, and between long-term $PM_{2.5}$ exposures and cancer and nervous system effects (U.S. EPA, 2019a, section 1.7).

Epidemiologic studies reported $PM_{2.5}$ health effect associations with mortality and/or morbidity across multiple U.S. cities and in diverse populations, including in studies examining populations and lifestages that may be at increased risk of experiencing a $PM_{2.5}$-related health effect (*e.g.,* older adults, children). The 2019 ISA cited extensive evidence indicating that ''both the general population as well as specific populations and lifestages are at risk for $PM_{2.5}$-related health effects'' (U.S. EPA, 2019a, p. 12–1). Some of the evidence that supported conclusions on at-risk populations and lifestages also

[48] As noted in section I.A above, the legislative history describes such protection for the sensitive group of individuals and not for a single person in the sensitive group (see S. Rep. No. 91–1196, 91st Cong, 2d Sess. 10 [1970]).

contributed to the conclusions of causal and likely to be causal relationships within the 2019 ISA, including:

- $PM_{2.5}$-related mortality and cardiovascular effects in older adults (U.S. EPA, 2019a, sections 11.1, 11.2, 6.1, and 6.2);
- $PM_{2.5}$-related cardiovascular effects in people with pre-existing cardiovascular disease (U.S. EPA, 2019a, section 6.1);
- $PM_{2.5}$-related respiratory effects in people with pre-existing respiratory disease, particularly asthma (U.S. EPA, 2019a, section 5.1);
- $PM_{2.5}$-related impairments in lung function growth and asthma development in children (U.S. EPA, 2019a, sections 5.1, 5.2, and 12.5.1.1).

The 2019 ISA also noted that stratified analyses (*i.e.,* analyses that allow for the comparison of PM-related health effects across different populations) provided strong evidence for racial and ethnic differences in $PM_{2.5}$ exposures and $PM_{2.5}$-related health risk. Such analyses indicated that certain racial and ethnic groups, specifically Hispanic and non-Hispanic Black populations have higher $PM_{2.5}$ exposures than non-Hispanic White populations, thus contributing to risk of adverse $PM_{2.5}$-related health effects in minority populations (U.S. EPA, 2019a, section 12.5.4). Stratified analyses focusing on other groups also suggested that populations with pre-existing cardiovascular or respiratory disease, populations that are overweight or obese, populations that have particular genetic variants, and populations that are of low socioeconomic status (SES) could be at increased risk for $PM_{2.5}$-related adverse health effects (U.S. EPA, 2019a, chapter 12).

The risk information available in the 2020 review included risk estimates for air quality conditions just meeting the existing primary $PM_{2.5}$ standards, and also for air quality conditions just meeting potential alternative standards. The general approach to estimating $PM_{2.5}$-associated health risks combined concentration-response (C–R) functions from epidemiologic studies with model-based $PM_{2.5}$ air quality surfaces, baseline health incidence data, and population demographics for 47 urban areas (U.S. EPA, 2022b, section 3.3, Figure 3–10, Appendix C). The risk assessment estimated that the existing primary $PM_{2.5}$ standards could allow a substantial number of $PM_{2.5}$-associated deaths in the U.S. Uncertainty in risk estimates (*e.g.,* in the size of risk estimates) can result from a number of factors, including assumptions about the shape of the C–R relationship with mortality at low ambient $PM_{2.5}$ concentrations, the potential for confounding and/or exposure measurement error, and the methods used to adjust $PM_{2.5}$ air quality.

Consistent with the general approach routinely employed in NAAQS reviews, the initial consideration in the 2020 review of the primary $PM_{2.5}$ standards was with regard to the adequacy of the protection provided by the existing standards. Key aspects of the consideration are summarized in section II.A.1.a below.

a. Considerations Regarding the Adequacy of the Existing Standards in the 2020 Review

With the 2020 final decision, the EPA retained the primary 24-hour $PM_{2.5}$ standard, with its level of 35 $\mu g/m^3$, and the primary annual $PM_{2.5}$ standard, with its level of 12.0 $\mu g/m^3$. The Administrator's conclusions regarding the adequacy of the primary $PM_{2.5}$ standards at the time of the 2020 review was based on consideration of the evidence, analyses and conclusions contained in the 2019 ISA; the quantitative risk assessment in the 2020 PA; advice from the CASAC; and public comments. Key considerations informing the Administrator's decision to retain the standards that were promulgated in the 2012 review are summarized below.

As an initial matter, the Administrator considered the range of scientific evidence evaluating these effects, including studies of at-risk populations, to inform his review of the primary $PM_{2.5}$ standards, placing the greatest weight on evidence of effects for which the 2019 ISA determined there to be a causal or likely to be causal relationship with long- and short-term $PM_{2.5}$ exposures (85 FR 82714–82715, December 18, 2020).

With regard to indicator, the Administrator recognized that, consistent with the evidence available in prior reviews, the scientific evidence in the 2020 review continued to provide strong support for health effects following short- and long-term $PM_{2.5}$ exposures. He noted the 2020 PA conclusions that the information continued to support the $PM_{2.5}$ mass-based indicator and remained too limited to support a distinct standard for any specific $PM_{2.5}$ component or group of components, and too limited to support a distinct standard for the ultrafine fraction. Thus, the Administrator concluded that it was appropriate to retain $PM_{2.5}$ as the indicator for the primary standards for fine particles (85 FR 82715, December 18, 2020).

With respect to averaging time and form, the Administrator noted that the scientific evidence continued to provide strong support for health effects associations with both long-term (*e.g.,* annual or multi-year) and short-term (*e.g.,* mostly 24-hour) exposures to $PM_{2.5}$, consistent with the conclusions in the 2020 PA. In the 2019 ISA, epidemiologic and controlled human exposure studies examined a variety of $PM_{2.5}$ exposure durations. Epidemiologic studies continued to provide strong support for health effects associated with short-term $PM_{2.5}$ exposures based on 24-hour $PM_{2.5}$ averaging periods, and the EPA noted that associations with sub-daily estimates are less consistent and, in some cases, smaller in magnitude (U.S. EPA, 2019a, section 1.5.2.1; U.S. EPA, 2020a, section 3.5.2.2). In addition, controlled human exposure and panel-based studies of sub-daily exposures typically examined subclinical effects, rather than the more serious population-level effects that have been reported to be associated with 24-hour exposures (*e.g.,* mortality, hospitalizations). Taken together, the 2019 ISA concludes that epidemiologic studies did not indicate that sub-daily averaging periods were more closely associated with health effects than the 24-hour average exposure metric (U.S. EPA, 2019a, section 1.5.2.1). Additionally, while controlled human exposure studies provided consistent evidence for cardiovascular effects following $PM_{2.5}$ exposures for less than 24 hours (*i.e.,* < 30 minutes to 5 hours), exposure concentrations in the studies were well-above the ambient concentrations typically measured in locations meeting the existing standards (U.S. EPA, 2020a, section 3.2.3.1). Thus, these studies also did not suggest the need for additional protection against sub-daily $PM_{2.5}$ exposures (U.S. EPA, 2020a, section 3.5.2.2). Therefore, the Administrator judged that the 24-hour averaging time remained appropriate (85 FR 82715, December 18, 2020).

With regard to the form of the 24-hour standard (98th percentile, averaged over three years), the Administrator noted that epidemiologic studies continued to provide strong support for health effect associations with short-term (*e.g.,* mostly 24-hour) $PM_{2.5}$ exposures (U.S. EPA, 2020a, section 3.5.2.3) and that controlled human exposure studies provided evidence for health effects following single short-term ''peak'' $PM_{2.5}$ exposures. Thus, the evidence supported retaining a standard focused on providing supplemental protection against short-term peak exposures and

supported a 98th percentile form for a 24-hour standard. The Administrator further noted that this form also provided an appropriate balance between limiting the occurrence of peak 24-hour $PM_{2.5}$ concentrations and identifying a stable target for risk management programs (U.S. EPA, 2020a, section 3.5.2.3). As such, the Administrator concluded that the available information supported retaining the form and averaging time of the current 24-hour standard (98th percentile, averaged over three years) and annual standard (annual average, averaged over three years) (85 FR 82715, December 18, 2020).

With regard to the level of the standards, in reaching his final decision, the Administrator considered the large body of evidence presented and assessed in the 2019 ISA (U.S. EPA, 2019a), the policy-relevant and risk-based conclusions and rationales as presented in the 2020 PA (U.S. EPA, 2020a), advice from the CASAC, and public comments. In particular, in considering the 2019 ISA and 2020 PA, he considered key epidemiologic studies that evaluated associations between $PM_{2.5}$ air quality distributions and mortality and morbidity, including key accountability studies; the availability of experimental studies to support biological plausibility; controlled human exposure studies examining effects following short-term $PM_{2.5}$ exposures; air quality analyses; and the important uncertainties and limitations associated with the information (85 FR 82715, December 18, 2020).

As an initial matter, the Administrator considered the protection afforded by both the annual and 24-hour standards together against long- and short-term $PM_{2.5}$ exposures and health effects. The Administrator recognized that the annual standard was most effective in controlling ''typical'' $PM_{2.5}$ concentrations near the middle of the air quality distribution (*i.e.,* around the mean of the distribution), but also provided some control over short-term peak $PM_{2.5}$ concentrations. On the other hand, the 24-hour standard, with its 98th percentile form, was most effective at limiting peak 24-hour $PM_{2.5}$ concentrations, but in doing so also had an effect on annual average $PM_{2.5}$ concentrations. Thus, while either standard could be viewed as providing some measure of protection against both average exposures and peak exposures, the 24-hour and annual standards were not expected to be equally effective at limiting both types of exposures. Thus, consistent with previous reviews, the Administrator's consideration of the public health protection provided by the existing primary $PM_{2.5}$ standards was based on his consideration of the combination of the annual and 24-hour standards. Specifically, he recognized that the annual standard was more likely to appropriately limit the ''typical'' daily and annual exposures that are most strongly associated with the health effects observed in epidemiologic studies. The Administrator concluded that an annual standard (as the arithmetic mean, averaged over three years) remained appropriate for targeting protection against the annual and daily $PM_{2.5}$ exposures around the middle portion of the $PM_{2.5}$ air quality distribution. Further, recognizing that the 24-hour standard (with its 98th percentile form) was more directly tied to short-term peak $PM_{2.5}$ concentrations, and more likely to appropriately limit exposures to such concentrations, the Administrator concluded that the current 24-hour standard (with its 98th percentile form, averaged over three years) remained appropriate to provide a balance between limiting the occurrence of peak 24-hour $PM_{2.5}$ concentrations and identifying a stable target for risk management programs. However, the Administrator recognized that changes in $PM_{2.5}$ air quality to meet an annual standard would likely result not only in lower short- and long-term $PM_{2.5}$ concentrations near the middle of the air quality distribution, but also in fewer and lower short-term peak $PM_{2.5}$ concentrations. The Administrator further recognized that changes in air quality to meet a 24-hour standard, with a 98th percentile form, would result not only in fewer and lower peak 24-hour $PM_{2.5}$ concentrations, but also in lower annual average $PM_{2.5}$ concentrations (85 FR 82715–82716, December 18, 2020).

Thus, in considering the adequacy of the 24-hour standard, the Administrator noted the importance of considering whether additional protection was needed against short-term exposures to peak $PM_{2.5}$ concentrations. In examining the scientific evidence, he noted the limited utility of the animal toxicological studies in directly informing conclusions on the appropriate level of the standard given the uncertainty in extrapolating from effects in animals to those in human populations. The Administrator noted that controlled human exposure studies provided evidence for health effects following single, short-term $PM_{2.5}$ exposures that corresponded best to exposures that might be experienced in the upper end of the $PM_{2.5}$ air quality distribution in the U.S. (*i.e.,* ''peak'' concentrations). However, most of these studies examined exposure concentrations considerably higher than are typically measured in areas meeting the standards (U.S. EPA, 2020a, section 3.2.3.1). In particular, controlled human exposure studies often reported statistically significant effects on one or more indicators of cardiovascular function following 2-hour exposures to $PM_{2.5}$ concentrations at and above 120 $\mu g/m^3$ (at and above 149 $\mu g/m^3$ for vascular impairment, the effect shown to be most consistent across studies). To provide insight into what these studies may indicate regarding the primary $PM_{2.5}$ standards, the 2020 PA (U.S. EPA, 2020a, p. 3–49) noted that 2-hour ambient concentrations of $PM_{2.5}$ at monitoring sites meeting the current standards almost never exceeded 32 $\mu g/m^3$. In fact, even the extreme upper end of the distribution of 2-hour $PM_{2.5}$ concentrations at sites meeting the primary $PM_{2.5}$ standards remained well-below the $PM_{2.5}$ exposure concentrations consistently shown in controlled human exposure studies to elicit effects (*i.e.,* 99.9th percentile of 2-hour concentrations at these sites is 68 $\mu g/m^3$ during the warm season). Thus, the available experimental evidence did not indicate the need for additional protection against exposures to peak $PM_{2.5}$ concentrations, beyond the protection provided by the combination of the 24-hour and the annual standards (U.S. EPA, 2020a, section 3.2.3.1; 85 FR 82716, December 18, 2020).

With respect to the epidemiologic evidence, the Administrator noted that the studies did not indicate that associations in those studies were strongly influenced by exposures to peak concentrations in the air quality distribution and thus did not indicate the need for additional protection against short-term exposures to peak $PM_{2.5}$ concentrations (U.S. EPA, 2020a, section 3.5.1 The Administrator noted that this was consistent with CASAC consensus support for retaining the current 24-hour standard. Thus, the Administrator concluded that the 24-hour standard with its level of 35 $\mu g/m^3$ was adequate to provide supplemental protection (*i.e.,* beyond that provided by the annual standard alone) against short-term exposures to peak $PM_{2.5}$ concentrations (85 FR 82716, December 18, 2020).

With regard to the level of the annual standard, the Administrator recognized that the annual standard, with its form based on the arithmetic mean concentration, was most appropriately meant to limit the ''typical'' daily and annual exposures that were most strongly associated with the health

effects observed in epidemiologic studies. However, the Administrator also noted that while epidemiologic studies examined associations between distributions of $PM_{2.5}$ air quality and health outcomes, they did not identify particular $PM_{2.5}$ exposures that cause effects and thus, they could not alone identify a specific level at which the standard should be set, as such a determination necessarily required the Administrator's judgment. Thus, consistent with the approaches in previous NAAQS reviews, the Administrator recognized that any approach that used epidemiologic information in reaching decisions on what standards are appropriate necessarily required judgments about how to translate the information from the epidemiologic studies into a basis for appropriate standards. This approach included consideration of the uncertainties in the reported associations between daily or annual average $PM_{2.5}$ exposures and mortality or morbidity in the epidemiologic studies. Such an approach is consistent with setting standards that are neither more nor less stringent than necessary, recognizing that a zero-risk standard is not required by the Clean Air Act (CAA) (85 FR 82716, December 18, 2020).

The Administrator emphasized uncertainties and limitations that were present in epidemiologic studies in previous reviews and persisted in the 2020 review. These uncertainties included exposure measurement error, potential confounding by copollutants, increasing uncertainty of associations at lower $PM_{2.5}$ concentrations, and heterogeneity of effects across different cities or regions (85 FR 82716, December 18, 2020). The Administrator also noted the advice given by the CASAC on this matter. As described in section I.C.5 above, the CASAC did not reach consensus on the adequacy of the primary annual $PM_{2.5}$ standard. ''Some CASAC members'' expressed support for retaining the primary annual $PM_{2.5}$ standard while ''other members'' expressed support for revising that standard in order to increase public health protection (Cox, 2019a, p. 1 of consensus letter). The CASAC members who supported retaining the annual standard expressed their concerns with the epidemiologic studies, asserting that these studies did not provide a sufficient basis for revising the existing standards. They also identified several key concerns regarding the associations reported in epidemiologic studies and concluded that ''while the data on associations should certainly be carefully considered, this data should not be interpreted more strongly than warranted based on its methodological limitations'' (Cox, 2019a, p. 8 consensus responses).

Taking into consideration the views expressed by the CASAC members who supported retaining the annual standard, the Administrator recognized that epidemiologic studies examined associations between distributions of $PM_{2.5}$ air quality and health outcomes, and they did not identify particular $PM_{2.5}$ exposures that cause effects (U.S. EPA, 2020a, section 3.1.2). While the Administrator remained concerned about placing too much weight on epidemiologic studies to inform conclusions on the adequacy of the primary standards, he noted the approach to considering such studies in the 2012 review. In the 2012 review, it was noted that the evidence of an association in any epidemiologic study was ''strongest at and around the long-term average where the data in the study are most concentrated'' (78 FR 3140, January 15, 2013). In considering the characterization of epidemiologic studies, the Administrator viewed that when assessing the mean concentrations of the key short-term and long-term epidemiologic studies in the U.S. that use ground-based monitoring (*i.e.,* those studies where the mean is most directly comparable to the current annual standard), the majority of studies had mean concentrations at or above the level of the existing annual standard, with the mean of the study-reported means or medians equal to 13.5 $\mu g/m^3$, a concentration level above the existing level of the primary annual standard of 12 $\mu g/m^3$. The Administrator further noted his caution in directly comparing the reported study mean values to the standard level given that study-reported mean concentrations, by design, are generally lower than the design value of the highest monitor in an area, which determines compliance. In the 2020 PA, analyses of recent air quality in U.S. CBSAs indicated that maximum annual $PM_{2.5}$ design values for a given three-year period were often 10% to 20% higher than average monitored concentrations (*i.e.,* averaged across multiple monitors in the same CBSA) (U.S. EPA, 2020a, Appendix B, section B.7). He further noted his concern in placing too much weight on any one epidemiologic study but instead judged that it was more appropriate to focus on the body of studies together and therefore noted the calculation of the mean of study-reported means (or medians). Thus, while the Administrator was cautious in placing too much weight on the epidemiologic evidence alone, he noted that: (1) the reported mean concentration in the majority of the key U.S. epidemiologic studies using ground-based monitoring data were above the level of the existing annual standard; (2) the mean of the reported study means (or medians) (*i.e.,* 13.5 $\mu g/m^3$) was above the level of the current standard;[49] (3) air quality analyses showed the study means to be lower than their corresponding design values by 10–20%; and (4) these analyses must be considered in light of uncertainties inherent in the epidemiologic evidence. When taken together, the Administrator judged that, even if it were appropriate to place more weight on the epidemiologic evidence, this information did not call into question the adequacy of the current standards (85 FR 82716–82717, December 18, 2020).

In addition to the evidence, the Administrator also considered the potential implications of the risk assessment. He noted that all risk assessments have limitations and that he remained concerned about the uncertainties in the underlying epidemiologic data used in the risk assessment. The Administrator also noted that in previous reviews, these uncertainties and limitations have often resulted in less weight being placed on quantitative estimates of risk than on the underlying scientific evidence itself (*e.g.,* 78 FR 3086, 3098–99, January 15, 2013). These uncertainties and limitations included uncertainty in the shapes of C–R functions, particularly at low concentrations; uncertainties in the methods used to adjust air quality; and uncertainty in estimating risks for populations, locations and air quality distributions different from those examined in the underlying epidemiologic study (U.S. EPA, 2020a, section 3.3.2.4). Additionally, the Administrator noted similar concern expressed by some members of the CASAC who support retaining the existing standards; they highlighted similar uncertainties and limitations in the risk assessment (Cox, 2019b). In light of all of this, the Administrator judged it appropriate to place little weight on quantitative estimates of $PM_{2.5}$-associated mortality risk in reaching conclusions about the level of the primary $PM_{2.5}$ standards (85 FR 82717, December 18, 2020).

The Administrator additionally considered an emerging body of evidence from accountability studies that examined past reductions in

[49] The median of the study-reported mean (or median) $PM_{2.5}$ concentrations is 13.3 $\mu g/m^3$, which was also above the level of the existing standard.

ambient $PM_{2.5}$ and the degree to which those reductions resulted in public health improvements. While the Administrator agreed with public commenters that well-designed and conducted accountability studies can be informative, he viewed the interpretation of such studies in the context of the primary $PM_{2.5}$ standards as complicated by the fact that some of the available studies had not evaluated $PM_{2.5}$ specifically (*e.g.,* as opposed to PM_{10} or total suspended particulates), did not show changes in $PM_{2.5}$ air quality, or had not been able to disentangle health impacts of the interventions from background trends in health (U.S. EPA, 2020a, section 3.5.1). He further recognized that the small number of available studies that did report public health improvements following past declines in ambient $PM_{2.5}$ had not examined air quality meeting the existing standards (U.S. EPA, 2020a, Table 3–3). This included U.S. studies that reported increased life expectancy, decreased mortality, and decreased respiratory effects following past declines in ambient $PM_{2.5}$ concentrations. Such studies examined ''starting'' annual average $PM_{2.5}$ concentrations (*i.e.,* prior to the reductions being evaluated) ranging from about 13.2 to >20 μg/m³ (*i.e.,* U.S. EPA, 2020a, Table 3–3). Given the lack of available accountability studies reporting public health improvements attributable to reductions in ambient $PM_{2.5}$ in locations meeting the existing standards, together with his broader concerns regarding the lack of experimental studies examining $PM_{2.5}$ exposures typical of areas meeting the existing standards, the Administrator judged that there was considerable uncertainty in the potential for increased public health protection from further reductions in ambient $PM_{2.5}$ concentrations beyond those achieved under the existing primary $PM_{2.5}$ standards (85 FR 82717, December 18, 2020).

When the above considerations were taken together, the Administrator concluded that the scientific evidence assessed in the 2019 ISA, together with the analyses in the 2020 PA based on that evidence and consideration of CASAC advice and public comments, did not call into question the adequacy of the public health protection provided by the existing annual and 24-hour $PM_{2.5}$ standards. In particular, the Administrator judged that there was considerable uncertainty in the potential for additional public health improvements from reducing ambient $PM_{2.5}$ concentrations below the concentrations achieved under the existing primary standards and that, therefore, standards more stringent than the existing standards (*e.g.,* with lower levels) were not supported. That is, he judged that more stringent standards would be more than requisite to protect the public health with an adequate margin of safety. This judgment reflected the Administrator's consideration of the uncertainties in the potential implications of the lower end of the air quality distributions from the epidemiologic studies due in part to the lack of supporting evidence from experimental studies and retrospective accountability studies conducted at $PM_{2.5}$ concentrations meeting the existing standards (85 FR 82717, December 18, 2020).

In reaching this conclusion, the Administrator judged that the existing standards provided an adequate margin of safety. With respect to the annual standard, the level of 12 μg/m³ was below the lowest ''starting'' concentration (*i.e.,* 13.2 μg/m³) in the available accountability studies that showed public health improvements attributable to reductions in ambient $PM_{2.5}$. In addition, while the Administrator placed less weight on the epidemiologic evidence for selecting a standard, he noted that the level of the annual standard was below the reported mean (and median) concentrations in the majority of the key U.S. epidemiologic studies using ground-based monitoring data (noting that these means tend to be 10–20% lower than their corresponding area design values which is the more relevant metric when considering the level of the standard) and below the mean of the reported means (or medians) of these studies (*i.e.,* 13.5 μg/m³). In addition, the Administrator recognized that concentrations in areas meeting the existing 24-hour and annual standards remained well-below the $PM_{2.5}$ exposure concentrations consistently shown to elicit effects in human exposure studies (85 FR 82717–82718, December 18, 2020).

In addition, based on the Administrator's review of the science, including controlled human exposure studies examining effects following short-term $PM_{2.5}$ exposures, the epidemiologic studies, and accountability studies conducted at levels just above the existing annual standard, he judged that the degree of public health protection provided by the existing annual standard is not greater than warranted. This judgment, together with the fact that no CASAC member expressed support for a less stringent standard, led the Administrator to conclude that standards less stringent than the existing standards (*e.g.,* with higher levels) were also not supported (85 FR 82718, December 18, 2020).

In reaching his final decision, the Administrator concluded that the scientific evidence and technical information continued to support the existing annual and 24-hour $PM_{2.5}$ standards. This conclusion reflected the Administrator's view that there were important limitations and uncertainties that remained in the evidence. The Administrator concluded that these limitations contributed to considerable uncertainty regarding the potential public health implications of revising the existing primary $PM_{2.5}$ standards. Given this uncertainty, and noting the advice from some CASAC members, he concluded that the primary $PM_{2.5}$ standards, including the indicators ($PM_{2.5}$), averaging times (annual and 24-hour), forms (arithmetic mean and 98th percentile, averaged over three years) and levels (12.0 μg/m³, 35 μg/m³), when taken together, remained requisite to protect the public health. Therefore, in the 2020 review, the Administrator reached the conclusion that the primary 24-hour and annual $PM_{2.5}$ standards, together, were requisite to protect public health from fine particles with an adequate margin of safety, including the health of at-risk populations, and retained the standards, without revision (85 FR 82718, December 18, 2020).

2. General Approach and Key Issues in This Reconsideration of the 2020 Final Decision

To evaluate whether it is appropriate to consider retaining the current primary $PM_{2.5}$ standards, or whether consideration of revision is appropriate, the EPA has adopted an approach in this reconsideration that builds upon the general approach used in past reviews. This includes the substantial assessments and evaluations performed in those reviews, and also takes into account the more recent scientific evidence and risk information now available to inform understanding of the key policy-relevant issues in the reconsideration. As summarized above, the Administrator's decisions in the 2020 review were based on an integration of PM health effects information with the judgments on the adversity and public health significance of key health effects, policy judgments as to when the standard is requisite to protect public health with an adequate margin of safety, and consideration of CASAC advice and public comments.

Similarly, in this reconsideration, we draw on the current evidence and quantitative assessments of exposure

pertaining to the public health risk of PM in ambient air. In considering the scientific and technical information here, we consider both the information available at the time of the 2020 review and information more recently available, including that which has been critically analyzed and characterized in the 2019 ISA and ISA Supplement. The quantitative risk analyses, including a newly conducted at-risk analysis, provide a context for interpreting the evidence of mortality and the potential public health significance of risks associated with air quality conditions that just meet the current and potential alternative standards. The overarching purpose of these analyses is to inform the Administrator's conclusions on the public health protection afforded by the current primary standards, with an important focus on evaluating the potential for exposures and risks beyond those indicated by the information available at the time the current standards were established.

B. Overview of the Health Effects Evidence

The information summarized here is an overview of the policy-relevant aspects of the health effects evidence available in this reconsideration; the assessment of this evidence is documented in the 2019 ISA and ISA Supplement and its policy implications are further discussed in the PA. While the 2019 ISA provides the broad scientific foundation for this reconsideration, additional literature has become available since the cutoff date of the 2019 ISA that expands the body of evidence related to mortality and cardiovascular effects for both short- and long-term $PM_{2.5}$ exposure that can inform the Administrator's judgment on the adequacy of the current primary $PM_{2.5}$ standards. As such, the ISA Supplement builds on the information presented within the 2019 ISA with a targeted identification and evaluation of new scientific information (U.S. EPA, 2022a, section 1.2). The ISA Supplement focuses on $PM_{2.5}$ health effects evidence where the 2019 ISA concludes a ''causal relationship,'' because such health effects are given the most weight in an Administrator's decisions in a NAAQS review. As such, the ISA Supplement evaluates newly available evidence related to short- and long-term $PM_{2.5}$ exposure and mortality and cardiovascular effects given the strength of the evidence available in the 2019 ISA and past ISAs and AQCDs, as well as the clear adversity of these endpoints. Specifically, U.S. and Canadian epidemiologic studies for mortality and cardiovascular effects along with controlled human exposure studies associated with cardiovascular effects at near ambient concentrations, were considered to be of greatest utility in informing the Administrator's conclusions on the adequacy of the current primary $PM_{2.5}$ standards. While the ISA Supplement does not include information for health effects other than mortality and cardiovascular effects, the scientific evidence for other health effect categories is evaluated in the 2019 ISA, which in combination with the ISA Supplement represents the complete scientific record for the reconsideration of the 2020 final decision.

The ISA Supplement also assessed accountability studies because these types of epidemiologic studies were part of the body of evidence that was a focus of the 2020 review. Accountability studies inform our understanding of the potential for public health improvements as ambient $PM_{2.5}$ concentrations have declined over time. Further, the ISA Supplement considered studies that employed statistical approaches that attempt to more extensively account for confounders and are more robust to model misspecification (*i.e.,* used alternative methods for confounder control),[50] given that such studies were highlighted by the CASAC and identified in public comments in the 2020 review. Since the literature cutoff date for the 2019 ISA, multiple accountability studies and studies that employ alternative methods for confounder control have become available for consideration in the ISA Supplement and, subsequently, in this reconsideration.

The ISA Supplement also considered recent health effects evidence that addresses key scientific issues where the literature has expanded since the completion of the 2019 ISA.[51] The 2019 ISA evaluated a couple of controlled human exposure studies that investigated the effect of exposure to near-ambient concentrations of $PM_{2.5}$ (U.S. EPA, 2019a, section 6.1.10 and 6.1.13). The ISA Supplement adds to this limited evidence, including a recent study conducted in young healthy individuals exposed to near-ambient $PM_{2.5}$ concentrations (U.S. EPA, 2022a, section 3.3.1). Given the importance of identifying populations at increased risk of $PM_{2.5}$-related effects, the ISA Supplement also included epidemiologic or exposure studies that examined whether there is evidence of exposure or risk disparities by race/ethnicity or SES. These types of studies provide additional information related to factors that may increase risk of $PM_{2.5}$-related health effects and provide additional evidence for consideration by the Administrator in reaching conclusions regarding the adequacy of the current standards. In addition, the ISA Supplement evaluated studies that examined the relationship between short- and long-term $PM_{2.5}$ exposures and SARS–CoV–2 infection and/or COVID–19 death, as these studies are a new area of research and were raised by a number of public commenters in the 2020 review.

The evidence presented within the 2019 ISA, along with the targeted identification and evaluation of new scientific information in the ISA Supplement, provides the scientific basis for the reconsideration of the 2020 final decision on the primary $PM_{2.5}$ standards. The subsections below briefly summarize the nature of $PM_{2.5}$-related health effects, with a focus on those health effects for which the 2019 ISA concluded a ''causal'' or ''likely to be causal'' relationship.

1. Nature of Effects

The evidence base available in the reconsideration includes decades of research on $PM_{2.5}$-related health effects (U.S. EPA, 2004b; U.S. EPA, 2009b; U.S. EPA, 2019a), including the full body of evidence evaluated in the 2019 ISA (U.S. EPA, 2019a), along with the targeted evaluation of recent evidence in the ISA Supplement (U.S. EPA, 2022a). In considering the available scientific evidence, the sections below summarize the relationships between long- and short-term $PM_{2.5}$ exposures and mortality (II.B.1.a), cardiovascular effects (II.B.1.b), respiratory effects (II.B.1.c), cancer (II.B.1.d), and nervous system effects (II.B.1.e). For these outcomes, the 2019 ISA concluded that the evidence supports either a ''causal'' or a ''likely to be causal'' relationship.[52]

[50] As noted in the ISA Supplement (U.S. EPA, 2022a, p. 1–3): ''In the peer-reviewed literature, these epidemiologic studies are often referred to as causal inference studies or studies that used causal modeling methods. For the purposes of this Supplement, this terminology is not used to prevent confusion with the main scientific conclusions (*i.e.,* the causality determinations) presented within an ISA. In addition, as is consistent with the weight-of-evidence framework used within ISAs and discussed in the Preamble to the Integrated Science Assessments, an individual study on its own cannot inform causality, but instead represents a piece of the overall body of evidence.''

[51] As with the epidemiologic studies for long- and short-term $PM_{2.5}$ exposure and mortality and cardiovascular effects, epidemiologic studies of exposure or risk disparities and SARS–CoV–2 infection and/or COVID–19 death were limited to those conducted in the U.S. and Canada.

[52] In this reconsideration of the PM NAAQS, the EPA considers the full body of health evidence, placing the greatest emphasis on the health effects for which the evidence has been judged in the 2019

a. Mortality

i. Long-Term $PM_{2.5}$ Exposures

In the 2012 review, the 2009 ISA reported that the evidence was ''sufficient to conclude that the relationship between long-term $PM_{2.5}$ exposures and mortality is causal'' (U.S. EPA, 2009a, p. 7–96). The strongest evidence supporting this conclusion was provided by epidemiologic studies, particularly those examining two seminal cohorts, the American Cancer Society (ACS) cohort and the Harvard Six Cities cohort. Analyses of the Harvard Six Cities cohort included evidence indicating that reductions in ambient $PM_{2.5}$ concentrations are associated with reduced mortality risk (Laden et al., 2006) and increases in life expectancy (Pope et al., 2009). Further support was provided by other cohort studies conducted in North America and Europe that reported positive associations between long-term $PM_{2.5}$ exposure and mortality (U.S. EPA, 2019a).

Cohort studies, which have become available since the completion of the 2009 ISA and evaluated in the 2019 ISA, continue to provide consistent evidence of positive associations between long-term $PM_{2.5}$ exposures and mortality. These studies add support for associations with all-cause and total (non-accidental) mortality,[53] as well as with specific causes of mortality, including cardiovascular disease and respiratory disease (U.S. EPA, 2019a, section 11.2.2). Several of these studies conducted analyses over longer study durations and periods of follow-up than examined in the original ACS and Harvard Six Cities cohort studies and continue to report positive associations between long-term exposure to $PM_{2.5}$ and mortality (U.S. EPA, 2019a, section 11.2.2.1; Figures 11–18 and 11–19). In addition to studies focusing on the ACS and Harvard Six Cities cohorts, additional studies examining other cohorts also provide evidence of consistent, positive associations between long-term $PM_{2.5}$ exposure and mortality across a wide range of demographic groups (*e.g.,* age, sex, occupation), spatial and temporal extents, exposure assessment metrics, and statistical techniques (U.S. EPA, 2019a, sections 11.2.2.1, 11.2.5; U.S. EPA, 2022a, Table 11–8). This includes some of the largest cohort studies conducted to date, such as analyses of the U.S. Medicare cohort that includes nearly 61 million enrollees and studies that control for a range of individual and ecological covariates, including race, age, SES, smoking status, body mass index, and annual weather variables (*e.g.,* temperature, humidity) (U.S. EPA, 2019a).

In addition to those cohort studies evaluated in the 2019 ISA, recent North American cohort studies evaluated in the ISA Supplement continue to examine the relationship between long-term $PM_{2.5}$ exposure and mortality and report consistent, positive and statistically significant associations. These recent studies also utilize large and demographically diverse cohorts that are generally representative of the national populations in both the U.S. and Canada. These ''studies published since the 2019 ISA support and extend the evidence base that contributed to the conclusion of a *causal relationship* between long-term $PM_{2.5}$ exposure and mortality'' (U.S. EPA, 2022a, section 3.2.2.2.1, Figure 3–19, Figure 3–20).

Furthermore, studies evaluated in the 2019 ISA and the ISA Supplement that examined cause-specific mortality expand upon previous research that found consistent, positive associations between $PM_{2.5}$ exposure and specific mortality outcomes, which include cardiovascular and respiratory mortality, as well as other mortality outcomes. For cardiovascular-related mortality, the evidence evaluated in the ISA Supplement is consistent with the evidence evaluated in the 2019 ISA with recent studies reporting positive associations with long-term $PM_{2.5}$ exposure. When evaluating cause-specific cardiovascular mortality, recent studies reported positive associations for a number of outcomes, such as ischemic heart disease (IHD) and stroke mortality (U.S. EPA, 2022a, Figure 3–23). Moreover, recent studies also provide some initial evidence that individuals with pre-existing health conditions, such as heart failure and diabetes, are at an increased risk of $PM_{2.5}$-related health effects (U.S. EPA, 2022a, section 3.2.2.4) and that these individuals have a higher risk of mortality overall, which was previously only examined in studies that used stratified analyses rather than a cohort of people with an underlying health condition (U.S. EPA, 2022a, section 3.2.2.4). With regard to respiratory mortality, epidemiologic studies evaluated in the 2019 ISA and ISA Supplement continue to provide support for associations between long-term $PM_{2.5}$ exposure and respiratory mortality (U.S. EPA, 2019a, section 5.2.10; U.S. EPA, 2022a, Table 3–2).

A series of epidemiologic studies evaluated in the 2019 ISA tested the hypothesis that past reductions in ambient $PM_{2.5}$ concentrations are associated with increased life expectancy or a decreased mortality rate (U.S. EPA, 2022a, section 11.2.2.5). Pope et al. (2009) conducted a cross-sectional analysis using air quality data from 51 metropolitan areas across the U.S., beginning in the 1970s through the early 2000s, and found that a 10 $\mu g/m^3$ decrease in long-term $PM_{2.5}$ concentration was associated with a 0.61-year increase in life expectancy. In a subsequent analysis, the authors extended the period of analysis to include 2000 to 2007, a time period with lower ambient $PM_{2.5}$ concentrations (Correia et al., 2013). In this follow-up study, a decrease in long-term $PM_{2.5}$ concentration continued to be associated with an increase in life expectancy, though the magnitude of the increase was smaller than during the earlier time period (*i.e.,* a 10 $\mu g/m^3$ decrease in long-term $PM_{2.5}$ concentration was associated with a 0.35-year increase in life expectancy). Additional studies conducted in the U.S. or Europe similarly report that reductions in ambient $PM_{2.5}$ are associated with improvements in longevity (U.S. EPA, 2022a, section 11.2.2.5). Since the literature cutoff date for the 2019 ISA, a few epidemiologic studies were published that examined the relationship between long-term $PM_{2.5}$ exposure and life-expectancy (U.S. EPA, 2022a, section 3.2.1.3) and report results that are consistent with and expand upon the body of evidence from the 2019 ISA. For example, reported that $PM_{2.5}$ concentrations above the lowest observed concentration (2.8 $\mu g/m^3$) were associated with a 0.15 year decrease in national life expectancy for women and 0.13 year decrease in national life expectancy for men (U.S. EPA, 2022a, section 3.2.2.2.4, Figure 3–25). Another study compared participants living in areas with $PM_{2.5}$ concentrations >12 $\mu g/m^3$ to participants living in areas with $PM_{2.5}$ concentrations <12 $\mu g/m^3$ and reported that the number of years of life lost due to living in areas with higher $PM_{2.5}$ concentrations was 0.84 years over a 5-year period (Ward-Caviness et al., 2020; U.S. EPA, 2022a, section 3.2.2.2.4).

Additionally, a number of accountability studies, which are epidemiologic studies that evaluate whether an environmental policy or air quality intervention resulted in reductions in ambient air pollution concentrations and subsequent reductions in mortality, have emerged

ISA to demonstrate a ''causal'' or ''likely to be causal'' relationship with $PM_{2.5}$ exposures.

[53] The majority of these studies examined non-accidental mortality outcomes, though some Medicare studies lack cause-specific death information and, therefore, examine total mortality.

and were evaluated in the ISA Supplement (U.S. EPA, 2022a, section 3.2.2.3). For example, Sanders et al. (2020a) examined whether policy actions (*i.e.,* the first annual $PM_{2.5}$ NAAQS implementation rule in 2005 for the 1997 annual $PM_{2.5}$ standard with a 3-year annual average of 15.0 μg/m^3) reduced $PM_{2.5}$ concentrations and mortality rates in Medicare beneficiaries between 2000–2013, and found that following implementation of the annual $PM_{2.5}$ NAAQS, annual $PM_{2.5}$ concentrations decreased by 1.59 μg/m^3 (95% CI: 1.39, 1.80) which corresponded to a reduction in mortality rates among individuals 65 years and older (0.93% [95% CI: 0.10%, 1.77%]) in non-attainment counties relative to attainment counties.

The 2019 ISA also evaluated a small number of studies that used alternative methods for confounder control to further assess relationship between long-term $PM_{2.5}$ exposure and mortality (U.S. EPA, 2019a, section 11.2.2.4). In addition, multiple epidemiologic studies that implemented alternative methods for confounder control and were published since the literature cutoff date of the 2019 ISA were evaluated in the ISA Supplement (U.S. EPA, 2022a, section 3.2.2.3). These studies used a variety of statistical methods including generalized propensity score (GPS), inverse probability weighting (IPW), and difference-in-difference (DID) to reduce uncertainties related to confounding bias in the association between long-term $PM_{2.5}$ exposure and mortality. Studies that employed these alternative methods for confounder control reported consistent positive associations between long-term $PM_{2.5}$ exposure and total mortality (U.S. EPA, 2022a, section 3.2.2.3), and provided further support for the associations reported in the cohort studies referenced above.

The 2019 ISA and ISA Supplement also evaluated the degree to which recent studies examining the relationship between long-term $PM_{2.5}$ exposure and mortality addressed key policy-relevant issues and/or previously identified data gaps in the scientific evidence, including methods to estimate exposure, methods to control for confounding (*e.g.,* co-pollutant confounding), the shape of the C–R relationship, as well as examining whether a threshold exists below which mortality effects do not occur. For example, with respect to exposure assessment, based on its evaluation of the evidence, the 2019 ISA concludes that positive associations between long-term $PM_{2.5}$ exposures and mortality are robust across recent analyses using various approaches to estimate $PM_{2.5}$ exposures (*e.g.,* based on monitors, models, satellite-based methods, or hybrid methods that combine information from multiple sources) (U.S. EPA, 2019a, section 11.2.5.1). Hart et al. (2015) report that correction for bias due to exposure measurement error increases the magnitude of the hazard ratios (confidence intervals widen but the association remains statistically significant), suggesting that failure to correct for exposure measurement error could result in attenuation or underestimation of risk estimates.

The 2019 ISA additionally concludes that positive associations between long-term $PM_{2.5}$ exposures and mortality are robust across statistical models that use different approaches to control for confounders or different sets of confounders (U.S. EPA, 2019a, sections 11.2.3 and 11.2.5), across diverse geographic regions and populations, and across a range of temporal periods including periods of declining PM concentrations (U.S. EPA, 2019a, sections 11.2.2.5 and 11.2.5.3). Additional evidence further demonstrates that associations with mortality remain robust in copollutants analyses (U.S. EPA, 2019a, section 11.2.3), and that associations persist in analyses restricted to long-term exposures (annual average $PM_{2.5}$ concentrations) below 12 μg/m^3 (Di et al., 2017b) or 10 μg/m^3 (Shi et al., 2016), indicating that risks are not disproportionately driven by the upper portions of the air quality distribution. Recent studies evaluated in the ISA Supplement further assess potential copollutant confounding and indicate that while there is some evidence of potential confounding of the $PM_{2.5}$-mortality association by copollutants in some of the studies (*i.e.,* those studies of the Mortality Air Pollution Associations in Low Exposure Environments (MAPLE) cohort), this result is inconsistent with other recent studies evaluated in the 2019 ISA that were conducted in the U.S. and Canada that found associations in both single and copollutant models (U.S. EPA, 2019a; U.S. EPA, 2022a, section 3.2.2.4)

Additionally, a few studies use statistical techniques to reduce uncertainties related to potential confounding to further inform conclusions on causality for long-term $PM_{2.5}$ exposure and mortality. For example, studies by Greven et al. (2011), Pun et al. (2017), and Eum et al. (2018) completed sensitivity analyses as part of their Medicare cohort study in which they decompose ambient $PM_{2.5}$ into ''spatial'' and ''spatiotemporal'' components in order to evaluate the potential for bias due to unmeasured spatial confounding. Pun et al. (2017) observed positive associations for the ''temporal'' variation model and approximately null associations for the ''spatiotemporal'' variation model for all causes of death except for chronic obstructive pulmonary disease (COPD) mortality. The difference in the results of these two models for most causes of death suggests the presence of unmeasured confounding, though the authors do not indicate anything about the direction or magnitude of this bias. It is important to note that the ''temporal'' and ''spatiotemporal'' coefficients are not directly comparable to the results of other epidemiologic studies when examined individually and can only be used in comparison with one another to evaluate the potential for unmeasured confounding bias. Eum et al. (2018) and Wu et al. (2020) also attempted to address long-term trends and meteorological variables as potential confounders and found that not adjusting for temporal trends could overestimate the association, while effect estimates in analyses that excluded meteorological variables remained unchanged compared to the main analyses. While results of these analyses suggest the presence of some unmeasured confounding, they do not indicate the direction or magnitude of the bias.[54]

An additional important consideration in characterizing the public health impacts associated with $PM_{2.5}$ exposure is whether C–R relationships are linear across the range of concentrations or if nonlinear relationships exist along any part of this range. Studies evaluated in the 2019 ISA and the ISA Supplement examine this issue, and continue to provide evidence of linear, no-threshold relationships between long-term $PM_{2.5}$ exposures and all-cause and cause-specific mortality (U.S. EPA, 2019a, section 11.2.4; U.S. EPA, 2022a, section 3.2.2.2.7, Table 3–6). Across the studies evaluated in the 2019 ISA and the ISA Supplement, a variety of statistical methods have been used to assess whether there is evidence of deviations in linearity (U.S. EPA, 2019a, Table 11–7; U.S. EPA, 2022a, section 2.2.3.2). Studies have also

[54] In public comments on the 2019 draft PA, the authors of the Pun et al. (2017) study further note that ''the presence of unmeasured confounding . . . was expected given that we did not control for several potential confounders that may impact $PM_{2.5}$-mortality associations, such as smoking, socio-economic status (SES), gaseous pollutants, $PM_{2.5}$ components, and long-term time trends in $PM_{2.5}$'' and that ''spatial confounding may bias mortality risks both towards and away from the null'' (Docket ID EPA–HQ–OAR–2015–0072–0065; accessible in *https://www.regulations.gov/*).

conducted cut-point analyses that focus on examining risk at specific ambient $PM_{2.5}$ concentrations. Generally, the evidence remains consistent in supporting a no-threshold relationship, and in supporting a linear relationship for $PM_{2.5}$ concentrations > 8 μg/m³. However, uncertainties remain about the shape of the C–R curve at $PM_{2.5}$ concentrations < 8 μg/m³, with some recent studies providing evidence for either a sublinear, linear, or supralinear relationship at these lower concentrations (U.S. EPA, 2019a, section 11.2.4; U.S. EPA, 2022a, section 2.2.3.2). There was also some limited evidence indicating that the slope of the C–R function may be steeper (supralinear) at lower concentrations for cardiovascular mortality (U.S. EPA, 2022a, section 3.1.1.2.6).

The biological plausibility of $PM_{2.5}$-attributable mortality is supported by the coherence of effects across scientific disciplines (*i.e.,* animal toxicological, controlled human exposure studies, and epidemiologic) when evaluating respiratory and cardiovascular morbidity effects, which are some of the largest contributors to total (nonaccidental) mortality. The 2019 ISA outlines the available evidence for biologically plausible pathways by which inhalation exposure to $PM_{2.5}$ could progress from initial events (*e.g.,* pulmonary inflammation, autonomic nervous system activation) to endpoints relevant to population outcomes, particularly those related to cardiovascular diseases such as ischemic heart disease, stroke and atherosclerosis (U.S. EPA, 2019a, section 6.2.1), and to metabolic effects, including diabetes (U.S. EPA, 2019a, section 7.3.1). The 2019 ISA notes ''more limited evidence from respiratory morbidity'' (U.S. EPA, 2019a, p. 11–101) such as development of chronic obstructive pulmonary disease (COPD) (U.S. EPA, 2019a, section 5.2.1) to support the biological plausibility of mortality due to long-term $PM_{2.5}$ exposures (U.S. EPA, 2019a, section 11.2.1).

Taken together, epidemiologic studies evaluated in the 2019 ISA, including recent studies evaluated in the ISA Supplement, consistently report positive associations between long-term $PM_{2.5}$ exposure and mortality across different geographic locations, populations, and analytic approaches (U.S. EPA, 2019a; U.S. EPA, 2022a, section 3.2.2.4). As such, these studies reduce key uncertainties identified in previous reviews, including those related to potential copollutant confounding, and provide additional information on the shape of the C–R curve. As evaluated in the 2019 ISA, experimental and epidemiologic evidence for cardiovascular effects, and respiratory effects to a more limited degree, supports the plausibility of mortality due to long-term $PM_{2.5}$ exposures. Overall, studies evaluated in the 2019 ISA support the conclusion of a causal relationship between long-term $PM_{2.5}$ exposure and mortality, which is supported and extended by evidence from recent epidemiologic studies evaluated in the ISA Supplement (U.S. EPA, 2022a, section 3.2.2.4).

ii. Short-Term $PM_{2.5}$ Exposures

The 2009 ISA concluded that ''a causal relationship exists between short-term exposure to $PM_{2.5}$ and mortality'' (U.S. EPA, 2009a). This conclusion was based on the evaluation of both multi- and single-city epidemiologic studies that consistently reported positive associations between short-term $PM_{2.5}$ exposure and non-accidental mortality. These associations were strongest, in terms of magnitude and precision, primarily at lags of 0 to 1 days. Examination of the potential confounding effects of gaseous copollutants was limited, though evidence from single-city studies indicated that gaseous copollutants have minimal effect on the $PM_{2.5}$-mortality relationship (*i.e.,* associations remain robust to inclusion of other pollutants in copollutant models). The evaluation of cause-specific mortality found that effect estimates were larger in magnitude, but also had larger confidence intervals, for respiratory mortality compared to cardiovascular mortality. Although the largest mortality risk estimates were for respiratory mortality, the interpretation of the results was complicated by the limited coherence from studies of respiratory morbidity. However, the evidence from studies of cardiovascular morbidity provided both coherence and biological plausibility for the relationship between short-term $PM_{2.5}$ exposure and cardiovascular mortality.

Multicity studies evaluated in the 2019 ISA and the ISA Supplement provide evidence of primarily positive associations between daily $PM_{2.5}$ exposures and mortality, with percent increases in total mortality ranging from 0.19% (Lippmann et al., 2013) to 2.80% (Kloog et al.) [55] at lags of 0 to 1 days in single-pollutant models. Whereas many studies assign exposures using data from ambient monitors, other studies employ hybrid modeling approaches, which estimate $PM_{2.5}$ concentrations using data from a variety of sources (*i.e.,* from satellites, land use information, and modeling, in addition to monitors) and enable the inclusion of less urban and more rural locations in analyses (Kloog et al., 2013, Lee et al., 2015, Shi et al., 2016).

Some studies have expanded the examination of potential confounders including long-term temporal trends, weather, and co-occurring pollutants. Mortality associations were found to remain positive, although in some cases were attenuated, when using different approaches to account for temporal trends or weather covariates (*e.g.,* U.S. EPA, 2019a, section 11.1.5.1). For example, Sacks et al. (2012) examined the influence of model specification using the approaches for confounder adjustment from models employed in several multicity studies within the context of a common data set (U.S. EPA, 2019a, section 11.1.5.1). These models use different approaches to control for long-term temporal trends and the potential confounding effects of weather. The authors report that associations between daily $PM_{2.5}$ and cardiovascular mortality were similar across models, with the percent increase in mortality ranging from 1.5–2.0% (U.S. EPA, 2019a, Figure 11–4). Thus, alternative approaches to controlling for long-term temporal trends and for the potential confounding effects of weather may influence the magnitude of the association between $PM_{2.5}$ exposures and mortality but have not been found to influence the direction of the observed association (U.S. EPA, 2019a, section 11.1.5.1). Taken together, the 2019 ISA and the ISA Supplement conclude that recent multicity studies conducted in the U.S., Canada, Europe, and Asia continue to provide consistent evidence of positive associations between short-term $PM_{2.5}$ exposures and total mortality across studies that use different approaches to control for the potential confounding effects of weather (*e.g.,* temperature) (U.S. EPA, 2019a, section 1.4.1.5.1; U.S. EPA, 2022a, section 3.2.1.2).

With regard to copollutants, studies evaluated in the 2019 ISA provide additional evidence that associations between short-term $PM_{2.5}$ exposures and mortality remain positive and relatively unchanged in copollutant models with both gaseous pollutants and $PM_{10–2.5}$ (U.S. EPA, 2019a, section 11.1.4). Additionally, the low ($r < 0.4$) to moderate correlations ($r = 0.4–0.7$) between $PM_{2.5}$ and gaseous pollutants and $PM_{10–2.5}$ increase the confidence in $PM_{2.5}$ having an independent effect on

[55] As detailed in the Preface to the ISA, risk estimates are for a 10 μg/m³ increase in 24-hour avg $PM_{2.5}$ concentrations, unless otherwise noted (U.S. EPA, 2019a).

mortality (U.S. EPA, 2019a, section 11.1.4). Consistent with the studies evaluated in the 2019 ISA, studies evaluated in the ISA Supplement that used data from more recent years also indicate that associations between short-term $PM_{2.5}$ exposure and mortality remain unchanged in copollutant models. However, the evidence indicates that the association could be larger in magnitude in the presence of some copollutants such as oxidant gases (Lavigne et al., 2018; Shin et al., 2021).

The generally positive associations reported with mortality are supported by a small group of studies employing alternative methods for confounder control or quasi-experimental statistical approaches (U.S. EPA, 2019a, section 11.1.2.1). For example, two studies by Schwartz et al. report associations between $PM_{2.5}$ instrumental variables and mortality (U.S. EPA, 2019a, Table 11–2), including in an analysis limited to days with 24-hour average $PM_{2.5}$ concentrations <30 μg/m^3 (Schwartz et al., 2015; Schwartz et al., 2017). In addition to the main analyses, these studies conducted Granger-like causality tests as sensitivity analyses to examine whether there was evidence of an association between mortality and $PM_{2.5}$ after the day of death, which would support the possibility that unmeasured confounders were not accounted for in the statistical model. Neither study reports evidence of an association with $PM_{2.5}$ after death (*i.e.,* they do not indicate unmeasured confounding). Yorifuji et al. (2016) conducted a quasi-experimental study to examine whether a specific regulatory action in Tokyo, Japan (*i.e.,* a diesel emission control ordinance), resulted in a subsequent reduction in daily mortality (Yorifuji et al., 2016). The authors reported a reduction in mortality in Tokyo due to the ordinance, compared to Osaka, which did not have a similar diesel emission control ordinance in place. In another study, Schwartz et al. (2018) utilized three statistical methods including instrumental variable analysis, a negative exposure control, and marginal structural models to estimate the association between $PM_{2.5}$ and daily mortality (Schwartz et al., 2018). Results from this study continue to support a relationship between short-term $PM_{2.5}$ exposure and mortality. Additional epidemiologic studies evaluated in the ISA Supplement that employed alternative methods for confounder control to examine the association between short-term $PM_{2.5}$ exposure and mortality also report consistent positive associations in studies that examine effects across multiple cities in the U.S. (U.S. EPA, 2022a).

The positive associations for total mortality reported across the majority of studies evaluated are further supported by analyses reporting generally consistent, positive associations with both cardiovascular and respiratory mortality (U.S. EPA, 2019a, section 11.1.3). Recent multicity studies evaluated in the ISA Supplement add to the body of evidence indicating a relationship between short-term $PM_{2.5}$ exposure and cause-specific mortality, with more variability in the magnitude and precision of associations for respiratory mortality (U.S. EPA, 2022a; Figure 3–14. For both cardiovascular and respiratory mortality, there has been a limited assessment of potential copollutant confounding, though initial evidence indicates that associations remain positive and relatively unchanged in models with gaseous pollutants and $PM_{10–2.5}$. This evidence further supports the copollutant analyses conducted for total mortality. The strong evidence for ischemic events and heart failure, as detailed in the assessment of cardiovascular morbidity (U.S. EPA, 2019a, Chapter 6), provides biological plausibility for $PM_{2.5}$-related cardiovascular mortality, which comprises the largest percentage of total mortality (*i.e.,* ~33%) (National Heart, Lung, and Blood Institute (NHLBI), 2017). Although there is evidence for exacerbations of COPD and asthma, the collective body of respiratory morbidity evidence provides limited biological plausibility for $PM_{2.5}$-related respiratory mortality (U.S. EPA, 2019a, Chapter 5).

In the 2009 ISA, one of the main uncertainties identified was the regional and city-to-city heterogeneity in $PM_{2.5}$-mortality associations. Studies evaluated in the 2019 ISA examine both city-specific as well as regional characteristics to identify the underlying contextual factors that could contribute to this heterogeneity (U.S. EPA, 2019a, section 11.1.6.3). Analyses focusing on effect modification of the $PM_{2.5}$ mortality relationship by $PM_{2.5}$ components, regional patterns in $PM_{2.5}$ components and city specific differences in composition and sources indicate some differences in the $PM_{2.5}$ composition and sources across cities and regions, but these differences do not fully explain the observed heterogeneity. Additional studies find that factors related to potential exposure differences, such as housing stock and commuting, as well as city specific factors (*e.g.,* land use, port volume, and traffic information), may also explain some of the observed heterogeneity (U.S. EPA, 2019a, section 11.1.6.3). Collectively, studies evaluated in the 2019 ISA and the ISA Supplement indicate that the heterogeneity in $PM_{2.5}$ mortality risk estimates cannot be attributed to one factor, but instead a combination of factors including, but not limited to, PM composition and sources as well as community characteristics that could influence exposures (U.S. EPA, 2019a, section 11.1.12; U.S. EPA, 2022a, section 3.2.1.2.1).

A number of studies conducted systematic evaluations of the lag structure of associations for the $PM_{2.5}$-mortality relationship by examining either a series of single day or multiday lags and these studies continue to support an immediate effect (*i.e.,* lag 0 to 1 days) of short-term $PM_{2.5}$ exposures on mortality (U.S. EPA, 2019a, section 11.1.8.1; U.S. EPA, 2022a, section 3.2.1.1). Recent studies also conducted analyses comparing the traditional 24-hour average exposure metric with a sub-daily metric (*i.e.,* 1-hour max). These initial studies provide evidence of a similar pattern of associations for both the 24-hour average and 1-hour max metric, with the association larger in magnitude for the 24-hour average metric.

Multicity studies indicate that positive and statistically significant associations with mortality persist in analyses restricted to short-term (24-hour average $PM_{2.5}$ concentrations) $PM_{2.5}$ exposures below 35 μg/m^3 (Lee et al., 2015),[56] below 30 μg/m^3 (Shi et al., 2016), and below 25 μg/m^3 (Di et al., 2017a), indicating that risks associated with short-term $PM_{2.5}$ exposures are not disproportionately driven by the peaks of the air quality distribution. Additional studies examined the shape of the C–R relationship for short-term $PM_{2.5}$ exposure and mortality and whether a threshold exists below which mortality effects do not occur (U.S. EPA, 2019a, section 11.1.10). These studies used various statistical approaches and consistently demonstrate linear C–R relationships with no evidence of a threshold. Moreover, recent studies evaluated in the ISA Supplement provide additional support for a linear, no-threshold C–R relationship between short-term $PM_{2.5}$ exposure and mortality, with confidence in the shape decreasing at concentrations below 5 μg/m^3 (Shi et al., 2016; Lavigne et al., 2018). Recent analyses provide initial evidence indicating that $PM_{2.5}$-mortality associations persist and may be stronger

[56] Lee et al. (2015) also report that positive and statistically significant associations between short-term $PM_{2.5}$ exposures and mortality persist in analyses restricted to areas with long-term concentrations below 12 μg/m^3.

(*i.e.,* a steeper slope) at lower concentrations (*e.g.,* Di et al., 2017a; Figure 11–12 in U.S. EPA, 2019). However, given the limited data available at the lower end of the distribution of ambient $PM_{2.5}$ concentrations, the shape of the C–R curve remains uncertain at these low concentrations. Although difficulties remain in assessing the shape of the short-term $PM_{2.5}$-mortality C–R relationship, to date, studies have not conducted systematic evaluations of alternatives to linearity and recent studies evaluated in the ISA Supplement continue to provide evidence of a no-threshold linear relationship, with less confidence at concentrations lower than 5 $\mu g/m^3$.

Overall, epidemiologic studies evaluated in the 2019 ISA and the ISA Supplement build upon and extend the conclusions of the 2009 ISA for the relationship between short-term $PM_{2.5}$ exposures and total mortality. Supporting evidence for $PM_{2.5}$-related cardiovascular morbidity, and more limited evidence from respiratory morbidity, provide biological plausibility for mortality due to short-term $PM_{2.5}$ exposures. The primarily positive associations observed across studies conducted in diverse geographic locations is further supported by the results from copollutant analyses indicating robust associations, along with evidence from analyses examining the C–R relationship. Overall, studies evaluated in the 2019 ISA support the conclusion of a causal relationship between short-term $PM_{2.5}$ exposure and mortality, which is supported by evidence from recent epidemiologic studies evaluated in the ISA Supplement (U.S. EPA, 2022a, section 3.2.1.4, p. 3–69).

b. Cardiovascular Effects

i. Long-Term $PM_{2.5}$ Exposures

The scientific evidence reviewed in the 2009 ISA was ''sufficient to infer a causal relationship between long-term $PM_{2.5}$ exposure and cardiovascular effects'' (U.S. EPA, 2009a). The strongest line of evidence comprised findings from several large epidemiologic studies of U.S. and Canadian cohorts that reported consistent positive associations between long-term $PM_{2.5}$ exposure and cardiovascular mortality (Pope et al., 2004; Krewski et al., 2009; Miller et al., 2007; Laden et al., 2006). Studies of long-term $PM_{2.5}$ exposure and cardiovascular morbidity were limited in number. Biological plausibility and coherence with the epidemiologic findings were provided by studies using genetic mouse models of atherosclerosis demonstrating enhanced atherosclerotic plaque development and inflammation, as well as changes in measures of impaired heart function, following 4- to 6-month exposures to $PM_{2.5}$ concentrated ambient particles (CAPs), and by a limited number of studies reporting CAPs-induced effects on coagulation factors, vascular reactivity, and worsening of experimentally induced hypertension in mice (U.S. EPA, 2009b).

Consistent with the evidence assessed in the 2009 ISA, the 2019 ISA concludes that recent studies, together with the evidence available in previous reviews, support a causal relationship between long-term exposure to $PM_{2.5}$ and cardiovascular effects. Additionally, recent epidemiologic studies published since the completion of the 2019 ISA and evaluated in the ISA Supplement expands the body of evidence and further supports such a conclusion (U.S. EPA, 2022a). As discussed above (section II.B.1.a), results from U.S. and Canadian cohort studies evaluated in the 2019 ISA conducted at varying spatial and temporal scales and employing a variety of exposure assessment and statistical methods consistently report positive associations between long-term $PM_{2.5}$ exposure and cardiovascular mortality (U.S. EPA, 2019, Figure 6–19, section 6.2.10). Positive associations between long-term $PM_{2.5}$ exposures and cardiovascular mortality are generally robust in copollutant models adjusted for ozone, NO_2, $PM_{10-2.5}$, or SO_2. In addition, most of the results from analyses examining the shape of the C–R relationship between long-term $PM_{2.5}$ exposures and cardiovascular mortality support a linear relationship and do not identify a threshold below which mortality effects do not occur (U.S. EPA, 2019a, section 6.2.16, Table 6–52).

The body of literature examining the relationship between long-term $PM_{2.5}$ exposure and cardiovascular morbidity has greatly expanded since the 2009 ISA, with positive associations reported in several cohorts evaluated in the 2019 ISA (U.S. EPA, 2019a, section 6.2). Though results for cardiovascular morbidity are less consistent than those for cardiovascular mortality (U.S. EPA, 2019a, section 6.2), studies in the 2019 ISA and the ISA Supplement provide some evidence for associations between long-term $PM_{2.5}$ exposures and the progression of cardiovascular disease. Positive associations with cardiovascular morbidity (*e.g.,* coronary heart disease, stroke, arrhythmias, myocardial infarction (MI), atherosclerosis progression) are observed in several epidemiologic studies (U.S. EPA, 2019a, sections 6.2.2 to 6.2.9; U.S. EPA, 2022a, section 3.1.2.2). Additionally, studies evaluated in the ISA Supplement report positive associations among those with pre-existing conditions, among patients followed after a cardiac event procedure, and among those with a first hospital admission for heart attacks among older adults enrolled in Medicare (U.S. EPA, 2022a, sections 3.1.1 and 3.1.2).

Recent studies published since the literature cutoff date of the 2019 ISA further assessed the relationship between long-term $PM_{2.5}$ exposure and cardiovascular effects by conducting accountability analyses or by using alternative methods for confounder control in evaluating the association between long-term $PM_{2.5}$ exposure and cardiovascular hospital admissions (U.S. EPA, 2022a, section 3.1.2.3). Studies that apply alternative methods for confounder control increase confidence in the relationship between long-term $PM_{2.5}$ exposure and cardiovascular effects by using methods that reduce uncertainties related to potential confounding through statistical and/or study design approaches. For example, to control for potential confounding Wei et al. (2021) used a doubly robust additive model (DRAM) and found an association between long-term exposure to $PM_{2.5}$ and cardiovascular effects, including MI, stoke, and atrial fibrillation, among the Medicare population. Additionally, an accountability study by Henneman et al. (2019a) utilized a difference-in-difference (DID) approach to determine the relationship between coal-fueled power plant emissions and cardiovascular effects and found that reductions in $PM_{2.5}$ concentrations resulted in reductions of cardiovascular-related hospital admissions. Furthermore, several recent epidemiologic studies evaluated in the ISA Supplement reported that the association between long-term $PM_{2.5}$ exposure with stroke persisted after adjustment for NO_2 but was attenuated in the model with O_3 and oxidant gases represented by the redox weighted average of NO_2 and O_3 (U.S. EPA, 2022a, section 3.1.2.2.8). Overall, these studies report consistent findings that long-term $PM_{2.5}$ exposure is related to increased hospital admissions for a variety of cardiovascular disease outcomes among large nationally representative cohorts and provide additional support for a relationship between long-term $PM_{2.5}$ exposure and cardiovascular effects.

The positive associations reported in epidemiologic studies are supported by toxicological evidence for increased

plaque progression in mice following long-term exposure to $PM_{2.5}$ collected from multiple locations across the U.S. (U.S. EPA, 2019a, section 6.2.4.2). A small number of epidemiologic studies also report positive associations between long-term $PM_{2.5}$ exposure and heart failure, changes in blood pressure, and hypertension (U.S. EPA, 2019a, sections 6.2.5 and 6.2.7). Associations with heart failure are supported by animal toxicological studies demonstrating decreased cardiac contractility and function, and increased coronary artery wall thickness following long-term $PM_{2.5}$ exposure (U.S. EPA, 2019a, section 6.2.5.2). Similarly, a limited number of animal toxicological studies demonstrating a relationship between long-term $PM_{2.5}$ exposure and consistent increases in blood pressure in rats and mice are coherent with epidemiologic studies reporting positive associations between long-term exposure to $PM_{2.5}$ and hypertension.

Moreover, a number of studies evaluated in the ISA Supplement focusing on morbidity outcomes, including those that focused on incidence of MI, atrial fibrillation (AF), stroke, and congestive heart failure (CHF), expand the evidence pertaining to the shape of the C–R relationship between long-term $PM_{2.5}$ exposure and cardiovascular effects. These studies use statistical techniques that allow for departures from linearity (U.S. EPA, 2022a, Table 3–3), and generally support the evidence characterized in the 2019 ISA showing linear, no-threshold C–R relationship for most cardiovascular disease (CVD) outcomes. However, there is evidence for a sublinear or supralinear C–R relationship for some outcomes (U.S. EPA, 2022a, section 3.1.2.2.9).[57]

Longitudinal epidemiologic analyses also report positive associations with markers of systemic inflammation (U.S. EPA, 2019a, section 6.2.11), coagulation (U.S. EPA, 2019a, section 6.2.12), and endothelial dysfunction (U.S. EPA, 2019a, section 6.2.13). These results are coherent with animal toxicological studies generally reporting increased markers of systemic inflammation, oxidative stress, and endothelial dysfunction (U.S. EPA, 2019a, section 6.2.12.2 and 6.2.14).

The 2019 ISA concludes that there is consistent evidence from multiple epidemiologic studies illustrating that long-term exposure to $PM_{2.5}$ is associated with mortality from cardiovascular causes. Epidemiologic studies evaluated in the ISA Supplement provide additional evidence of positive associations between long-term $PM_{2.5}$ exposure and cardiovascular morbidity (U.S. EPA, 2022a, section 3.1.2.2). Associations with coronary heart disease (CHD), stroke and atherosclerosis progression were observed in several additional epidemiologic studies providing coherence with the mortality findings. Results from copollutant models generally support an independent effect of $PM_{2.5}$ exposure on mortality. Additional evidence of the independent effect of $PM_{2.5}$ on the cardiovascular system is provided by experimental studies in animals, which support the biological plausibility of pathways by which long-term exposure to $PM_{2.5}$ could potentially result in outcomes such as CHD, stroke, CHF, and cardiovascular mortality. Overall, studies evaluated in the 2019 ISA support the conclusion of a causal relationship between long-term $PM_{2.5}$ exposure and cardiovascular effects, which is supported and extended by evidence from recent epidemiologic studies evaluated in the ISA Supplement (U.S. EPA, 2022a, section 3.1.2.2).

ii. Short-Term $PM_{2.5}$ Exposures

The 2009 ISA concluded that ''a causal relationship exists between short-term exposure to $PM_{2.5}$ and cardiovascular effects'' (U.S. EPA, 2009a). The strongest evidence in the 2009 ISA was from epidemiologic studies of emergency department (ED) visits and hospital admissions for IHD and heart failure (HF), with supporting evidence from epidemiologic studies of cardiovascular mortality (U.S. EPA, 2009a). Animal toxicological studies provided coherence and biological plausibility for the positive associations reported with MI, ED visits, and hospital admissions. These included studies reporting reduced myocardial blood flow during ischemia and studies indicating altered vascular reactivity. In addition, effects of $PM_{2.5}$ exposure on a potential indicator of ischemia (*i.e.,* ST segment depression on an electrocardiogram) were reported in both animal toxicological and epidemiologic panel studies.[58] Key uncertainties from the last review resulted from inconsistent results across disciplines with respect to the relationship between short-term exposure to $PM_{2.5}$ and changes in blood pressure, blood coagulation markers, and markers of systemic inflammation. In addition, while the 2009 ISA identified a growing body of evidence from controlled human exposure and animal toxicological studies, uncertainties remained with respect to biological plausibility.

Studies evaluated in the 2019 ISA provide additional support for a causal relationship between short-term $PM_{2.5}$ exposure and cardiovascular effects. This includes generally positive associations observed in multicity epidemiologic studies of emergency department visits and hospital admissions for IHD, heart failure (HF), and combined cardiovascular-related endpoints. In particular, nationwide studies of older adults (65 years and older) using Medicare records report positive associations between $PM_{2.5}$ exposures and hospital admissions for HF (U.S. EPA, 2019a, section 6.1.3.1). Moreover, recent multicity studies, published after the literature cutoff date of the 2019 ISA and evaluated in the ISA Supplement, are consistent with studies evaluated in the 2019 ISA that report positive association between short-term $PM_{2.5}$ exposure and ED visits and hospital admission for IHD, heart attacks, and HF (U.S. EPA, 2022a, section 3.1). Epidemiologic studies conducted in single cities contribute some support to the causality determination, though associations reported in single-city studies are less consistently positive than in multicity studies, and include a number of studies reporting null associations (U.S. EPA, 2019a, sections 6.1.2 and 6.1.3). When considered as a whole; however, the recent body of IHD and HF epidemiologic evidence supports the evidence from previous ISAs reporting mainly positive associations between short-term $PM_{2.5}$ concentrations and emergency department visits and hospital admissions.

The ISA Supplement also includes some epidemiologic studies, published since the literature cutoff date for the 2019 ISA, including accountability analyses and epidemiologic studies that employ alternative methods for confounder control to evaluate the association between short-term $PM_{2.5}$ exposure and cardiovascular-related effects (U.S. EPA, 2022a, section 3.1.1.3). These studies report positive associations across a number of statistical approaches, providing additional support for a relationship between short-term $PM_{2.5}$ exposure and cardiovascular effects, while also

[57] As noted above for mortality, uncertainty in the shape of the C–R relationship increases near the upper and lower ends of the distribution due to limited data.

[58] Some animal studies included in the 2009 ISA examined exposures to mixtures, such as motor vehicle exhaust or woodsmoke. In these studies, it was unclear if the resulting cardiovascular effects could be attributed specifically to the fine particle component of the mixture.

reducing uncertainties related to potential confounder bias.

Consistent with the evidence assessed in the 2019 ISA, some studies evaluated in the ISA Supplement report no evidence of an association with stroke, regardless of stroke subtype. Additionally, as in the 2019 ISA, evidence evaluated in the ISA Supplement continues to indicate an immediate effect of $PM_{2.5}$ on cardiovascular-related outcomes primarily within the first few days after exposure, and that associations generally persisted in models adjusted for copollutants (U.S. EPA, 2022a, section 3.1.1.2).

A number of controlled human exposure, animal toxicological, and epidemiologic panel studies provide evidence that $PM_{2.5}$ exposure could plausibly result in IHD or HF through pathways that include endothelial dysfunction, arterial thrombosis, and arrhythmia (U.S. EPA, 2019a, section 6.1.1). The most consistent evidence from recent controlled human exposure studies is for endothelial dysfunction, as measured by changes in brachial artery diameter or flow mediated dilation. Multiple controlled human exposure studies that examined the potential for endothelial dysfunction report an effect of $PM_{2.5}$ exposure on measures of blood flow (U.S. EPA, 2019a, section 6.1.13.2). However, these studies report variable results regarding the timing of the effect and the mechanism by which reduced blood flow occurs (*i.e.,* availability vs sensitivity to nitric oxide). In addition, some controlled human exposure studies using CAPs report evidence for small increases in blood pressure (U.S. EPA, 2019a, section 6.1.6.3). Although not entirely consistent, there is also some evidence across controlled human exposure studies for conduction abnormalities/arrhythmia (U.S. EPA, 2019a, section 6.1.4.3), changes in heart rate variability (HRV) (U.S. EPA, 2019a, section 6.1.10.2), changes in hemostasis that could promote clot formation (U.S. EPA, 2019a, section 6.1.12.2), and increases in inflammatory cells and markers (U.S. EPA, 2019a, section 6.1.11.2). A recent study by Wyatt et al. (2020), evaluated in the ISA Supplement, adds to the limited evidence base of controlled human exposure studies conducted at near ambient $PM_{2.5}$ concentrations. The study, completed in healthy young adults subject to intermittent exercise, found some significant cardiovascular effects (*e.g.,* systematic inflammation markers, including C-reactive protein (CRP), and cardiac repolarization). Thus, when taken as a whole, controlled human exposure studies are coherent with epidemiologic studies in that they demonstrate that short-term exposures to $PM_{2.5}$ may result in the types of cardiovascular endpoints that could lead to emergency department visits, hospital admissions and mortality in some people.

Animal toxicological studies published since the 2009 ISA also support a relationship between short-term $PM_{2.5}$ exposure and cardiovascular effects. A study demonstrating decreased cardiac contractility and left ventricular pressure in mice is coherent with the results of epidemiologic studies that report associations between short-term $PM_{2.5}$ exposure and heart failure (U.S. EPA, 2019a, section 6.1.3.3). In addition, and as with controlled human exposure studies, there is generally consistent evidence in animal toxicological studies for indicators of endothelial dysfunction (U.S. EPA, 2019a, section 6.1.13.3). Some studies in animals also provide evidence for changes in a number of other cardiovascular endpoints following short-term $PM_{2.5}$ exposure including conduction abnormalities and arrhythmia (U.S. EPA, 2019a, section 6.1.4.4), changes in HRV (U.S. EPA, 2019a, section 6.1.10.3), changes in blood pressure (U.S. EPA, 2019a, section 6.1.6.4), and evidence for systemic inflammation and oxidative stress (U.S. EPA, 2019a, section 6.1.11.3).

In summary, evidence evaluated in the 2019 ISA extends the consistency and coherence of the evidence base evaluated in the 2009 ISA and prior assessments. Direct evidence for an independent effect of $PM_{2.5}$ on cardiovascular effects can be found in a number of controlled human exposure and animal toxicological studies, which supports the results of epidemiologic studies reporting that associations remain relatively unchanged in copollutant models. These results concur with epidemiologic panel studies reporting that $PM_{2.5}$ exposure is associated with some of the same cardiovascular endpoints reported in experimental studies. For some cardiovascular effects, there are inconsistencies in results across some animal toxicological, controlled human exposure, and epidemiologic panel studies, though this may be due to substantial differences in study design and/or study populations. Overall, the results from epidemiologic panel, controlled human exposure, and animal toxicological studies, in particular those related to endothelial dysfunction, impaired cardiac function, ST segment depression, thrombosis, conduction abnormalities, and changes in blood pressure provide coherence and biological plausibility for the consistent results from epidemiologic studies observing positive associations between short-term $PM_{2.5}$ concentrations and IHD and HF, and ultimately cardiovascular mortality. Overall, studies evaluated in the 2019 ISA support the conclusion of a causal relationship between short-term $PM_{2.5}$ exposure and cardiovascular effects, which is supported and extended by evidence from recent epidemiologic studies evaluated in the ISA Supplement (U.S. EPA, 2022a, section 3.1.1.4).

c. Respiratory Effects

i. Long-Term $PM_{2.5}$ Exposures

The 2009 ISA concluded that ''a causal relationship is likely to exist between long-term $PM_{2.5}$ exposure and respiratory effects'' (U.S. EPA, 2009a). This conclusion was based mainly on epidemiologic evidence demonstrating associations between long-term $PM_{2.5}$ exposure and changes in lung function or lung function growth in children. Biological plausibility was provided by a single animal toxicological study examining pre- and post-natal exposure to $PM_{2.5}$ CAPs, which found impaired lung development. Epidemiologic evidence for associations between long-term $PM_{2.5}$ exposure and other respiratory outcomes, such as the development of asthma, allergic disease, and COPD; respiratory infection; and the severity of disease was limited, both in the number of studies available and the consistency of the results. Experimental evidence for other outcomes was also limited, with one animal toxicological study reporting that long-term exposure to $PM_{2.5}$ CAPs results in morphological changes in nasal airways of healthy animals. Other animal studies examined exposure to mixtures, such as motor vehicle exhaust and woodsmoke, and effects were not attributed specifically to the particulate components of the mixture.

Cohort studies evaluated in the 2019 ISA provided additional support for the relationship between long-term $PM_{2.5}$ exposure and decrements in lung function growth (as a measure of lung development), indicating a robust and consistent association across study locations, exposure assessment methods, and time periods (U.S. EPA, 2019a, section 5.2.13). This relationship was further supported by a retrospective study that reports an association between declining $PM_{2.5}$ concentrations and improvements in lung function growth in children (U.S. EPA, 2019a, section 5.2.11). Epidemiologic studies

also examine asthma development in children (U.S. EPA, 2019a, section 5.2.3), with prospective cohort studies reporting generally positive associations, though several are imprecise (*i.e.,* they report wide confidence intervals). Supporting evidence is provided by studies reporting associations with asthma prevalence in children, with childhood wheeze, and with exhaled nitric oxide, a marker of pulmonary inflammation (U.S. EPA, 2019a, section 5.2.13). Additionally, the 2019 ISA includes an animal toxicological study showing the development of an allergic phenotype and an increase in a marker of airway responsiveness supports the biological plausibility of the development of allergic asthma (U.S. EPA, 2019a, section 5.2.13). Other epidemiologic studies report a $PM_{2.5}$-related acceleration of lung function decline in adults, while improvement in lung function was observed with declining $PM_{2.5}$ concentrations (U.S. EPA, 2019a, section 5.2.11). A longitudinal study found declining $PM_{2.5}$ concentrations are also associated with an improvement in chronic bronchitis symptoms in children, strengthening evidence reported in the 2009 ISA for a relationship between increased chronic bronchitis symptoms and long-term $PM_{2.5}$ exposure (U.S. EPA, 2019a, section 5.2.11). A common uncertainty across the epidemiologic evidence is the lack of examination of copollutants to assess the potential for confounding. While there is some evidence that associations remain robust in models with gaseous pollutants, a number of these studies examining copollutant confounding were conducted in Asia, and thus have limited generalizability due to high annual pollutant concentrations.

When taken together, the 2019 ISA concludes that the ''epidemiologic evidence strongly supports a relationship with decrements in lung function growth in children'' and ''with asthma development in children, with increased bronchitis symptoms in children with asthma, with an acceleration of lung function decline in adults, and with respiratory mortality and cause-specific respiratory mortality for COPD and respiratory infection'' (U.S. EPA, 2019a, p. 1–34). In support of the biological plausibility of such associations reported in epidemiologic studies of respiratory health effects, animal toxicological studies continue to provide direct evidence that long-term exposure to $PM_{2.5}$ results in a variety of respiratory effects. Animal studies in the 2019 ISA show pulmonary oxidative stress, inflammation, and morphologic changes in the upper (nasal) and lower airways. Other results show that changes are consistent with the development of allergy and asthma, and with impaired lung development. Overall, the 2019 ISA concludes that ''the collective evidence is sufficient to conclude that a causal relationship is likely to exist between long-term $PM_{2.5}$ exposure and respiratory effects'' (U.S. EPA, 2019a, section 5.2.13).

ii. Short-Term $PM_{2.5}$ Exposures

The 2009 ISA (U.S. EPA, 2009a) concluded that a ''causal relationship is likely to exist'' between short-term $PM_{2.5}$ exposure and respiratory effects. This conclusion was based mainly on the epidemiologic evidence demonstrating positive associations with various respiratory effects. Specifically, the 2009 ISA described epidemiologic evidence as consistently showing $PM_{2.5}$-associated increases in hospital admissions and ED visits for COPD and respiratory infection among adults or people of all ages, as well as increases in respiratory mortality. These results were supported by studies reporting associations with increased respiratory symptoms and decreases in lung function in children with asthma, though the epidemiologic evidence was inconsistent for hospital admissions or emergency department visits for asthma. Studies examining copollutant models showed that $PM_{2.5}$ associations with respiratory effects were robust to inclusion of CO or SO_2 in the model, but often were attenuated (though still positive) with inclusion of O_3 or NO_2. In addition to the copollutant models, evidence supporting an independent effect of $PM_{2.5}$ exposure on the respiratory system was provided by animal toxicological studies of $PM_{2.5}$ CAPs demonstrating changes in some pulmonary function parameters, as well as inflammation, oxidative stress, injury, enhanced allergic responses, and reduced host defenses. Many of these effects have been implicated in the pathophysiology for asthma exacerbation, COPD exacerbation, or respiratory infection. In the few controlled human exposure studies conducted in individuals with asthma or COPD, $PM_{2.5}$ exposure mostly had no effect on respiratory symptoms, lung function, or pulmonary inflammation. Available studies in healthy people also did not clearly demonstrate respiratory effects following short-term $PM_{2.5}$ exposures.

Epidemiologic studies evaluated in the 2019 ISA continue to provide strong evidence for a relationship between short-term $PM_{2.5}$ exposure and several respiratory-related endpoints, including asthma exacerbation (U.S. EPA, 2019a, section 5.1.2.1), COPD exacerbation (U.S. EPA, 2019a, section 5.1.4.1), and combined respiratory-related diseases (U.S. EPA, 2019a, section 5.1.6), particularly from studies examining ED visits and hospital admissions. The generally positive associations between short-term $PM_{2.5}$ exposure and asthma and COPD as well as ED visits and hospital admissions are supported by epidemiologic studies demonstrating associations with other respiratory-related effects such as symptoms and medication use that are indicative of asthma and COPD exacerbations (U.S. EPA, 2019a, sections 5.1.2.2 and 5.4.1.2). The collective body of epidemiologic evidence for asthma exacerbation is more consistent in children than in adults. Additionally, epidemiologic studies examining the relationship between short-term $PM_{2.5}$ exposure and respiratory mortality provide evidence of consistent positive associations, demonstrating a continuum of effects (U.S. EPA, 2019a, section 5.1.9).

Building off the studies evaluated in the 2009 ISA, epidemiologic studies evaluated in the 2019 ISA expand the assessment of potential copollutant confounding. There is some evidence that $PM_{2.5}$ associations with asthma exacerbation, combined respiratory-related diseases, and respiratory mortality remain relatively unchanged in copollutant models with gaseous pollutants (*i.e.,* O_3, NO_2, SO_2, with more limited evidence for CO) and other particle sizes (*i.e.,* $PM_{10-2.5}$) (U.S. EPA, 2019a, section 5.1.10.1).

In the 2019 ISA, the uncertainty related to whether there is an independent effect of $PM_{2.5}$ on respiratory health is also partially addressed by findings from animal toxicological studies. Specifically, short-term exposure to $PM_{2.5}$ enhanced asthma-related responses in an animal model of allergic airways disease and enhanced lung injury and inflammation in an animal model of COPD (U.S. EPA, 2019a, sections 5.1.2.4.4 and 5.1.4.4.3). The experimental evidence provides biological plausibility for some respiratory-related endpoints, including limited evidence of altered host defense and greater susceptibility to bacterial infection as well as consistent evidence of respiratory irritant effects. Animal toxicological evidence for other respiratory effects is inconsistent and a recent study by Wyatt et al. (2020) that was evaluated in the ISA Supplement, conducted at near ambient $PM_{2.5}$ concentrations, adds to the limited evidence base of controlled human

exposure studies. The study, completed in healthy young adults subject to intermittent exercise, found some significant respiratory effects (including decrease in lung function), however these findings were inconsistent with the controlled human exposure studies evaluated in the 2019 ISA (U.S. EPA, 2019a, section 5.1.7.2, 5.1.2.3, and 6.1.11.2.1).

The 2019 ISA concludes that ''[t]he strongest evidence of an effect of short-term $PM_{2.5}$ exposure on respiratory effects is provided by epidemiologic studies of asthma and COPD exacerbation. While animal toxicological studies provide biological plausibility for these findings, some uncertainty remains with respect to the independence of $PM_{2.5}$ effects'' (U.S. EPA, 2019a, p. 5–155). When taken together, the 2019 ISA concludes that this evidence ''is sufficient to conclude that a causal relationship is likely to exist between short-term $PM_{2.5}$ exposure and respiratory effects'' (U.S. EPA, 2019a, p. 5–155).

d. Cancer

The 2009 ISA concluded that the overall body of evidence was ''suggestive of a causal relationship between relevant $PM_{2.5}$ exposures and cancer'' (U.S. EPA, 2009a). This conclusion was based primarily on positive associations observed in a limited number of epidemiologic studies of lung cancer mortality. The few epidemiologic studies that had evaluated $PM_{2.5}$ exposure and lung cancer incidence or cancers of other organs and systems generally did not show evidence of an association. Toxicological studies did not focus on exposures to specific PM size fractions, but rather investigated the effects of exposures to total ambient PM, or other source-based PM such as wood smoke. Collectively, results of in vitro studies were consistent with the larger body of evidence demonstrating that ambient PM and PM from specific combustion sources are mutagenic and genotoxic. However, animal inhalation studies found little evidence of tumor formation in response to chronic exposures. A small number of studies provided preliminary evidence that PM exposure can lead to changes in methylation of DNA, which may contribute to biological events related to cancer.

Since the completion of the 2009 ISA, additional cohort studies provide evidence that long-term $PM_{2.5}$ exposure is positively associated with lung cancer mortality and with lung cancer incidence, and provide initial evidence for an association with reduced cancer survival (U.S. EPA, 2019a, section 10.2.5). Re-analyses of the ACS cohort using different years of $PM_{2.5}$ data and follow up, along with various exposure assignment approaches, provide consistent evidence of positive associations between long-term $PM_{2.5}$ exposure and lung cancer mortality (U.S. EPA, 2019a, Figure 10–3). Additional support for positive associations with lung cancer mortality is provided by recent epidemiologic studies using individual level data to control for smoking status, by studies of people who have never smoked (though such studies generally report wide confidence intervals due to the small number of lung cancer mortality cases within this population), and in analyses of cohorts that relied upon proxy measures to account for smoking status (U.S. EPA, 2019a, section 10.2.5.1.1). Although studies that evaluate lung cancer incidence, including studies of people who have never smoked, are limited in number, studies in the 2019 ISA generally report positive associations with long-term $PM_{2.5}$ exposures (U.S. EPA, 2019a, section 10.2.5.1.2). A subset of the studies focusing on lung cancer incidence also examined histological subtype, providing some evidence of positive associations for adenocarcinomas, the predominate subtype of lung cancer observed in people who have never smoked (U.S. EPA, 2019a, section 10.2.5.1.2). Associations between long-term $PM_{2.5}$ exposure and lung cancer incidence were found to remain relatively unchanged, though in some cases confidence intervals widened, in analyses that attempted to reduce exposure measurement error by accounting for length of time at residential address or by examining different exposure assignment approaches (U.S. EPA, 2019a, section 10.2.5.1.2).

The 2019 ISA evaluates the degree to which epidemiologic studies have addressed the potential for confounding by copollutants and the shape of the C–R relationship. To date, relatively few studies have evaluated the potential for copollutant confounding of the relationship between long-term $PM_{2.5}$ exposure and lung cancer mortality or incidence. A small number of such studies have generally focused on O_3 and report that $PM_{2.5}$ associations remain relatively unchanged in copollutant models (U.S. EPA, 2019a, section 10.2.5.1.3). However, available studies have not systematically evaluated the potential for copollutant confounding by other gaseous pollutants or by other particle size fractions (U.S. EPA, 2019a, section 10.2.5.1.3). Compared to total (non-accidental) mortality (U.S. EPA, 2019a, section 10.2.4.1.4), fewer studies have examined the shape of the C–R curve for cause-specific mortality outcomes, including lung cancer. Several studies of lung cancer mortality and incidence have reported no evidence of deviations from linearity in the shape of the C–R relationship (Lepeule et al., 2012; Raaschou-Nielsen et al., 2013; Puett et al., 2014), though authors provided only limited discussions of results (U.S. EPA, 2019a, section 10.2.5.1.4).

In support of the biological plausibility of an independent effect of $PM_{2.5}$ on lung cancer, the 2019 ISA notes evidence from experimental and epidemiologic studies demonstrating that $PM_{2.5}$ exposure can lead to a range of effects indicative of mutagenicity, genotoxicity, and carcinogenicity, as well as epigenetic effects (U.S. EPA, 2019a, section 10.2.7). For example, both in vitro and in vivo toxicological studies have shown that $PM_{2.5}$ exposure can result in DNA damage (U.S. EPA, 2019a, section 10.2.2). Although such effects do not necessarily equate to carcinogenicity, the evidence that PM exposure can damage DNA, and elicit mutations, provides support for the plausibility of epidemiologic associations with lung cancer mortality and incidence. Additional supporting studies indicate the occurrence of micronuclei formation and chromosomal abnormalities (U.S. EPA, 2019a, section 10.2.2.3), and differential expression of genes that may be relevant to cancer pathogenesis, following PM exposures. Experimental and epidemiologic studies that examine epigenetic effects indicate changes in DNA methylation, providing some support for $PM_{2.5}$ exposure contributing to genomic instability (U.S. EPA, 2019a, section 10.2.3). Overall, there is limited evidence that long-term $PM_{2.5}$ exposure is associated with cancers in other organ systems, but there is some evidence that $PM_{2.5}$ exposure may reduce survival in individuals with cancer (U.S. EPA, 2019a, section 10.2.7; U.S. EPA, 2022a, section 2.1.1.4.1).

Epidemiologic evidence for associations between $PM_{2.5}$ and lung cancer mortality and incidence, together with evidence supporting the biological plausibility of such associations, contributes to the 2019 ISA's conclusion that the evidence ''is sufficient to conclude that a causal relationship is likely to exist between long-term $PM_{2.5}$ exposure and cancer'' (U.S. EPA, 2019, section 10.2.7).

e. Nervous System Effects

Reflecting the very limited evidence available in the 2012 review, the 2009 ISA did not make a causality determination for long-term $PM_{2.5}$ exposures and nervous system effects (U.S. EPA, 2009c). Since the 2012 review, this body of evidence has grown substantially (U.S. EPA, 2019, section 8.2). Animal toxicological studies assessed in in the 2019 ISA report that long-term $PM_{2.5}$ exposures can lead to morphologic changes in the hippocampus and to impaired learning and memory. This evidence is consistent with epidemiologic studies reporting that long-term $PM_{2.5}$ exposure is associated with reduced cognitive function (U.S. EPA, 2019a, section 8.2.5). Further, while the evidence is limited, the presence of early markers of Alzheimer's disease pathology has been demonstrated in rodents following long-term exposure to $PM_{2.5}$ CAPs. These findings support reported associations with neurodegenerative changes in the brain (*i.e.,* decreased brain volume), all-cause dementia, or hospitalization for Alzheimer's disease in a small number of epidemiologic studies (U.S. EPA, 2019a, section 8.2.6). Additionally, loss of dopaminergic neurons in the substantia nigra, a hallmark of Parkinson disease, has been reported in mice (U.S. EPA, 2019a, section 8.2.4), though epidemiologic studies provide only limited support for associations with Parkinson's disease (U.S. EPA, 2019a, section 8.2.6). Overall, the lack of consideration of copollutant confounding introduces some uncertainty in the interpretation of epidemiologic studies of nervous system effects, but this uncertainty is partly addressed by the evidence for an independent effect of $PM_{2.5}$ exposures provided by experimental animal studies.

In addition to the findings described above, which are most relevant to older adults, several studies of neurodevelopmental effects in children have also been conducted. Positive associations between long-term exposure to $PM_{2.5}$ during the prenatal period and autism spectrum disorder (ASD) are observed in multiple epidemiologic studies (U.S. EPA, 2019a, section 8.2.7.2), while studies of cognitive function provide little support for an association (U.S. EPA, 2019a, section 8.2.5.2). Interpretation of these epidemiologic studies is limited due to the small number of studies, their lack of control for potential confounding by copollutants, and uncertainty regarding the critical exposure windows. Biological plausibility is provided for the ASD findings by a study in mice that found inflammatory and morphologic changes in the corpus collosum and hippocampus, as well as ventriculomegaly (*i.e.,* enlarged lateral ventricles) in young mice following prenatal exposure to $PM_{2.5}$ CAPs.

Taken together, the 2019 ISA concludes that studies indicate long-term $PM_{2.5}$ exposures can lead to effects on the brain associated with neurodegeneration (*i.e.,* neuroinflammation and reductions in brain volume), as well as cognitive effects in older adults (U.S. EPA, 2019a, Table 1–2). Animal toxicological studies provide evidence for a range of nervous system effects in adult animals, including neuroinflammation and oxidative stress, neurodegeneration, and cognitive effects, and effects on neurodevelopment in young animals. The epidemiologic evidence is more limited, but studies generally support associations between long-term $PM_{2.5}$ exposure and changes in brain morphology, cognitive decrements and dementia. There is also initial, and limited, evidence for neurodevelopmental effects, particularly ASD. The consistency and coherence of the evidence supports the 2019 ISA's conclusion that ''the collective evidence is sufficient to conclude that a causal relationship is likely to exist between long-term $PM_{2.5}$ exposure and nervous system effects'' (U.S. EPA, 2019a, section 8.2.9).

f. Other Effects

For other health effect categories that were evaluated for their relationship with $PM_{2.5}$ exposures (*i.e.,* short-term $PM_{2.5}$ exposure and nervous system effects and short- and long-term $PM_{2.5}$ exposure and metabolic effects, reproduction and fertility, and pregnancy and birth outcomes (U.S. EPA, 2022a, Table ES–1), the currently available evidence is ''suggestive of, but not sufficient to infer, a causal relationship,'' mainly due to inconsistent evidence across specific outcomes and uncertainties regarding exposure measurement error, the potential for confounding, and potential modes of action (U.S. EPA, 2019a, sections 7.14, 7.2.10, 8.1.6, and 9.1.5). The causality determination for short-term $PM_{2.5}$ exposure and nervous system effects in the 2019 ISA reflects a revision to the causality determination in the 2009 ISA from ''inadequate to infer a causal relationship,'' while this is the first time assessments of causality were conducted for long-term $PM_{2.5}$ exposure and nervous system effects, as well as short- and long-term $PM_{2.5}$ exposure and metabolic effects reflect.

Recent studies evaluated in the 2019 ISA also further explored the relationship between short-and long-term ultrafine particle (UFP) exposure and health effects. (*i.e.,* cardiovascular effects and short-term UFP exposures; respiratory effects and short-term UFP exposures; and nervous system effects and long- and short-term exposures (U.S. EPA, 2022a, Table ES–1). The currently available evidence is ''suggestive of, but not sufficient to infer, a causal relationship'' for short-term UFP exposure and cardiovascular and respiratory effects and for short- and long-term UFP exposure and nervous system effects, primarily due to uncertainties and limitations in the evidence, specifically, variability across studies in the definition of UFPs and the exposure metric used (U.S. EPA, 2019a, P.3.1; U.S. EPA, 2022a, section 3.3.1.6.3). The causality determinations for the other health effect categories evaluated in the 2019 ISA are ''inadequate to infer a causal relationship.'' Additionally, this is the first time assessments of causality were conducted for short- and long-term UFP exposure and metabolic effects and long-term UFP exposure and nervous system effects (U.S. EPA, 2022a, Table ES–1).

With the advent of the global COVID–19 pandemic, a number of recent studies evaluated in the ISA Supplement examined the relationship between ambient air pollution, specifically $PM_{2.5}$, and SARS–CoV–2 infections and COVID–19 deaths, including a few studies within the U.S. and Canada (U.S. EPA, 2022a, section 3.3.2).[59] Some studies examined whether daily changes in $PM_{2.5}$ can influence SARS–CoV–2 infection and COVID–19 death (U.S. EPA, 2022a, section 3.3.2.1). Additionally, several studies evaluated

[59] While there is no exact corollary within the 2019 ISA for these types of studies, the 2019 ISA presented evidence that evaluates the potential relationship between short- and long-term $PM_{2.5}$ exposure and respiratory infection (U.S. EPA, 2022a, section 5.1.5 and 5.2.6). Studies assessed in the 2019 ISA report some evidence of positive associations between short-term $PM_{2.5}$ and hospital admissions and ED visits for respiratory infections, however the interpretation of these studies is complicated by the variability in the type of respiratory infection outcome examined (U.S. EPA, 2022a, Figure 5–7). In the 2019 ISA, studies of long-term $PM_{2.5}$ exposure were limited and while there were some positive associations reported, there was minimal overlap in respiratory infection outcomes examined across studies. Exposure to $PM_{2.5}$ has been shown to impair host defense, specifically altering macrophage function, providing a biological pathway by which $PM_{2.5}$ exposure could lead to respiratory infection (U.S. EPA, 2022a, sections 5.1.1 and 5.1.5.) There is some additional evidence that $PM_{2.5}$ exposure can lead to decreases in an individual's immune response, which can subsequently facilitate replication of respiratory viruses (Bourdrel et al., 2021).

whether long-term $PM_{2.5}$ exposure increases the risk of SARS–CoV–2 infection and COVID–19 death in North America (U.S. EPA, 2022a, section 3.3.2.2). While there is initial evidence of positive associations with SARS–CoV–2 infection and COVID–19 death, uncertainties remain due to methodological issues that may influence the results, including: (1) the use of ecological study design; (2) studies were conducted during the ongoing pandemic when the etiology of COVID–19 was still not well understood (*e.g.,* specifically, there are important differences in COVID–19-related outcomes by a variety of factors such as race and SES); and (3) studies did not account for crucial factors that could influence results (*e.g.,* stay-at-home orders, social distancing, use of masks, and testing capacity) (U.S. EPA, 2022a, chapter 5). Taken together, while there is initial evidence of positive associations with SARS–CoV–2 infection and COVID–19 death, uncertainties remain due to methodological issues.

2. Public Health Implications and At-Risk Populations

The public health implications of the evidence regarding $PM_{2.5}$-related health effects, as for other effects, are dependent on the type and severity of the effects, as well as the size of the population affected. Such factors are discussed here in the context of our consideration of the health effects evidence related to $PM_{2.5}$ in ambient air. This section also summarizes the current information on population groups at increased risk of the effects of $PM_{2.5}$ in ambient air.

The information available in this reconsideration has not altered our understanding of human populations at risk of health effects from $PM_{2.5}$ exposures. As recognized in the 2020 review, the 2019 ISA cites extensive evidence indicating that ''both the general population as well as specific populations and lifestages are at risk for $PM_{2.5}$-related health effects'' (U.S. EPA, 2019a, p. 12–1). Factors that may contribute to increased risk of $PM_{2.5}$-related health effects include lifestage (children and older adults), pre-existing diseases (cardiovascular disease and respiratory disease), race/ethnicity, and SES.[60]

Children make up a substantial fraction of the U.S. population, and often have unique factors that contribute to their increased risk of experiencing a health effect due to exposures to ambient air pollutants because of their continuous growth and development.[61] Children may be particularly at risk for health effects related to ambient $PM_{2.5}$ exposures compared with adults because they have (1) a developing respiratory system, (2) increased ventilation rates relative to body mass compared with adults, and (3) an increased proportion of oral breathing, particularly in boys, relative to adults (U.S. EPA, 2019a, section 12.5.1.1). There is strong evidence that demonstrates $PM_{2.5}$ associated health effects in children, particularly from epidemiologic studies of long-term $PM_{2.5}$ exposure and impaired lung function growth, decrements in lung function, and asthma development. However, there is limited evidence from stratified analyses that children are at increased risk of $PM_{2.5}$-related health effects compared to adults. Additionally, there is some evidence that indicates that children receive higher $PM_{2.5}$ exposures than adults, and dosimetric differences in children compared to adults can contribute to higher doses (U.S. EPA, 2019a, section 12.5.1.1).

In the U.S., older adults, often defined as adults 65 years of age and older, represent an increasing portion of the population and often have pre-existing diseases or conditions that may compromise biological function. While there is limited evidence to indicate that older adults have higher exposures than younger adults, older adults may receive higher doses of $PM_{2.5}$ due to dosimetric differences. There is consistent evidence from studies of older adults demonstrating generally consistent positive associations in studies examining health effects from short- and long-term $PM_{2.5}$ exposure and cardiovascular or respiratory hospital admissions, emergency department visits, or mortality (U.S. EPA, 2019a, sections 6.1, 6.2, 11.1, 11.2, 12.5.1.2). Additionally, several animal toxicological, controlled human exposure, and epidemiologic studies did not stratify results by lifestage, but instead focused the analyses on older individuals, and can provide coherence and biological plausibility for the occurrence among this lifestage (U.S. EPA, 2019a, section 12.5.1.2).

Individuals with pre-existing disease may be considered at greater risk of an air pollution-related health effect than those without disease because they are likely in a compromised biological state that can vary depending on the disease and severity. With regard to cardiovascular disease, we first note that cardiovascular disease is the leading cause of death in the U.S., accounting for one in four deaths, and approximately 12% of the adult population in the U.S. has a cardiovascular disease (U.S. EPA, 2019a, section 12.3.1). Strong evidence demonstrates that there is a causal relationship between cardiovascular effects and long- and short-term exposures to $PM_{2.5}$. Some of the evidence supporting this conclusion is from studies of panels or cohorts with pre-existing cardiovascular disease, which provide supporting evidence but do not directly demonstrate an increased risk (U.S. EPA, 2019a, section 12.3.1). Epidemiologic evidence indicates that individuals with pre-existing cardiovascular disease may be at increased risk for $PM_{2.5}$-associated health effects compared to those without pre-existing cardiovascular disease. While the evidence does not consistently support increased risk for all pre-existing cardiovascular diseases, there is evidence that certain pre-existing cardiovascular diseases (*e.g.,* hypertension) may be a factor that increases $PM_{2.5}$-related risk. Furthermore, there is strong evidence supporting a causal relationship for long- and short-term $PM_{2.5}$ exposure and cardiovascular effects, particularly for IHD (U.S. EPA, 2019a, chapter 6, section 12.3.1).

With regard to respiratory disease, we first note that the most chronic respiratory diseases in the U.S. are asthma and COPD. Asthma affects a substantial fraction of the U.S. population and is the leading chronic disease among children. COPD primarily affects older adults and contributes to compromised respiratory function and underlying pulmonary inflammation. The body of evidence indicates that individuals with pre-existing respiratory diseases, particularly asthma and COPD, may be at increased risk for $PM_{2.5}$-related health effects compared to those without pre-existing respiratory diseases (U.S. EPA, 2019a, section 12.3.5). There is strong evidence indicating $PM_{2.5}$-associated respiratory effects among those with asthma which forms the primary evidence base for the likely to be causal relationship between short-term exposures to $PM_{2.5}$ and respiratory health effects (U.S. EPA, 2019a, section 12.3.5). For asthma, epidemiologic evidence demonstrates associations between short-term $PM_{2.5}$ exposures and respiratory effects, particularly evidence

[60] As described in the 2019 ISA, other factors that have the potential to contribute to increased risk include obesity, diabetes, genetic factors, smoking status, sex, diet, and residential location (U.S. EPA, 2019, chapter 12).

[61] Children, as used throughout this document, generally refers to those younger than 18 years old.

for asthma exacerbation, and controlled human exposure and animal toxicological studies demonstrate biological plausibility for asthma exacerbation with $PM_{2.5}$ exposures (U.S. EPA, 2019a, section 12.3.5.1). For COPD, epidemiologic studies report positive associations between short-term $PM_{2.5}$ exposures and hospital admissions and emergency department visits for COPD, with supporting evidence from panel studies demonstration COPD exacerbation. Epidemiologic evidence is supported by some experimental evidence of COPD-related effects, which provides support for the biological plausibility for COPD in response to $PM_{2.5}$ exposures (U.S. EPA, 2019a, section 12.3.5.2).

There is strong evidence for racial and ethnic disparities in $PM_{2.5}$ exposures and $PM_{2.5}$- related health risk, as assessed in the 2019 ISA and with even more evidence available since the literature cutoff date for the 2019 ISA and evaluated in the ISA Supplement. There is strong evidence demonstrating that Black and Hispanic populations, in particular, have higher $PM_{2.5}$ exposures than non-Hispanic White populations (U.S. EPA, 2019a, Figure 12–2; U.S. EPA, 2022a, Figure 3–38). Black populations or individuals that live in predominantly Black neighborhoods experience higher $PM_{2.5}$ exposures, in comparison to non-Hispanic White populations. There is also consistent evidence across multiple studies that demonstrate increased risk of $PM_{2.5}$-related health effects, with the strongest evidence for health risk disparities for mortality (U.S. EPA, 2019a, section 12.5.4). There is also evidence of health risk disparities for both Hispanic and non-Hispanic Black populations compared to non-Hispanic White populations for cause-specific mortality and incident hypertension (U.S. EPA, 2022a, section 3.3.3.2).

Socioeconomic status (SES) is a composite measure that includes metrics such as income, occupation, or education, and can play a role in access to healthy environments as well as access to healthcare. SES may be a factor that contributes to differential risk from $PM_{2.5}$- related health effects. Studies assessed in the 2019 ISA and ISA Supplement provide evidence that lower SES communities are exposed to higher concentrations of $PM_{2.5}$ compared to higher SES communities (U.S. EPA, 2019a, section 12.5.3; U.S. EPA, 2022a, section 3.3.3.1.1). Studies using composite measures of neighborhood SES consistently demonstrated a disparity in both $PM_{2.5}$ exposure and the risk of $PM_{2.5}$-related health outcomes. There is some evidence that supports associations larger in magnitude between mortality and long-term $PM_{2.5}$ exposures for those with low income or living in lower income areas compared to those with higher income or living in higher income neighborhoods (U.S. EPA, 2019a, section 12.5.3; U.S. EPA, 2022a, section 3.3.3.1.1). Additionally, evidence supports conclusions that lower SES is associated with cause-specific mortality and certain health endpoints (*i.e.,* MI and CHF), but less so for all-cause or total (non-accidental) mortality (U.S. EPA, 2022a, section 3.3.3.1).

The magnitude and characterization of a public health impact is dependent upon the size and characteristics of the populations affected, as well as the type or severity of the effects. As summarized above, lifestage (children and older adults), race/ethnicity and SES are factors that increase the risk of $PM_{2.5}$-related health effects. The American Community Survey (ACS) for 2019 estimates that approximately 22% and 16% of the U.S. population are children (age <18) and older adults (age 65+), respectively. For all ages, non-Hispanic Black and Hispanic populations are approximately 12% and 18% of the overall U.S. population in 2019. Currently available information that helps to characterize key features of these population is included in the PA (U.S. EPA, 2022b, Table 3–2).

As noted above, individuals with pre-existing cardiovascular disease and pre-existing respiratory disease may also be at increased risk of $PM_{2.5}$-related health effects. Currently available information that helps to characterize key features of populations with cardiovascular or respiratory diseases or conditions is included in the PA (U.S. EPA, 2022b, Table 3–3). The National Center for Health Statistics data for 2018 indicate that, for adult populations, older adults (*e.g.,* those 65 years and older) have a higher prevalence of cardiovascular diseases compared to younger adults (*e.g.,* those 64 years and younger). For respiratory diseases, older adults also have a higher prevalence of emphysema than younger adults, and adults 44 years or older have a higher prevalence of chronic bronchitis. However, the prevalence for asthma is generally similar across all adult age groups.

With respect to race, American Indians or Alaskan Natives have the highest prevalence of all heart disease and coronary heart disease, while Blacks have the highest prevalence of hypertension and stroke. Hypertension has the highest prevalence across all racial groups compared to other cardiovascular diseases or conditions, ranging from approximately 22% to 32% of each racial group. Overall, the prevalence of cardiovascular diseases or conditions is lowest for Asians compared to Whites, Blacks, and American Indians or Alaskan Natives. Asthma prevalence is highest among Black and American Indian or Alaska Native populations, while prevalence is generally similar across racial groups for chronic bronchitis and emphysema. Overall, the prevalence for respiratory diseases is lowest for Asians compared to Whites, Blacks, and American Indians or Alaskan Natives. With regard to ethnicity, cardiovascular and respiratory disease prevalence across all diseases or conditions is generally similar between Hispanic and non-Hispanic populations, although non-Hispanics have a slightly higher prevalence compared to Hispanics.

Taken together, this information indicates that the groups at increased risk of $PM_{2.5}$-related health effects represent a substantial portion of the total U.S. population. In evaluating the primary $PM_{2.5}$ standards, an important consideration is the potential $PM_{2.5}$-related public health impacts in these populations.

3. $PM_{2.5}$ Concentrations in Key Studies Reporting Health Effects

To inform conclusions on the adequacy of the public health protection provided by the current primary $PM_{2.5}$ standards, the sections below summarize the PA's evaluation of the $PM_{2.5}$ exposure concentrations that have been examined in controlled human exposure studies, animal toxicological studies, and epidemiologic studies. The PA places the greatest emphasis on the health outcomes for which the 2019 ISA concludes that the evidence supports a ''causal'' or a ''likely to be causal'' relationship with $PM_{2.5}$ exposures (U.S. EPA, 2022b, section 3.3.3). As described in greater detail in section II.B.1 above, this includes mortality, cardiovascular effects, and respiratory effects associated with short- or long-term $PM_{2.5}$ exposures and cancer and nervous system effects associated with long-term $PM_{2.5}$ exposures. While the causality determinations in the 2019 ISA are informed by studies evaluating a wide range of $PM_{2.5}$ concentrations, the sections below summarize the considerations in the PA regarding the degree to which the evidence assessed in the 2019 ISA and ISA Supplement supports the occurrence of PM-related health effects at concentrations relevant to informing conclusions on the primary $PM_{2.5}$ standards.

a. $PM_{2.5}$ Exposure Concentrations Evaluated in Experimental Studies

Evidence for a particular $PM_{2.5}$-related health outcome is strengthened when results from experimental studies demonstrate biologically plausible mechanisms through which adverse human health outcomes could occur (U.S. EPA, 2015, Preamble p. 20). Two types of experimental studies are of particular importance in understanding the effects of PM exposures: controlled human exposure and animal toxicological studies. In such studies, investigators expose human volunteers or laboratory animals, respectively, to known concentrations of air pollutants under carefully regulated environmental conditions and activity levels. Thus, controlled human exposure and animal toxicological studies can provide information on the health effects of experimentally administered pollutant exposures under highly controlled laboratory conditions (U.S. EPA, 2015, Preamble, p. 11).

Controlled human exposure studies have reported that $PM_{2.5}$ exposures lasting from less than one hour up to five hours can impact cardiovascular function,[62] and the most consistent evidence from these studies is for impaired vascular function (U.S. EPA, 2019a, section 6.1.13.2). In addition, although less consistent, the 2019 ISA notes that studies examining $PM_{2.5}$ exposures also provide evidence for increased blood pressure (U.S. EPA, 2019a, section 6.1.6.3), conduction abnormalities/arrhythmia (U.S. EPA, 2019a, section 6.1.4.3), changes in heart rate variability (U.S. EPA, 2019a, section 6.1.10.2), changes in hemostasis that could promote clot formation (U.S. EPA, 2019a, section 6.1.12.2), and increases in inflammatory cells and markers (U.S. EPA, 2019a, section 6.1.11.2). The 2019 ISA concludes that, when taken as a whole, controlled human exposure studies demonstrate that short-term exposure to $PM_{2.5}$ may impact cardiovascular function in ways that could lead to more serious outcomes (U.S. EPA, 2019a, section 6.1.16). Thus, such studies can provide insight into the potential for specific $PM_{2.5}$ exposures to result in physiological changes that could increase the risk of more serious effects.

Table 3–4 in the PA summarizes information from the 2019 ISA on available controlled human exposure studies the evaluate effects on markers of cardiovascular function following exposure to $PM_{2.5}$ (U.S. EPA, 2022b). Most of the controlled human exposure studies in Table 3–4 in the PA have evaluated average $PM_{2.5}$ concentrations at or above about 100 $\mu g/m^3$, with exposure durations typically up to about two hours. Statistically significant effects on one or more indicators of cardiovascular function are often, though not always, reported following 2-hour exposures to average $PM_{2.5}$ concentrations at and above about 120 $\mu g/m^3$, with less consistent evidence for effects following exposures to concentrations lower than 120 $\mu g/m^3$. Impaired vascular function, the effect identified in the 2019 ISA as the most consistent across studies (U.S. EPA, 2019a, section 6.1.13.2) is shown following 2-hour exposures to $PM_{2.5}$ concentrations at and above 149 $\mu g/m^3$. Mixed results are reported in the studies that evaluated longer exposure durations (*i.e.,* longer than 2 hours) and lower (*i.e.,* near-ambient) $PM_{2.5}$ concentrations (U.S. EPA, 2022b, section 3.3.3.1). For example, significant effects for some outcomes were reported following 5-hour exposures to 24 $\mu g/m^3$ in Hemmingsen et al. (2015b), but not for other outcomes following 5-hour exposures to 24 $\mu g/m^3$ in Hemmingsen et al. (2015a) and not following 24-hour exposures to 10.5 $\mu g/m^3$ in Bräuner et al. (2008). Additionally, Wyatt et al. (2020) found significant effects for some cardiovascular (*e.g.,* systematic inflammation markers, cardiac repolarization, and decreased pulmonary function) effects following 4-hour exposures to 37.8 $\mu g/m^3$ in healthy young participants (18–35 years, n=21) who were subject to intermittent moderate exercise. The higher ventilation rate and longer exposure duration in this study compared to most controlled human exposure studies is roughly equivalent to a 2-hour exposure of 75–100 $\mu g/m^3$ of $PM_{2.5}$. Therefore, dosimetric considerations may explain the observed changes in inflammation in young healthy individuals. Though this study provides evidence of some effects at lower $PM_{2.5}$ concentrations, overall there is inconsistent evidence for inflammation in other controlled human exposure studies evaluated in the 2019 ISA (U.S. EPA, 2019a, sections 5.1.7., 5.1.2.3.3, and 6.1.11.2.1; U.S. EPA, 2022a, section 3.3.1).

While controlled human exposure studies are important in establishing biological plausibility, it is unclear how the results from these studies alone and the importance of the effects observed in these studies, should be interpreted with respect to adversity to public health. More specifically, impaired vascular function can signal an intermediate effect along the potential biological pathways for cardiovascular effects following short-term exposure to $PM_{2.5}$ and show a role for exposure to $PM_{2.5}$ leading to potential worsening of IHD and heart failure followed potentially by ED visits, hospital admissions, or mortality (U.S. EPA, 2019, section 6.1 and Figure 6–1). However, just observing the occurrence of impaired vascular function alone does not clearly suggest an adverse health outcome. Additionally, associated judgments regarding adversity or health significance of measurable physiological responses to air pollutants have been informed by guidance, criteria or interpretative statements developed within the public health community, including the American Thoracic Society (ATS) and the European Respiratory Society (ERS), which cooperatively updated the ATS 2000 statement *What Constitutes an Adverse Health Effect of Air Pollution* (ATS, 2000) with new scientific findings, including the evidence related to air pollution and the cardiovascular system (Thurston et al., 2017).[63] With regard to vascular function, the ATS/ERS statement considers the adversity of both chronic and acute reductions in endothelial function. While the ATS/ERS statement concluded that chronic endothelial and vascular dysfunction can be judged to be a biomarker of an adverse health effect from air pollution, they also conclude that ''the health relevance of acute reductions in endothelial function induced by air pollution is less certain'' (Thurston et al., 2017). This is particularly informative to our consideration of the controlled human exposure studies which are short-term in nature (*i.e.,* ranging from 2- to 5-hours), including

[62] In contrast, controlled human exposure studies provide little evidence for respiratory effects following short-term $PM_{2.5}$ exposures (U.S. EPA, 2019a, section 5.1, Table 5–18). Therefore, this section focuses on cardiovascular effects evaluated in controlled human exposure studies of $PM_{2.5}$ exposure.

[63] The ATS/ERS described its 2017 statement as one ''intended to provide guidance to policymakers, clinicians and public health professionals, as well as others who interpret the scientific evidence on the health effects of air pollution for risk management purposes'' and further notes that ''considerations as to what constitutes an adverse health effect, in order to provide guidance to researchers and policymakers when new health effects markers or health outcome associations might be reported in future.'' The most recent policy statement by the ATS, which once again broadens its discussion of effects, responses and biomarkers to reflect the expansion of scientific research in these areas, reiterates that concept, conveying that it does not offer ''strict rules or numerical criteria, but rather proposes considerations to be weighed in setting boundaries between adverse and nonadverse health effects,'' providing a general framework for interpreting evidence that proposes a ''set of considerations that can be applied in forming judgments'' for this context (Thurston et al., 2017).

those studies that are conducted at near-ambient $PM_{2.5}$ concentrations.

The PA also notes that it is important to recognize that controlled human exposure studies include a small number of individuals compared to epidemiologic studies. Additionally, these studies tend to include generally healthy adult individuals, who are at a lower risk of experiencing health effects. These studies, therefore, often do not include including children, or older adults, or individuals with pre-existing conditions. As such, these studies are somewhat limited in their ability to inform at what concentrations effects may be elicited in at-risk populations.

Nonetheless, to provide some insight into what these controlled human exposure studies may indicate regarding short-term exposure to peak $PM_{2.5}$ concentrations and how concentrations relate to ambient $PM_{2.5}$ concentrations, analyses in the PA (U.S. EPA, 2022b, Figure 2–19) examine monitored 2-hour $PM_{2.5}$ concentrations (the exposure window most often utilized in the controlled human exposure studies) at sites meeting the current primary $PM_{2.5}$ standards to evaluate the degree to which 2-hour ambient $PM_{2.5}$ concentrations at such locations are likely to exceed the 2-hour exposure concentrations in the controlled human exposure studies at which statistically significant effects are reported in multiple studies for one or more indicators of cardiovascular function. At sites meeting the current primary $PM_{2.5}$ standards, most 2-hour concentrations are below 10 $\mu g/m^3$, and almost never exceed 30 $\mu g/m^3$. The extreme upper end of the distribution of 2-hour $PM_{2.5}$ concentrations is shifted higher during the warmer months (April to September), generally corresponding to the period of peak wildfire frequency in the U.S. At sites meeting the current primary $PM_{2.5}$ standards, the highest 2-hour concentrations measured tend to occur during the period of peak wildfire frequency (*i.e.,* 99.9th percentile of 2-hour concentrations is 62 $\mu g/m^3$ during the warm season considered as a whole). Most of the sites measuring these very high concentrations are in the northwestern U.S. and California (U.S. EPA, 2022b, Appendix A, Figure A–1), where wildfires have been relatively common in recent years. When the typical fire season is excluded from the analysis, the extreme upper end of the distribution is reduced (*i.e.,* 99.9th percentile of 2-hour concentrations is 55 $\mu g/m^3$).[64] Given these results, the PA concludes that $PM_{2.5}$ exposure concentrations evaluated in most of these controlled human exposure studies are well-above the 2-hour ambient $PM_{2.5}$ concentrations typically measured in locations meeting the current primary standards.

With respect to animal toxicological studies, the 2019 ISA relies on animal toxicological studies to support the plausibility of a wide range of $PM_{2.5}$-related health effects. While animal toxicological studies often examine more severe health outcomes and longer exposure durations than controlled human exposure studies, there is uncertainty in extrapolating the effects seen in animals, and the $PM_{2.5}$ exposures and doses that cause those effects, to human populations. The PA considers these uncertainties when evaluating what the available animal toxicological studies may indicate with regard to the current primary $PM_{2.5}$ standards.

As with controlled human exposure studies, most animal toxicological studies evaluated in the 2019 ISA have examined effects following exposure to $PM_{2.5}$ well-above the concentrations likely to be allowed by the current $PM_{2.5}$ standards. Such studies have generally examined short-term exposures to $PM_{2.5}$ concentrations ranging from 100 to >1,000 $\mu g/m^3$ and long-term exposures to concentrations from 66 to >400 $\mu g/m^3$ (*e.g.,* see U.S. EPA, 2019a, Table 1–2). Two exceptions are animal toxicological studies reporting impaired lung development following long-term exposures (*i.e.,* 24 hours per day for several months prenatally and postnatally) to an average $PM_{2.5}$ concentration of 16.8 $\mu g/m^3$ (Mauad et al., 2008) and increased carcinogenic potential following long-term exposures (*i.e.,* 2 months) to an average $PM_{2.5}$ concentration of 17.7 $\mu g/m^3$ (Cangerana Pereira et al., 2011). These two studies report serious effects following long-term exposures to $PM_{2.5}$ concentrations similar to the ambient concentrations reported in some $PM_{2.5}$ epidemiologic studies (U.S. EPA, 2019a, Table 1–2), though still above the ambient concentrations likely to occur in areas meeting the current primary $PM_{2.5}$ standards. However, noting uncertainty in extrapolating the effects seen in animals, and the $PM_{2.5}$ exposures and doses that cause those effects to human populations, animal toxicological studies are of limited utility in informing decisions on the public health protection provided by the current or alternative primary $PM_{2.5}$ standards. Therefore, the animal toxicological studies are most useful in providing further evidence to support the biological mechanisms and plausibility of various adverse effects.

b. Ambient $PM_{2.5}$ Concentrations in Locations of Epidemiologic Studies

As summarized in section II.B.1 above, epidemiologic studies examining associations between daily or annual average $PM_{2.5}$ exposures and mortality or morbidity represent a large part of the evidence base supporting several of the 2019 ISA's ''causal'' and ''likely to be causal'' determinations. The PA considers the ambient $PM_{2.5}$ concentrations present in areas where epidemiologic studies have evaluated associations with mortality or morbidity, and what such concentrations may indicate regarding the adequacy of the primary $PM_{2.5}$ standards. The use of information from epidemiologic studies to inform conclusions on the primary $PM_{2.5}$ standards is complicated by the fact that such studies evaluate associations between distributions of ambient $PM_{2.5}$ and health outcomes, and do not identify the specific exposures that can lead to the reported effects. Rather, health effects can occur over the entire distribution of ambient $PM_{2.5}$ concentrations evaluated, and epidemiologic studies conducted to date do not identify a population-level threshold below which it can be concluded with confidence that $PM_{2.5}$-associated health effects do not occur. Therefore, the PA evaluates the $PM_{2.5}$ air quality distributions over which epidemiologic studies support health effect associations (U.S. EPA, 2022b, section 3.3.3.2). In the absence of discernible thresholds, the PA considers the study-reported ambient $PM_{2.5}$ concentrations reflecting estimated exposure with a focus around the middle portion of the $PM_{2.5}$ air quality distribution, where the bulk of the observed data reside and which provides the strongest support for reported health effect associations. The section below describes the consideration of the key epidemiologic studies and observations from these studies, as evaluated in the PA (U.S. EPA, 2022b, section 3.3.3.2).

i. $PM_{2.5}$ Air Quality Distributions Associated With Mortality or Morbidity in Key Epidemiologic Studies

As an initial matter, in considering the $PM_{2.5}$ air quality distributions associated with mortality or morbidity in the key epidemiologic studies, the PA recognizes that in previous reviews, the decision framework used to judge

[64] Similar analyses of 4-hour and 5-hour $PM_{2.5}$ concentrations are presented in Appendix A, Figure A–2 and Figure A–3, respectively of the PA (U.S. EPA, 2022b).

adequacy of the existing $PM_{2.5}$ standards, and what levels of any potential alternative standards should be considered, placed significant weight on epidemiologic studies that assessed associations between $PM_{2.5}$ exposure and health outcomes that were most strongly supported by the body of scientific evidence. In doing so, the decision framework recognized that while there is no specific point in the air quality distribution of any epidemiologic study that represents a ''bright line'' at and above which effects have been observed and below which effects have not been observed, there is significantly greater confidence in the magnitude and significance of observed associations for the part of the air quality distribution corresponding to where the bulk of the health events in each study have been observed, generally at or around the mean concentration. This is the case both for studies of daily $PM_{2.5}$ exposures and for studies of annual average $PM_{2.5}$ exposures (U.S. EPA, 2022b, section 3.3.3.2.1).

As discussed further in the PA, studies of daily $PM_{2.5}$ exposures examine associations between day-to-day variation in $PM_{2.5}$ concentrations and health outcomes, often over several years (U.S. EPA, 2022b, section 3.3.3.2.1). While there can be considerable variability in daily exposures over a multi-year study period, most of the estimated exposures reflect days with ambient $PM_{2.5}$ concentrations around the middle of the air quality distributions examined (*i.e.,* ''typical'' days rather than days with extremely high or extremely low concentrations). Similarly, for studies of annual $PM_{2.5}$ exposures, most of the health events occur at estimated exposures that reflect annual average $PM_{2.5}$ concentrations around the middle of the air quality distributions examined. In both cases, epidemiologic studies provide the strongest support for reported health effect associations for this middle portion of the $PM_{2.5}$ air quality distribution, which corresponds to the bulk of the underlying data, rather than the extreme upper or lower ends of the distribution. Consistent with this, as noted in the PA (U.S. EPA, 2022b, section 3.3.1.1), several epidemiologic studies report that associations persist in analyses that exclude the upper portions of the distributions of estimated $PM_{2.5}$ exposures, indicating that ''peak'' $PM_{2.5}$ exposures are not disproportionately responsible for reported health effect associations.

Thus, in considering $PM_{2.5}$ air quality data from epidemiologic studies, consistent with approaches in the 2012 and 2020 reviews (78 FR 3161, January 15, 2013; U.S. EPA, 2011, sections 2.1.3 and 2.3.4.1; 85 FR 82716–82717, December 18, 2020; U.S. EPA, 2020a, sections 3.1.2 and 3.2.3), the PA evaluates study-reported means (or medians) of daily and annual average $PM_{2.5}$ concentrations as indicators for the middle portions of the air quality distributions, over which studies generally provide strong support for reported associations and for which confidence in the magnitude and significance of associations observed in the epidemiologic studies is greatest (78 FR 3101, January 15, 2013). In addition to the overall study means, the PA also focuses on concentrations somewhat below the means (*e.g.,* 25th and 10th percentiles), when such information is available from the epidemiologic studies, which again is consistent with approaches used in previous reviews. In so doing, the PA notes, as in previous reviews, that a relatively small portion of the health events are observed in the lower part of the air quality distribution and confidence in the magnitude and significance of the associations begins to decrease in the lower part of the air quality distribution. Furthermore, consistent with past reviews, there is no single percentile value within a given air quality distribution that is most appropriate or ''correct'' to use to characterize where our confidence in associations becomes appreciably lower. However, and as detailed further in the PA, the range from the 25th to 10th percentiles is a reasonable range to consider as a region where there is appreciably less confidence in the associations observed in epidemiologic studies compared to the means (U.S. EPA, 2022b, p. 3–69).[65]

In evaluating the overall study-reported means, and concentrations somewhat below the means from epidemiologic studies, the PA focuses on the form, averaging time and level of the current primary annual $PM_{2.5}$ standard. Consistent with the approaches used in the 2012 and 2020 reviews (78 FR 3161–3162, January 15, 2013; 85 FR 82716–82717, December 18, 2020), the annual standard has been utilized as the primary means of providing public health protection against the bulk of the distribution of short- and long-term $PM_{2.5}$ exposures. Thus, the evaluation of the study-reported mean concentrations from key epidemiologic studies lends itself best to evaluating the adequacy of the annual $PM_{2.5}$ standard (rather than the 24-hour standard with its 98th percentile form). This is true for the study-reported means from both long-term and short-term exposure epidemiologic studies, recognizing that the overall mean $PM_{2.5}$ concentrations reported in studies of short-term (24-hour) exposures reflect averages across the study population and over the years of the study. Thus, mean concentrations from short-term exposure studies reflect long-term averages of 24-hour $PM_{2.5}$ exposure estimates. In this manner, the examination of study-reported means in key epidemiologic studies in the PA aims to evaluate the protection provided by the annual $PM_{2.5}$ standard against the exposures where confidence is greatest for associations with mortality and morbidity. In addition, the protection provided by the annual standard is evaluated in conjunction with that provided by the 24-hour standard, with its 98th percentile form, which aims to provide supplemental protection against the short-term exposures to peak $PM_{2.5}$ concentrations that can occur in areas with strong contributions from local or seasonal sources, even when overall ambient mean $PM_{2.5}$ concentrations in an area remain relatively low.

In focusing on the annual standard, and in evaluating the range of study-reported exposure concentrations for which the strongest support for adverse health effects exists, the PA examines exposure concentrations in key epidemiologic studies to determine whether the current primary annual $PM_{2.5}$ standard provides adequate protection against these exposure concentrations. This means, as in past reviews, application of a decision framework based on assessing means reported in key epidemiologic studies must also consider how the study means were computed and how these values compare to the annual standard metric (including the level, averaging time and form) and the use of the monitor with the highest $PM_{2.5}$ design value in an area for compliance. In the 2012 review, it was recognized that the key epidemiologic studies computed the study mean using an average across monitor-based $PM_{2.5}$ concentrations. As such, the Agency noted that this decision framework applied an approach of using maximum monitor concentrations to determine compliance with the standard, while selecting the standard level based on consideration of composite monitor concentrations. Further, the Agency included analyses

[65] As detailed in the 2011 PA, we note the interrelatedness of the distributional statistics and a range of one standard deviation around the mean which represents approximately 68% of normally distributed data, and in that one standard deviation below the mean falls between the 25th and 10th percentiles (U.S. EPA, 2011, p. 2–71; U.S. EPA, 2005, p. 5–22).

(Hassett-Sipple et al., 2010; Frank, 2012) that examined the differences in these two metrics (*i.e.,* maximum monitor concentrations and composite monitor concentrations) across the U.S. and in areas included in the key epidemiologic studies and found that the maximum design value in an area was generally higher than the monitor average across that area, with that amount varying based on location and concentration. This information was taken into account in the Administrator's final decision in selecting a level for the primary annual $PM_{2.5}$ standard the 2012 review and discussed more specifically in her considerations on adequate margin of safety.

Consistent with the approach taken in 2012, in assessing how the overall mean (or median) $PM_{2.5}$ concentrations reported in key epidemiologic studies can inform conclusions on the annual primary $PM_{2.5}$ standard, the PA notes that the relationship between mean $PM_{2.5}$ concentrations and the area design value continues to be an important consideration in evaluating the adequacy of the current or potential alternative annual $PM_{2.5}$ standard levels in this reconsideration. In a given area, the area design value is based on the monitor in an area with the highest $PM_{2.5}$ concentrations and is used to determine compliance with the standard. The highest $PM_{2.5}$ concentrations spatially distributed in the area would generally occur at or near the area design value monitor and the distribution of $PM_{2.5}$ concentrations would generally be lower in other locations and at monitors in that area. As such, when an area is meeting a specific annual standard level, the annual average exposures in that area are expected to be at concentrations lower than that level and the average of the annual average exposures across that area are expected (*i.e.,* a metric similar to the study-reported mean values) to be lower than that level.[66]

Another important consideration is that there are a substantial number of different types of epidemiologic studies available since the 2012 review, included in both the 2019 ISA and the ISA Supplement, that make understanding the relationship between the mean $PM_{2.5}$ concentrations and the area design value even more important (U.S. EPA, 2019a; U.S. EPA, 2022a). While the key epidemiologic studies in the 2012 review were all monitor-based studies, the newer studies include hybrid modeling approaches, which have emerged in the epidemiologic literature as an alternative to approaches that only use ground-based monitors to estimate exposure. As assessed in the 2019 ISA and ISA Supplement, a substantial number of epidemiologic studies used hybrid model-based methods in evaluating associations between $PM_{2.5}$ exposure and health effects (U.S. EPA, 2019a; U.S. EPA, 2022a). Hybrid model-based studies employ various fusion techniques that combine ground-based monitored data with air quality modeled estimates and/or information from satellites to estimate $PM_{2.5}$ exposures.[67] Additionally, hybrid modeling approaches tend to broaden the areas captured in the exposure assessment, and in so doing, tend to report lower mean $PM_{2.5}$ concentrations than monitor-based approaches because they include more suburban and rural areas where concentrations are lower. While these studies provide a broader estimation of $PM_{2.5}$ exposures compared to monitor-based studies (*i.e.,* $PM_{2.5}$ concentrations are estimated in areas without monitors), the hybrid modeling approaches result in study-reported means that are more difficult to relate to the annual standard metric and to the use of maximum monitor design values to assess compliance. In addition, to further complicate the comparison, when looking across these studies, variations in how exposure is estimated are present between such studies, which affects how the study means are calculated. Two important variations across studies include: (1) variability in spatial scale used (*i.e.,* averages computed across the nation (or large portions of the country) versus a focus on only CBSAs) and (2) variability in exposure assignment methods (*i.e.,* averaging across all grid cells [non-population weighting], averaging across a scaled-up area like a ZIP code [aspects of population weighting applied], and/or applying population weighting). To elaborate further on the variability in exposure assignment methods, studies that use hybrid modeling approaches can estimate $PM_{2.5}$ concentrations at different spatial resolutions, including at 1 km x 1 km grid cells, at 12 km x 12 km grid cells, or at the census level tract. Mean reported $PM_{2.5}$ concentrations can then be estimated either by averaging up to a larger spatial resolution that corresponds to the spatial resolution for which health data exists (*e.g.,* ZIP code level) and therefore apply aspects of population weighting. These values are then averaged across all study locations at the larger spatial resolution (*e.g.,* averaged across all ZIP codes in the study) over the study period, resulting in the study-reported mean 24-hour average or average annual $PM_{2.5}$ concentration. Other studies that use hybrid modeling methods to estimate $PM_{2.5}$ concentrations may use each grid cell to report the study-reported mean 24-hour average or average annual $PM_{2.5}$ concentration. As such, these types of studies do not apply population weighting in their mean concentrations. In studies that use each grid cell to report a mean $PM_{2.5}$ concentration and do not apply aspects of population weighting, the study mean may not reflect the exposure concentrations used in the epidemiologic study to assess the reported association. The impact of the differences in methods is an important consideration when comparing mean concentrations across studies (U.S. EPA, 2022b, section 3.3.3.2.1). Thus, the PA also considers the methods used to estimate $PM_{2.5}$ concentrations, which vary from traditional methods using monitoring data from ground-based monitors[68] to those using more complex hybrid modeling approaches.[69]

Given the emergence of the hybrid model-based epidemiologic studies since the 2012 review, the PA explores the relationship between the approaches used in these studies to estimate $PM_{2.5}$ concentrations and the impact that the different methods have on the study-reported mean $PM_{2.5}$ concentrations. The PA further seeks to understand how the approaches and resulting mean concentrations compare across studies, as well as what the resulting mean values represent relative to the annual standard. In so doing, the PA presents analyses that compare the area annual design values, composite monitor $PM_{2.5}$

[66] In setting a standard level that would require the design value monitor to meet a level equal to the study-reported mean $PM_{2.5}$ concentrations would generally result in lower concentrations of $PM_{2.5}$ across the entire area, such that even those people living near an area design value monitor (where PM concentrations are generally highest) will be exposed to $PM_{2.5}$ concentrations below the air quality conditions reported in the epidemiologic studies.

[67] More detailed information about hybrid model methods and performance is described in section 2.3.3.2 of the PA (U.S. EPA, 2022b).

[68] In those studies that use ground-based monitors alone to estimate long- or short-term $PM_{2.5}$ concentrations, approaches include: (1) $PM_{2.5}$ concentrations from a single monitor within a city/county; (2) average of $PM_{2.5}$ concentrations across all monitors within a city/county or other defined study area (*e.g.,* CBSA); or (3) population-weighted averages of exposures. Once the study location average $PM_{2.5}$ concentration is calculated, the study-reported long-term average is derived by averaging daily/annual $PM_{2.5}$ concentrations across all study locations over the entire study period.

[69] Detailed information on the methods by which mean $PM_{2.5}$ concentrations are calculated in key monitor- and hybrid model-based U.S. and Canadian epidemiologic studies are presented in Tables 3–6 through 3–9 in the PA (U.S. EPA, 2022b).

concentrations, and mean concentrations from two hybrid modeling approaches, including evaluation of the means when population weighting is applied and when population weighting is not applied (U.S. EPA, 2022b, section 2.3.3.1). In the air quality analyses comparing composite monitored $PM_{2.5}$ concentrations with annual $PM_{2.5}$ design values in U.S. CBSAs, maximum annual $PM_{2.5}$ design values were approximately 10% to 20% higher than annual average composite monitor concentrations (*i.e.,* averaged across multiple monitors in the same CBSA) (sections I.D.5.a above and U.S. EPA, 2022b, section 2.3.3.1, Figure 2–28 and Table 2–3). The difference between the maximum annual design value and average concentration in an area can be smaller or larger than this range (10–20%), depending on a variety of factors such as the number of monitors, monitor siting characteristics, the distribution of ambient $PM_{2.5}$ concentrations, and how the average concentrations are calculated (*i.e.,* averaged across monitors versus across modeled grid cells). Results of this analysis suggest that there will be a distribution of concentrations and the maximum annual average monitored concentration in an area (at the design value monitor, used for compliance with the standard), will generally be 10–20% higher than the average $PM_{2.5}$ concentration across the other monitors in the area. Thus, in considering how the annual standard levels would relate to the study-reported means from key monitor-based epidemiologic studies, the PA generally concludes that an annual standard level that is no more than 10–20% higher than monitor-based study-reported mean $PM_{2.5}$ concentrations would generally maintain air quality exposures to be below those associated with the study-reported mean $PM_{2.5}$ concentrations, exposures for which the strongest support for adverse health effects occurring is available.

The PA also evaluates data from two hybrid modeling approaches (DI2019 and HA2020) that have been used in several recent epidemiologic studies (U.S. EPA, 2022b, section 2.3.3.2.4).[70] The analysis shows that the means vary when $PM_{2.5}$ concentrations are estimated in urban areas only (CBSAs) versus when the averages were calculated with all or most grid cells nationwide, likely because areas included outside of CBSAs tend to be more rural and have lower estimated $PM_{2.5}$ concentrations. The PA recognizes the importance of this variability in the means since the study areas included in the calculation of the mean, and more specifically whether a study is focused on nationwide, regional, or urban areas, will affect the calculation of the study mean based on how many rural areas are included with lower estimated $PM_{2.5}$ concentrations. While the determination of what spatial scale to use to estimate $PM_{2.5}$ concentrations does not inherently affect the quality of the epidemiologic study, the spatial scale can influence the calculated long-term mean concentration across the study area and period. The results of the analysis show that, regardless of the hybrid modeling approach assessed, the annual average $PM_{2.5}$ concentrations in CBSA-only analyses are 4–8% higher than for nationwide analyses, likely as a result of higher $PM_{2.5}$ concentrations in more densely populated areas, and exclusion of more rural areas (U.S. EPA, 2022b, Table 2–4). When evaluating comparisons between surfaces that estimate exposure using population weighting versus surfaces that do not calculate means using population weighting, surfaces that calculate long-term mean $PM_{2.5}$ concentrations with population-weighted averages have higher average annual $PM_{2.5}$ concentrations, compared to annual $PM_{2.5}$ concentrations in analyses that do not apply population weighting.[71] Analyses show that average maximum annual design values are 40 to 50% higher when compared to annual average $PM_{2.5}$ concentrations estimated without population weighting and are 15% to 18% higher when compared to average annual $PM_{2.5}$ concentrations with population weighting applied (similar to the differences observed for the composite monitor comparison values for the monitor-based epidemiologic studies) (U.S. EPA, 2022b, section 2.3.3.2.4). Given these results, it is worth noting that for the studies using the hybrid modeling approaches, the choice of methodology employed in calculating the study-reported means (*i.e.,* using population weighting or not), and not a difference in estimates of exposure in the study itself, can produce substantially different study-reported mean values, with the approach that does not utilize population weighting producing a much lower value.

Based on these results, and similar to conclusions for the monitor-based studies, the PA generally concludes that study-reported mean concentrations in the studies that employ hybrid modeling approaches and population-weight the mean are associated with air quality conditions that would be achieved by meeting annual standard levels that are 15–18% higher than study-reported means. Therefore, an annual standard level that is no more than 15–18% higher than the study-reported means would generally maintain air quality exposures to be below those associated with the study-reported mean $PM_{2.5}$ concentrations, exposures for which we have the strongest support for adverse health effects occurring. For the studies that utilize hybrid modeling approaches but do not incorporate population weighting in calculating the mean, the annual design values associated with these air quality conditions are expected to be much higher (*i.e.,* 40–50% higher) and this larger difference makes it more difficult to consider how these studies can be used to determine the adequacy of the protection afforded by the current or potential alternative annual standards. Additionally, as noted above in studies that utilize hybrid modeling approaches and that do not incorporate population weighting in calculating the mean (*e.g.,* use each grid cell to calculate a mean $PM_{2.5}$ concentration), the study mean does not reflect the exposure concentrations used in the epidemiologic study to assess the reported association.

The PA notes that while these analyses can be useful to informing the understanding of the relationship between study-reported mean concentrations and the level of the annual standard, some limitations of this assessment of the information must be recognized (U.S. EPA, 2022a, section 3.3.3.2.1). First, the comparisons used only two hybrid modeling approaches. Although the two hybrid modeling surfaces have been used in a number of recent epidemiologic studies, they represent just two of the many hybrid modeling approaches that have been used in epidemiologic studies to estimate $PM_{2.5}$ concentrations. These methods continue to evolve over time, with further development and improvement to prediction models that estimate $PM_{2.5}$ concentrations in epidemiologic studies. In addition to differences in hybrid modeling approaches, epidemiologic studies also use different methods to assign a population-weighted average $PM_{2.5}$

[70] More details on the evaluation of the two hybrid modeling approaches is provided in section 2.3.3.2.4 of the PA (U.S. EPA, 2022b).

[71] The annual $PM_{2.5}$ concentrations for the population-weighted averages ranged from 8.2–10.2 $\mu g/m^3$, while those that do not apply population weighting ranged from 7.0–8.6 $\mu g/m^3$. Average maximum annual design values ranged from 9.5 to 11.7 $\mu g/m^3$.

concentration to their study population, and the assessment presented in the PA does not evaluate all of the potential methods that could be used.

Additionally, while some of these epidemiologic studies also provide information on the broader distributions of exposure estimates and/or health events and the $PM_{2.5}$ concentrations corresponding to the lower percentiles of those data (*e.g.,* 25th and/or 10th), the air quality analysis in the PA focuses on mean $PM_{2.5}$ concentrations and a similar comparison for these lower percentiles was not assessed. Therefore, any direct comparison of study-reported $PM_{2.5}$ concentrations corresponding to lower percentiles and annual design values is more uncertain than such comparisons with the mean. Finally, air quality analysis presented in the PA and detailed above in section I.D.5 included two hybrid modeling-based approaches that used U.S.-based air quality information for estimating $PM_{2.5}$ concentrations. As such, the analyses are most relevant to interpreting the study-reported mean concentrations from U.S. epidemiologic studies and do not provide additional information about how the mean exposures concentrations reported in epidemiologic studies in other countries would compare to annual design values observed in the U.S. In addition, while information from Canadian studies can be useful in assessing the adequacy of the annual standard, differences in the exposure environments and population characteristics between the U.S. and other countries can affect the study-reported mean value and its relationship with the annual standard level. Sources and pollutant mixtures, as well as $PM_{2.5}$ concentration gradients, may be different between countries, and the exposure environments in other countries may differ from those observed in the U.S. Furthermore, differences in population characteristics and population densities can also make it challenging to directly compare studies from countries outside of the U.S. to a design value in the U.S.

As with the experimental studies discussed above, the PA focuses on epidemiologic studies assessed in the 2019 ISA and ISA Supplement that have the potential to be most informative in reaching decisions on the adequacy of the primary $PM_{2.5}$ standards. The PA focuses on epidemiologic studies that provide strong support for ''causal'' or ''likely to be causal'' relationships with $PM_{2.5}$ exposures in the 2019 ISA. Further, the PA also focuses on the health effect associations that are determined in the 2019 ISA and ISA Supplement to be consistent across studies, coherent with the broader body of evidence (*e.g.,* including animal and controlled human exposure studies), and robust to potential confounding by co-occurring pollutants and other factors.[72] In particular the PA considers the U.S. and Canadian epidemiologic studies to be more useful for reaching conclusions on the current standards than studies conducted in other countries, given that the results of the U.S. and Canadian studies are more directly applicable for quantitative considerations, whereas studies conducted in other countries reflect different populations, exposure characteristics, and air pollution mixtures. Additionally, epidemiologic studies outside of the U.S. and Canada generally reflect higher $PM_{2.5}$ concentrations in ambient air than are currently found in the U.S., and are less relevant to informing questions about adequacy of the current standards.[73] However, and as noted above, the PA also recognizes that while information from Canadian studies can be useful in assessing the adequacy of the annual standard, there are still important differences between the exposure environments in the U.S. and Canada and interpreting the data (*e.g.,* mean concentrations) from the Canadian studies in the context of a U.S.-based standard may present challenges in directly and quantitatively informing questions regarding the adequacy of the current or potential alternative the levels of the annual standard. Lastly, the PA emphasizes multicity/multistate studies that examine health effect associations, as such studies are more encompassing of the diverse atmospheric conditions and population demographics in the U.S. than studies that focus on a single city or state. Figures 3–4 through 3–7 in the PA summarize the study details for the key U.S. and Canadian epidemiologic studies (U.S. EPA, 2022b, section 3.3.3.2.1).[74]

The key epidemiologic studies identified in the PA indicate generally positive and statistically significant associations between estimated $PM_{2.5}$ exposures (short- or long-term) and mortality or morbidity across a range of ambient $PM_{2.5}$ concentrations (U.S. EPA, 2022b, section 3.3.3.2.1), report overall mean (or median) $PM_{2.5}$ concentrations, and include those for which the years of $PM_{2.5}$ air quality data used to estimate exposures overlap entirely with the years during which health events are reported.[75] Additionally, for studies that estimate $PM_{2.5}$ exposure using hybrid modeling approaches, the PA also considers the approach used to estimate $PM_{2.5}$ concentrations and the approach used to validate hybrid model predictions when determining those studies considered as key epidemiologic studies[76] and focuses on those studies that use recent methods based on surfaces with fused

[72] As described in the Preamble to the ISAs (U.S. EPA, 2015), ''the U.S. EPA emphasizes the importance of examining the pattern of results across various studies and does not focus solely on statistical significance or the magnitude of the direction of the association as criteria of study reliability. Statistical significance is influenced by a variety of factors including, but not limited to, the size of the study, exposure and outcome measurement error, and statistical model specifications. Statistical significance may be informative; however, it is just one of the means of evaluating confidence in the observed relationship and assessing the probability of chance as an explanation. Other indicators of reliability such as the consistency and coherence of a body of studies as well as other confirming data may be used to justify reliance on the results of a body of epidemiologic studies, even if results in individual studies lack statistical significance. Traditionally, statistical significance is used to a larger extent to evaluate the findings of controlled human exposure and animal toxicological studies. Understanding that statistical inferences may result in both false positives and false negatives, consideration is given to both trends in data and reproducibility of results. Thus, in drawing judgments regarding causality, the U.S. EPA emphasizes statistically significant findings from experimental studies, but does not limit its focus or consideration to statistically significant results in epidemiologic studies.''

[73] This emphasis on studies conducted in the U.S. or Canada is consistent with the approach in the 2012 and 2020 reviews of the PM NAAQS (U.S. EPA, 2011, section 2.1.3; U.S. EPA, 2020a, section 3.2.3.2.1) and with approaches taken in other NAAQS reviews. However, the importance of studies in the U.S., Canada, and other countries in informing an ISA's considerations of the weight of the evidence that informs causality determinations is recognized.

[74] The cohorts examined in the studies included in Figure 3–4 to Figure 3–7 of the PA include large numbers of individuals in the general population, and often also include those populations identified as at-risk (*i.e.,* children, older adults, minority populations, and individuals with pre-existing cardiovascular and respiratory disease).

[75] For some studies of long-term $PM_{2.5}$ exposures, exposure is estimated from air quality data corresponding to only part of the study period, often including only the later years of the health data, and are not likely to reflect the full ranges of ambient $PM_{2.5}$ concentrations that contributed to reported associations. While this approach can be reasonable in the context of an epidemiologic study that is evaluating health effect associations with long-term $PM_{2.5}$ exposures, under the assumption that spatial patterns in $PM_{2.5}$ concentrations are not appreciably different during time periods for which air quality information is not available (*e.g.,* Chen et al., 2016), the PA focuses on the distribution of ambient $PM_{2.5}$ concentrations that could have contributed to reported health outcomes. Therefore, the PA identifies studies as key epidemiologic studies when the years of air quality data and health data overlap in their entirety.

[76] Such studies are identified as those that use hybrid modeling approaches for which recent methods and models were used (*e.g.,* recent versions and configurations of the air quality models); studies that are fused with $PM_{2.5}$ data from national monitoring networks (*i.e.,* FRM/FEM data); and studies that reported a thorough model performance evaluation for core years of the study.

with monitored $PM_{2.5}$ concentration data (U.S. EPA, 2022b, section 3.3.3.2.1).

Figure 1 below (U.S. EPA, 2022b, Figure 3–8) highlights the overall mean (or median) $PM_{2.5}$ concentrations reported in key U.S. studies that use ground-based monitors alone to estimate long- or short-term $PM_{2.5}$ exposure.[77] For the small subset of studies with available information on the broader distributions of underlying data, Figure 1 below also identifies the study-period mean $PM_{2.5}$ concentrations corresponding to the 25th and 10th percentiles of health events[78] (see Appendix B, Section B.2 of the PA for more information). Figure 2 (U.S. EPA, 2022a, Figure 3–14) presents overall means of predicted $PM_{2.5}$ concentrations for key U.S. model-based epidemiologic studies that apply aspects of population-weighting, and the concentrations corresponding to the 25th and 10th percentiles of estimated exposures or health events[79] when available (see Appendix B, section B.3 for additional information).[80]

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[77] Canadian studies that use ground-based monitors estimate long- or short-term $PM_{2.5}$ exposures are found in Figure 3–9 of the PA, including concentrations corresponding to the 25th and 10th percentiles of estimated exposures or health events, when available (U.S. EPA, 2022b).

[78] That is, 25% of the total health events occurred in study locations with mean $PM_{2.5}$ concentrations (*i.e.,* averaged over the study period) below the 25th percentiles identified in Figure 3–8 of the PA and 10% of the total health events occurred in study locations with mean $PM_{2.5}$ concentrations below the 10th percentiles identified.

[79] For most studies in Figure 2 below (Figure 3–14 in the PA), 25th percentiles of exposure estimates are presented. The exception is Di et al. (2017b), for which Figure 2 (U.S. EPA, 2022b, Figure 3–14) presents the short-term $PM_{2.5}$ exposure estimates corresponding to the 25th and 10th percentiles of deaths in the study population (*i.e.,* 25% and 10% of deaths occurred at concentrations below these concentrations). In addition, the authors of Di et al. (2017b) provided population-weighted exposure values. The 10th and 25th percentiles of these population-weighted exposure estimates are 7.9 and 9.5 $\mu g/m^3$, respectively.

[80] Overall mean (or median) $PM_{2.5}$ concentrations reported in key Canadian studies that use model-based approaches to estimate long- or short-term $PM_{2.5}$ concentrations and the concentrations corresponding to the 25th and 10th percentiles of estimated exposures or health events, when available are found in Figure 3–9 of the PA (U.S. EPA, 2022b).

Figure 1 Monitor-based $PM_{2.5}$ concentrations in key U.S. epidemiologic studies. (Asterisks denote studies included in the ISA Supplement).

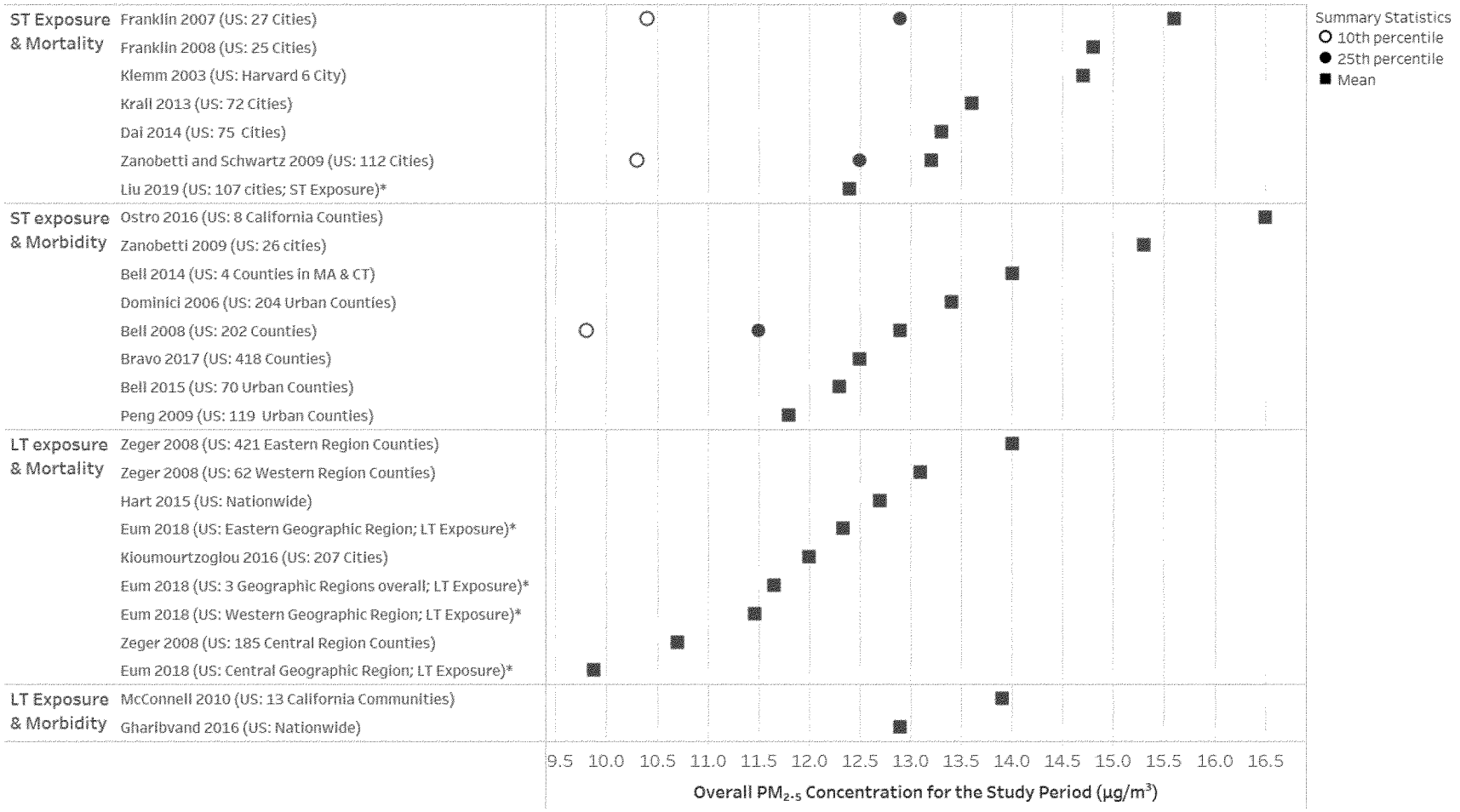
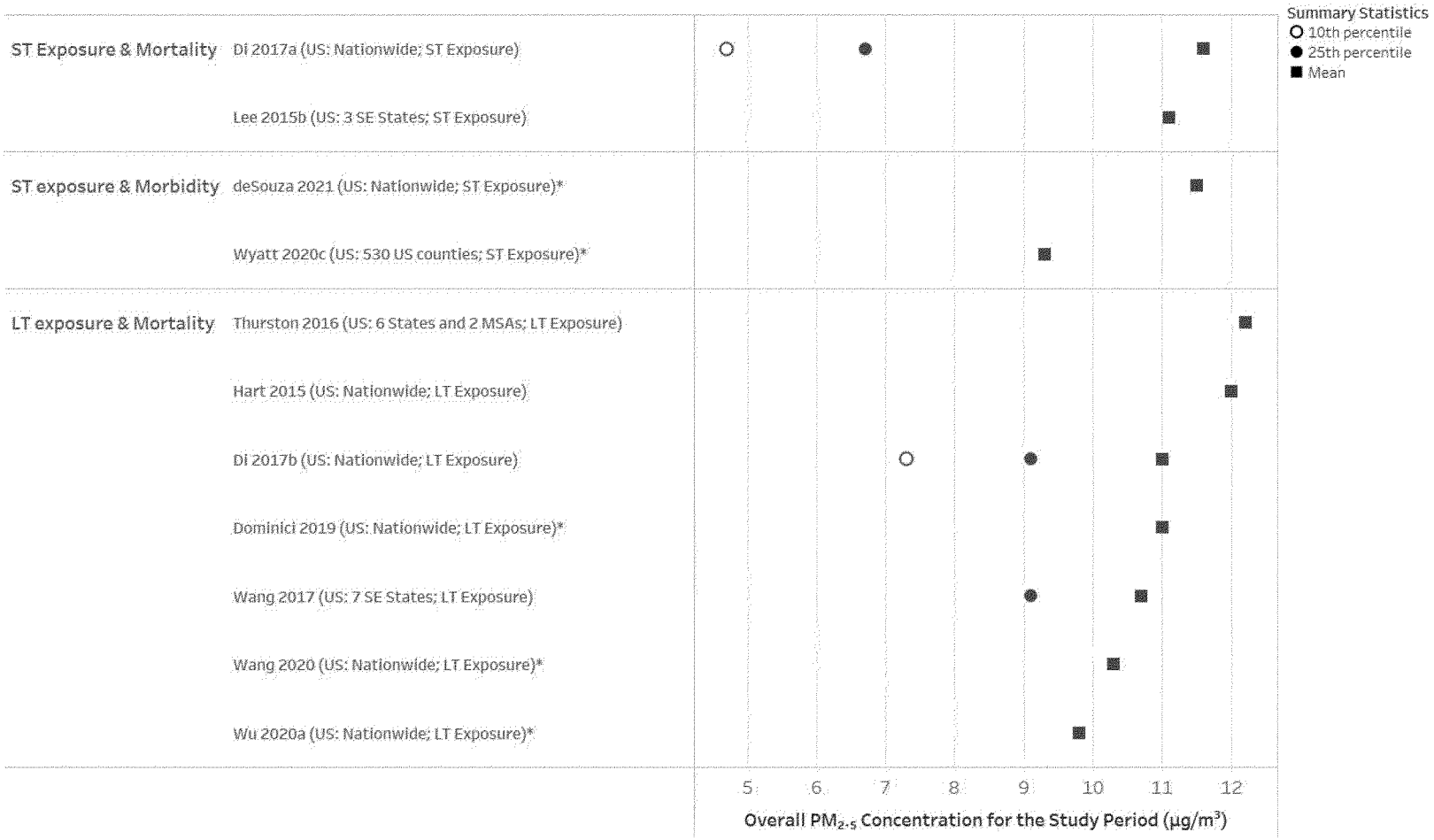


Figure 2. Hybrid model-predicted $PM_{2.5}$ concentrations in key U.S. epidemiologic studies that apply aspects of population-weighting. (Asterisks denote studies included in the ISA Supplement)



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Based on its evaluation of study-reported mean concentrations, the PA notes that key epidemiologic studies conducted in the U.S. or Canada report generally positive and statistically significant associations between estimated $PM_{2.5}$ exposures (short- or long-term) and mortality or morbidity across a wide range of ambient $PM_{2.5}$ concentrations (U.S. EPA, 2022b, section 3.3.3.2.1). The PA makes a number of observations with regard to the study-reported $PM_{2.5}$ concentrations in the key U.S. and Canadian epidemiologic studies.

The PA first considers the $PM_{2.5}$ concentrations from the key U.S. epidemiologic studies. For studies that use monitors to estimate $PM_{2.5}$ exposures, overall mean $PM_{2.5}$ concentrations range between 9.9 μg/m³ [81] to 16.5 μg/m³ (Figure 1 and U.S. EPA, 2022b, Figure 3–8). For key U.S. epidemiologic studies that use hybrid model-predicted exposures and apply aspects of population-weighting, mean $PM_{2.5}$ concentrations range from 9.3 μg/m³ to just above 12.2 μg/m³ (Figure 2 and U.S. EPA, 2022b, Figure 3–14). In studies that average up from the grid cell level to the ZIP code, postal code, or census tract level, mean $PM_{2.5}$ concentrations range from 9.8 μg/m³ to 12.2 μg/m³. In the one study that population-weighted the grid cell prior to averaging up to the ZIP code or census tract level report mean $PM_{2.5}$ concentrations of 9.3 μg/m³. Based on air quality analyses noted above, these hybrid modelled epidemiologic studies are expected to report means similar to those from monitor-based studies.

Other key U.S. epidemiologic studies that use hybrid modeling approaches estimate mean $PM_{2.5}$ exposure by averaging from the grid cell spatial resolution across the entire study area, whether that be the nation or a region of the country. These studies do not weight the estimated exposure concentrations based on population density or location of health events. Additionally, the study mean reported in these studies may not reflect the exposure concentrations used in the epidemiologic study to assess the reported association. Because of this, these reported mean concentrations are the most different (and much lower) than the means reported in monitor-based studies. Due to the methodology employed in calculating the study-reported means and not necessarily a difference in estimates of exposure, these epidemiologic studies are expected to report some of the lowest mean values. For these studies, the reported mean $PM_{2.5}$ concentrations range from 8.1 μg/m³ to 11.9 μg/m³ (U.S. EPA, 2022b, Figure 3–14). As noted above, for studies that utilize hybrid modeling approaches but do not incorporate population weighting in calculating the mean, the associated annual design values would be expected to be much higher (*i.e.,* 40–50% higher) than the study-reported means. This larger difference between design values and study-reported mean concentrations makes it more difficult to consider how these studies can be used to determine the adequacy of the protection afforded by the current or potential alternative annual standards (U.S. EPA, 2022b, section 3.3.3.2.1).

In addition to the mean $PM_{2.5}$ concentrations, a subset of the key U.S. epidemiologic studies report $PM_{2.5}$ concentrations corresponding to the 25th and 10th percentiles of health data or exposure estimates to provide insight into the concentrations that comprise the lower quartiles of the air quality distributions. In studies that use monitors to estimate $PM_{2.5}$ exposures, 25th percentiles of health events correspond to $PM_{2.5}$ concentrations (*i.e.,* averaged over the study period for each study city) at or above 11.5 μg/m³ and 10th percentiles of health events correspond to $PM_{2.5}$ concentrations at or above 9.8 μg/m³ (*i.e.,* 25% and 10% of health events, respectively, occur in study locations with $PM_{2.5}$ concentrations below these values) (Figure 1 and U.S. EPA, 2022b, Figure 3–8). Of the key U.S. epidemiologic studies that use hybrid modeling approaches and population-weighting to estimate long-term $PM_{2.5}$ exposures, the ambient $PM_{2.5}$ concentrations corresponding to 25th percentiles of estimated exposures are 9.1 μg/m³ (Figure 2 and U.S. EPA, 2022b, Figure 3–14). In key U.S. epidemiologic studies that use hybrid modeling approaches and apply population-weighting to estimate short-term $PM_{2.5}$ exposures, the ambient concentrations corresponding to 25th percentiles of estimated exposures, or health events, are 6.7 μg/m³ (Figure 2 and U.S. EPA, 2022b, Figure 3–14). In key U.S. epidemiologic studies that use hybrid modeling approaches and do not apply population-weighting to estimate $PM_{2.5}$ exposures, the ambient concentrations corresponding to 25th percentiles of estimated exposures, or health events, range from 4.6 to 9.2 μg/m³ (U.S. EPA, 2022b, Figure 3–14).[82] In the key epidemiologic studies that apply hybrid modeling approaches with population-weighting and with information available on the 10th percentile of health events, the ambient $PM_{2.5}$ concentration corresponding to that 10th percentile range from 4.7 μg/m³ to 7.3 μg/m³ (Figure 2 and U.S. EPA, 2022b, Figure 3–14).

The PA next considers the $PM_{2.5}$ concentrations from the key Canadian epidemiologic studies. Generally, the study-reported mean concentrations in Canadian studies are lower than those reported in the U.S. studies for both monitor-based and hybrid model methods. For the majority of key Canadian epidemiologic studies that use monitor-based exposure, mean $PM_{2.5}$ concentrations generally ranged from 7.0 μg/m³ to 9.0 μg/m³ (U.S. EPA, 2022b, Figure 3–9). For these studies, 25th percentiles of health events correspond to $PM_{2.5}$ concentrations at or above 6.5 μg/m³ and 10th percentiles of health events correspond to $PM_{2.5}$ concentrations at or above 6.4 μg/m³ (U.S. EPA, 2022b, Figure 3–9). For the key Canadian epidemiologic studies that use hybrid model-predicted exposure, the mean $PM_{2.5}$ concentrations are generally lower than in U.S. model-based studies (U.S. EPA, 2022b, Figure 3–10), ranging from approximately 6.0 μg/m³ to just below 10.0 μg/m³ (U.S. EPA, 2022b, Figure 3–11). The majority of the key Canadian epidemiologic studies that used hybrid modeling were completed at the nationwide scale, while four studies were completed at the regional geographic spatial scale. In addition, all the key Canadian epidemiologic studies apply aspects of population weighting, where all grid cells within a postal code are averaged, individuals are assigned exposure at the postal code resolution, and study mean $PM_{2.5}$ concentrations are based on the average of individual exposures. The majority of studies estimating exposure nationwide range between just below 6.0 μg/m³ to 8.0 μg/m³ (U.S. EPA, 2022b, Figure 3–11). One study by Erickson et al. (2020) presents an analysis related immigrant status and length of residence in Canada versus non-immigrant populations, which accounts for the four highest mean $PM_{2.5}$ concentrations which range between 9.0 μg/m³ and 10.0 μg/m³ (U.S. EPA, 2022b, Figure 3–11). The four studies that estimate exposure at the regional scale

[81] This is generally consistent with, but slightly below, the lowest study-reported mean $PM_{2.5}$ concentration from monitor-based studies available in the 2020 PA, which was 10.7 μg/m³ (U.S. EPA, 2020a, Figure 3–7).

[82] As noted above, in this study (Shi et al., 2016), the authors report that most deaths occurred at or above the 75th percentile of annual exposure estimates (*i.e.,* 10 μg/m³). The short-term exposure estimates accounting for most deaths are not presented in the published study.

report mean $PM_{2.5}$ concentrations that range from 7.8 μg/m³ to 9.8 μg/m³ (U.S. EPA, 2022b, Figure 3–11). Three key Canadian epidemiologic studies report information on the 25th percentile of health events. In these studies, the ambient $PM_{2.5}$ concentration corresponding to the 25th percentile is approximately 8.0 μg/m³ in two studies, and 4.3 μg/m³ in a third study (U.S. EPA, 2022b, Figure 3–11).

In addition to the expanded body of evidence from the key U.S. epidemiologic studies discussed above, there are also a subset of epidemiologic studies that have emerged that further inform an understanding of the relationship between $PM_{2.5}$ exposure and health effects, including studies with the highest exposures excluded (restricted analyses), epidemiologic studies that employed statistical approaches that attempt to more extensively account for confounders and are more robust to model misspecification (*i.e.,* used alternative methods for confounder control),[83] and accountability studies (U.S. EPA, 2019a, U.S. EPA, 2021a, U.S. EPA, 2022b).

Restricted analyses are studies that examine health effect associations in analyses with the highest exposures excluded, restricting analyses to daily exposures less than the 24-hour primary $PM_{2.5}$ standard and annual exposures less than the annual $PM_{2.5}$ standard. The PA presents a summary of restricted analyses evaluated in the 2019 ISA and ISA Supplement (U.S. EPA, 2022b, Table 3–10). The restricted analyses can be informative in assessing the nature of the association between long-term exposures (*e.g.,* annual average concentrations <12.0 μg/m³) or short-term exposures (*e.g.,* daily concentrations <35 μg/m³) when looking only at exposures to lower concentrations, including whether the association persists in such restricted analyses compared to the same analyses for all exposures, as well as whether the association is stronger, in terms of magnitude and precision, than when completing the same analysis for all exposures. While these studies are useful in supporting the confidence and strength of associations at lower concentrations, these studies also have inherent uncertainties and limitations, including uncertainty in how studies exclude concentrations (*e.g.,* are they excluded at the modeled grid cell level, the ZIP code level) and in how concentrations in studies that restrict air quality data relate to design values for the annual and 24-hour standards. Further, these studies often do not report descriptive statistics (*e.g.,* mean $PM_{2.5}$ concentrations, or concentrations at other percentiles) that allow for additional consideration of this information. As such, while these studies can provide additional supporting evidence for associations at lower concentrations, the PA notes that there are also limitations in how to interpret these studies when evaluating the adequacy of the current or potential alternative standards. Restricted analyses provide additional information on the nature of the association between long- or short-term exposures when analyses are restricted to lower $PM_{2.5}$ concentrations. Further, these studies indicate that effect estimates are generally greater in magnitude in the restricted analyses for long- and short-term $PM_{2.5}$ exposure compared to the main analyses.

In two U.S. studies that report mean $PM_{2.5}$ concentrations in restricted analyses and that estimate effects associated with long-term exposure to $PM_{2.5}$, the effect estimates are greater in the restricted analyses than in the main analyses. Di et al. (2017a) and Dominici et al. (2019) report positive and statistically significant associations in analyses restricted to concentrations less than 12.0 μg/m³ for all-cause mortality and effect estimates are greater in the restricted analyses than effect estimates reported in main analyses. In addition, both studies report mean $PM_{2.5}$ concentrations of 9.6 μg/m³. While none of the U.S. studies of short-term exposure present mean $PM_{2.5}$ concentrations for the restricted analyses, these studies generally have mean 24-hour average $PM_{2.5}$ concentrations in the main analyses below 12.0 μg/m³, and report increases in the effect estimates in the restricted analyses compared to the main analyses. Additionally, in the one Canadian study of long-term $PM_{2.5}$ exposure, Zhang et al. (2021) conducted analyses where annual $PM_{2.5}$ concentrations were restricted to concentrations below 10.0 μg/m³ and 8.8 μg/m³, which presumably have lower mean concentrations than the mean of 7.8 μg/m³ reported in the main analyses, though restricted analysis mean $PM_{2.5}$ concentrations are not reported. Effect estimates for non-accidental mortality are greater in analyses restricted to $PM_{2.5}$ concentrations less than 10.0 μg/m³, but less in analyses restricted to <8.8 μg/m³.

The second type of studies that have recently emerged and further inform the consideration of the relationship between $PM_{2.5}$ exposure and health effects in the PA are those that employ alternative methods for confounder control. Alternative methods for confounder control seek to mimic randomized experiments through the use of study design and statistical methods to more extensively account for confounders and are more robust to model misspecification. The PA presents a summary of the studies that employ alternative methods for confounder control, and employ a variety of statistical methods, which are evaluated in the 2019 ISA and ISA Supplement (U.S. EPA, 2022b, Table 3–11). These studies reported consistent results among large study populations across the U.S. and can further inform the relationship between long- and short-term $PM_{2.5}$ exposure and total mortality. Studies that employ alternative methods for confounder control to assess the association between long-term exposure to $PM_{2.5}$ and mortality provide additional support for the associations reported in the broader body of cohort studies that examined long-term $PM_{2.5}$ exposure and mortality.

Lastly, there is a subset of epidemiologic studies that assess whether long-term reductions in ambient $PM_{2.5}$ concentrations result in corresponding reductions in health outcomes. These include studies that evaluate the potential for improvements in public health, including reductions in mortality rates, increases in life expectancy, and reductions in respiratory disease as ambient $PM_{2.5}$ concentrations have declined over time. Some of these studies, accountability analyses, provide insight on whether the implementation of environmental policies or air quality interventions result in changes/reductions in air pollution concentrations and the corresponding effect on health outcomes.[84] The PA presents a summary of these studies, which are assessed in the 2019 ISA and ISA Supplement (U.S. EPA, 2022b, Table 3–12). These studies lend support for the conclusion that improvements in air

[83] As noted in the ISA Supplement (U.S. EPA, 2022a, p. 1–3): ''In the peer-reviewed literature, these epidemiologic studies are often referred to as alternative methods for confounder control. For the purposes of this Supplement, this terminology is not used to prevent confusion with the main scientific conclusions (*i.e.,* the causality determinations) presented within an ISA. In addition, as is consistent with the weight-of-evidence framework used within ISAs and discussed in the Preamble to the Integrated Science Assessments, an individual study on its own cannot inform causality, but instead represents a piece of the overall body of evidence.''

[84] Given the nature of these studies, the majority tend to focus on time periods in the past during which ambient $PM_{2.5}$ concentrations were substantially higher than those measured more recently (*e.g.,* see U.S. EPA, 2022b, Figure 2–16).

quality are associated with improvements in public health.

More specifically, of the accountability studies that account for changes in $PM_{2.5}$ concentrations due to a policy or the implementation of an intervention to assess whether there was evidence of changes in associations with mortality or cardiovascular effects due to changes in annual $PM_{2.5}$ concentrations, Corrigan et al. (2018), Henneman et al. (2019b), and Sanders et al. (2020a) present analyses with starting concentrations (or concentrations prior to the policy or intervention) below 12.0 μg/m³. Henneman et al. (2019b) explored the changes in modeled $PM_{2.5}$ concentrations following the retirement of coal fired power plants in the U.S., and found that reductions from mean annual $PM_{2.5}$ concentrations of 10.0 μg/m³ in 2005 to mean annual $PM_{2.5}$ concentrations of 7.2 μg/m³ in 2012 from coal-fueled power plants resulted in corresponding reductions in the number of cardiovascular-related hospital admissions, including for all cardiovascular disease, acute MI, stroke, heart failure, and ischemic heart disease in those aged 65 and older. Corrigan et al. (2018) examined whether there was a change in the cardiovascular mortality rate before (2000–2004) and after (2005–2010) implementation of the first annual $PM_{2.5}$ NAAQS implementation based on mortality data from the National Center for Health Statistics and reported 1.10 (95% confidence interval (CI): 0.37, 1.82) fewer cardiovascular deaths per year per 100,000 people for each 1 μg/m³ reduction in annual $PM_{2.5}$ concentrations. When comparing whether counties met the annual $PM_{2.5}$ standard (attainment counties), there were 1.96 (95% CI: 0.77, 3.15) fewer cardiovascular deaths for each 1 μg/m³ reduction in annual $PM_{2.5}$ concentrations between the two periods for attainment counties, whereas for non-attainment counties (*e.g.,* counties that did not meet the annual $PM_{2.5}$ standard), there were 0.59 (95% CI: −0.54, 1.71) fewer cardiovascular deaths between the two periods. And lastly, Sanders et al. (2020a) examined whether policy actions (*i.e.,* the first annual $PM_{2.5}$ NAAQS implementation rule in 2005 for the 1997 annual $PM_{2.5}$ standard with a 3-year annual average of 15 μg/m³) reduced $PM_{2.5}$ concentrations and mortality rates in Medicare beneficiaries between 2000–2013. They report evidence of changes in associations with mortality (a decreased mortality rate of ~0.5 per 1,000 in attainment and non-attainment areas) due to changes in annual $PM_{2.5}$ concentrations in both attainment and non-attainment areas. Additionally, attainment areas had starting concentrations below 12.0 μg/m³ prior to implementation of the annual $PM_{2.5}$ NAAQS in 2005. In addition, following implementation of the annual $PM_{2.5}$ NAAQS, annual $PM_{2.5}$ concentrations decreased by 1.59 μg/m³ (95% CI: 1.39, 1.80) which corresponded to a reduction in mortality rates among individuals 65 years and older (0.93% [95% CI: 0.10%, 1.77%]) in non-attainment counties relative to attainment counties. In a life expectancy study, Bennett et al. (2019) reports increases in life expectancy in all but 14 counties (1325 of 1339 counties) that have exhibited reductions in $PM_{2.5}$ concentrations from 1999 to 2015. These studies provide support for improvements in public health following the implementation of policies, including in areas with $PM_{2.5}$ concentrations below the level of the current annual standard, as well as increases in life expectancy in areas with reductions in $PM_{2.5}$ concentrations.

4. Uncertainties in the Health Effects Evidence

The PA recognizes that there are a number of uncertainties and limitations associated with the available health effects evidence. Although the epidemiologic studies clearly demonstrate associations between long- and short-term $PM_{2.5}$ exposures and health outcomes, several uncertainties and limitations in the health effects evidence remain. Epidemiologic studies evaluating short-term $PM_{2.5}$ exposure and health effects have reported heterogeneity in associations between cities and geographic regions within the U.S. Heterogeneity in the associations observed across epidemiologic studies may be due in part to exposure error related to measurement-related issues, the use of central fixed-site monitors to represent population exposure to $PM_{2.5}$, and a limited understanding of factors including exposure error related to measurement-related issues, variability in $PM_{2.5}$ composition regionally, and factors that result in differential exposures (*e.g.,* topography, the built environment, housing characteristics, personal activity patterns). Heterogeneity is expected when the methods or the underlying distribution of covariates vary across studies (U.S. EPA, 2019a, p. 6–221). Studies assessed in the 2019 ISA and ISA Supplement have advanced the state of exposure science by presenting innovative methodologies to estimate PM exposure, detailing new and existing measurement and modeling methods, and further informing our understanding of the influence of exposure measurement error due to exposure estimation methods on the associations between $PM_{2.5}$ and health effects reported in epidemiologic studies (U.S. EPA, 2019a, section 1.2.2; U.S. EPA, 2022a). Data from $PM_{2.5}$ monitors continue to be commonly used in health studies as a surrogate for $PM_{2.5}$ exposure, and often provide a reasonable representation of exposures throughout a study area (U.S. EPA, 2019a, section 3.4.2.2; U.S. EPA, 2022a, section 3.2.2.2.2). However, an increasing number of studies employ hybrid modeling methods to estimate $PM_{2.5}$ exposure using data from several sources, often including satellites and models, in addition to ground-based monitors. These hybrid models typically have good cross-validation, especially for $PM_{2.5}$, and have the potential to reduce exposure measurement error and uncertainty in the health effect estimates from epidemiologic models of long-term exposure (U.S. EPA, 2019a, section 3.5; U.S. EPA, 2022a, section 2.3.3).

While studies using hybrid modeling methods have reduced exposure measurement error and uncertainty in the health effect estimates, these studies use a variety of approaches to estimate $PM_{2.5}$ concentrations and to assign exposure to assess the association between health outcomes and $PM_{2.5}$ exposure. This variability in methodology has inherent limitations and uncertainties, as described in more detail in section 2.3.3.1.5 of the PA, and the performance of the modeling approaches depends on the availability of monitoring data which varies by location. Factors that likely contribute to poorer model performance often coincide with relatively low ambient $PM_{2.5}$ concentrations, in areas where predicted exposures are at a greater distance to monitors, and under conditions where the reliability and availability of key datasets (*e.g.,* air quality modeling) are limited. Thus, uncertainty in hybrid model predictions becomes an increasingly important consideration as lower predicted concentrations are considered.

Regardless of whether a study uses monitoring data or a hybrid modeling approach when estimating $PM_{2.5}$ exposures, one key limitation that persists is associated with the interpretation of the study-reported mean $PM_{2.5}$ concentrations and how they compare to design values, the metric that describe the air quality status of a given area relative to the NAAQS.[85] As discussed above in

[85] For the annual $PM_{2.5}$ standard, design values are calculated as the annual arithmetic mean $PM_{2.5}$

section II.B.3.b, the overall mean $PM_{2.5}$ concentrations reported by key epidemiologic studies reflect averaging of short- or long-term $PM_{2.5}$ exposure estimates across location (*i.e.,* across multiple monitors or across modeled grid cells) and over time (*i.e.,* over several years). For monitor-based studies, the comparison is somewhat more straightforward than for studies that use hybrid modeling methods, as the monitors used to estimate exposure in the epidemiologic studies are generally the same monitors that are used to calculate design values for a given area. It is expected that areas meeting a $PM_{2.5}$ standard with a particular level would be expected to have average $PM_{2.5}$ concentrations (*i.e.,* averaged across space and over time in the area) somewhat below that standard level., but the difference between the maximum annual design value and average concentration in an area can be smaller or larger than analyses presented above in section I.D.5.a, likely depending on factors such as the number of monitors, monitor siting characteristics, and the distribution of ambient $PM_{2.5}$ concentrations. For studies that use hybrid modeling methods to estimate $PM_{2.5}$ concentrations, the comparison between study-reported mean $PM_{2.5}$ concentrations and design values is more complicated given the variability in the modeling methods, temporal scales (*i.e.,* daily versus annual), and spatial scales (*i.e.,* nationwide versus urban) across studies. Analyses above in section I.D.5.b and detailed more in the PA (U.S. EPA, 2022b, section 2.3.3.2.4) present a comparison between two hybrid modeling surfaces, which explored the impact of these factors on the resulting mean $PM_{2.5}$ concentrations and provided additional information about the relationship between mean concentrations from studies using hybrid modeling methods and design values. However, the results of those analyses only reflect two surfaces and two types of approaches, so uncertainty remains in understanding the relationship between estimated modeled $PM_{2.5}$ concentrations and design values more broadly across hybrid modeling studies. Moreover, this analysis was completed using two hybrid modeling methods that estimate $PM_{2.5}$ concentrations in the U.S., thus an additional uncertainty includes understanding the relationship between modeled $PM_{2.5}$ concentrations and design values reported in Canada.

In addition, where $PM_{2.5}$ and other pollutants (*e.g.,* ozone, nitrogen dioxide, and carbon monoxide) are correlated, it can be difficult to distinguish whether attenuation of effects in some studies results from copollutant confounding or collinearity with other pollutants in the ambient mixture (U.S. EPA, 2019a, section 1.5.1; U.S. EPA, 2022a, section 2.2.1). Studies evaluated in the 2019 ISA and ISA Supplement further examined the potential confounding effects of both gaseous and particulate copollutants on the relationship between long- and short-term $PM_{2.5}$ exposure and health effects. As noted in the Appendix (Table A–1) to the 2019 ISA (U.S. EPA, 2019a), copollutant models are not without their limitations, such as instances for which correlations are high between pollutants resulting in greater bias in results. However, the studies continue to provide evidence indicating that associations with $PM_{2.5}$ are relatively unchanged in copollutants models (U.S. EPA, 2019a, section 1.5.1; U.S. EPA, 2022a, section 2.2.1).

Another area of uncertainty is associated with other potential confounders, beyond copollutants. Some studies have expanded the examination of potential confounders to not only include copollutants, but also systematic evaluations of the potential impact of inadequate control from long-term temporal trends and weather (U.S. EPA, 2019a, section 11.1.5.1). Analyses examining these covariates further confirm that the relationship between $PM_{2.5}$ exposure and mortality is unlikely to be biased by these factors. Other studies have explored the use of alternative methods for confounder control to more extensively account for confounders and are more robust to model misspecification that can further inform the causality determination for long-term and short-term $PM_{2.5}$ and mortality and cardiovascular effects (U.S. EPA, 2019a, section 11.2.2.4; U.S. EPA, 2022a, sections 3.1.1.3, 3.1.2.3, 3.2.1.2, and 3.2.2.3). These studies indicate that bias from unmeasured confounders can occur in either direction, although controlling for these confounders did not result in the elimination of the association, but instead provided additional support for associations between long-term $PM_{2.5}$ exposure and mortality when accounting for additional confounders (U.S. EPA, 2022a, section 3.2.2.2.6).

Another important limitation associated with the evidence is that, while epidemiologic studies indicate associations between $PM_{2.5}$ and health effects, they do not identify particular $PM_{2.5}$ exposures that cause effects. Rather, health effects can occur over the entire distribution of ambient $PM_{2.5}$ concentrations evaluated, and epidemiologic studies conducted to date do not identify a population-level threshold below which it can be concluded with confidence that $PM_{2.5}$-related effects do not occur.

Overall, evidence assessed in the 2019 ISA and ISA Supplement continues to indicate a linear, no-threshold C–R relationship for $PM_{2.5}$ concentrations >8 $\mu g/m^3$. However, uncertainties remain about the shape of the C–R curve at $PM_{2.5}$ concentrations <8 $\mu g/m^3$, with some recent studies providing evidence for either a sublinear, linear, or supralinear relationship at these lower concentrations (U.S. EPA, 2019a, section 11.2.4; U.S. EPA, 2022a, section 2.2.3.2).

There are also a number of uncertainties and limitations associated with the experimental evidence (*i.e.,* controlled human exposure studies and animal toxicological studies). With respect to controlled human exposure studies, the PA recognizes that these studies include a small number of individuals compared to epidemiologic studies. Additionally, these studies tend to include generally healthy adult individuals, who are at a lower risk of experiencing health effects. These studies, therefore, often do not include populations that are at increased risk of $PM_{2.5}$-related health effects, including children, older adults, or individuals with pre-existing conditions. As such, these studies are somewhat limited in their ability to inform at what concentrations effects may be elicited in at-risk populations. With respect to animal toxicological studies, while these studies often examine more severe health outcomes and longer exposure durations than controlled human exposure studies, there is uncertainty in extrapolating the effects seen in animals, and the $PM_{2.5}$ exposures and doses that cause those effects, to human populations.

C. Summary of Exposure and Risk Estimates

Beyond the consideration of the scientific evidence, discussed above in section II.B, the EPA also considers the extent to which new or updated quantitative analyses of $PM_{2.5}$ air quality, exposure, or health risks could inform conclusions on the adequacy of the public health protection provided by the current primary $PM_{2.5}$ standards. Conducting such quantitative analyses, if appropriate, could inform judgments about the potential for additional public health improvements associated with

concentration, averaged over 3 years. For the 24-hour standard, design values are calculated as the 98th percentile of the annual distribution of 24-hour $PM_{2.5}$ concentrations, averaged over three years (appendix N of 40 CFR part 50).

$PM_{2.5}$ exposure and related health effects and could help to place the evidence for specific effects into a broader public health context.

In addition to consideration of the scientific evidence, the PA includes an at-risk analysis that assesses $PM_{2.5}$-attributable risk associated with $PM_{2.5}$ air quality that has been adjusted to simulate air quality scenarios of policy interest (*e.g.,* ''just meeting'' the current or potential alternative standards).

1. Key Design Aspects

Risk assessments combine data from multiple sources and involve various assumptions and uncertainties. Input data for these analyses includes C–R functions from epidemiologic studies for each health outcome and ambient annual or 24-hour $PM_{2.5}$ concentrations for the study areas utilized in the risk assessment (U.S. EPA, 2022b, section 3.4.1). Additionally, quantitative and qualitative methods were used to characterize variability and uncertainty in the risk estimates (U.S. EPA, 2022b, section 3.4.1.7).

Concentration-response functions used in the risk assessment are from large, multicity U.S. epidemiologic studies that evaluate the relationship between $PM_{2.5}$ exposures and mortality. Epidemiologic studies and concentration-response studies that were used in the risk assessment to estimate risk were identified using criteria that take into account factors such as study design, geographic coverage, demographic populations, and health endpoints (U.S. EPA, 2022b, section 3.4.1.1).[86] The risk assessment focuses on all-cause or nonaccidental mortality associated with long-term and short-term $PM_{2.5}$ exposures, for which the 2019 ISA concluded that the evidence provides support for a ''causal relationship'' (U.S. EPA, 2022b, section 3.4.1.2).[87]

As described in more detail in the PA, the risk assessment first estimated health risks associated with air quality for 2015 adjusted to simulate ''just meeting'' the current primary $PM_{2.5}$ standards (*i.e.,* the annual standard with its level of 12.0 μg/m^3 and the 24-hour standard with its level of 35 μg/m^3). Air quality modeling was then used to simulate air quality just meeting an alternative standard with a level of 10.0 μg/m^3 (annual) and 30 μg/m^3 (24-hour). In addition to the model-based approach, for the subset of 30 areas controlled by the annual standard linear interpolation and extrapolation were employed to simulate just meeting alternative annual standards with levels of 11.0 (interpolated between 12.0 and 10.0 μg/m^3), 9.0 μg/m^3, and 8.0 μg/m^3 (both extrapolated from 12.0 and 10.0 μg/m^3) (U.S. EPA, 2022b, section 3.4.1.3). The PA notes that there is greater uncertainty regarding whether a revised 24-hour standard (*i.e.,* with a lower level) is needed to further limit ''peak'' $PM_{2.5}$ concentration exposure and whether a lower 24-hour standard level would most effectively reduce $PM_{2.5}$-associated health risks associated with ''typical'' daily exposures. The risk assessment estimates health risks associated with air quality adjusted to meet a revised 24-hour standard with a level of 30 μg/m^3, in conjunction with estimating the health risks associated with meeting a revised annual standard with a level of 10.0 μg/m^3 (U.S. EPA, 2022b, section 3.4.1.3). More details on the air quality adjustment approaches used in the risk assessment are described in section 3.4.1.4 and Appendix C of the PA (U.S. EPA, 2022b).

When selecting U.S. study areas for inclusion in the risk assessment, the available ambient monitors, geographic diversity, and ambient $PM_{2.5}$ air quality concentrations were taken into consideration (U.S. EPA, 2022b, section 3.4.1.4). When these factors were applied, 47 urban study areas were identified, which include nearly 60 million people aged 30–99, or approximately 30% of the U.S population in this age range (U.S. EPA, 2022b, section 3.4.1.5, Appendix C, section C.1.3). Of the 47 study areas, there were 30 study areas where just meeting the current standards is controlled by the annual standard,[88] 11 study areas where just meeting the current standards is controlled by the daily standard,[89] and 6 study areas where the controlling standard differed depending on the air quality adjustment approach (U.S. EPA, 2022b, section 3.4.1.5).[90]

In addition to the overall risk assessment, the PA also includes an at-risk analysis and estimates exposures and health risks of specific populations identified as at-risk that would be allowed under the current and potential alternative standards to further inform the Administrator's conclusions regarding the adequacy of the public health protection provided by the current primary $PM_{2.5}$ standards. In so doing, the PA evaluates exposure and $PM_{2.5}$ mortality risk for older adults (*e.g.,* 65 years and older), stratified for White, Black, Asian, Native American, Non-Hispanic, and Hispanic individuals residing in the same study areas included in the overall risk assessment. This analysis utilizes a recent epidemiologic study that provides race- and ethnicity-specific risk coefficients (Di et al., 2017b).

2. Key Limitations and Uncertainties

Uncertainty in risk estimates (*e.g.,* in the size of risk estimates) can result from a number of factors, including the assumptions about the shape of the C–R function with mortality at low ambient PM concentrations, the potential for confounding and/or exposure measurement error in the underlying epidemiologic studies, and the methods used to adjust $PM_{2.5}$ air quality. More specifically, the use of air quality modeling to adjust $PM_{2.5}$ concentrations are limited as they rely on model predictions, are based on emission changes are scaled by fixed percentages, and use only two of the full set of possible emission scenarios and linear interpolation/extrapolation to adjust air quality that may not fully capture potential non-linearities associated with real-world changes in air quality. Additionally, the selection of case study areas is limited to urban areas predominantly located CA and in the Eastern U.S. that are controlled by the annual standard. While the risk assessment does not report quantitative uncertainty in the risk estimates as exposure concentrations are reduced, it does provide information on the distribution of concentrations associated with the risk estimates when evaluating progressively lower alternative annual standards. Based on these data, as lower alternative annual standards are evaluated, larger proportions of the distributions in risk occur at or below 10 μg/m^3 (a concentrations which is below or near most of the study reported

[86] Additional detail regarding the selection of epidemiologic studies and specification of C–R functions is provided in the PA (U.S. EPA, 2022b, Appendix C, section C.1.1).

[87] While the 2019 ISA also found that evidence supports the determination of a ''causal relationship'' between long- and short-term $PM_{2.5}$ exposures and cardiovascular effects, cardiovascular mortality was not included as a health outcome as it will be captured in the estimates of all-cause mortality.

[88] For these areas, the annual standard is the ''controlling standard'' because when air quality is adjusted to simulate just meeting the current or potential alternative annual standards, that air quality also would meet the 24-hour standard being evaluated.

[89] For these areas, the 24-hour standard is the controlling standard because when air quality is adjusted to simulate just meeting the current or potential alternative 24-hour standards, that air quality also would meet the annual standard being evaluated. Some areas classified as being controlled by the 24-hour standard also violate the annual standard.

[90] In these 6 areas, the controlling standard depended on the air quality adjustment method used and/or the standard scenarios evaluated.

means from the key U.S. epidemiologic studies) and at or below 8 μg/m³ (the concentration at which the ISA reports increasing uncertainty in the shape of the C–R curve based on the body of epidemiologic evidence). Similarly, the at-risk analysis is also subject to many of these same uncertainties. Additionally, the at-risk analysis included C–R functions from only one study (Di et al., 2017b), which reported associations between long-term $PM_{2.5}$ exposures and mortality, stratified by race/ethnicity, in populations age 65 and older, as opposed to the multiple studies used in the overall risk assessment to convey risk estimate variability. These and other sources of uncertainty in the overall risk assessment and the at-risk analyses are characterized in the PA (U.S. EPA, 2022, section 3.4.1.7, section 3.4.1.8, Appendix C, section C.3).

3. Summary of Risk Estimates

Although limitations in the underlying data and approaches lead to some uncertainty regarding estimates of $PM_{2.5}$-associated risk, the risk assessment estimates that the current primary $PM_{2.5}$ standards could allow a substantial number of $PM_{2.5}$-associated deaths in the U.S. For example, when air quality in the 47 study areas is adjusted to simulate just meeting the current standards, the risk assessment estimates up to 45,100 deaths in 2015 are attributable to long-term $PM_{2.5}$ exposures associated with just meeting the current annual and 24-hour $PM_{2.5}$ standards (U.S. EPA, 2022, section 3.4.2.1). Additionally, as described in more detail in the PA, the at-risk analysis indicates that Black populations may experience disproportionally higher exposures and risk under air quality conditions just meeting the current primary annual $PM_{2.5}$ standard in the study areas, as compared to White populations. Risk disparities include exposure disparities, as well as the relationship between exposure and health effect and baseline rates of the health effect. While risk disparities may be a more meaningful metric, they are also subject to additional uncertainties.

Compared to the current annual standard, meeting a revised annual standard with a lower level is estimated to reduce $PM_{2.5}$-associated health risks in the 30 study areas controlled by the annual standard by about 7–9% a level of 11.0 μg/m³, 15–19% for a level of 10.0 μg/m³, 22–28% for a level of 9.0 μg/m³, and 30–37% for a level of 8.0 μg/m³) (U.S. EPA, 2022b, Table 3–17). Meeting a revised annual standard with a lower level may also reduce exposure and risk in Black populations slightly more so than in White populations in simulated scenarios just meeting alternative annual standards. However, though reduced, disparities by race and ethnicity persist even at an alternative annual standard level of 8 μg/m³, the lowest alternative annual standard included in the risk assessment (U.S. EPA, 2022b, section 3.4.2.4).

Revising the level of the 24-hour standard to 30 μg/m³ is estimated to lower $PM_{2.5}$-associated risks across a more limited population and number of areas then revising the annual standard (U.S. EPA, 2022, section 3.4.2.4). Risk reduction predictions are largely confined to areas located in the western U.S., several of which are also likely to experience risk reductions upon meeting a revised annual standard. In the 11 areas controlled by the 24-hour standard, when air quality is simulated to just meet the current 24-hour standard, $PM_{2.5}$ exposures are estimated to be associated with as many as 2,570 deaths annual. Compared to just meeting the current standard, air quality just meeting an alternative 24-hour standard level of 30 μg/m³ is associated with reductions in estimated risk of 9–13% (U.S. EPA, 2022b, section 3.4.2.3).

D. Proposed Conclusions on the Primary $PM_{2.5}$ Standards

In reaching proposed conclusions on the current primary $PM_{2.5}$ standards (presented in section II.D.3), the Administrator has taken into account the current evidence and associated conclusions in the 2019 ISA and ISA Supplement, in light of the policy-relevant evidence-based and risk-based considerations discussed in the PA (summarized in section II.D.2), as well as advice from the CASAC, and public comment received on the standards thus far in the reconsideration (section II.D.1). In general, the role of the PA is to help ''bridge the gap'' between the Agency's assessment of the current evidence and quantitative analyses (of air quality, exposure, and risk), and the judgments required of the Administrator in determining whether it is appropriate to retain or revise the NAAQS. Evidence-based considerations draw upon the EPA's integrated assessment of the scientific evidence of health effects related to $PM_{2.5}$ exposure presented in the 2019 ISA and ISA Supplement (summarized in section II.B above) to address key policy-relevant questions in the reconsideration. Similarly, the risk-based considerations draw upon the assessment of population exposure and risk (summarized in section II.C above) in addressing policy-relevant questions focused on the potential for $PM_{2.5}$ exposures associated with mortality under air quality conditions just meeting the current and potential alternative standards.

The approach to reviewing the primary standards is consistent with requirements of the provisions of the CAA related to the review of the NAAQS and with how the EPA and the courts have historically interpreted the CAA. As discussed in section I.A above, these provisions require the Administrator to establish primary standards that, in the Administrator's judgment, are requisite (*i.e.,* neither more nor less stringent than necessary) to protect public health with an adequate margin of safety. Consistent with the Agency's approach across all NAAQS reviews, the EPA's approach to informing these judgments is based on a recognition that the available health effects evidence generally reflects a continuum that includes ambient air exposures for which scientists generally agree that health effects are likely to occur through lower levels at which the likelihood and magnitude of response become increasingly uncertain. The CAA does not require the Administrator to establish a primary standard at a zero-risk level or at background concentration levels, but rather at level that reduces risk sufficiently so as to protect public health, including the health of sensitive groups, with an adequate margin of safety.

The proposed decisions on the adequacy of the current primary $PM_{2.5}$ standards described below is a public health policy judgment by the Administrator that draws on the scientific evidence for health effects, quantitative analyses of population exposures and/or health risks, and judgments about how to consider the uncertainties and limitations that are inherent in the scientific evidence and quantitative analyses. The four basic elements of the NAAQS (*i.e.,* indicator, averaging time, form, and level) have been considered collectively in evaluating the public health protection afforded by the current standards. The Administrator's final decisions will additionally consider public comments received on these proposed decisions.

1. CASAC Advice in This Reconsideration

The CASAC has provided advice on the adequacy of the current primary $PM_{2.5}$ standards in the context of its review of the draft PA.[91] The range of

[91] A limited number of public comments have also been received in this reconsideration to date, including comments focused on the draft PA. Of the

Continued

views summarized here generally reflects differing judgments as to the relative weight to place on various types of evidence, the risk-based information, and the associated uncertainties, as well as differing judgments about the importance of various $PM_{2.5}$-related health effects from a public health perspective.

In its comments on the draft PA, the CASAC stated that: ''[o]verall the CASAC finds the Draft PA to be well-written and appropriate for helping to 'bridge the gap' between the agency's scientific assessments and quantitative technical analyses, and the judgments required of the Administrator in determining whether it is appropriate to retain or revise the National Ambient Air Quality Standards (NAAQS)'' (Sheppard, 2022a, p. 1 of consensus letter). The CASAC also stated that the ''[d]raft PA adequately captures and appropriately characterizes the key aspects of the evidence assessed and integrated in the 2019 ISA and Draft ISA Supplement of $PM_{2.5}$-related health effects'' (Sheppard, 2022b, p. 2 of consensus letter). The CASAC also stated that ''[t]he interpretation of the risk assessment for the purpose of evaluating the adequacy of the current primary $PM_{2.5}$ annual standard is appropriate given the scientific findings presented'' (Sheppard, 2022a, p. 2 of consensus letter). The CASAC also stated that the ''[d]raft PA adequately captures and appropriately characterizes the key aspects of the evidence assessed and integrated in the 2019 ISA and Draft ISA Supplement of $PM_{2.5}$-related health effects'' (Sheppard, 2022a, p. 2 of consensus letter). The CASAC also stated that ''[t]he interpretation of the risk assessment for the purpose of evaluating the adequacy of the current primary $PM_{2.5}$ annual standard is appropriate given the scientific findings presented'' (Sheppard, 2022a, p. 2 of consensus letter).

With regard to the adequacy of the current primary annual $PM_{2.5}$ standard, ''all CASAC members agree that the current level of the annual standard is not sufficiently protective of public health and should be lowered'' (Sheppard, 2022a, p. 2 of consensus letter). Additionally, ''the CASAC reached consensus that the indicator, form, and averaging time should be retained, without revision'' (Sheppard, 2022a, p. 2 of consensus letter). With regard to the level of the primary annual $PM_{2.5}$ standard, the CASAC had differing recommendations for the appropriate range for an alternative level. The majority of the CASAC ''judge[d] that an annual average in the range of 8–10 $\mu g/m^3$'' was most appropriate, while the minority of the CASAC members stated that ''the range of the alternative standard of 10–11 $\mu g/m^3$ is more appropriate'' (Sheppard, 2022a, p. 16 of consensus responses). The CASAC did highlight, however, that ''the alternative standard level of 10 $\mu g/m^3$ is within the range of acceptable alternative standards recommended by all CASAC members, and that an annual standard below 12 $\mu g/m^3$ is supported by a larger and coherent body of evidence'' (Sheppard, 2022a, p. 16 of consensus responses).

In reaching conclusions on a recommended range of 8–10 $\mu g/m^3$ for the primary annual $PM_{2.5}$ standard, the majority of the CASAC placed weight on various aspects of the available scientific evidence and quantitative risk assessment information (Sheppard, 2022a, p. 16 of consensus responses). In particular, these members cited recent U.S.- and Canadian-based epidemiologic studies that show positive associations between $PM_{2.5}$ exposure and mortality with study-reported means below 10 $\mu g/m^3$. Further, these members also noted that the lower portions of the air quality distribution (*i.e.,* concentrations below the mean) provide additional information to support associations between health effects and $PM_{2.5}$ concentrations lower than the long-term mean concentration. In addition, the CASAC members recognized that the available evidence has not identified a threshold concentration, below which an association no longer remains, pointing to the conclusion in the draft ISA Supplement that the ''evidence remains clear and consistent in supporting a no-threshold relationship, and in supporting a linear relationship for $PM_{2.5}$ concentrations >8 $\mu g/m^3$'' (Sheppard, 2022a, p. 16 of consensus responses). Finally, these CASAC members placed weight on the at-risk analysis as providing support for protection of at-risk demographic groups, including minority populations.

In reaching conclusions on a recommended range of 10–11 $\mu g/m^3$ for the primary annual $PM_{2.5}$ standard, the minority of the CASAC emphasized that there were few key epidemiologic studies that reported positive and statistically significant health effects associations for $PM_{2.5}$ air quality distributions with overall mean concentrations below 9.6 $\mu g/m^3$ (Sheppard, 2022a, p. 17 of consensus responses). In so doing, the minority of the CASAC specifically noted the variability in the relationship between study-reported means and area annual design values based on the methods utilized in the studies, noting that design values are generally higher than area average exposure levels. Further, the minority of the CASAC stated that ''uncertainties related to copollutants and confounders make it difficult to justify a recommendation below 10–11 $\mu g/m^3$'' (Sheppard, 2022a, p. 17 of consensus responses). Finally, the minority of the CASAC placed less weight on the risk assessment results, noting large uncertainties, including the approaches used for adjusting air quality to simulate just meeting the current and alternative standards.

With regard to the current primary 24-hour $PM_{2.5}$ standard, the CASAC did not reach consensus regarding the adequacy of the public health protection provided by the current standard. The majority of the CASAC members concluded ''that the available evidence calls into question the adequacy of the current 24-hour standard'' (Sheppard, 2022a, p. 3 of consensus letter), while the minority of the CASAC members agreed with ''the EPA's preliminary conclusion [in the draft PA] to retain the current 24-hour $PM_{2.5}$ standard without revision'' (Sheppard, 2022a, p. 4 of consensus letter). The CASAC recommended that in future reviews, the EPA also consider alternative forms for the primary 24-hour $PM_{2.5}$ standard. Specifically, the CASAC ''suggests considering a rolling 24-hour average and examining alternatives to the 98th percentile of the 3-year average,'' pointing to concerns that computing 24-hour average $PM_{2.5}$ concentrations using the current midnight-to-midnight timeframe could potentially underestimate the effects of high 24-hour exposures, especially in areas with wood-burning stoves and wintertime stagnation (Sheppard, 2022a, p. 18 of consensus responses).

The majority of the CASAC favored revising the level of the primary 24-hour $PM_{2.5}$ standard and suggested that a range of 25–30 $\mu g/m^3$ would be adequately protective. In so doing, the CASAC placed weight on the available epidemiologic evidence, including epidemiologic studies that restricted analyses to 24-hour $PM_{2.5}$ concentrations below 25 $\mu g/m^3$. These members also placed weight on results of controlled human exposure studies with exposures close to the current standard, which they note provide support for the epidemiologic evidence to lower the standard. These members noted the limitations in using controlled human exposure studies alone in considering adequacy of the 24-hour standard, recognizing that controlled

public comments that addressed adequacy of the current primary $PM_{2.5}$ standards, some expressed agreement with staff conclusions in the draft PA, while others expressed the view that the standards should be more stringent.

human exposure studies preferentially recruit less susceptible individuals and have a typical exposure duration much shorter than 24 hours. These members also placed ''greater weight on the scientific evidence than on the values estimated by the risk assessment,'' citing their concerns that the risk assessment ''may not adequately capture areas with wintertime stagnation and residential wood-burning where the annual standard is less likely to be protective'' (Sheppard, 2022a, p. 17 of consensus responses). Furthermore, these CASAC members ''also are less confident that the annual standard could adequately protect against health effects of short-term exposures'' (Sheppard, 2022a, p. 17 of consensus responses).

The minority of the CASAC agreed with the EPA's preliminary conclusion in the draft PA to retain the current primary 24-hour $PM_{2.5}$ standard, without revision. In so doing, the minority of the CASAC placed greater weight on the risk assessment, noting that the risk assessment accounts for both the level and the form of the current standard and the way attainment with the standard is determined. Further, the minority of the CASAC stated that the ''risk assessment indicates that the annual standard is the controlling standard across most of the urban study areas evaluated and revising the level of the 24-hour standard is estimated to have minimal impact on the $PM_{2.5}$-associated risks'' and that, because of this, ''the annual standard can be used to limit both long- and short-term $PM_{2.5}$ concentrations'' (Sheppard, 2022a, p. 18 of consensus responses). Further, the minority of the CASAC placed more weight on the controlled human exposure studies, which show ''effects at $PM_{2.5}$ concentrations well above those typically measured in areas meeting the current standards'' and which suggest that ''the current standards are providing adequate protection against these exposures'' (Sheppard, 2022a, p. 18 of consensus responses).

While the CASAC members expressed differing opinions on the appropriate revisions to the current standards, they did ''find that both primary standards, 24-hour and annual, are critical to protect public health given the evidence on detrimental health outcomes at both short-term and long-term exposures including peak events'' (Sheppard, 2022a, p. 13 of consensus responses). The comments from the CASAC also took note of uncertainties that remain in this reconsideration of the primary $PM_{2.5}$ standards and they identified a number of additional areas for future research and data gathering that would inform future reviews of the primary $PM_{2.5}$ NAAQS (Sheppard, 2022a, pp. 14–15 of consensus responses).

2. Evidence- and Risk-Based Considerations in the Policy Assessment

The main focus of the policy-relevant considerations in the PA is consideration of the question: Does the currently available scientific evidence- and exposure/risk-based information support or call into question the adequacy of the protection afforded by the current primary $PM_{2.5}$ standards? The PA response to this overarching question takes into account discussions that address the specific policy-relevant questions for this reconsideration, focusing first on consideration of the scientific evidence, as evaluated in the 2019 ISA and ISA Supplement, including that newly available in this reconsideration (section II.D.2.a). The PA also considers the quantitative risk estimates drawn from the risk assessment (presented in detail in section 3.4 and Appendix C of the PA; U.S. EPA, 2022b) including associated limitations and uncertainties, and the extent to which they may indicate different conclusions from those in previous reviews regarding the magnitude of risk, as well as the level of protection from adverse effects, associated with the current and alternative standards (section II.D.2.b). The PA additionally considers the key aspects of the evidence and exposure/risk estimates that were emphasized in previous reviews of the current standards, as well as the associated public health policy judgments and judgments about the uncertainties inherent in the scientific evidence and quantitative analyses that are integral to consideration of whether the currently available information supports or calls into question the adequacy of the current primary $PM_{2.5}$ standards (U.S. EPA, 2022b, section 3.6).

a. Evidence-Based Considerations

The currently available evidence on the health effects of $PM_{2.5}$, including evidence newly available in this reconsideration, is largely consistent with the evidence that was available in previous reviews regarding health effects causally related to $PM_{2.5}$ exposures. Specifically, as in the 2012 review, mortality and cardiovascular effects are concluded to be causally related to long- and short-term exposures to $PM_{2.5}$, while respiratory effects are concluded to likely be causally related to long- and short-term $PM_{2.5}$ exposures. Also, since the 2012 review, recent evidence provides additional support that is sufficient to conclude that the relationship between long-term $PM_{2.5}$ exposures and nervous system effects and cancer are likely to be causal (U.S. EPA, 2019a, Table ES–1). These determinations are based on evidence from experimental and epidemiologic studies that is newly available since the completion of the 2009 ISA (U.S. EPA, 2019, Table ES–1). The current evidence base is concluded to be suggestive of, but not sufficient to infer, causal relationships between nervous system effects and short-term $PM_{2.5}$ exposures; metabolic effects, reproduction and fertility, and pregnancy and birth outcomes and long- and short-term $PM_{2.5}$ exposures (U.S. EPA, 2019a, Table ES–1). Additionally, the current evidence base supports a suggestive of, but not sufficient to infer, a causal relationship for cardiovascular effects and short-term UFP exposures; respiratory effects and short-term UFP exposures; and nervous system effects and long- and short-term exposures (U.S. EPA, 2019a, Table ES–1).

The available evidence in the 2019 ISA continues to provide support for factors that may contribute to increased risk of $PM_{2.5}$-related health effects including lifestage (children and older adults), pre-existing diseases (cardiovascular disease and respiratory disease), race/ethnicity, and SES. Other factors that have the potential to contribute to increased risk, but for which the evidence is less clear, include obesity, diabetes, genetic factors, smoking status, sex, diet, and residential location (U.S. EPA, 2019a, chapter 12). In addition to these population groups, the 2019 ISA and ISA Supplement conclude that there is strong evidence for racial and ethnic differences in $PM_{2.5}$ exposures and $PM_{2.5}$-related health risk. There is strong evidence demonstrating that Black and Hispanic populations, in particular, have higher $PM_{2.5}$ exposures than non-Hispanic White populations (U.S. EPA, 2019a, Figure 12–2; U.S. EPA, 2022a, Figure 3–38). Further, there is consistent evidence across multiple studies that demonstrate increased risk of $PM_{2.5}$-related health effects for Black populations, with the strongest evidence for health risk disparities for mortality (U.S. EPA, 2019a, section 12.5.4). In addition, studies assessed in the 2019 ISA and ISA Supplement also provide evidence of exposure and health risk disparities based on SES. The evidence indicates that lower SES communities are exposed to higher concentrations of $PM_{2.5}$ compared to higher SES communities (U.S. EPA, 2019a, section 12.5.3; U.S. EPA, 2022b, section 3.3.3.1.1). Additionally, evidence supports the conclusions that lower SES

is associated with cause-specific mortality and certain health endpoints (*i.e.,* MI and CHF), but less so for all-cause or total (non-accidental) mortality (U.S. EPA, 2019a, section 12.5.3; U.S. EPA, 2022b, section 3.3.3.1).

Consistent with the evidence available in the 2009 ISA, controlled human exposure studies have demonstrated effects on cardiovascular function following 1- to 5-hour exposures to $PM_{2.5}$, with the most consistent evidence for impaired vascular function. The PA notes that most of the controlled human exposure studies have evaluated average $PM_{2.5}$ concentrations at or above about 100 μg/m^3, with exposure durations up to two hours. These studies have often, though not always, reported statistically significant effects on one or more indicators of cardiovascular function following 2-hour exposures to average $PM_{2.5}$ concentrations at and above about 120 μg/m^3, with less consistent effects following exposures to concentrations lower than 120 μg/m^3.

In considering the controlled human exposure studies in reaching conclusions on the primary $PM_{2.5}$ standards, the PA notes that air quality analyses indicate that 2-hour $PM_{2.5}$ concentrations to which individuals were exposed in most of these studies, including those that report the most consistent results, are well-above the ambient $PM_{2.5}$ concentrations typically measured in locations meeting the current primary standards. Additionally, the PA recognizes that the results are variable across controlled human exposure studies that evaluated near-ambient $PM_{2.5}$ concentrations.

Furthermore, the PA recognizes that controlled human exposure studies often include small numbers of individuals and do not include populations that are at increased risk of $PM_{2.5}$-related health effects (*e.g.,* children). While the PA recognizes that the controlled human exposure studies are important in establishing biological plausibility, it emphasizes that it is unclear how the results from these studies alone, particularly in studies conducted at near-ambient $PM_{2.5}$ concentrations, and the importance of the effects observed in the studies should be interpreted with respect to adversity to public health.

With regard to the animal toxicological studies, the PA recognizes that, unlike the controlled human exposure studies that provide insight on the exposure concentrations that directly elicit health effects in humans, there is uncertainty associated with translating the observations in the animal toxicological studies to potential adverse health effects in humans. The PA notes that the interpretation of these studies is complicated by the fact that $PM_{2.5}$ concentrations in animal toxicological studies are much higher than those shown to elicit effects in human populations. Moreover, the PA recognizes that there are also significant anatomical and physiological difference between animal models and humans. In considering the information from the animal toxicological studies, the PA specifically notes two studies, one of which is newly available in the 2019 ISA, that report serious effects following long-term exposures to $PM_{2.5}$ concentrations close to the ambient concentrations reported in some epidemiologic studies, although still above the ambient concentrations likely to occur in areas meeting the current primary standards (U.S. EPA, 2022b, section 3.3.3.1).

Since the 2012 review, a large number of epidemiologic studies have become available that report generally positive, and often statistically significant, associations between long- and short-term $PM_{2.5}$ exposures and mortality and morbidity. Available studies additionally indicate that $PM_{2.5}$ health effect associations are robust across various approaches to estimating $PM_{2.5}$ exposures and across various exposure windows. Since the 2012 review, there are also a number of studies that employ alternative methods for confounder control that further inform the causal nature of the relationship between long- or short-term term $PM_{2.5}$ exposure and mortality, and these studies provide support for the findings from the broad body of epidemiologic studies.

In addition to broadening our understanding of the health effects that can result from exposures to $PM_{2.5}$ and strengthening support for some key effects (*e.g.,* nervous system effects, cancer, and metabolic effects), recent epidemiologic studies strengthen support for health effect associations at relatively low ambient $PM_{2.5}$ concentrations. Studies that examine the shapes of C–R functions over the full distribution of ambient $PM_{2.5}$ concentrations have not identified a threshold concentration below which associations no longer exist (U.S. EPA, 2019a, section 1.5.3; U.S. EPA, 2022a, sections 2.2.3.1 and 2.2.3.2). While such analyses are complicated by the relatively sparse data available at the lower end of the air quality distribution (U.S. EPA, 2019a, section 1.5.3), the evidence remains consistent in supporting a no-threshold relationship, and in supporting a linear relationship for $PM_{2.5}$ concentrations >8 μg/m^3. However, uncertainties remain about the shape of the C–R curve at $PM_{2.5}$ concentrations <8 μg/m^3, with some recent studies providing evidence for either a sublinear, linear, or supralinear relationship at these lower concentrations.

Consistent with previous reviews, the PA notes that the use of information from epidemiologic studies to inform conclusions on the current standards is complicated by the fact that such studies evaluate associations between distributions of ambient $PM_{2.5}$ and health outcomes, and do not identify the specific exposures that can lead to the reported effects. Rather, health effects can occur over the entire distribution of ambient $PM_{2.5}$ concentrations evaluated, and epidemiologic studies do not identify a population-level threshold below which it can be concluded with confidence that PM-associated health effects do not occur (U.S. EPA, 2019a, section 1.5.3). However, the study-reported ambient $PM_{2.5}$ concentrations reflecting estimated exposure in the middle portion of the $PM_{2.5}$ air quality distribution, which corresponds to the bulk of the underlying data, provide the strongest support for reported health effect associations and can inform conclusions on the current and potential alternative standards. In considering this information, the PA recognizes that the mean $PM_{2.5}$ concentrations reported by key epidemiologic studies differ in how mean concentrations were calculated, as well as their interpretation in what means represent in the context of the current standards.

In identifying key epidemiologic studies for consideration, the PA places the greatest emphasis on studies conducted in the U.S. and Canada, although recognizes a number of limitations associated with interpreting the results of Canadian studies compared to studies conducted in the U.S. Generally, there are differences in the exposure environments and population characteristics between the U.S. and other countries, including Canada, that can affect the study-reported mean $PM_{2.5}$ concentration and its comparability with the annual standard level. A number of other differences, including sources and pollutant mixtures, concentration gradients, and populations densities, can make it challenging to interpret the mean $PM_{2.5}$ concentrations in Canadian studies in the context of a U.S.-based standard. Specifically, it may be difficult to use such studies to directly and quantitatively inform questions regarding the adequacy of the current or potential alternative levels of the annual standard. Therefore, while the PA considers the mean $PM_{2.5}$

concentrations from U.S. and Canadian studies in reaching conclusions, it notes that the U.S.-based epidemiologic studies are most informative for comparisons with the annual standard metric and for reaching conclusions on the current standards and for informing potential alternative levels of the standard.

Consistent with previous reviews, in considering information that can be used from the available epidemiologic evidence to inform proposed decisions on the current standards, the PA focuses on $PM_{2.5}$ concentrations near or somewhat below long-term mean concentrations reported in epidemiologic studies. In so doing, the PA notes that, in previous reviews, the epidemiologic studies used ground-based monitors to estimate exposures, and that, in addition to newly available monitor-based studies, there are also newly available epidemiologic studies estimate exposures using hybrid modeling approaches. In considering how the study-reported mean $PM_{2.5}$ concentrations reported in studies using hybrid modeling approaches compare to studies using ground-based monitors, the PA notes that the hybrid modeling approaches provide a broader estimation of $PM_{2.5}$ exposures compared to monitor-based studies (*i.e.,* because hybrid modeling studies include $PM_{2.5}$ concentrations estimated in areas without monitors). However, compared to monitor-based studies, the PA recognizes that it is more difficult to relate these means to an annual standard metric which relies on maximum monitor design values to assess compliance. Further complicating the comparison is the variability in how $PM_{2.5}$ concentrations are estimated between studies that use hybrid modeling approaches. Two important variations across studies include: (1) variability in spatial scale used (*i.e.,* averages computed across the national (or large portions of the country) versus a focus on only CBSAs) and (2) variability in exposure assignment methods (*i.e.,* averaging across all grid cells, averaging across a scaled-up area like a ZIP code, and population weighting).

As described in more detail in section I.D.5 above, the PA included analyses that considered how the study-reported mean $PM_{2.5}$ concentrations were computed and how the means compare to the annual standard metric (including the level, averaging time, and form) and the use of the monitor with the highest $PM_{2.5}$ design value in an area for compliance. In so doing, the PA included a comparison of $PM_{2.5}$ fields in estimating exposure relative to design values using two hybrid modeling surface with annual average $PM_{2.5}$ concentrations estimated per year at a 1 km x 1 km spatial resolution. The PA notes that the means vary when $PM_{2.5}$ concentrations are estimated in urban areas only (CBSAs) versus when the averages were calculated with all or most grid cells nationwide. This is likely indicative of the fact that areas included outside of CBSAs tend to be more rural and have lower estimated $PM_{2.5}$ concentrations. The PA acknowledges that this is an important consideration since the study areas included in the calculation of the mean, and more specifically whether a study is focused on nationwide, regional, or urban areas, will affect the calculation of the study mean based on how many rural areas are included with lower estimated $PM_{2.5}$ concentrations. While the determination of what spatial scale to use to estimate $PM_{2.5}$ concentrations does not inherently affect the quality of the epidemiologic study, the spatial scale can influence the calculated long-term mean concentration across the study area and period.

Additionally, the PA analyses indicate that for the studies using the hybrid modeling approaches, the use of population weighting in calculating study-reported mean $PM_{2.5}$ concentrations, and not a difference in estimates of exposures in the study itself, can produce substantially different study-reported mean $PM_{2.5}$ concentrations compared to an approach that does not utilize population weighting. In studies that do not apply population weighting in the calculation of the mean $PM_{2.5}$ concentrations, study-reported means are lower, as a result of including areas with lower estimated $PM_{2.5}$ concentrations that may not be as densely populated, as well as areas that may not include health events. To elaborate, in hybrid modeling approaches that present mean $PM_{2.5}$ concentrations based on an average $PM_{2.5}$ concentration across all grid cells (*i.e.,* do not apply aspects of population weighting), health events may not exist in each grid cell, and thus the mean reported $PM_{2.5}$ concentration is not necessarily based on the mean $PM_{2.5}$ concentrations assigned as the exposure in the health study. In other words, the mean $PM_{2.5}$ concentration that is reported and based on an average of all grid cells is not necessarily the same as the mean $PM_{2.5}$ concentration for each person assigned an exposure in the study. This is an important consideration, as the purpose of the epidemiologic study is to evaluate whether an association between $PM_{2.5}$ exposure and health outcomes exists. As such, it is unclear whether the mean concentration reported using each grid cell is associated with a health outcome (*i.e.,* not all grid cells have health events). This leads to uncertainty in evaluating how the mean concentration can be used in the context of the approach above to evaluate the adequacy of the standard as well as potential alternative levels of the annual standard.

In considering the variability in how exposure in estimated between studies that use hybrid modeling approaches, the PA focuses on the key epidemiologic studies that use hybrid modeling approaches and apply population weighting in calculating the study-reported mean, as well as those studies that use monitors to estimate exposure, as described in more detail in section II.B.3.b above. For key U.S. epidemiologic studies that use monitors to estimate $PM_{2.5}$ exposures, overall mean $PM_{2.5}$ concentrations range between 9.9 $\mu g/m^3$ [92] to 16.5 $\mu g/m^3$ (U.S. EPA, 2022b, Figure 3–8). For U.S. studies that use hybrid model-predicted exposures and apply aspects of population weighting, mean $PM_{2.5}$ concentrations range from 9.3 $\mu g/m^3$ to 12.2 $\mu g/m^3$ (U.S. EPA, 2022b, Figure 3–14). In U.S. studies that average up from the grid cell level to the ZIP code or census tract level, mean $PM_{2.5}$ concentrations range from 9.8 $\mu g/m^3$ to 12.2 $\mu g/m^3$. In the one U.S. study that population-weighted the grid cells prior to averaging up to the ZIP code or census tract level, the reported mean $PM_{2.5}$ concentration is 9.3 $\mu g/m^3$. As described above, the PA also considers the study-reported means from the key Canadian epidemiologic studies, which are consistently much lower than those reported for key U.S. epidemiologic studies, while noting that for the reasons described above, there are uncertainties and limitations associated with comparisons between Canadian studies and the annual standard metric. For the key Canadian epidemiologic studies that use monitors to estimate $PM_{2.5}$ exposures, overall mean $PM_{2.5}$ concentrations range from 6.9 $\mu g/m^3$ to 13.3 $\mu g/m^3$, while the range of mean $PM_{2.5}$ concentrations in Canadian studies that use hybrid modeling (all of which average up to postal codes and thus include some aspects of population weighting) is 5.9 $\mu g/m^3$ to 9.8 $\mu g/m^3$.

[92] This is generally consistent with, but slightly below, the lowest study-reported mean $PM_{2.5}$ concentration from monitor-based studies available in the 2020 PA, which was 10.7 $\mu g/m^3$ (U.S. EPA, 2020a, Figure 3–7).

As described in more detail in section II.B.3.b above, in assessing the range of reported exposure concentrations for which the strongest support exists for adverse health effects occurring, the PA evaluates whether the available evidence supports or calls into question the adequacy of public health protection afforded by the current primary annual $PM_{2.5}$ standard against these exposure concentrations. This means, as in past reviews, the application of a decision framework based on assessing means reported in key epidemiologic studies must also consider how the study means were computed and how these values compare to the annual standard metric (including the level, averaging time and form) and the use of the monitor with the highest $PM_{2.5}$ design value in an area for compliance. Based on the air quality analyses in presented in the PA and discussed above (section I.D.5.a and section I.D.5.b), design values associated with the study-reported means in these key U.S. based epidemiologic studies are only somewhat higher: 10–20% for monitor-based studies and 15–18% higher for the studies that include hybrid modeling approaches and utilize population weighting. Based on these results, it can generally be concluded that the study-reported mean concentrations in the studies are associated with air quality conditions that would be achieved by meeting annual standard levels that are 10–20% higher and 15–18% higher than study-reported means for monitor-based studies and hybrid modeling-based studies that use population weighting, respectively. Therefore, an annual standard level that is no more than 10–20% higher than the study-reported means in the monitor-based studies (*i.e.,* 9.9–16.5 μg/m^3), and no more than 15–18% higher than the study-reported means in the studies that include hybrid modeling approaches and utilize population weighting (*i.e.,* 9.3–12.2 μg/m^3), would generally maintain air quality exposures at or below those associated with the study-reported mean $PM_{2.5}$ concentrations, exposures for which we have the strongest support for adverse health effects occurring. This relationship is indicative of the fact that $PM_{2.5}$ exposures in an area are represented by a distribution of concentrations across that area, with the annual standard level at the design value monitor being associated with the highest annual average exposure concentration for that area.

In addition to the study-reported mean concentrations, in considering the level of the annual standard, the PA uses an approach consistent with that used in previous reviews and also considers reported $PM_{2.5}$ concentrations corresponding to the 25th and 10th percentiles of health data or exposure estimates when available in the key epidemiologic studies. In using such an approach, the PA recognized that there is an interrelatedness of the distributional statistics in epidemiologic studies (*e.g.,* 10th and 25th percentiles of $PM_{2.5}$ concentrations) and a range of one standard deviation around the mean which contains approximately 68% of normally distributed data, in that one standard deviation below the mean falls between the 25th and 10th percentiles (U.S. EPA, 2022b, p. 2–71). Further, the PA notes that in past reviews, some weight was placed on studies that provided mean $PM_{2.5}$ concentrations around the 25th percentile of the distributions of deaths and cardiovascular-related hospitalizations and the Administrator judged the region around the 25th percentile as a reasonable part of the distribution to guide the decision on the appropriate standard level (78 FR 3161, January 15, 2013).

As such, the PA concludes that focusing on concentrations somewhat below the means (*e.g.,* 25th and 10th percentiles), when such information is available from epidemiologic studies, is a reasonable approach for considering lower portions of the air quality distribution. However, the PA recognizes that the health data are appreciably more sparse and an understanding of the magnitude and significance of the associations correspondingly become more uncertain in the lower part of the air quality distribution. While health effects can occur over the entire distribution of ambient $PM_{2.5}$ concentrations evaluated, and epidemiologic studies do not identify a population-level threshold below which it can be concluded with confidence that PM-associated health effects do not occur (U.S. EPA, 2019a, section 1.5.3), using values below the 10th percentile would lead to even greater uncertainties and diminished confidence in the magnitude and significance of the associations.

In considering the available key U.S. epidemiologic studies, the PA notes that a small number of studies report $PM_{2.5}$ concentrations corresponding to the 25th and 10th percentiles of health data or exposure estimates that can be considered to provide insight into the concentrations that comprise the lower quartiles of the air quality distributions is examined below. In studies that use monitors to estimate $PM_{2.5}$ exposures, 25th percentiles of health events correspond to $PM_{2.5}$ concentrations (*i.e.,* averaged over the study period for each study city) at or above 11.5 μg/m^3 and 10th percentiles of health events correspond to $PM_{2.5}$ concentrations at or above 9.8 μg/m^3 (*i.e.,* 25% and 10% of health events, respectively, occur in study locations with $PM_{2.5}$ concentrations below these values) (U.S. EPA, 2022b, Figure 3–8). Of the key U.S. epidemiologic studies that use hybrid modeling approaches to estimate long-term $PM_{2.5}$ exposures, the ambient $PM_{2.5}$ concentrations corresponding to 25th percentiles of estimated exposures are 9.1 μg/m^3 (U.S. EPA, 2022b, Figure 3–14). In key U.S. epidemiologic studies that use hybrid modeling approaches to estimate short-term $PM_{2.5}$ exposures, the ambient concentrations corresponding to 25th percentiles of estimated exposures, or health events, are 6.7 μg/m^3 and the ambient $PM_{2.5}$ concentration corresponding to that 10th percentile range from 4.7 μg/m^3 to 7.3 μg/m^3 (U.S. EPA, 2022b, Figure 3–14).

As with the mean $PM_{2.5}$ concentrations, in considering these values relative to an area annual design value, the PA notes the 25th and 10th percentiles provide information about the lower quartiles of the air quality distributions, while the study-reported mean provides information about the average or typical exposures, and the corresponding area annual design value provides the highest average annual $PM_{2.5}$ concentration being measured. In this way, the PA recognizes that all of these metrics (*i.e.,* lower percentiles, study mean, annual design value) have a relationship relative to the other, and each of these metrics can be used to inform the consideration of the level of the current annual standard. Further, the PA recognizes that the air quality analyses described above (section I.D.5) and in the PA (U.S. EPA, 2022b, section 2.3.3.1 and section 2.3.3.2.4) that evaluated the relationship between a mean $PM_{2.5}$ concentration in an area and the design value focuses on mean $PM_{2.5}$ concentrations and similar analyses were not conducted for other $PM_{2.5}$ concentrations in the lower portion of the air quality distribution. Therefore, given the lack of additional information regarding the relationship between percentiles of the air quality distribution other than the mean and the annual design value, the PA concludes that any direct comparison of study-reported $PM_{2.5}$ concentrations corresponding to lower percentiles (*e.g.,* 25th and/or 10th) and annual design values is more uncertain than such comparisons with the mean.

Since the completion of the 2009 ISA, a number of epidemiologic studies have become available that can provide

additional consideration to inform conclusions regarding the adequacy of the current standards. Studies that examine health effect associations in analyses that exclude the highest exposures (*i.e.,* studies that restrict analyses below certain $PM_{2.5}$ concentrations), and which report positive and statistically significant associations in analyses restricted to annual average $PM_{2.5}$ exposures at or below 12 μg/m³ and/or to daily exposures below 35 μg/m³ (section II.B.3.b above and U.S. EPA, 2022b, Table 3–10). The PA notes that these restricted analyses provide additional support for effects at lower concentrations, exhibiting associations for mean concentrations presumably below the mean concentrations for the main analyses. While mean $PM_{2.5}$ concentrations for these restricted analyses may not be reported in most studies, the PA asserts that it would not be unreasonable to presume that the mean $PM_{2.5}$ concentrations in the restricted analyses are less than the study-reported mean $PM_{2.5}$ concentrations in the main analyses. The two studies (Di et al., 2017b, and Dominici et al., 2019) which report means in their restricted analyses (restricting annual average $PM_{2.5}$ exposure below 12 μg/m³) and used population-weighted approaches to estimate $PM_{2.5}$ exposures report mean $PM_{2.5}$ concentrations of 9.6 μg/m³. However, it is important to note that, even if the other studies had reported the mean $PM_{2.5}$ concentrations for the restricted analysis, these means would not necessarily have been useful in the context of the decision framework as was used in past reviews (above in section II.B.3.b.), given uncertainties associated with identifying the relationship between a calculated mean concentration that excludes specific daily or annual average concentrations above a certain threshold and the design value used to determine compliance with a standard (either the annual or 24-hour standard). Moreover, the PA emphasizes there is uncertainty in how studies exclude concentrations (*e.g.,* at what spatial resolution are concentrations being excluded), which would make any comparisons of mean concentrations in restricted analyses difficult to compare to design values.

The PA also takes note of studies that restrict 24-hour average $PM_{2.5}$ concentrations to values of less than 35 μg/m³ and again recognizes that these studies do not report the mean $PM_{2.5}$ concentration for the restricted analysis, as noted above, although the mean of the restricted analysis is presumably less than the mean $PM_{2.5}$ concentration in the main analysis. However, in some studies, the majority of $PM_{2.5}$ concentrations from the main study are already less than the restricted concentration (*e.g.,* in Di et al., 2017a, where of all case and control days, 93.6% had $PM_{2.5}$ concentrations below 25 μg/m³), which contributes to the uncertainty in how much lower a mean concentration in a restricted study is compared to the mean $PM_{2.5}$ concentration in the main analysis. As a result, the PA recognizes that there are limitations in how this information can be used in evaluating the adequacy of the current or potential alternative levels of the 24-hour standard. Additionally, the PA further recognizes that it is difficult to use the means, when reported, from studies of restricted analyses to evaluate the level of protection afforded by the current or potential alternative levels of the primary 24-hour $PM_{2.5}$ standard because the relationship between the study-reported mean concentration and the 98th percentile form of the 24-hour standard is not well understood, in particular for a short-term standard designed to limit exposures to peak $PM_{2.5}$ concentrations.

Finally, the PA notes the availability of accountability studies, which evaluate whether environmental policies or air quality interventions led to changes in air quality and are also associated with improvements in public health, including a number of recent studies evaluated in the ISA Supplement (summarized above in section II.B.3.b and U.S. EPA, 2022b, Table 3–12). These studies report positive and significant associations, including some studies with annual $PM_{2.5}$ concentrations below 12.0 μg/m³ at the start of the study period, indicating that public health improvements may occur following $PM_{2.5}$ reductions in areas that already meet the current annual $PM_{2.5}$ standard. For example, the PA notes that the studies by Corrigan et al. (2018) and Sanders et al. (2020a) and both found improvements in mortality rates due to improvements in air quality in both attainment and nonattainment areas following implementation of the 1997 primary annual $PM_{2.5}$ NAAQS. Additionally, the PA notes that an accountability study by Henneman et al. (2019a) evaluated the changes in modeled $PM_{2.5}$ concentrations following the retirement of coal fired power plants in the U.S found that reductions in $PM_{2.5}$ concentrations resulted in reductions of cardiovascular-related hospital admissions.[93] Other recent studies additionally report that declines in ambient $PM_{2.5}$ concentrations over a period of years have been associated with decreases in mortality rates and increases in life expectancy, improvements in respiratory development, and decreased incidence of respiratory disease in children, further supporting the robustness of $PM_{2.5}$ health effect associations reported in the epidemiologic evidence.

In considering the available scientific evidence, the PA recognizes that there are a number of uncertainties associated with the evidence that persist from previous reviews. The PA notes that, for controlled human exposures studies, there are uncertainties related to inconsistent results observed at concentrations near ambient $PM_{2.5}$ levels. Additionally, the PA recognizes that it is unclear how the results of controlled human exposure studies alone and the importance of the effects observed in these studies, particularly in studies conducted at near-ambient $PM_{2.5}$ concentrations, should be interpreted with respect to adversity to public health. With respect to animal toxicological studies, the PA notes that while these studies also help establish biological plausibility, uncertainty exists in extrapolating the effects observed in animal toxicological studies, and the $PM_{2.5}$ concentrations that cause those effects, to human populations.

Furthermore, the PA recognizes that uncertainties associated with the epidemiologic evidence (*e.g.,* the potential for copollutant confounding and exposure measurement error) remain, although new studies evaluated in the ISA Supplement employ statistical methods such as alternative methods for confounder control, to more extensively account for confounders, which are more robust to model misspecification. With regard to controlling for potential confounders in particular, the PA notes that the key epidemiologic studies use a wide array of approaches to control for potential confounders. Time-series studies control for potential confounders that vary over short time intervals (*e.g.,* including temperature, humidity, dew point temperature, and day of the week), while cohort studies control for community- and/or individual-level confounders that vary spatially (*e.g.,* including income, race, age, SES,

[93] We note that the studies by Corrigan et al. (2018) and Sanders et al. (2020a) report monitor-based average $PM_{2.5}$ concentrations, and the study by reports model-based average $PM_{2.5}$ concentrations, and that these studies do not report design values.

smoking, body mass index, and annual weather variables such as temperature and humidity) (U.S. EPA, 2022b, Table B–4). Sensitivity analyses indicate that adding covariates to control for potential confounders can either increase or decrease the magnitude of $PM_{2.5}$ effect estimates, depending on the covariate, and that none of the covariates examined can fully explain the association with mortality (*e.g.,* Di et al., 2017b, Figure S2 in Supplementary Materials). Thus, while no individual study adjusts for all potential confounders, a broad range of approaches have been adopted across studies to examine confounding, supporting the robustness of reported associations. Available studies additionally indicate that $PM_{2.5}$ health effect associations are robust across various approaches to estimating $PM_{2.5}$ exposures and across various exposure windows. This includes recent studies that estimate exposures using ground-based monitors alone and studies that estimate exposures using data from multiple sources (*e.g.,* satellites, land use information, modeling), in addition to monitors. While none of these approaches eliminates the potential for exposure error in epidemiologic studies, the PA concludes that such error does not call into question the fundamental findings of the broad body of $PM_{2.5}$ epidemiologic evidence.

Additionally, the PA notes the uncertainties associated with the studies that examine the shapes of C–R functions over the full distribution of ambient $PM_{2.5}$ concentrations have not identified a threshold concentration, below which associations no longer exist (section II.B.4 above, U.S. EPA, 2019a, section 1.5.3; U.S. EPA, 2022a, sections 2.2.3.1 and 2.2.3.2). While such analyses are complicated by the relatively sparse data available at the lower end of the air quality distribution (U.S. EPA, 2019a, section 1.5.3), the evidence remains consistent in supporting a no-threshold relationship, and in supporting a linear relationship for $PM_{2.5}$ concentrations >8 $\mu g/m^3$. However, uncertainties remain about the shape of the C–R curve at $PM_{2.5}$ concentrations <8 $\mu g/m^3$, with some recent studies providing evidence for either a sublinear, linear, or supralinear relationship at these lower concentrations.

While studies using hybrid modeling methods have demonstrated reduced exposure measurement error and reduced uncertainty in the health effect estimates, these methodologies have inherent limitations and uncertainties, as described in more detail above in section II.B.3.b and in sections 2.3.3.1.5 and 3.3.4 of the PA, and the performance of the modeling approaches depends on the availability of monitoring data which varies by location. Factors likely contributing to poorer model performance often coincide with relatively low ambient $PM_{2.5}$ concentrations, in areas where predicted exposures are at a greater distance to monitors, and under conditions where the reliability and availability of key datasets (*e.g.,* air quality modeling) are limited. Thus, the PA concludes that the uncertainty in hybrid model predictions becomes an increasingly important consideration as lower predicted concentrations are considered.

In addition, the PA recognizes that there are uncertainties and limitations in the analysis evaluating the comparison of estimated $PM_{2.5}$ concentrations using hybrid modeling surfaces and their relationship to design values that should be considered (section II.B.3.b above; U.S. EPA, 2022b, section 2.3.3.2.4). While design values in general are higher than estimated $PM_{2.5}$ concentrations using these two hybrid modeling approaches (DI2019 and HA2020), the PA recognizes that these are just two hybrid modeling approaches to estimating $PM_{2.5}$ concentrations and other models/approaches/spatial scales may result in somewhat different $PM_{2.5}$ concentrations and relationships with design values. The analysis evaluating the relationship between two different hybrid modeling surfaces and design values estimates $PM_{2.5}$ concentrations by CBSAs, but not every health study uses $PM_{2.5}$ estimates at this spatial scale, and spatial scales for exposure estimates can vary by study (section I.D.5 above; U.S. EPA, 2022b, section 2.3.3.2.4). The analysis completed was a nationwide analysis and ratios between design values and mean concentrations are based on national estimates. However, not all health studies are national studies (*i.e.,* some studies are completed in different regions of the country, like the southeast or northeast) and ratios in different parts of the country could be higher or lower, depending on factors like population, as well as the proportion of rural versus urban areas. This analysis used specific air quality years (2000–2016) and the use of other air quality years could result in higher or lower ratios.

Regardless of whether an epidemiologic study uses monitoring data or a hybrid modeling approach when estimating $PM_{2.5}$ exposures, the PA recognizes that it is challenging to interpret the study-reported mean $PM_{2.5}$ concentrations and how they compare to design values. This is particularly true given the variability that exists across the various approaches to estimate exposure and to calculate the study-reported mean. The PA also acknowledges that these types of challenges are also present in using information from Canadian studies to directly and quantitatively inform questions on the level of the annual standard given the difficulty of interpreting what the Canadian study means represent relative to U.S. design values.

b. Risk-Based Considerations

As in previous reviews, consideration of the scientific evidence in this reconsideration is informed by results from a quantitative analysis of risk. The overarching PA consideration regarding these results is whether they alter the overall conclusions from previous reviews regarding health risk associated with exposure to $PM_{2.5}$ in ambient air and associated judgments on the adequacy of public health protection provided by the current primary $PM_{2.5}$ standards. The risk assessment conducted for this reconsideration develops exposure and risk estimates for populations in 47 urban study areas, as well as subsets of those study areas depending on which of the primary $PM_{2.5}$ standards is controlling in a given study area. The primary analyses focus on exposure and risk associated with air quality that might occur in an area under air quality conditions that just meet the current and potential alternative standards. These study areas include nearly 60 million people ages 30 years or older and illustrate the differences likely to occur across various locations with such air quality as a result of area-specific differences in emissions, meteorological, and population characteristics. While the same conceptual air quality scenarios are simulated in all study areas (*i.e.,* conditions that just meet the existing or alternate standards), source, meteorological and population characteristics in the study areas contribute to variability in the estimated magnitude of risk across study areas (U.S. EPA, 2022b, section 3.6.2.1). In this way, the 47 areas provide a variety of examples of exposure patterns that can be informative to the Administrator's consideration of potential exposures and risks that may be associated with air quality conditions occurring under the current and potential alternative $PM_{2.5}$ standards.

In considering the risk assessment in this reconsideration, the PA notes a number of ways in which the current analyses update and improve upon

those available in previous reviews. As an initial matter, the PA notes that, consistent with the overall approach for this reconsideration, the risk assessment has a targeted scope that focuses on all-cause or nonaccidental mortality associated with long- and short-term $PM_{2.5}$ exposures (U.S. EPA, 2022b, section 3.4.1.2). As noted in section II.B.1 above, the evidence assessed in the 2019 ISA and ISA Supplement support a causal relationship between long- and short-term $PM_{2.5}$ exposures and mortality. Concentration-response functions used in the risk assessment are from large, multicity U.S. epidemiologic studies that evaluate the relationship between $PM_{2.5}$ exposures and mortality and were identified using criteria that take into account factors such as study design, geographic coverage, demographic populations, and health endpoints (U.S. EPA, 2022b, section 2.1).

The risk assessment also includes updates and improvements to input data and modeling approaches, summarized in section II.C above and in section 3.4 of the PA (U.S. EPA, 2022b). As in previous reviews, exposure and risk are estimated from air quality scenarios defined by the highest design value in the study area, which is the monitor location with the highest 3-year average of the annual mean $PM_{2.5}$ concentrations (*e.g.,* equal to 12.0 $\mu g/m^3$ for the current standard scenario) for the annual $PM_{2.5}$ standard and with the highest 3-year average of the 98th percentile 24-hour $PM_{2.5}$ concentrations (*e.g.,* equal to 35 $\mu g/m^3$ for the current standard scenario) for the 24-hour $PM_{2.5}$ standard. As described in more detail in section II.C above and in section 3.4 of the PA (U.S. EPA, 2022b), air quality modeling was used to simulate just meeting the existing annual and 24-hour standards of 12.0 $\mu g/m^3$ and 35 $\mu g/m^3$ and to just meeting potential alternative annual and 24-hour standards of 10.0 $\mu g/m^3$ and 30 $\mu g/m^3$. In addition to the air quality modeling approach, linear interpolation and extrapolation were used to simulate just meeting alternative annual standards with levels of 11.0 (interpolated between 12.0 and 10.0 $\mu g/m^3$), 9.0 $\mu g/m^3$, and 8.0 $\mu g/m^3$ (both extrapolated from 12.0 and 10.0 $\mu g/m^3$) in the subset of study areas controlled by the annual standard.

In addition to the risk assessment described above, the PA presents quantitative analyses that also assess long-term $PM_{2.5}$-attributable exposure and mortality risk, stratified by racial/ethnic demographics. As described in more detail in section II.B.2 above, the evidence suggests that different racial and ethnic groups, such as Black and Hispanic populations residing in the study areas, have higher $PM_{2.5}$ exposures than White and non-Hispanic populations also residing in the study areas, respectively, thus contributing to increased risk of PM-related effects. Of the available studies, Di et al. (2017b) was identified as best characterizing populations potentially at increased risk of long-term exposure-attributable all-cause mortality effects and provides race- and ethnicity-stratified C–R functions for ages 65 and over (U.S. EPA, 2022b, section 3.4.1.6 and Appendix C). Risk and exposure are quantitatively assessed within racial and ethnic minority populations of older adults in the full set of 47 areas and the subset of 30 areas controlled by the annual $PM_{2.5}$ standard. This analysis, when considered alongside estimates of risk across all populations in the 47 study areas, can help to inform conclusions on the annual primary $PM_{2.5}$ standards that would be requisite to protect the public health of demographic populations potentially at increased risk of long-term $PM_{2.5}$-related mortality effects.

In considering the risk results, the PA focuses first on estimates for the full set of 47 urban study areas. The risk assessment estimates that the current primary $PM_{2.5}$ standards could allow a substantial number of deaths in the U.S., with the large majority of those deaths associated with long-term $PM_{2.5}$ exposures. For example, when air quality in the 47 study areas is adjusted to just meet the current standards, the risk assessment estimates about 41,000 to 45,000 deaths from all-cause mortality in a single year (*e.g.,* for long-term exposures; confidence intervals range from about 30,000 to 59,000) (U.S. EPA, 2022b, section 3.4.2.1). For the 30 study areas [94] where just meeting the current standards is controlled by the annual standard,[95] long-term $PM_{2.5}$ exposures are estimated to be associated with as many as 39,000 (confidence intervals range from about 26,000 to 51,000) deaths from all-cause mortality in a single year (U.S. EPA, 2022b, section 3.4.2.2). For the 11 study areas [96] where just meeting the current standards is controlled by the daily standard,[97] long-term $PM_{2.5}$ exposures are estimated to be associated with as many as 2,600 (confidence intervals ranging from 1,700 to 3,400) deaths in a single year (U.S. EPA, 2022b, section 3.4.2.3). The risk assessment estimates far fewer deaths in a single year for short-term $PM_{2.5}$ exposures as compared to long-term $PM_{2.5}$ exposures, across all of the study area subsets (U.S. EPA, 2022b, section 3.6.2.2).

While the absolute numbers of estimated deaths vary across exposure durations, populations, and C–R functions, the general magnitude of risk estimates supports the potential for significant public health impacts in locations meeting the current primary $PM_{2.5}$ standards. This is particularly the case given that the large majority of $PM_{2.5}$-associated deaths for air quality just meeting the current standards are estimated at annual average $PM_{2.5}$ concentrations from about 10 to 12 $\mu g/m^3$. These annual average $PM_{2.5}$ concentrations fall within the range of long-term average concentrations over which key epidemiologic studies provide strong support for reported positive and statistically significant health effect associations (U.S. EPA, 2022b, section 3.6.2.2).

In the 47 urban study areas, when air quality is simulated to just meet alternative standards, the PA notes that there are substantially larger risk reductions associated with lowering the annual standard than with lowering the 24-hour standard. Risks are estimated to decrease by 13–17% when air quality is adjusted to just meet an alternative annual standard with a level of 10.0 $\mu g/m^3$ or by 1–2% when adjusted to just meet an alternative 24-hour standard with a level of 30 $\mu g/m^3$ (U.S. EPA, 2022b, section 3.4.2.1). The percentage decrease when just meeting an alternative annual standard with a level of 10.0 $\mu g/m^3$ corresponds to approximately 7,400 fewer deaths per year (confidence intervals ranging from about 4,100 to 9,800) attributable to long-term $PM_{2.5}$ exposures (U.S. EPA, 2022b, section 3.4.2.1).

In the 30 study areas where just meeting the current and alternative standards is controlled by the annual standard, air quality adjusted to meet alternative annual standards with lower

[94] These 30 areas controlled by the annual standard under all scenarios evaluated include a population of approximately 48 million adults aged 30–99, or about 75% of the population included in the full set of 47 areas.

[95] For these areas, the annual standard is the ''controlling standard'' because when air quality is adjusted to simulate just meeting the current or potential alternative annual standards, that air quality also would meet the 24-hour standard being evaluated.

[96] These 11 areas controlled by the 24-hour standard under all scenarios evaluated include a population of approximately 10 million adults aged 30–99, or about 17% of the population included in the full set of 47 areas.

[97] For these areas, the 24-hour standard is the controlling standard because when air quality is adjusted to simulate just meeting the current or potential alternative 24-hour standards, that air quality also would meet the annual standard being evaluated. Some areas classified as being controlled by the 24-hour standard also violate the annual standard.

levels is associated with reductions in estimated all-cause mortality risk. These reductions in risk for alternative annual levels are as follows: 7–9% reduction for an alternative annual level of 11.0 $\mu g/m^3$, 15–19% reduction for a level of 10.0 $\mu g/m^3$, 22–28% reduction for a level of 9.0 $\mu g/m^3$, and 30–37% reduction for a level of 8.0 $\mu g/m^3$ (U.S. EPA, 2022b, section 3.4.2.2). For each of these standards, most of the risk remaining is estimated at annual average $PM_{2.5}$ concentrations that fall somewhat below the alternative standard levels (U.S. EPA, 2022b, section 3.4.2.2).

In considering the at-risk analysis, the PA notes that across all simulated air quality for both the full set of 47 and the subset of 30 study areas, Blacks experience the highest average $PM_{2.5}$ concentrations of the demographic groups analyzed. Native Americans experienced the lowest average $PM_{2.5}$ concentrations, particularly in the full set of 47 study areas. White, Hispanic, and Asian populations were exposed to similar average $PM_{2.5}$ concentrations. Additionally, as the levels of potential alternative annual $PM_{2.5}$ standards decrease, there is comparatively less disproportionate exposure between demographic populations (U.S. EPA, 2022b, section 3.4.2.4).

The PA recognizes that the risk estimates can provide additional information beyond the exposure information to inform our understanding of potentially disproportionate impacts, in this instance by including demographic-specific information on baseline incidence and the relationship between exposure and health effect. Across all air quality scenarios and demographic groups evaluated, Black populations in the study areas are associated with the largest $PM_{2.5}$-attributable mortality risk rate per 100,000 people, while White populations in the study areas are associated with the smallest $PM_{2.5}$-attributative mortality risk rate (U.S. EPA, 2022b, section 3.4.2.4, Figure 3–20). Generally, as the levels of potential alternative annual $PM_{2.5}$ standards decrease in the 30 areas controlled by the annual standard, the average reductions in $PM_{2.5}$ concentration and mortality risk rates increase across all demographic populations (U.S. EPA, 2022b, section 3.4.2.4, Figure 3–21).

In comparing the reductions in average national $PM_{2.5}$ concentrations and risk rates within each demographic population, the average percent $PM_{2.5}$ concentrations and risk reductions are slightly greater in the Black population than in the White population for each alternative standard evaluated (11.0 $\mu g/m^3$, 10.0 $\mu g/m^3$, 9.0 $\mu g/m^3$, and 8.0 $\mu g/m^3$), when shifting from the current annual $PM_{2.5}$ standard (12.0 $\mu g/m^3$) in the full set of 47 areas and the subset of 30 areas controlled by the annual standard. Furthermore, the difference in average percent risk reductions increases slightly more in Blacks than in Whites as the level of the potential alternative annual standard decreases (U.S. EPA, 2022b, section 3.4.2.4, Table 3–19 and Table 3–20).

The PA also recognizes that there are several particularly important uncertainties that affect the quantitative estimates of risk rates and exposure in the at-risk analysis and their interpretation in the context of considering the current primary $PM_{2.5}$ standards. These include uncertainties related to the modeling and adjustment methods for simulating air quality scenarios; the potential influence of confounders on the relationship between $PM_{2.5}$ exposure and mortality; and the interpretation of the shapes of C–R functions, particularly at lower concentrations. It is also important to recognize the limited availability of studies to inform the at-risk analysis. As noted in section II.C above and in section 3.4 of the PA, the at-risk analysis included C–R functions from one study, Di et al. (2017b), which reported associations between long-term $PM_{2.5}$ exposures and mortality, stratified by race/ethnicity, in populations age 65 and older. Of the studies available from the 2019 ISA, Di et al. (2017b) was identified as best characterizing potentially at-risk minority populations across the U.S.[98] While the at-risk analyses provide additional insight on the estimated exposures and risks for certain demographic groups, it is not clear how the results would vary if: (1) analyses included populations that were younger than 65 years old, (2) the analyses were conducted areas that are demographically different than the 47 study areas included in this analysis, and (3) the air quality adjustments reflected source-specific emissions reduction strategies. Therefore, in light of the limitations and uncertainties associated with the at-risk analyses, the results should be considered within the context of the full risk assessment. The uncertainties associated with the quantitative risk assessment and at-risk analyses are described in more detail in the PA (U.S. EPA, 2022b, section 3.4.2.5 and Appendix C) and are summarized in section II.C.2 above.

[98] Additional details on concentration-response function identification can be found in Appendix C, section C.3.2 of the PA.

In considering the public health implications of the risk assessment, the PA notes that the purpose for the study areas is to illustrate circumstances that may occur in areas that just meet the current or potential alternative standards, and not to estimate risk associated with conditions occurring in those specific locations currently. The PA notes that some areas across the U.S. have air quality for $PM_{2.5}$ that is near or above the existing standards. Risks associated with air quality above the current standards are not informative to decisions about the adequacy of the current standards. This is because the risk assessment uses an approach to adjust air quality to just meet the current standards, which means that areas that have air quality that is above the current standards would be adjusted to just meet the current standards such that the evaluation of changes in risk and risk remaining would be associated with those areas meeting the current standards. The same is true for air quality adjusted to simulate just meeting alternative standard levels as well. Thus, the air quality and exposure circumstances assessed in the study areas in the risk assessment are specifically designed to inform whether the currently available information calls into question the adequacy of the public health protection afforded by the current standards, as well as to provide information regarding potential alternative standard levels.

The risk estimates for the study areas assessed in this reconsideration reflect differences in exposure circumstances among those areas and illustrate the exposures and risks that might be expected to occur in other areas with such circumstances under air quality conditions that just meet the current standards or the alternative standards assessed. Thus, the exposure and risk estimates indicate the magnitude of exposure and risk that might be expected in many areas of the U.S. with $PM_{2.5}$ concentrations at or near the current or alternative standards. Although the methodologies and data used to estimate risks in this reconsideration differ in several ways from what was used in the 2020 review, the findings and considerations summarized in the PA present a pattern of exposure and risk that is generally similar to that considered in the 2020 review, and indicate a level of protection generally consistent with that described in the 2020 PA.

The PA notes that the considerations related to the potential public health implications of the risk assessment and at-risk analysis are important to informing the Administrator's proposed

decisions regarding the public health significance of the risk assessment results. Specifically, the PA notes that available evidence and information suggests that both long- and short-term $PM_{2.5}$ exposures are associated with adverse health effects, including more severe effects such as mortality. In addition, the PA further notes that such effects impact large segments of the U.S. population, including those populations that may have other factors that influence risk (*i.e.,* lifestage, pre-existing cardiovascular and respiratory diseases, race/ethnicity), as well as disparities in $PM_{2.5}$ exposures and health risks based on race and ethnicity (U.S. EPA, 2022b, section 3.6.2.5). Therefore, the PA recognizes that the air quality allowed by the current primary $PM_{2.5}$ standards could be judged to be associated with significant public health risk. The PA also recognizes that such conclusions also depend in part on public health policy judgments that will weigh in the Administrator's decision in this reconsideration with regard to the adequacy of protection afforded by the current standards. Such judgments that are common to NAAQS decisions include those related to public health implications of effects of differing severity. Such judgments also include those concerning the public health significance of effects at exposures for which evidence is limited or lacking, such as effects at lower concentrations than those demonstrated in the key epidemiologic studies and in those population groups for which population-specific information, such as C–R functions, are not available from the epidemiologic literature.

3. Administrator's Proposed Conclusions on the Primary $PM_{2.5}$ Standards

This section summarizes the Administrator's considerations and proposed conclusions related to the adequacy of the current primary $PM_{2.5}$ standards and presents his proposed decision to revise the primary annual $PM_{2.5}$ standard and retain the primary 24-hour $PM_{2.5}$ standard. In establishing primary standards under the Act that are ''requisite'' to protect public health with an adequate margin of safety, the Administrator is seeking to establish standards that are neither more nor less stringent than necessary for this purpose. He recognizes that the requirement to provide an adequate margin of safety was intended to address uncertainties associated with inconclusive scientific and technical information and to provide a reasonable degree of protection against hazards that research has not yet identified. However, the Act does not require that primary standards be set at a zero-risk level; rather, the NAAQS must be sufficiently protective, but not more stringent than necessary.

Given these requirements, the Administrator's final decision in this reconsideration will be a public health policy judgment drawing upon scientific and technical information examining the health effects of $PM_{2.5}$ exposures, including how to consider the range and magnitude of uncertainties inherent in that information. This public health policy judgment will be based on an interpretation of the scientific and technical information that neither overstates nor understates its strengths and limitations, nor the appropriate inferences to be drawn, and will be informed by the Administrator's consideration of advice from the CASAC and public comments received on this proposal document.

a. Adequacy of the Current Primary $PM_{2.5}$ Standards

In considering whether the currently available scientific evidence and quantitative risk-based information support or call into question the adequacy of the public health protection afforded by the current primary $PM_{2.5}$ standards, and as is the case with NAAQS reviews in general, the extent to which the current primary $PM_{2.5}$ standards are judged to be adequate will depend on a variety of factors, including science policy and public health policy judgments to be made by the Administrator on the strength and uncertainties of the scientific evidence. The factors relevant to judging the adequacy of the standards also include the interpretation of, and decisions as to the weight to place on, different aspects of the results of the risk assessment for the study areas included and the associated uncertainties. Thus, the Administrator's proposed conclusions regarding the adequacy of the current standards will depend in part on judgments regarding aspects of the evidence and risk estimates, and judgments about the degree of protection that is requisite to protect public health with an adequate margin of safety.

i. Proposed Conclusions on the Adequacy of the Current Primary $PM_{2.5}$ Standards

In reaching proposed conclusions on the adequacy of the current primary $PM_{2.5}$ standards, the Administrator has considered the scientific evidence, including that assessed in the 2019 ISA and the ISA Supplement. The Administrator has also considered the quantitative estimates of risk developed in this reconsideration, including associated uncertainties and limitations, and the extent to which they indicate differing conclusions regarding the magnitude of risk, as well as level of protection from adverse effects, associated with the current standards. The Administrator has additionally considered the key aspects of the evidence and risk estimates emphasized in establishing the current standards, and the associated public health policy judgments and judgments about the uncertainties inherent in the scientific evidence and quantitative analyses that are integral to the proposed conclusions on the adequacy of the current primary $PM_{2.5}$ standards.

First, as described above in section II.A.2, the Administrator's approach recognizes that the current annual standard (based on arithmetic mean concentrations) and 24-hour standard (based on 98th percentile concentrations), together, are intended to provide public health protection against the full distribution of short- and long-term $PM_{2.5}$ exposures. In evaluating the adequacy of the current standards, the Administrator focuses on evaluating the public health protection afforded by the annual and 24-hour standards, taken together, against adverse health effects associated with long- or short-term $PM_{2.5}$ exposures. This approach recognizes that changes in $PM_{2.5}$ air quality designed to meet either the annual or the 24-hour standard would likely result in changes to both long-term average and short-term peak $PM_{2.5}$ concentrations.

In general, the Administrator recognizes that the annual standard is most effective at controlling exposures to ''typical'' daily $PM_{2.5}$ concentrations that are experienced over the year, while the 24-hour standard, with its 98th percentile form, is most effective at limiting peak daily or 24-hour $PM_{2.5}$ concentrations. In considering the combined effects of these standards, the Administrator recognizes that changes in $PM_{2.5}$ air quality designed to meet an annual standard would likely result not only in lower short- and long-term $PM_{2.5}$ concentrations near the middle of the air quality distribution, but also in fewer and lower short-term peak $PM_{2.5}$ concentrations. Additionally, changes designed to meet a lower 24-hour standard, with a 98th percentile form, would most effectively result in fewer and lower peak 24-hour $PM_{2.5}$ concentrations, but also have an effect on lowering the annual average $PM_{2.5}$ concentrations. Thus, the Administrator acknowledges the focus in evaluating

the current primary standards is on the protection provided by the combination of the annual and 24-hour standards against the distribution of both short- and long-term $PM_{2.5}$ exposures.

The Administrator recognizes the longstanding body of health evidence supporting relationships between $PM_{2.5}$ exposures (short- and long-term) and mortality or serious morbidity effects. The evidence available in this reconsideration (*i.e.,* that assessed in the 2019 ISA (U.S. EPA, 2019a) and ISA Supplement (U.S. EPA, 2022a) and summarized above in section II.B.1 and section II.D.2.a reaffirms, and in some cases strengthens, the conclusions from the 2009 ISA regarding the health effects of $PM_{2.5}$ exposures (U.S. EPA, 2009a). As noted above, epidemiologic studies demonstrate generally positive, and often statistically significant, $PM_{2.5}$ health effect associations. Such studies report associations between estimated $PM_{2.5}$ exposures and non-accidental, cardiovascular, or respiratory mortality; cardiovascular or respiratory hospitalizations or emergency room visits; and other mortality/morbidity outcomes (*e.g.,* lung cancer mortality or incidence, asthma development). Recent experimental evidence, as well as evidence from panel studies, strengthens support for potential biological pathways through which $PM_{2.5}$ exposures could lead to the serious effects reported in many population-level epidemiologic studies, including support for pathways that could lead to cardiovascular, respiratory, nervous system, and cancer-related effects. The Administrator also recognizes that the PA notes that while the full body of health effects evidence is considered in this reconsideration of the PM NAAQS, the greatest emphasis in the PA is placed on the health effects for which the evidence has been judged in the 2019 ISA to demonstrate a ''causal'' or ''likely to be causal'' relationship with $PM_{2.5}$ exposures (*i.e.,* mortality, cardiovascular effects, respiratory effects, cancer, and nervous system effects). In considering the available scientific evidence, consistent with approaches employed in past NAAQS reviews, the Administrator places the most weight on evidence supporting ''causal'' or ''likely to be causal'' relationship with long or short-term $PM_{2.5}$ exposures. In addition, the Administrator also takes note of those populations identified to be at greater risk of $PM_{2.5}$-related health effects, as characterized in the 2019 ISA and ISA Supplement, and the potential public health implications.

In evaluating the public health protection afforded by the current primary $PM_{2.5}$ standards against long- and short-term $PM_{2.5}$ exposures, the Administrator considers the four basic elements of the NAAQS (indicator, averaging time, form, and level) collectively. With respect to indicator, the Administrator recognizes that the scientific evidence in this reconsideration, as in previous reviews, continues to provide strong support for health effects associated with $PM_{2.5}$ mass. He notes the PA conclusion that the available information continues to support the $PM_{2.5}$ mass-based indicator and remains too limited to support a distinct standard for any specific $PM_{2.5}$ component or group of components, and too limited to support a distinct standard for the ultrafine fraction (U.S. EPA, 2022b, section 3.6.3.2.1). In its advice on the adequacy of the current primary $PM_{2.5}$ standards, the CASAC reached consensus that the $PM_{2.5}$ mass-based indicator should be retained, without revision (Sheppard, 2022a, p. 2 of consensus letter). Thus, as in the 2020 review (85 FR 82715, December 18, 2020) and consistent with the advice from the CASAC, the Administrator proposes to conclude that it is appropriate to consider retaining $PM_{2.5}$ mass as the indicator for the primary standards for fine particles.

With respect to averaging time and form, the Administrator notes that the scientific evidence continues to provide strong support for health effect associations with both long-term (*e.g.,* annual or multi-year) and short-term (*e.g.,* mostly 24-hour exposures to $PM_{2.5}$) (U.S. EPA, 2022b, section 3.6.3.2.2). In this reconsideration, the epidemiologic and controlled human exposure studies have examined a variety of $PM_{2.5}$ exposure durations. Epidemiologic studies continue to provide strong support for health effects associated with short-term $PM_{2.5}$ exposures based on 24-hour $PM_{2.5}$ averaging periods, and the EPA notes that associations with sub-daily estimates are less consistent and, in some cases, smaller in magnitude (U.S. EPA, 2019a, section 1.5.2.1; U.S. EPA, 2022b, section 3.6.3.2.2). In addition, controlled human exposure and panel-based studies of sub-daily exposures typically examine subclinical effects rather than the more serious population-level effects that have been reported to be associated with 24-hour exposures (*e.g.,* mortality, hospitalizations). Taken together, the 2019 ISA concludes that epidemiologic studies do not indicate that subdaily averaging periods are more closely associated with health effects than the 24-hour average exposure metric (U.S. EPA, 2019a, section 1.5.2.1). Additionally, while recent controlled human exposure studies provide consistent evidence for cardiovascular effects following $PM_{2.5}$ exposures for less than 24 hours (*i.e.,* <30 minutes to 5 hours), exposure concentrations in these studies are well-above the ambient concentrations typically measured in locations meeting the current standards (U.S. EPA, 2022b, section 3.3.3.1). Therefore, these studies do not provide support for additional protection against sub-daily $PM_{2.5}$ exposures, beyond that provided by the current primary standards. In its advice on the adequacy of the current primary $PM_{2.5}$ standards, the CASAC reached consensus that averaging times for the standards should be retained, without revision (Sheppard, 2022a, p. 2 of consensus letter). Thus, as in the 2020 review (85 FR 82715, December 18, 2020), and consistent with the advice from the CASAC, the Administrator reaches the proposed conclusion that the currently available evidence does not support considering alternatives to the annual and 24-hour averaging times for standards meant to protect against long- and short-term $PM_{2.5}$ exposures.

With regard to form, the Administrator proposes to conclude that it is appropriate to consider retaining the current form of both the annual and the 24-hour standards. In so doing, he first notes that, in the 1997 review, the EPA set both an annual standard, to provide protection from health effects associated with both long- and short-term exposures to $PM_{2.5}$, and a 24-hour standard to a supplement the protection afforded by the annual standard (62 FR 38667, July 18, 1997). With regard to the form of the annual standard, the Administrator recognizes that a large majority of the recently available epidemiologic studies continue to report associations between health effects and annual average $PM_{2.5}$ concentrations. These studies of annual average $PM_{2.5}$ concentrations provide support for retaining the current form of the annual standard to provide protection against long- and short-term $PM_{2.5}$ exposures. In its advice on the adequacy of the current standards, the CASAC reached consensus that the form of the annual standard (*i.e.,* annual mean, averaged over 3 years) should be retained, without revision (Sheppard, 2022a, p. 2 of consensus letter). In relation to the form of the 24-hour standard (98th percentile, averaged over three years), the Administrator notes that epidemiologic studies continue to provide strong support for health effect associations with short-term (*e.g.,* mostly 24-hour) $PM_{2.5}$ exposures (U.S.

EPA, 2022b, section 3.6.3.2.3) and that controlled human exposure studies provide evidence for health effects following single short-term ''peak'' $PM_{2.5}$ exposures. Thus, the evidence supports retaining a standard focused on providing supplemental protection against short-term peak exposures and supports a 98th percentile form for a 24-hour standard. The Administrator further notes that this form also provides an appropriate balance between limiting the occurrence of peak 24-hour $PM_{2.5}$ concentrations and identifying a stable target for risk management programs (U.S. EPA, 2022b, section 3.6.3.2.3). While the CASAC provided recommendations regarding the adequacy of the current 24-hour standard conditional on the current form (*i.e.,* 98th percentile, averaged over three years), they recommended that in future reviews, the EPA also consider alternative forms for the primary 24-hour $PM_{2.5}$ standard (Sheppard, 2022a, p. 18 of consensus responses). Furthermore, the Administrator notes that the multi-year percentile form (*i.e.,* averaged over three years) offers greater stability to the air quality management process by reducing the possibility that statistically unusual indicator values will lead to transient violations of the standard. Thus, in considering the information summarized above, and consistent with the advice from the CASAC, the Administrator reaches the preliminary conclusion that it is appropriate to consider retaining the forms of the current annual and 24-hour $PM_{2.5}$ standards. The Administrator solicits public comment on the proposed decision to retain the current form (98th percentile, averaged over three years) of the primary 24-hour $PM_{2.5}$ standard. The Administrator acknowledges that the CASAC recommended retaining the current form at this time but also recommended that the EPA consider alternatives to the current form in future reviews. The EPA agrees that it would be appropriate to gather additional air quality and scientific information and further consider these issues in future reviews. This information will not be utilized for this reconsideration process.

With regard to the level of the current standards, the Administrator first considers the scientific evidence evaluated in the 2019 ISA and ISA Supplement, and considerations regarding the evidence as presented in the PA. The Administrator recognizes that the PA places greater weight on epidemiologic studies conducted in the U.S. and Canada, as these studies are more directly applicable for quantitative considerations compared to studies conducted in other countries. Studies conducted in other countries outside of the U.S. and Canada generally reflect different populations, exposure characteristics, air pollution mixtures, and higher $PM_{2.5}$ concentrations in ambient air than are currently found in the U.S. Therefore, consistent with approaches in previous reviews, the Administrator judges that it is appropriate to place greater weight on the U.S. and Canadian epidemiologic studies in reaching conclusions regarding the adequacy of the current standards. In so doing, the Administrator notes that the epidemiologic studies in the U.S. and Canada report health effect associations with mortality and/or morbidity across multiple cities and in diverse populations, including in studies examining populations and lifestages that may be at increased risk of experiencing a $PM_{2.5}$-related health effect (*e.g.,* older adults, children, populations with pre-existing cardiovascular and respiratory disease, minority populations, and low SES communities). Further, he notes the epidemiologic studies that use a variety of statistical designs and employ a variety of methods to examine exposure measurement error as well as to control for confounding effects, and he acknowledges that results of these analyses support the robustness of the reported associations. Additionally, the Administrator notes findings from an expanded body of studies that employ alternative methods for confounder control and accountability methods further inform the causal nature of the relationship between long or short-term term $PM_{2.5}$ exposure and mortality as described in the 2019 ISA and ISA Supplement (U.S. EPA, 2019, sections 11.1.2.1, 11.2.2.4; U.S. EPA, 2022a, sections 3.1.1.3, 3.1.2.3, 3.2.1.3, and 3.2.2.3). These studies, summarized above in II.B.3 above and in Table 3–11 and Table 3–12 of the PA (U.S. EPA, 2022b) examine both short- and long-term $PM_{2.5}$ exposure and cardiovascular effects and mortality, and, using a variety of statistical methods to control for confounding bias, consistently report positive associations, which further supports the broader body of epidemiologic evidence for both cardiovascular effects and mortality. Moreover, the Administrator notes that recent epidemiologic studies strengthen support for health effect associations at $PM_{2.5}$ concentrations lower than in those evaluated in epidemiologic studies available at the time of previous reviews. Lastly, the Administrator notes that studies that examine the shape of the C–R relationship over the full distribution of ambient $PM_{2.5}$ concentrations have not identified a threshold concentration, below which associations no longer exist (U.S. EPA, 2019a, section 1.5.3; U.S. EPA, 2022a, sections 2.1.1.5.1 and 2.1.1.5.2). However, the Administrator also notes that uncertainties remain about the shape of the C–R curve at $PM_{2.5}$ concentrations <8 $\mu g/m^3$, with some recent studies providing evidence for either a sublinear, linear, or supralinear relationship at these lower concentrations (section II.B.4 above; U.S. EPA, 2019a, section 11.2.4; U.S. EPA, 2022a, section 2.2.3.2).

In considering the available scientific evidence to inform proposed decisions on the adequacy of the current level of the annual standard, the Administrator acknowledges that the evidence available in this reconsideration provides support for adverse health effect associations at lower ambient $PM_{2.5}$ concentrations than in previous reviews. The Administrator notes that in previous reviews (including 1997, 2006 and 2012 reviews), evidence-based approaches focused on identifying standard levels near or somewhat below long-term mean concentrations reported in key epidemiologic studies. These approaches were supported by the CASAC in previous reviews and are supported in this reconsideration by the current CASAC, who also referenced the potential for considering other lines of epidemiologic evidence.[99] The Administrator notes that in this reconsideration, a large number of key U.S. epidemiologic studies report positive and statistically significant associations for air quality distributions with overall mean $PM_{2.5}$ concentrations that are well below the current level of the annual standard of 12 $\mu g/m^3$ (*i.e.,* Figure 1 and Figure 2 above with concentrations ranging down as low as 9.9 $\mu g/m^3$ in U.S.-based monitor-based studies and 9.3 $\mu g/m^3$ in U.S.-based hybrid model-based studies). The Administrator also recognizes that, while Canadian studies can be more difficult to directly compare to the annual design value used to determine in compliance in the U.S., the overall mean $PM_{2.5}$ concentrations from the key Canadian epidemiologic studies are

[99] The Administrator notes that some members of the CASAC advised that ''for the purpose of informing the adequacy of the standards'' (Sheppard, 2022a, p. 8 of consensus responses) that the EPA in future reviews include evaluation of other metrics, including the distribution of concentrations reported in epidemiologic studies and in analyses restricting concentrations to below the current standard level.

close to, though somewhat lower than, those from the U.S. studies. The range of monitor-based mean $PM_{2.5}$ concentrations is from 6.9 μg/m³ to 13.3 μg/m³ while the range of mean $PM_{2.5}$ concentrations in studies that use hybrid modeling is 5.9 μg/m³ to 9.8 μg/m³.

In assessing the adequacy of the current annual standard, the Administrator also examines additional epidemiologic studies, consistent with CASAC advice, that provide supplementary information for consideration in reaching conclusions regarding the current annual standard. These studies include analyses that restrict annual average $PM_{2.5}$ concentrations to values below level the annual standard (described above in section II.B.3.b and in Table 3–10 of the PA) and the CASAC advised that ''for the purpose of informing the adequacy of the standards'' that the EPA evaluate the means from these studies. In this reconsideration, there are two key studies available that restrict average annual $PM_{2.5}$ concentrations to less than 12 μg/m³ (Di et al., 2017a, and Dominici et al., 2019). These restricted analyses report positive and statistically significant associations with all-cause mortality and report mean $PM_{2.5}$ concentrations of 9.6 μg/m³. Thus, these two epidemiologic studies provide support for positive and statistically significant associations at lower mean $PM_{2.5}$ concentrations. The Administrator does note that uncertainties exist in these analyses (described in more detail in sections II.B.3.b and II.D.2.a above), including uncertainty in how studies exclude concentrations (*e.g.,* at what spatial resolution are concentrations being excluded), which would make any comparisons of concentrations in restricted analyses difficult to compare directly to design values.

In considering the available key U.S. epidemiologic studies, the Administrator also notes that CASAC recommended looking at the distribution of concentrations reported in epidemiologic studies for purposes of informing the adequacy of the standards and notes that a small number of studies report $PM_{2.5}$ concentrations corresponding to the 25th and 10th percentiles of health data or exposure estimates. He observes that in studies that use monitors to estimate $PM_{2.5}$ exposures, 25th percentiles of health events correspond to $PM_{2.5}$ concentrations (*i.e.,* averaged over the study period for each study city) at or above 11.5 μg/m³ and 10th percentiles of health events correspond to $PM_{2.5}$ concentrations at or above 9.8 μg/m³ (*i.e.,* 25% and 10% of health events, respectively, occur in study locations with $PM_{2.5}$ concentrations below these values) (Figure 1 above and U.S. EPA, 2022b, Figure 3–8). The Administrator further observes that of the key U.S. epidemiologic studies that use hybrid modeling approaches to estimate long-term $PM_{2.5}$ exposures, the ambient $PM_{2.5}$ concentrations corresponding to 25th percentiles of estimated exposures are 9.1 μg/m³ (Figure 2 above and U.S. EPA, 2022b, Figure 3–14). In key U.S. epidemiologic studies that use hybrid modeling approaches to estimate short-term $PM_{2.5}$ exposures, the ambient concentrations corresponding to 25th percentiles of estimated exposures, or health events, are 6.7 μg/m³ and the ambient $PM_{2.5}$ concentration corresponding to that 10th percentile range from 4.7 μg/m³ to 7.3 μg/m³ (Figure 2 above and U.S. EPA, 2022b, Figure 3–14). While the Administrator places less weight on the limited number of studies that report these lower quartiles of the air quality distributions, he notes these concentrations are generally below the level of the annual standard of 12 μg/m³.

In further assessing the adequacy of the current annual standard, the Administrator also evaluates what the accountability studies may indicate with respect to potential for improvements in public health with improvements in air quality. In so doing, he takes note of three accountability studies (Sanders et al., 2020b; Corrigan et al., 2018; and Henneman et al., 2019a) newly available in this reconsideration with starting concentrations at or below 12.0 μg/m³ that indicate positive and significant associations with mortality and morbidity and reductions in ambient $PM_{2.5}$ (described above in section II.B.3.b and in Table 3–12 of the PA) and notes that these studies suggest public health improvements may occur at concentrations below 12 μg/m³.

Thus, in considering the available scientific evidence to inform proposed decisions on the adequacy of the current primary annual $PM_{2.5}$ standard, the Administrator recognizes that there is a long-standing body of epidemiologic evidence that provides support for associations between $PM_{2.5}$ exposures and health effects across a distribution of air quality that includes concentrations near (*i.e.,* at, above, and below) the current standards. As such, the Administrator recognizes that the available scientific evidence, as assessed in the 2019 ISA and ISA Supplement, including the newly available epidemiologic studies and the supplemental information from specific types of epidemiologic studies, provides a strong scientific foundation for consideration of the adequacy of the level of the current annual standard.

In considering the available scientific evidence to inform proposed decisions on the adequacy of the current 24-hour standard, the Administrator finds that there is less information available to support decisions on the 24-hour standard than that summarized above for the annual standard. When looking to the experimental studies, he notes that controlled human exposure studies provide evidence for health effects following single, short-term exposures to $PM_{2.5}$ concentrations that are greater than those typically present in ambient air. In the controlled human exposure studies, the Administrator observes that results are inconsistent, particularly at lower $PM_{2.5}$ concentrations, but that studies do report statistically significant effects on one or more indicators of cardiovascular function following 2-hour exposures to $PM_{2.5}$ concentrations at and above 120 μg/m³ (and at and above 149 μg/m³ for vascular impairment, the effect shown to be most consistent across studies). As noted in the 2019 ISA, these studies are important in establishing biological plausibility for $PM_{2.5}$ exposures causing more serious health effects, such as those seen in short-term exposure epidemiologic studies. However, as noted in the PA, the observed effects in these controlled human exposures studies are ones that signal an intermediate effect in the body, likely due to short-term exposure to $PM_{2.5}$, and which may provide support that more adverse effects may be experienced following longer exposure durations and/or exposure to higher concentrations but such intermediate effects typically would not, by themselves, be judged as adverse. Additionally, he acknowledges, as noted by the CASAC, that these controlled human exposure studies generally do not include populations with substantially increased risk from exposure to $PM_{2.5}$, such as children, older adults, or those with more severe underlying illness. So, noting these points and balancing these limitations (*i.e.,* that the health outcomes observed in these controlled human exposure studies are not clearly adverse and that the studies generally do not include those at increased risk from $PM_{2.5}$ exposure), the Administrator examines the air quality analyses, described in more detail in section II.B.3.a above, to assess whether during recent air quality conditions, areas meeting the current

standards would experience the concentrations reported in these controlled human exposure studies. He observes that these air quality analyses demonstrate that the $PM_{2.5}$ exposures shown to cause consistent effects in the controlled human exposure studies are well-above the ambient concentrations typically measured in locations meeting the current primary standards, thus suggesting that the current primary $PM_{2.5}$ standards provide protection against these ''peak'' concentrations. In fact, at air quality monitoring sites meeting the current primary $PM_{2.5}$ standards (*i.e.,* the 24-hour standard and the annual standard), the 2-hour concentrations generally remain below 10 μg/m³, and rarely exceed 30 μg/m³. Two-hour concentrations are higher at monitoring sites violating the current standards, but generally remain below 16 μg/m³ and rarely exceed 80 μg/m³. Based on this information, the Administrator finds that the current suite of standards maintains sub-daily concentrations far below the current concentrations in controlled human exposure studies where consistent effects have been observed, and notes that while these studies generally do not include the most at-risk individuals, the exposure concentrations in these studies also do not elicit adverse effects.

In addition, the Administrator also notes that the majority of the CASAC provide support for their advice to revise the current daily standard by pointing to ''substantial epidemiologic evidence from both morbidity and mortality studies'' which ''includes three U.S. air pollution studies with analyses restricted to 24-hour concentrations below 25 μg/m³'' (Sheppard, 2022a, p. 17 consensus responses). In considering this advice from the majority of the CASAC, the Administrator notes that the substantial epidemiologic evidence available in this reconsideration, including the studies that restrict short-term (24-hour average $PM_{2.5}$ concentrations) $PM_{2.5}$ exposures below 25 μg/m³, provides support for positive and statistically significant associations between exposure to short-term $PM_{2.5}$ concentrations and all-cause mortality (Di et al., 2017a) and CVD hospital admissions (deSouza et al., 2021, and Di et al., 2017a). In particular, for the available epidemiologic studies that employ restricted analyses of short-term exposure studies, multicity studies indicate that positive and statistically significant associations with mortality persist in analyses restricted to short-term (24-hour average $PM_{2.5}$ concentrations) $PM_{2.5}$ exposures below 35 μg/m³ (Lee et al., 2015), below 30 μg/m³ (Shi et al., 2016), and below 25 μg/m³ (Di et al., 2017a). Thus, the Administrator agrees that these studies help to provide additional support for reaching conclusions on causality in the 2019 ISA. Additionally, when considering these studies, the restricted approach in these short-term studies most clearly indicates that risks associated with short-term $PM_{2.5}$ exposures are not disproportionately driven by the peaks of the air quality distribution. While this is useful information, it does not help to inform questions on the adequacy of the current 24-hour standard given that the 24-hour standard focuses on reducing ''peak'' exposures (with its 98th percentile form). In further evaluating these studies, the Administrator notes that the fact that there are positive and significant associations in these analyses does not mean that one can conclude that there would be short-term effects occurring in areas that meet a 24-hour standard at these levels. This is true for multiple reasons. First, there are uncertainties with respect to the methodologies used in these studies to exclude concentrations and the specific methodology used (*e.g.,* are individual days with concentrations above the concentration of interest in the restricted analyses excluded at the modeled grid cell level or the ZIP code level rather than removing entire areas with day(s) that exceed that concentration) has direct implications for the resulting air quality scenario(s). This in turn affects how the adjusted air quality scenarios in these studies can be related to air quality distributions and exposures to $PM_{2.5}$ concentrations in ambient air and thus how the data can be interpreted with regard to the current standard level. Second, given that these studies are only evaluating daily or annual average $PM_{2.5}$ concentrations that would correspond to the levels of the standards, they do not consider these levels along with the forms and averaging times of the standards. This is quite limiting for use in judging the adequacy of the 24-hour standard given that the study-reported mean concentration is not useful in informing the level of a standard with a 98th percentile form that is designed to limit exposures to peak $PM_{2.5}$ concentrations. Further, as noted in the PA, the study-reported means from these studies, are not useful in identifying a level at which we can say with some confidence that effects are occurring due to impacts from ''peak'' exposures (*i.e.,* those most closely aligned with the protection provide by the 24-hour standard, with its 98th percentile form) but are instead more useful in informing questions about impacts from ''typical'' or average 24-hour exposures (*i.e.,* those most closely aligned with the protection provided by the annual standard). These uncertainties and lack of information available from these studies are quite limiting and as such, the Administrator concludes that it is unclear how to apply these studies to a decision framework that could inform whether the level of the current 24-hour standard is or is not adequate. However, the Administrator notes this uncertainty may not be quite as limiting for using restricted analyses studies to inform conclusions regarding the adequacy of the annual standard, given that the study-reported means could be evaluated in the context of the decision framework described above for informing proposed decisions on the level of the annual standard. However, in considering the available evidence with regard to the current 24-hour $PM_{2.5}$ standard, while the Administrator agrees with the majority of the CASAC's comment that the controlled human exposure studies have significant limitations which must be considered when reaching conclusions on the adequacy of the current 24-hour standard, he finds that restricted analyses studies have significant limitations and do not provide a stronger line of evidence with which to inform his proposed decisions on the current 24-hour standard.

In addition to the evidence above, the Administrator also considers what the risk assessment indicates with regard to the adequacy of the current primary annual and 24-hour $PM_{2.5}$ standards. These analyses provide estimates of $PM_{2.5}$-attributable mortality which are estimated based on input data that include C–R functions from epidemiologic studies that have no threshold and a linear C–R relationship down to zero, as well an air quality adjustment approach that incorporates proportional decreases in $PM_{2.5}$ concentrations to meet lower standard levels. The Administrator observes that the risk assessment estimates that the current primary annual $PM_{2.5}$ standard could allow a substantial number of deaths in the U.S. For example, when air quality in 30 study areas is adjusted to simulate just meeting the current annual standard, the risk assessment estimates long-term $PM_{2.5}$ exposures to be associated with as many as 39,000 total deaths, with confidence intervals ranging from 26,000–51,000. The Administrator notes that these estimates do not reflect uncertainties in associations of health effects at lower

concentrations and simulated air quality improvements will always lead to proportional decreases in risk (*i.e.,* each additional μg/m^3 reduction produces additional benefits with no clear stopping point). Noting these limitations and noting that the absolute numbers of estimated deaths vary across exposure durations, populations, and C–R functions, he also observes that the general magnitude of risk estimates supports the potential for significant public health impacts in locations meeting the current primary annual $PM_{2.5}$ standard. He observes that this is particularly the case given that the large majority of $PM_{2.5}$-associated deaths for air quality just meeting the current annual standard are estimated at annual average $PM_{2.5}$ concentrations from about 10 to 12 μg/m^3, annual average $PM_{2.5}$ concentrations that fall well within the range of long-term average concentrations over which key epidemiologic studies provide strong support for reported positive and statistically significant $PM_{2.5}$ health effect associations. With respect to the CASAC's advice on the risk assessment, the Administrator notes that the majority of the CASAC agreed that ''[t]he results support the conclusion that the current primary annual $PM_{2.5}$ standard does not adequately protect public health'' (Sheppard, 2022a, p. 2 of consensus letter) and that ''[t]he CASAC concurs with the EPA's assessment that meaningful risk reductions will result from lowering the annual $PM_{2.5}$ standard'' (Sheppard, 2022a, p. 3 of consensus letter). Additionally, the minority of CASAC also agreed that the risk assessment results support revision to the annual standard but commented that there were important uncertainties in the analyses and interpretation of the analyses for annual standard levels below 10 μg/m^3 (Sheppard, 2022a, p. 3 of consensus letter).

The Administrator also recognizes that the risk assessment was able to include a new analysis based on the availability of a new study in this reconsideration that provided mortality risk coefficients for older adults (*i.e.,* 65 years and older) based on $PM_{2.5}$ exposure and stratified by racial and ethnic demographics. This at-risk analysis provided estimates of potential long-term $PM_{2.5}$-attributable exposure and mortality risk in older adults, stratified by racial/ethnic demographics, when meeting a revised annual standard with a lower level. The Administrator recognizes that this analysis is subject to the same uncertainties as those associated with the main risk assessment estimates, including being limited to a subset of areas across the U.S. and influenced by air quality adjustment methodologies that may not produce estimates of $PM_{2.5}$ concentration exposures that match those that can result from control strategies implemented to meet more stringent standards, and that the results are based on the risk coefficients of only one epidemiologic study. Taking into account these uncertainties and limitations, he does judge that the analysis supports that a lower annual standard level (*i.e.,* below 12 μg/m^3 and down as low as 8 μg/m^3) will help to reduce $PM_{2.5}$ exposure and may also help to mitigate risk disparities. The Administrator notes that what urban areas are included in the risk assessment analysis will greatly influence the results but notes that based on the areas included in the analyses, the results show the largest impact is on reducing exposure and risk in Black populations, who were estimated in the risk assessment case study areas to have the highest levels of exposures and the greatest rates of premature mortality risk.

With respect to the 24-hour standard, the risk assessment indicates that the annual standard is the controlling standard across most of the urban study areas evaluated. When air quality is adjusted to just meet an alternative 24-hour standard level of 30 μg/m^3 in the areas where the 24-hour standard is controlling, the risk assessment estimates reductions in $PM_{2.5}$-associated risks across a more limited population and number of areas compared to when air quality is adjusted to simulate alternative levels for the annual standard, and these predictions are largely confined to areas located in the western U.S., several of which are also likely to experience risk reductions upon meeting a revised annual standard. With respect to CASAC advice, the Administrator notes that the minority of CASAC advised that these results suggest that the annual standard can be used to limit both long- and short-term $PM_{2.5}$ concentrations and views these risk assessment results as supporting the conclusion that the current 24-hour standard is adequate (Sheppard, 2022a, p. 4 of consensus letter). In contrast, the majority of CASAC members commented that they placed greater weight on the evidence-based considerations than on the values estimated by the risk assessment, noting the potential for uncertainties in how the risk assessment was able to ''capture areas with wintertime stagnation and residential wood-burning where the annual standard is less likely to be protective'' (Sheppard, 2022a, p. 4 of consensus letter). The majority of the CASAC members further state that ''[t]here is also less confidence that the annual standard could adequately protect against health effects of short-term exposures. A range of 25–30 μg/m^3 for the 24-hour $PM_{2.5}$ standard would be adequately protective'' (Sheppard, 2022a, p. 4 of consensus letter). The majority of the CASAC members further state that ''[t]here is also less confidence that the annual standard could adequately protect against health effects of short-term exposures. A range of 25–30 μg/m^3 for the 24-hour $PM_{2.5}$ standard would be adequately protective'' (Sheppard, 2022a, p.4 of consensus letter).

In considering the application of the risk assessment in a decision framework assessing the adequacy of the current 24-hour standard, the Administrator again notes that the risk assessment analyses of $PM_{2.5}$-attributable mortality use input data that include C–R functions from epidemiologic studies that have no threshold and a linear C–R relationship down to zero, as well an air quality adjustment approach that incorporates proportional decreases in $PM_{2.5}$ concentrations to meet lower standard levels, and that this quantitative approach does not incorporate any elements of uncertainty in associations of health effects at lower concentrations and simulated air quality improvements will always lead to proportional decreases in risk (*i.e.,* each additional μg/m^3 reduction produces additional benefits with no clear stopping point). Therefore, the Administrator recognizes that the risk estimates can help to place the evidence for specific health effects into a broader public health context but should be considered along with the inherent uncertainties and limitations of such analyses when informing judgments about the potential for additional public health protection associated with $PM_{2.5}$ exposure and related health effects. The Administrator also notes that in the U.S., current air quality shows that the 24-hour standard is controlling in very few areas and thus, it is understandable that there are very few areas that would be included in the study areas in the risk assessment. The Administrator also recognizes that the risk assessment did not provide quantitative information on risk impacts associated with an alternative 24-hour standard level of 25 μg/m^3.

Based on the above considerations, the Administrator reaches the proposed conclusion that the available scientific evidence (summarized above in section II.B) and quantitative risk assessment

(summarized above in section II.C), can reasonably be viewed as calling into question the adequacy of the public health protection afforded by the current annual standard. In reaching this conclusion, the Administrator places weight on the extensive epidemiologic evidence available in this reconsideration, strengthened from previous reviews, showing associations between adverse health effects (particularly cardiovascular effects and mortality) and long-term mean $PM_{2.5}$ concentrations, and notes the number and strength of studies available showing associations with mean $PM_{2.5}$ concentrations well below the current annual standard of 12.0 μg/m³. The Administrator also takes note of the evidence supporting the biological plausibility of these associations, including toxicological studies and controlled human exposure studies. When turning to additional information from the epidemiologic evidence base, he notes the advice from CASAC to also consider the 25th percentile of the data that is available and the study reported means from long-term studies that restrict concentrations to below 12 μg/m³. When considering the 25th percentile of the data, the Administrator notes that it is available from a limited number of epidemiologic studies and that the current level of the annual standard is above most of the 25th percentile values reported in the key epidemiologic studies. When looking to the restricted analyses studies, he notes that there are two studies that report positive and statistically significant associations with all-cause mortality, and report a study mean $PM_{2.5}$ concentration of 9.6 μg/m³. While noting the limited nature of these two lines of evidence and the associated uncertainties, the Administrator does judge that these data support the need to revise the annual standard level. Lastly, with respect to the epidemiologic evidence, the Administrator also takes into account accountability studies newly available in this reconsideration with starting concentrations at or below 12.0 μg/m³ that indicate positive and significant associations with mortality and morbidity and reductions in ambient $PM_{2.5}$ and notes that these studies suggest public health improvements may occur at concentrations below 12 μg/m³.

The Administrator also considers the results of the risk assessment in light of the information it provides on risks associated with the current and more stringent levels of the annual standard. While he recognizes a number of uncertainties and limitations associated with the quantitative estimates of the risk assessment, he judges that the estimated risks remaining under air quality adjusted to just meet the current suite of standards are too high to be considered requisite to protect public health with an adequate margin of safety, noting in particular the large number of premature deaths estimated to remain with air quality that just meets the current annual standard. The Administrator also recognizes that the risk assessment was able to include a new analysis (at-risk analysis) that provided estimates of potential long-term $PM_{2.5}$-attributable exposure and mortality risk in older adults, stratified by racial/ethnic demographics, when meeting a revised annual standard with a lower level. While the Administrator recognizes that this analysis is subject to multiple uncertainties and limitations (as noted above in sections II.C.2 and II.D.2.b), he does judge that the analysis suggests that a lower annual standard level (*i.e.,* below 12 μg/m³ and down as low as 8 μg/m³) will help to reduce $PM_{2.5}$ exposure and may also help to mitigate exposure and risk disparities. Finally, the Administrator considers the advice from the CASAC, who unanimously recommended revising the annual standard.

The Administrator finds it is less clear whether the available scientific evidence and quantitative information call into question the adequacy of the public health protection afforded by the current 24-hour standard, particularly when considered in conjunction with the protection provided by the suite of standards and the proposed decision to revise the annual standard. In considering the scientific evidence, he notes that the controlled human exposure studies do not provide a threshold below which no effects occur and they do not include the most at-risk populations. However, the concentrations reported in these studies are for observed effects that signal a change in the body likely due to short-term exposure to $PM_{2.5}$ and which may be the prelude to more adverse effects following longer duration and/or higher concentration exposures but typically would not, by themselves, be judged as adverse. Balancing this with the observation that the air quality concentrations in areas meeting the current standards are well below the $PM_{2.5}$ concentrations shown to elicit effects in these studies, the Administrator does not judge that these studies call into question the adequacy of the current 24-hour standard. With respect to the epidemiologic evidence, the Administrator notes that the body of epidemiologic evidence provides limited support for judging adequacy of the level of the 24-hour standard. As discussed in detail above (section II.B.3.b), epidemiologic studies provide the strongest support for reported health effect associations for the part of the air quality distribution corresponding to the bulk of the underlying data (*i.e.,* estimated exposures and/or health events), often around the overall mean concentrations evaluated rather than near the upper end of the distribution. While there are three studies available in this reconsideration that restricted 24-hour concentrations to concentrations below 25 μg/m³ and while some members of CASAC pointed to these studies as the basis for their recommendation to revise the 24-hour standard, the Administrator preliminarily concludes that the results from these studies, particularly in light of the uncertainties associated with these studies (as discussed above), are an inadequate basis for revising the level of the 24-hour $PM_{2.5}$ standard.

When evaluating the risk assessment information, the Administrator notes that the risk assessment estimates a reduction of 9–13% $PM_{2.5}$ attributable mortality in areas where the 24-hour standard is controlling when the 24-hour $PM_{2.5}$ standard is reduced from a level of 35 μg/m³ to 30 μg/m³. The Administrator notes that this estimated reduction in $PM_{2.5}$-associated risks is across a more limited population and is largely confined to a small number of areas located in the western U.S. Other areas included in the risk assessment were shown to experience risk reductions that were driven primarily by meeting a lower annual standard level (though the associated change in air quality also resulted in lower 24-hour standard concentrations). With respect to CASAC advice, the Administrator notes that the majority of CASAC advised that less weight be placed, while the minority of CASAC advised that these risk assessment results support the conclusion that the current 24-hour standard is adequate (Sheppard, 2022a, p. 4 of consensus letter), the majority of CASAC advised that less weight be placed on the risk assessment results and noted the potential for uncertainties in how the risk assessment was able to ''capture areas with wintertime stagnation and residential wood-burning where the annual standard is less likely to be protective'' (Sheppard, 2022a, p. 4 of consensus letter).

Based on the current evidence and quantitative information, as well as consideration of CASAC advice and

public comment thus far in this reconsideration, the Administrator proposes to conclude that the current primary $PM_{2.5}$ standards are not adequate to protect public health with an adequate margin of safety. While he notes that the scientific evidence and quantitative information clearly call into question the adequacy of the public health protection afforded by the current annual standard, the Administrator finds it is less clear whether the available scientific evidence and quantitative information calls into question the adequacy of the public health protection afforded by the current 24-hour standard. In considering how to revise the suite of standards to provide the requisite degree of protection, he recognizes that changes in $PM_{2.5}$ air quality designed to meet either the annual or the 24-hour standard would likely result in changes to both long-term average and short-term peak $PM_{2.5}$ concentrations. He also recognizes that the current annual standard and 24-hour standard, together, are intended to provide public health protection against the full distribution of short- and long-term $PM_{2.5}$ exposures. As noted above, the annual standard is targeted at controlling the typical exposures for which the evidence of adverse health effects is strongest. The Administrator places the most weight on the large number and strength of epidemiologic studies that report positive, and often statistically significant, associations with long-term mean reported $PM_{2.5}$ concentrations well below the current level of the annual standard of 12.0 μg/m^3, as well as corroborating evidence from U.S. accountability studies with starting concentrations below 12 μg/m^3 and studies that found positive and statistically significant associations in analyses restricted to concentrations less than 12 μg/m^3. In considering the risk assessment information, he notes that, for most of the U.S., the annual standard is the controlling standard and that the risk assessment estimates reductions in $PM_{2.5}$-associated risks across more of the population and in more areas with alternative annual standard levels compared to estimates for alternative 24-hour standard levels. Moreover, the Administrator notes that a more stringent annual standard has been shown to effectively reduce both average (annual) concentrations and peak (daily) concentrations, ensuring the broadest protection of public health. Finally, the Administrator notes that the CASAC was unanimous in its advice regarding the need to revise the annual standard, although they did not reach consensus on what range of alternative levels would be most appropriate to consider. Thus, in considering how to revise the suite of standards to provide the requisite degree of protection, the Administrator proposes to conclude it is appropriate to focus on revising the annual standard.

b. Consideration of Alternative Primary Annual $PM_{2.5}$ Standard Levels

This section summarizes the Administrator's conclusions and proposed decisions related to the current primary annual $PM_{2.5}$ standard and presents his proposed decision to revise the level of the current annual standard within the range of 9.0 to 10.0 μg/m^3, in conjunction with retaining the current indicator, averaging time, and form of that standard. The EPA is also soliciting public comment on alternative annual standard levels down to 8.0 μg/m^3 and up to 11.0 μg/m^3, on an alternative 24-hour standard level as low as 25 μg/m^3 and on the combination of annual and 24-hour standards that commenters may believe is appropriate, along with the approaches and rationales used to support such levels.

In establishing primary standards under the Act that are ''requisite'' to protect public health with an adequate margin of safety, the Administrator is seeking to establish standards that are neither more nor less stringent than necessary for this purpose. He recognizes that the requirement to provide an adequate margin of safety was intended to address uncertainties associated with inconclusive scientific and technical information and to provide a reasonable degree of protection against hazards that research has not yet identified. However, the Act does not require that primary standards be set at a zero-risk level; rather, the NAAQS must be sufficiently protective, but not more stringent than necessary.

Having reached the conclusion that the current indicator, averaging time, and form of the standard are appropriate for the reasons outlined above, the Administrator next considers the range of potential alternative standard levels that could be reasonably supported by the available scientific evidence and risk-based information to increase public health protection against short-term and long-term $PM_{2.5}$ exposures. The evidence available in this reconsideration regarding $PM_{2.5}$ exposures associated with health effects affirms and strengthens the evidence available at the completion of the 2009 ISA, taking into account studies evaluated in the 2019 ISA and ISA Supplement. The Administrator recognizes that the weight of evidence is strongest for health effects for which the 2019 ISA concludes that the evidence provides support for a causal relationship between $PM_{2.5}$ exposures and health effects, including those between long- and short-term $PM_{2.5}$ exposures and mortality and cardiovascular effects. He recognizes that the weight of evidence is also strong for health effects for which the 2019 ISA concludes that the evidence supports a likely to be causal relationship, which include long- and short-term $PM_{2.5}$ exposures and respiratory effects and long-term $PM_{2.5}$ exposures and cancer, and nervous system effects.

In considering the available scientific evidence that could inform conclusions regarding potential alternative levels of the annual $PM_{2.5}$ standard, the Administrator notes that in past reviews, the decision framework used to judge adequacy of the existing $PM_{2.5}$ standards, and what levels of any potential alternative standards should be considered, placed significant weight on epidemiologic studies that assessed associations between $PM_{2.5}$ exposure and health outcomes that were most strongly supported by the body of scientific evidence (*i.e.,* causal or likely to be causal determinations). In so doing, the Administrator recognizes that the number of epidemiologic studies has expanded since the completion of the 2009 ISA and the epidemiologic studies evaluated in the 2019 ISA and the ISA Supplement continue to report positive and statistically significant associations between long- and short-term exposure to $PM_{2.5}$ and mortality and morbidity.

Additionally, the Administrator recognizes that the available epidemiologic studies enable the examination of the entire population and include, and even focus on, those that may be at comparatively higher risk of experiencing a $PM_{2.5}$-related health effects. The Administrator notes that the 2019 ISA found that factors that may contribute to increased risk of $PM_{2.5}$-related health effects include lifestage (children and older adults), pre-existing diseases (cardiovascular disease and respiratory disease), and SES, and that the ISA Supplement noted new evidence that further supported racial and ethnic differences in $PM_{2.5}$ exposures and $PM_{2.5}$-related health risks. The Administrator also observes that at-risk populations make up a substantial portion of the U.S. population (section II.B.2 above), including children (22%) and older adults (16%), as well as non-Hispanic Black (12%) and Hispanic populations (18%) and that the prevalence of pre-existing diseases varies by lifestage and

race/ethnicity. The Administrator notes that the cohorts examined in the epidemiologic studies available in this reconsideration include diverse populations that are broadly representative of the U.S. population as a whole, and include those populations identified as at-risk (*i.e.,* children and older adults), as well as individuals in the general population with pre-existing disease, such as cardiovascular disease and respiratory disease.

Recent epidemiologic studies also strengthen support for health effect associations at lower ambient $PM_{2.5}$ concentrations than previous reviews and studies that examine the shapes of C–R functions over the full distribution of ambient $PM_{2.5}$ concentrations have not identified a threshold concentration, below which associations no longer exist (U.S. EPA, 2019a, section 1.5.3; U.S. EPA, 2022a, sections 2.2.3.1 and 2.2.3.2). Though these analyses are complicated by the relatively sparse data available at the lower end of the air quality distribution (U.S. EPA, 2019a, section 1.5.3), the evidence remains consistent in supporting a no-threshold relationship, and in supporting a linear relationship for $PM_{2.5}$ concentrations > 8 $\mu g/m^3$, though uncertainties remain about the shape of the C–R curve at $PM_{2.5}$ concentrations < 8 $\mu g/m^3$.

With respect to uncertainties in epidemiologic studies, a broad range of approaches have been adopted across studies to examine confounding and the results of those examinations support the robustness of reported associations. Additionally, there is a considerable amount of new epidemiologic evidence in this reconsideration, including a large number of new epidemiologic studies that use varying study designs that reduce uncertainties, including studies that employ alternative methods for confounder control and support associations between exposure and adverse health effects at lower $PM_{2.5}$ concentrations. Consistent findings from the broad body of epidemiologic studies are supported by studies employing alternative methods for confounder control, which used a variety of statistical methods to control for confounding bias and consistently report positive associations. The results of these studies support the positive and significant effects seen in cohort studies associated with short- and long-term exposure to $PM_{2.5}$ and mortality. Moreover, epidemiologic studies continue to evaluate the uncertainty related to exposure measurement error, and while none of these approaches eliminates the potential for exposure error in epidemiologic studies, the consistent reporting of $PM_{2.5}$ health effect associations across exposure estimation approaches, even in the face of exposure error, together with the larger effect estimates reported in some studies that have attempted to reduce exposure error, provides further support for the robustness of associations between $PM_{2.5}$ exposures and mortality and morbidity. Therefore, given the strength of the available epidemiologic evidence, including the ability of these studies to provide information about impacts on the most at-risk populations, the Administrator concludes that the strongest available evidence for evaluating alternative levels of the annual standard continues to be the epidemiologic studies.

The evidence base available in this reconsideration also consists of experimental studies that include controlled human exposure studies and animal toxicological studies. These studies demonstrate health outcomes following long-term and short-term exposure to $PM_{2.5}$ at exposures that are well-above those typically found in ambient air. This body of evidence provides support for the biological mechanisms and the plausibility of the serious health effects associated with ambient $PM_{2.5}$ exposures in epidemiologic studies. Thus, the Administrator recognizes that while experimental studies may not be as useful in a decision-making framework alone, results from these studies lend further support to the use of the epidemiologic evidence base in informing the level of the annual standard.

In considering the level of the annual standard, the Administrator recognizes that the annual standard, with its form based on the arithmetic mean concentration, is most appropriately meant to limit the ''typical'' daily and annual exposures that are most strongly associated with the health effects observed in epidemiologic studies. However, the Administrator also recognizes that while epidemiologic studies examine associations between distributions of $PM_{2.5}$ air quality and health outcomes, they do not identify particular $PM_{2.5}$ exposures that cause effects. Thus, any approach that uses epidemiologic information in reaching decisions on what standards are appropriate necessarily requires judgments of the Administrator about how to consider the information available from the epidemiologic studies as a basis for appropriate standards. This includes consideration of how to weigh the uncertainties in the reported associations between daily or annual average $PM_{2.5}$ exposures and mortality or morbidity in the epidemiologic studies. Such an approach is consistent with setting standards that are neither more nor less stringent than necessary, recognizing that a zero-risk standard is not required by the CAA.

Thus, in recognizing the need to weigh these uncertainties in reaching decisions on alternative standard levels to propose, the Administrator judges that it is most appropriate to examine where the evidence of associations observed in the epidemiologic studies is strongest and, conversely, where he has appreciably less confidence in the associations observed in the epidemiologic studies. Based on information evaluated in the 2019 ISA and ISA Supplement, the Administrator recognizes that health effects may occur over the full range of concentrations observed in the long- and short-term epidemiologic studies and that no discernible threshold for any effects can be identified based on the currently available evidence (U.S. EPA, 2019a, section 1.5.3, U.S. EPA, 2022a, section 2.2.3.1 and 2.2.3.2). He also recognizes, in taking note of CASAC advice and the distributional statistics analysis discussed in section II.B.3.b above and in the PA, that there is significantly greater confidence in observed associations over certain parts of the air quality distributions in the studies, and conversely, that there is significantly diminished confidence in ascribing effects to concentrations toward the lower part of the distributions.

The Administrator notes that in previous reviews, evidence-based approaches noted that the evidence of an association in any epidemiologic study is ''strongest at and around the long-term average where the data in the study are most concentrated'' (78 FR 3140, January 15, 2013). Given this, these approaches focused on identifying standard levels near or somewhat below long-term mean concentrations reported in key epidemiologic studies. These approaches were supported by previous CASAC advice. The current CASAC also supported assessing the mean (or median) concentrations, but also suggested additional approaches that could be explored.[100] In utilizing this evidence-based approach, the Administrator looks to study-reported

[100] The Administrator notes that some members of the CASAC advised that ''use of the mean to define where the data provide the most evidence is conservative. . .'' (Sheppard, 2022a, p. 3 of consensus letter) and advised that ''for the purpose of informing the adequacy of the standards'' (Sheppard, 2022a, p. 8 of consensus responses) that the EPA in future reviews include evaluation of other metrics, including the distribution of concentrations reported in epidemiologic studies and in analyses restricting concentrations to below the current standard level.

means from the key epidemiologic studies (as shown in Figure 1 and Figure 2) available in this reconsideration. He notes that there have been new approaches to estimating exposure concentrations since the 2012 review, such that many of the available key epidemiologic studies include new approaches that apply hybrid modeling techniques to estimate exposures. In looking at the epidemiologic studies, he considers these studies in two groups: (1) monitor-based studies (epidemiologic studies that used ground-based monitors to estimate exposure, similar to approaches used in past reviews), and (2) hybrid modeling-based studies (epidemiologic studies that used hybrid modeling approaches to estimate exposures). As such, he recognizes that reported mean $PM_{2.5}$ concentrations in monitor-based studies are averaged across monitors in each study area with multiple monitors, referred to as a composite monitor concentration, in contrast to the highest concentration monitored in the study area, referred to as a maximum monitor concentration (*i.e.,* the ''design value'' concentration), which is used to determine whether an area meets a given standard. Further, he recognizes that studies that use hybrid modeling approaches employ methods to estimate ambient $PM_{2.5}$ concentrations across large geographical areas, including those without monitors, and thus, when compared to monitor-based studies, require additional information to inform the relationship between the estimated $PM_{2.5}$ concentrations across an area to the maximum monitor design values used to assess compliance. For the key U.S. monitor-based epidemiologic studies, the study reported mean concentrations range from 9.9–16.5 μg/m^3 and for the U.S. hybrid modeling based key epidemiologic studies, the mean concentrations range from 9.3–12.2 μg/m^3.

In thinking further about the relationship between mean $PM_{2.5}$ concentrations in key epidemiologic studies and annual design values, the Administrator specifically notes that in a given area, the area design value is determined by the monitor in an area with the highest $PM_{2.5}$ concentrations and is used to determine compliance with the standard. He observes, as detailed above in the air quality analyses in section I.D.5, that the highest $PM_{2.5}$ concentrations spatially distributed in the area would generally occur at or near the area design value monitor and that $PM_{2.5}$ concentrations will be equal to or lower at other monitors in the area. Furthermore, since monitoring strategies aim to site monitors in areas with higher concentrations, monitored areas will generally have higher concentrations than areas without monitors. Thus, when a study reports a mean that reflects the average of annual average measured concentrations for an area, the area design value will generally be higher. Similarly, when a study reports a mean that reflects the average of annual average concentrations estimated at various points across an area using a hybrid modeling approach, the area design value will generally be higher. More specifically, the Administrator observes that the additional air quality analyses (described in section I.D.5) suggest that the area annual design value is greater than the study-reported mean values by 10–20% for monitor-based studies and 15–18% for hybrid modeling with population weighting applied.[101] As such, the Administrator observes that a policy approach for setting a standard level that requires the design value monitor to meet study-reported means will generally result in lower concentrations of $PM_{2.5}$ across the entire area, such that even those people living near an area design value monitor (where $PM_{2.5}$ concentrations are generally highest) will be exposed to $PM_{2.5}$ concentrations below the air quality conditions reported in the epidemiologic studies where there is the highest confidence of an association.[102] In addition, he specifically notes that an annual standard level that is no more than 10–20% higher than the study-reported means in the U.S. monitor-based studies (*i.e.,* for the lowest study reported mean value of 9.9 μg/m^3, this means an annual standard level of approximately 10.9–11.9 μg/m^3) and no more than 15–18% higher for the U.S. hybrid modeling with population weighting applied (*i.e.,* for the lowest study reported mean value of 9.3 μg/m^3, this means an annual standard level of approximately 10.7–11.0 μg/m^3), would generally maintain air quality exposures at or below those associated with the study-reported mean $PM_{2.5}$ concentrations, exposures for which we have the strongest support for adverse health effects occurring. Based on this, the Administrator concludes that a revised standard level of 9.0 to 10.0 μg/m^3 would generally limit air quality exposures to levels well below those associated with the study-reported mean $PM_{2.5}$ concentrations in the key epidemiologic studies. A revised standard level of 11.0 μg/m^3 would maintain air quality exposures to below those associated with most of these study-reported means, and a revised standard level of 8.0 μg/m^3 would maintain air quality exposures to far below all of these study-reported means. The Administrator notes that every member of the CASAC found that the information on study-reported means supported revising the annual standard level to 10.0 μg/m^3, with the minority of the CASAC advising that these data also supported a revised annual standard level of 10.0–11.0 μg/m^3 and the majority of the CASAC advising that these study-reported means, in conjunction with additional bodies of evidence, supported a revised annual standard level of 8.0–10.0 μg/m^3.

The Administrator also considers additional information from epidemiologic studies, consistent with CASAC advice, to take into account the broader distribution of $PM_{2.5}$ concentrations, including the 25th percentiles of the distributions, and the degree of confidence in the observed associations over the broader air quality distribution. In considering this additional information, he understands that the PA presented information on the distributions of $PM_{2.5}$ concentrations, when available, from key epidemiologic studies to provide a general frame of reference as to the part of the distribution within which the data become appreciably more sparse and, thus, where his confidence in the associations observed in epidemiologic studies would become appreciably less. As discussed in section II.B.3.b above and presented in Figure 1 and Figure 2 above, he observes that most studies do not report such data and the conclusions that can be drawn from such information across the full body of evidence are quite limited. However, the Administrator takes note of additional population-level data that are available and in considering the long-term $PM_{2.5}$ concentrations associated with the 25th

[101] The Administrator also notes that there are a limited number of studies that report a study mean that does not reflect the exposure concentrations used in the epidemiologic study to assess the reported association. These studies do not report population-weighted study means and are not considered here given the substantial difference in concentrations used to assess the association versus those used to calculate the study-reported means.

[102] Based on the available air quality information, it would be expected that an area with a study reported mean of 10 μg/m^3 would have a gradient of concentrations across the area, with higher concentrations near the design value monitor and lower concentrations away from it. If the level of the standard were revised to 10.0 μg/m^3, then it would be expected that there would still be a gradient of concentrations, but the $PM_{2.5}$ concentrations across the area would be reduced in order to meet the revised standard at the design value monitor, and therefore areas away from the design value monitor would be expected to have a gradient of $PM_{2.5}$ concentrations at or below 10.0 μg/m^3 as well.

percentile values of the population-level data for the studies for which such data are available, he observes that for the three key U.S. epidemiologic studies that use hybrid modeling approaches that apply population weighting and report these data, the values reported were 6.7 μg/m³, 9.1 μg/m³ and 9.1 μg/m³. For the U.S.-based studies that use ground-based monitors, the 25th percentiles ranged from 11.5 μg/m³ to just below 13.0 μg/m³.

The Administrator notes that there are substantial uncertainties associated with using 25th percentile data for purposes of setting this standard and these uncertainties are heightened by the relatively few studies which report such data and the fact that, by definition, this data is relatively less common even within a study for which it is reported. At the same time, the Administrator is conscious of his obligation to set primary standards with an adequate margin of safety and recognizes that some members of the CASAC advised that these data indicate that effects are occurring below the reported means of studies. Balancing these concerns about the need to provide some protection against uncertain risks with the obligation to not set standards that are more stringent than necessary, the Administrator preliminarily concludes that a revised standard should limit exposures to ambient concentrations near the 25th percentile of reported studies. Given this consideration, the Administrator recognizes that a standard level of 8.0–10.0 μg/m³ is generally within the range of these values, while a standard level of 11.0 μg/m³ is above the 25th percentile values reported in the hybrid model-based studies but below the 25th percentile values in studies that use ground-based monitors. Based on this, the Administrator recognizes that a standard within the range of 8.0–11.0 μg/m³ would limit exposures to ambient concentrations near the 25th percentile reported in the available studies, with the lower end of this range further limiting those exposures.

The Administrator also takes into consideration the long-term mean $PM_{2.5}$ concentrations reported in Canadian epidemiologic studies that, in the context of the larger body of available evidence, provided support for causal or likely to be causal determinations between $PM_{2.5}$ exposure and health effects, as summarized in the 2019 ISA and ISA Supplement. He notes that the study-reported means from these Canadian studies tend to be somewhat lower than those reported from the key epidemiologic studies in the U.S. ranging from 6.9–13.3 μg/m³ for the monitor-based studies and 5.9–9.8 μg/m³ for the hybrid model-based studies. However, the Administrator is also mindful that there are important differences between the exposure environments in the U.S. and Canada and that interpreting the data (*e.g.,* mean concentrations) from the Canadian studies in the context of a U.S.-based standard may present challenges in directly and quantitatively informing decisions regarding potential alternative levels of the annual standard, as detailed above. He additionally notes that the majority of the CASAC pointed to the Canadian studies as supporting their recommendation to revise the annual standard level to within the range of 8.0–10.0 μg/m³. Based on this, the Administrator is not excluding Canadian studies from his consideration in this reconsideration, but he is considering them in light of the limitations and challenges presented.

The Administrator also notes that the CASAC recommended looking at the studies that included analyses that restrict annual average $PM_{2.5}$ concentrations to concentrations below the level of the current annual standard in evaluating an appropriate range of levels for a revised annual standard. In this reconsideration, there are two key studies available (Di et al., 2017b and Dominici et al., 2019) that restrict annual average $PM_{2.5}$ concentrations to less than 12 μg/m³. These restricted analyses report positive and statistically significant associations with all-cause mortality, and both report mean $PM_{2.5}$ concentrations of 9.6 μg/m³. The Administrator does note that uncertainties exist in these analyses (described in more detail in sections II.B.3.b and II.D.2.a above), including uncertainty in how the studies exclude concentrations (*e.g.,* at what spatial resolution are concentrations being excluded), which would make it difficult to compare concentrations in restricted analyses directly to design values. However, he does note that an annual standard level of 9.0–10.0 μg/m³ would be close to these reported mean values, while a standard level of 11.0 μg/m³ would be above and a standard level of 8.0 μg/m³ would be much further below.

The Administrator additionally considers recent U.S. accountability studies, which assess the health effects associated with actions that improve air quality (*e.g.,* air quality policies or implementation of an intervention). The Administrator notes that there are three studies available in this reconsideration (Henneman et al. (2019b), Corrigan et al. (2018), and Sanders et al. (2020a)) that account for changes in $PM_{2.5}$ concentrations due to implementation of policies and assess whether there was evidence of changes in associations with mortality or cardiovascular morbidity due to changes in annual $PM_{2.5}$ concentrations. The Administrator notes that in each of these studies, prior to implementation of the policies, mean $PM_{2.5}$ concentrations were below the level of the current annual standard level (12.0 μg/m³) and ranged from 10.0 μg/m³ to 11.1 μg/m³. The Administrator notes that these studies report positive and significant associations between mortality and cardiovascular morbidity and reductions in ambient $PM_{2.5}$ (described above in section II.B.3.b and in Table 3–12 of the PA) and notes that these studies suggest public health improvements may occur following the implementation of a policy that reduces annual average $PM_{2.5}$ concentrations below the level of the current standard of 12.0 μg/m³. The Administrator notes that a revised annual standard level of 9.0–10.0 μg/m³ would be at or below the lowest starting concentration of these accountability studies (*i.e.,* 10.0 μg/m³).

In addition to the evidence, the Administrator also considers the results of the risk assessment. The PA includes a risk assessment that estimates $PM_{2.5}$-attributable mortality risk associated with $PM_{2.5}$ air quality that has been adjusted to simulate ''just meeting'' the current standards, as well as potential alternative standards. These analyses of $PM_{2.5}$-attributable mortality use input data that include C–R functions from epidemiologic studies that have no-threshold and a linear C–R relationship down to zero, as well an air quality adjustment approach that incorporates proportional decreases in $PM_{2.5}$ concentrations to meet lower standard levels. Such an approach does not incorporate any elements of uncertainty in associations of health effects at lower concentrations and simulated air quality improvements will always lead to proportional decreases in risk (*i.e.,* each additional μg/m³ reduction produces additional benefits with no clear stopping point). Therefore, the Administrator recognizes that the risk estimates can help to place the evidence for specific health effects into a broader public health context, but should be considered along with the inherent uncertainties and limitations of such analyses when informing judgments about the potential for additional public health protection associated with $PM_{2.5}$ exposure and related health effects.

The risk assessment estimates that the current primary $PM_{2.5}$ standards could allow a substantial number of $PM_{2.5}$-associated deaths in the U.S. Additionally, compared to the current

annual standard, meeting a revised annual standard with a lower level is estimated to reduce $PM_{2.5}$-associated health risks in the 30 study areas controlled by the annual standard by about 7–9% for a level of 11.0 μg/m³, 15–19% for a level of 10.0 μg/m³, 22–28% for a level of 9.0 μg/m³, and 30–37% for a level of 8.0 μg/m³) (U.S. EPA, 2022a, Table 3–17). The CASAC concurred with the PA's assessment that meaningful risk reductions will result from lowering the annual $PM_{2.5}$ standard (Sheppard, 2022a, p. 16 of consensus responses).

The PA also provides information on the distribution of concentrations associated with the estimated mortality risk at each alternative standard level assessed (U.S. EPA, 2022a, sections 3.4.2.2 and 3.6.2.2, Figure 3–18 and 3–19). Further evaluating these results can help clarify the percentage of the exposure reductions that fall within the range of concentrations in which there is the most confidence in the associations and thus, confidence that estimated risk reductions will actually occur. When meeting a standard level of 11.0 μg/m³, the risk is estimated to be associated with exposure concentrations that are generally greater than 10.0 μg/m³, while for a standard level of 10.0 μg/m³, the majority of the days contributing to the risk estimates are estimated to be below 10.0 μg/m³. When meeting an annual standard or 9.0 μg/m³, the majority of the exposure concentrations are estimated to be 8.0–9.0 μg/m³, while for a standard level of 8.0 μg/m³, most of the days are below 8.0 μg/m³. The Administrator notes that the evidence suggests that majority of the study-reported means are above 10.0 μg/m³ (concentrations at which the evidence is the strongest in supporting an association between exposure to $PM_{2.5}$ and adverse health effects observed in the key epidemiologic studies available in this reconsideration) and that at $PM_{2.5}$ concentrations less than 8.0 μg/m³, the 2019 ISA notes that uncertainties remain in the shape of the C–R curve. He thus recognizes that there is increasing uncertainty in quantitative estimates of $PM_{2.5}$-associated mortality risk for alternative standard levels at the lower end of the range of 8.0–11.0 μg/m³.

As discussed more above, the Administrator also recognizes that the risk assessment was able to include an at-risk analysis that estimated the potential long-term $PM_{2.5}$-attributable exposure and mortality risk in older adults, stratified by racial/ethnic demographics, when meeting a revised annual standard with a lower level. While the Administrator recognizes that this analysis is subject to the multiple uncertainties and limitations (sections II.C.2 and II.D.2.b), he does note that the analysis suggests that a revised annual standard level within the range of 8.0 to 11.0 μg/m³ is estimated to reduce $PM_{2.5}$ exposure and may also help to mitigate risks. Based on the case study areas included in the analysis, The Administrator notes that what urban areas are included in the risk assessment analysis will greatly influence the results but notes that based on the areas included in the analyses, the results show the largest impact is on reducing exposure and risk in Black populations, who were estimated in the risk assessment case study areas to have the highest levels of exposures and the greatest rates of premature mortality risk. The Administrator also notes that, similar to the main risk estimates discussed above, there is increasing uncertainty in quantitative estimates of stratified risk estimates at the lower end of the range of standard levels assessed.

The Administrator recognizes that judgments about the appropriate weight to place on any of the factors discussed above should reflect consideration not only of the relative strength of the evidence but also of the important uncertainties that remain in the evidence and the quantitative information being considered in this reconsideration. The Administrator also recognizes that the CAA requires him to set standards that in his judgment are neither more stringent nor less stringent than necessary to protect public health with an adequate margin of safety. Based on the above considerations, the Administrator concludes that it is appropriate to propose to set a level for the primary annual $PM_{2.5}$ standard within the range of 9.0 to 10.0 μg/m³, while also taking comment on a level for the primary annual $PM_{2.5}$ standard as low as 8.0 μg/m³ and as high as 11.0 μg/m³. The Administrator provisionally concludes that a standard level within the range of 9.0 to 10.0 μg/m³ would reflect appropriate approaches to placing the most weight on the strongest available evidence, while placing less weight on much more limited evidence and on more uncertain analyses of information available from a relatively small number of studies. He notes that a standard set at 9.0 to 10.0 μg/m³ would be at or below the study-reported mean $PM_{2.5}$ concentrations in the key U.S. epidemiologic studies, exposures for which we have the strongest support for adverse health effects occurring. Further, in considering margin of safety, he notes that an annual standard level that is no more than 10–20% higher than the study-reported means in the U.S. monitor-based studies (*i.e.,* for the lowest study reported mean value of 9.9 μg/m³, this means an annual standard level of approximately 10.9–11.9 μg/m³) and no more than 15–18% higher for the U.S. hybrid modeling with population weighting (*i.e.,* for the lowest study reported mean value of 9.3 μg/m³, this means an annual standard level of approximately 10.7–11.0 μg/m³), would generally maintain air quality exposures at or below those associated with the study-reported mean $PM_{2.5}$ concentrations. Additionally, the Administrator also notes that these key U.S. epidemiologic studies utilize cohorts that include populations identified as at-risk, including children and older adults, as well as individuals in the general population with pre-existing disease, like cardiovascular disease and respiratory disease. Based on this information, he concludes that a revised standard level of 9.0–10.0 μg/m³ would limit air quality exposures to concentrations well below those associated with the study reported mean, studies which include and assess impacts on the most at-risk populations. Thus, the Administrator provisionally concludes that a standard level within this range would appropriately provide an adequate margin of safety for the populations most at risk for adverse health effects associated with exposure to $PM_{2.5}$.

The Administrator also considers other lines of evidence, including the study reported means from epidemiologic studies that restrict concentrations to levels below 12 μg/m³, the 25th percentiles values reported by a subset of epidemiologic studies, and the information from the accountability studies. He notes that a standard in the range of 9.0 to 10.0 μg/m³ would limit exposures to ambient concentrations near the 25th percentile reported in the available studies, with a standard level of 9.0 μg/m³ limiting those exposures somewhat more than a standard level of 10.0 μg/m³. He also notes that a standard in the range of 9.0 to 10.0 μg/m³ would be near the value of the study reported means from the two available long-term restricted analyses studies (*i.e.,* 9.6 μg/m³). The Administrator notes a standard level of 9.0–10.0 μg/m³, would also be at or below the lowest starting concentration of the newest available accountability studies (*i.e.,* 10.0–11.1 μg/m³). The Administrator also considers the results from the risk assessment. He recognizes that the risk estimates should be considered along with the inherent uncertainties and

limitations of such analyses when informing judgments about the potential for additional public health protection associated with $PM_{2.5}$ exposure and related health effects. When looking at the risk assessment results, he notes that an annual standard level of 9.0–10.0 μg/m³ is estimated to reduce exposure concentrations such that those remaining risks are associated with exposure concentrations that are below most of the study-reported means in the key U.S. epidemiologic studies, where we have the strongest support for adverse health effects occurring, and below $PM_{2.5}$ concentrations (*i.e.,* 8 μg/m³) where the 2019 ISA notes that uncertainties remain in the shape of the C–R curve, particularly for a standard level as low as 9.0 μg/m³. Lastly, the Administrator also notes that every member of the CASAC found that the available scientific evidence and information supported revising the annual standard level to a level of 10.0 μg/m³. Additionally, the majority of the CASAC also recommended that the available evidence and information supported revision to a level of 9.0 μg/m³. Thus, recognizing the uncertainties in the evidence and the necessity of providing requisite protection, with an adequate margin of safety, the Administrator is proposing to set the level of the annual standard in the range of 9.0–10.0 μg/m³, and solicits comments on the appropriate standard level within that range.

While the Administrator recognizes that some members of the CASAC advised, and the PA concluded, that the available scientific information provides support for considering a range that extends up to 11.0 μg/m³ and down to 8.0 μg/m³, he provisionally concludes that proposing such an extended range would not be appropriate at this time. More specifically, the Administrator provisionally concludes that proposing to revise the annual standard level to above 10.0 μg/m³ and as high as 11.0 μg/m³ would reflect a public health policy approach that would place less weight on setting a standard level at or below the study-reported means from a number of key U.S. epidemiologic studies and less weight on the risk assessment results. Such an approach would also place little or no weight on the study reported means from epidemiologic studies that restrict concentrations to below 12 μg/m³ and the 25th percentile concentrations reported by a subset of epidemiologic studies. The Administrator notes that such an approach may fail to provide an adequate margin of safety in light of the evidence available in this reconsideration. In considering revision to the annual standard level to below 9.0 μg/m³ and as low as 8.0 μg/m³, the Administrator notes that such a level would be substantially below the study-reported means and would not recognize the controlling nature of the design value monitor with respect to the concentration gradients consistently occurring across urban areas. The Administrator also recognizes that the evidence and uncertainties for public health benefits of lower standards exists on a continuum across the range of possible standard levels. He preliminarily judges that the evidence is sufficient to support standards in the range of 9.0–10.0 μg/m³, recognizing that the selection of a final standard level will depend on judgments about the relative weight to place on various aspects of the evidence and how to provide for an adequate margin of safety. However, the Administrator preliminarily judges that the available information and evidence are not sufficient to warrant revising the level of the annual standard below 9.0 μg/m³. He finds the uncertainties as to the public health risks and benefits associated with such a standard to be too great at this time. Nonetheless, while the Administrator notes these considerations above, he solicits comment on revising the annual standard down to a level below 9.0 μg/m³ and as low as 8.0 μg/m³, as well as to above 10.0 μg/m³ and as high as 11.0 μg/m³, and on approaches for interpreting the scientific evidence and rationales that would support such a level.

E. Proposed Decisions on the Primary $PM_{2.5}$ Standards

Taking the above considerations into account, upon reconsidering the current primary $PM_{2.5}$ standards in light of the currently available scientific evidence and quantitative information, the Administrator proposes to revise the level of the primary annual $PM_{2.5}$ standard from 12.0 μg/m³ to within the range of 9.0 to 10.0 μg/m³ and to retain the 24-hour standard level at 35 μg/m³. In the Administrator's judgment, such a suite of primary $PM_{2.5}$ standards and the rationale supporting such levels could reasonably be judged to reflect the appropriate consideration of the strength of the available evidence and other information and their associated uncertainties and the advice of the CASAC.

The Administrator recognizes that the final suite of standards will reflect the Administrator's ultimate judgments in the final rulemaking as to the suite of primary $PM_{2.5}$ standards that are requisite to protect the public health with an adequate margin of safety from effects associated with $PM_{2.5}$ exposures. The final judgments to be made by the Administrator will appropriately consider the requirement for standards that are neither more nor less stringent than necessary and will recognize that the CAA does not require that primary standards be set at a zero-risk level, but rather at a level that reduces risk sufficiently so as to protect public health with an adequate margin of safety.

Having reached his provisional judgment to propose revising the annual standard level from 12.0 to within a range of 9.0 to 10.0 μg/m³ and to propose retaining the 24-hour standard level at 35 μg/m³, the Administrator solicits public comment on this range of levels and on approaches to considering the available evidence and information that would support the choice of levels within this range. The Administrator also solicits public comment on alternative annual standard levels down to 8.0 μg/m³ and up to 11.0 μg/m³, on an alternative 24-hour standard level as low as 25 μg/m³ and on the combination of annual and 24-hour standards that commenters may believe is appropriate, along with the approaches and rationales used to support such levels. For example, the EPA solicits comments on the uncertainties in the reported associations between daily or annual average $PM_{2.5}$ exposures and mortality or morbidity in the epidemiologic studies, the significance of the 25th percentile of ambient concentrations reported in studies, the relevance and limitations of international studies, and other topics discussed in section II.D.3.b.

III. Rationale for Proposed Decisions on the Primary PM_{10} Standard

This section presents the rationale for the Administrator's proposed decision to retain the existing primary PM_{10} standard. This decision is based on a thorough review of the latest scientific information, published through January 2018,[103] and evaluated in the 2019 ISA, on human health effects associated with $PM_{10–2.5}$ in ambient air. As described in section 1.2 of the ISA Supplement, the

[103] In addition to the review's opening ''call for information'' (79 FR 71764, December 3, 2014), the current ISA identified and evaluated studies and reports that have undergone scientific peer review and were published or accepted for publication between January 1, 2009 through approximately January 2018 (U.S. EPA, 2019a, p. ES–2). References that are cited in the 2019 ISA, the references that were considered for inclusion but not cited, and electronic links to bibliographic information and abstracts can be found at: *https://hero.epa.gov/hero/particulate-matter.*

scope of the updated scientific evaluation of the health effects evidence is based on those PM size fractions, exposure durations, and health effects category combinations where the 2019 ISA concluded a causal relationship exists (U.S. EPA, 2019a, U.S. EPA, 2022a). Therefore, because the 2019 ISA did not conclude a causal relationship for $PM_{10–2.5}$ for any exposure durations or health effect categories, the ISA Supplement does not include an evaluation of additional studies for $PM_{10–2.5.}$ As a result, the 2019 ISA continues to serve as the scientific foundation for assessing the adequacy of the primary PM_{10} standard in this reconsideration of the 2020 final decision (U.S. EPA, 2019a, section 1.7; U.S. EPA, 2022a). The Administrator's rationale also takes into account: (1) the PA evaluation of the policy-relevant information in the 2019 ISA; (2) CASAC advice and recommendations, as reflected in discussions of the draft of the PA at public meetings and in the CASAC's letter dated March 18, 2022, to the Administrator; and (3) public comments received during the development of the PA.

In presenting the rationale for the Administrator's proposed decision and its foundations, section III.A provides background and introductory information for this reconsideration of the primary PM_{10} standard. It includes background on the 2020 final decision to retain the primary PM_{10} standard (section III.A.1) and also describes the general approach for this reconsideration (section III.A.2) Section III.B summarizes the key aspects of the currently available scientific evidence for $PM_{10–2.5}$-related health effects. Section III.C presents the Administrator's proposed conclusions regarding the adequacy of the primary PM_{10} standard (section III.C.3), drawing on evidence-based considerations (section III.C.2) and advice from the CASAC (section III.C.1).

A. General Approach

The current primary PM_{10} standard was affirmed in 2020 based on the scientific information available at that time, as well as the Administrator's judgments regarding the available public health effects evidence, and the appropriate degree of public health protection for the existing standards (85 FR 82725, December 18, 2020). With the 2020 decision, the Administrator retained the existing 24-hour primary PM_{10} standard, with its level of 150 μg/m^3 and its one-expected-exceedance form on average over three years, to continue to provide public health protection against short-term exposures to $PM_{10–2.5}$ (85 FR 82725, December 18, 2020). The subsection below focuses on the key considerations, and the prior Administrator's conclusions, for $PM_{10–2.5}$-related health effects and the adequacy of the primary PM_{10} standard in the 2020 review.

1. Background on the Current Standard

In the 2019 ISA, the strongest evidence for $PM_{10–2.5}$-related health effects was for cardiovascular effects, respiratory effects, and premature mortality following short-term exposures. For each of these categories of effects, the 2019 ISA concludes that the evidence was ''suggestive of, but not sufficient to infer, a causal relationship''. Specifically, the health effects evidence evaluated in the 2019 ISA included an expanded body of scientific evidence that has become available since the completion of the 2009 ISA linking short-term $PM_{10–2.5}$ to health outcomes such as premature death and hospital visits (U.S. EPA, 2009a; U.S. EPA, 2019a). This evidence base evaluated the causal relationships between short-term exposure to $PM_{10–2.5}$ and a broad range of health effects (U.S. EPA, 2019a, section 1.4.2). These effects associated with short-term exposure ranged from hospital admissions and emergency department visits for cardiovascular effects (documented in epidemiologic studies that reported $PM_{10–2.5}$ associations with cardiovascular hospital admissions and emergency department visits in study locations with mean 24-hour average $PM_{10–2.5}$ concentrations ranging from 7.4 to 13 μg/m^3) and respiratory effects (documented in epidemiologic studies that reported $PM_{10–2.5}$ associations with respiratory hospital admissions and emergency department visits in study locations with mean 24-hour average concentrations ranging from 5.6 to 16.2 μg/m^3) to mortality (documented in epidemiologic studies that reported $PM_{10–2.5}$ associations with mortality in study areas with mean 24-hour average concentrations ranging from 6.1 to 16.4 μg/m^3). In addition to the epidemiologic studies, the evidence base included a small number of controlled human exposure studies and animal toxicological studies that provided insight into the biological plausibility of these effects. Collectively, the epidemiologic studies, controlled human exposure, and animal toxicological studies, with their inherent uncertainties, contributed to the causality determinations of ''suggestive of, but not sufficient to infer, a causal relationship'' between short-term exposures to $PM_{10–2.5}$ and cardiovascular effects, respiratory effects, cancer, and mortality (U.S. EPA, 2019a, section 1.4.2). The 2019 ISA includes expanded evidence for the relationships between long-term exposures and cardiovascular effects, metabolic effects, nervous system effects, cancer, and mortality. While the evidence available in the 2019 ISA included additional health outcomes, including those associated with long-term $PM_{10–2.5}$ exposure, key limitations in the evidence that were identified in the 2009 ISA persist in studies evaluated in the 2019 ISA.

In considering the available body of evidence, it was noted in the 2020 review there were considerable uncertainties and limitations associated with the experimental evidence for $PM_{2.5}$ exposures and health effects, and as such more weight was placed on the available epidemiologic evidence. Therefore, the primary focus in the 2020 review was on multi-city and single-city epidemiologic studies that evaluated associations between short-term $PM_{10–2.5}$ and mortality, cardiovascular effects (hospital admissions and emergency department visits, as well as blood pressure and hypertension), and respiratory effects. Despite differences in the approaches [104] used to estimate ambient $PM_{10–2.5}$ concentrations, the majority of the studies reported positive, though often not statistically significant, associations with short-term $PM_{10–2.5}$ exposures. Most $PM_{10–2.5}$ effect estimates remained positive in copollutant models that included either gaseous pollutants or other particulate matter size fractions (*e.g.,* $PM_{2.5}$). In U.S. study locations likely to have met the PM_{10} standard during the study period, a few studies reported positive associations between $PM_{10–2.5}$ and mortality that were statistically significant and remained so in copollutant models (U.S. EPA, 2019a). In addition to the epidemiologic studies, there were a small number of controlled human exposure studies evaluated in the 2019 ISA that reported alterations in heart rate variability or increased pulmonary inflammation following short-term exposure to $PM_{10–2.5}$, providing some support for the associations in the epidemiologic studies. Animal toxicological studies examined the effect of short-term

[104] As discussed further below, methods employed by the epidemiologic studies to estimate ambient $PM_{10–2.5}$ concentrations include: (1) calculating the difference between PM_{10} and $PM_{2.5}$ at co-located monitors, (2) calculating the difference between county-wide averages of monitored PM_{10} and $PM_{2.5}$ based on monitors that are not necessarily co-located, and (3) direct measurement of $PM_{10–2.5}$ using a dichotomous sampler (U.S. EPA, 2019a, section 1.4.2).

$PM_{10-2.5}$ exposures using non-inhalation (*e.g.,* intratracheal instillation) route.[105] Therefore, these studies provided limited evidence for the biological plausibility of $PM_{10-2.5}$-induced effects (U.S. EPA, 2019a). Although the scientific evidence available in the 2019 ISA expanded the understanding of health effects associated with $PM_{10-2.5}$ exposures, a number of important uncertainties remained. These uncertainties, and their implications for interpreting the scientific evidence, include the following:

- The potential for confounding by copollutants, notably $PM_{2.5}$, was addressed with copollutant models in a relatively small number of $PM_{10-2.5}$ epidemiologic studies (U.S. EPA, 2019a). This was particularly important given the relatively small body of experimental evidence (*i.e.,* controlled human exposure and animal toxicological studies) available to support the independent effect of $PM_{10-2.5}$ on human health. This increases the uncertainty regarding the extent to which $PM_{10-2.5}$ itself, rather than one or more copollutants, is responsible for the mortality and morbidity effects reported in epidemiologic studies.
- There was greater spatial variability in $PM_{10-2.5}$ concentrations than $PM_{2.5}$ concentrations, resulting in the potential for increased exposure error for $PM_{10-2.5}$ (U.S. EPA, 2019a). Available measurements did not provide sufficient information to adequately characterize the spatial distribution of $PM_{10-2.5}$ concentrations (U.S. EPA, 2019a). The limitations in estimates of ambient $PM_{10-2.5}$ concentrations ''would tend to increase uncertainty and make it more difficult to detect effects of $PM_{10-2.5}$ in epidemiologic studies'' (U.S. EPA, 2019a).
- Estimation of $PM_{10-2.5}$ concentrations over which reported health outcomes occur remain highly uncertain. When compared with $PM_{2.5}$, there is uncertainty spanning all epidemiologic studies examining associations with $PM_{10-2.5}$ including deficiencies in the existing monitoring networks, the lack of a systematic evaluation of the various methods used to estimate $PM_{10-2.5}$ concentrations and the resulting uncertainty in the spatial as well as the temporal variability in $PM_{10-2.5}$ concentration (U.S. EPA, 2019a). Given these limitations in routine monitoring, epidemiologic studies employed a number of different approaches for estimating $PM_{10-2.5}$ concentrations, including (1) calculating the difference between PM_{10} and $PM_{2.5}$ at co-located monitors, (2) calculating the difference between county-wide averages of monitored PM_{10} and $PM_{2.5}$ based on monitors that are not necessarily co-located, and (3) direct measurement of $PM_{10-2.5}$ using a dichotomous sampler (U.S. EPA, 2019a, section 1.4.2). Given the relatively small number of $PM_{10-2.5}$ monitoring sites, the relatively large spatial variability in ambient $PM_{10-2.5}$ concentrations, the use of different approaches to estimating ambient $PM_{10-2.5}$ concentrations across epidemiologic studies, and the limitations inherent in such estimates, the distributions of $PM_{10-2.5}$ concentrations over which reported health outcomes occur remain highly uncertain (U.S. EPA, 2019a).
- There was relatively little information available to characterize the apparent variability in associations between short-term $PM_{10-2.5}$ exposures and health effects across study locations (U.S. EPA, 2019a). Specifically, the relative lack of information on the chemical and biological composition of $PM_{10-2.5}$ as well as potential spatial and temporal variability in $PM_{10-2.5}$ exposures complicates the interpretation of results between study locations (U.S. EPA, 2009b; U.S. EPA, 2019a).

Consistent with the general approach routinely employed in NAAQS reviews, the initial consideration in the 2020 review of the primary PM_{10} standard was with regard to the adequacy of protection provided by the then-existing standard. Key aspects of that consideration are summarized below.

i. Considerations Regarding the Adequacy of the Existing Standard in the 2020 Review

In the 2020 final decision, the EPA retained the existing 24-hour primary PM_{10} standard with its level of 150 μg/m^3 and its one-expected-exceedance form on average over three years to continue to provide public health protection against exposures to $PM_{10-2.5}$ (85 FR 82727, December 18, 2020). In reaching his decision, the Administrator specifically noted that, while the health effects evidence was somewhat expanded since the prior reviews, the overall conclusions in the 2019 ISA, including uncertainties and limitations, were generally consistent with what was considered in the 2012 review (85 FR 82725, December 18, 2020). In addition, the Administrator recognized that there were still a number of uncertainties and limitations associated with the available evidence. With regard to the evidence on $PM_{10-2.5}$-related health effects, the Administrator noted that epidemiologic studies continued to report positive associations with mortality and morbidity in cities across North America, Europe, and Asia, where $PM_{10-2.5}$ sources and composition were expected to vary widely. While significant uncertainties remained in the 2020 review, the Administrator recognized that this expanded body of evidence had broadened the range of effects that have been linked with $PM_{10-2.5}$ exposures. The studies evaluated in the 2019 ISA expanded the scientific foundation presented in the 2009 ISA and led to revised causality determinations (and new determinations) for long-term $PM_{10-2.5}$ exposures and mortality, cardiovascular effects, metabolic effects, nervous system effects, and cancer (85 FR 82726, December 18, 2020). Drawing from his consideration of this evidence, the Administrator concluded that the scientific information available since the time of the last review supported a decision to maintain a primary PM_{10} standard to provide public health protection against $PM_{10-2.5}$ exposures, regardless of location, source of origin, or particle composition (85 FR 82726, December 18, 2020). With regard to uncertainties in the available evidence, the Administrator first noted that a number of limitations were identified in the 2012 review related to: (1) estimates of ambient $PM_{10-2.5}$ concentrations used in epidemiologic studies; (2) limited evaluation of copollutant models to address the potential for confounding; and (3) limited experimental studies supporting biological plausibility for $PM_{10-2.5}$-related effects. Despite the expanded body of evidence for $PM_{10-2.5}$ exposures and health effects, the Administrator recognized that uncertainties in the 2020 review continued to include those associated with the exposure estimates used in epidemiologic studies, the independence of the $PM_{10-2.5}$ health effect associations, and the biologically plausible pathways for $PM_{10-2.5}$ health effects (85 FR 82726, December 18, 2020). These uncertainties contributed to the 2019 ISA determinations that the evidence is at most ''suggestive of, but not sufficient to infer'' causal relationships (85 FR 82726, December 18, 2020). In considering the available evidence in his basis for the proposed decision, the Administrator emphasized evidence supporting ''causal'' and ''likely to be causal'' relationships, and therefore, judged that the $PM_{10-2.5}$-related health effects evidence provided

[105] Non-inhalation exposure experiments (*i.e.,* intratracheal [IT] instillation) are informative for size fractions (*e.g.,* $PM_{10-2.5}$) that cannot penetrate the airway of a study animal and may provide information relevant to biological plausibility and dosimetry (U.S. EPA, 2019a, section A–12).

an uncertain scientific foundation for making standard-setting decisions. He further judged limitations in the evidence raised questions as to whether additional public health improvements would be achieved by revising the existing PM_{10} standard (85 FR 24126, April 30, 2020). In the 2020 decision, for all of the reasons discussed above and recognizing the CASAC conclusion that the evidence provided support for retaining the current standard, the Administrator concluded that it was appropriate to retain the existing primary PM_{10} standard, without revision. His decision was consistent with the CASAC advice related to the primary PM_{10} standard. Specifically, the CASAC agreed with the 2020 PA conclusions that, while these effects are important, the ''evidence does not call into question the adequacy of the public health protection afforded by the current primary PM_{10} standard'' and ''supports consideration of retaining the current standard in this review'' (Cox, 2019b, p. 3 of consensus letter). Thus, the Administrator concluded that the primary PM_{10} standard (in all of its elements) was requisite to protect public health with an adequate margin of safety against effects that have been associated with $PM_{10–2.5}$. In light of this conclusion, the EPA retained the existing PM_{10} standard.

2. General Approach and Key Issues in This Reconsideration of the 2020 Final Decision

To evaluate whether it is appropriate to consider retaining the current primary PM_{10} standard, or whether consideration of revision is appropriate, the EPA has adopted an approach in this reconsideration that builds upon the general approach used in past reviews and reflects the body of evidence and information now available, as well as the assessments and evaluations performed in those reviews. As summarized above, the Administrator's decision in the 2020 review was based on an integration of $PM_{10–2.5}$-related health effects information with the judgments on the public health significance of key effects, policy judgments as to when the standard is requisite, consideration of CASAC advice, and consideration of public comments.

Similarly, in this reconsideration, information is drawn from recent studies of $PM_{10–2.5}$-related health effects. In so doing, the PA considers information critically analyzed and characterized in the 2019 ISA, as well as consideration of the associated uncertainties and limitations for the available evidence.

B. Overview of the Health Effects Evidence

The information summarized here is based on the scientific assessment of the health effects evidence available in this reconsideration; this evaluation is documented in the 2019 ISA and its policy implications are discussed further in the PA. As noted above, the ISA Supplement does not include an evaluation of studies for $PM_{10–2.5}$ and the 2019 ISA continues to serve as the scientific foundation for this reconsideration.

1. Nature of Effects

For the health effect categories and exposure duration combinations evaluated, the 2019 ISA concludes that the evidence supports causality determinations for $PM_{10–2.5}$ that are at most ''suggestive of, but not sufficient to infer, a causal relationship. While the evidence supporting the causal nature of relationships between exposure to $PM_{10–2.5}$ has been strengthened for some health effect categories since the completion of the 2009 ISA, the 2019 ISA concludes that overall ''the uncertainties in the evidence identified in the 2009 ISA have, to date, still not been addressed'' (U.S. EPA, 2019a, section 1.4.2, p. 1–41; U.S. EPA, 2022b, section 4.3.1). Specifically, epidemiologic studies available in the 2012 review relied on various methods to estimate $PM_{10–2.5}$ concentrations, and these methods had not been systematically compared to evaluate spatial and temporal correlations in $PM_{10–2.5}$ concentrations. Methods included: (1) calculating the difference between PM_{10} and $PM_{2.5}$ concentrations at co-located monitors, (2) calculating the difference between county-wide averages of monitored PM_{10}- and $PM_{2.5}$-based on monitors that are not necessarily co-located, and (3) direct measurement of $PM_{10–2.5}$ using a dichotomous sampler (U.S. EPA, 2019a, section 1.4.2). As described in the 2019 ISA, there continues to be variability across epidemiologic studies in the approaches used to estimate $PM_{10–2.5}$ concentrations. Additionally, some studies estimate long-term $PM_{10–2.5}$ exposures as the difference between PM_{10} and $PM_{2.5}$ concentrations based on information from spatiotemporal or land use regression (LUR) models, in addition to monitors. The various methods used to estimate $PM_{10–2.5}$ concentrations have not been systematically evaluated (U.S. EPA, 2019a, section 3.3.1.1), contributing to uncertainty regarding the spatial and temporal correlations in $PM_{10–2.5}$ concentrations across methods and in the $PM_{10–2.5}$ exposure estimates used in epidemiologic studies (U.S. EPA, 2019a, section 2.5.1.2.3). Given the greater spatial and temporal variability of $PM_{10–2.5}$ and the lower number of $PM_{10–2.5}$ monitoring sites, compared to $PM_{2.5}$, this uncertainty is particularly important for the coarse size fraction. Beyond the uncertainty associated with $PM_{10–2.5}$ exposure estimates in epidemiologic studies, the limited information on the potential for confounding by copollutants and the limited support available for the biological plausibility of health effects following $PM_{10–2.5}$ exposures also continue to contribute to uncertainty in the $PM_{10–2.5}$ health evidence. Uncertainty related to potential confounding stems from the relatively small number of epidemiologic studies that have evaluated $PM_{10–2.5}$ health effect associations in copollutants models with both gaseous pollutants and other PM size fractions. On the other hand, uncertainty related to the biological plausibility of effects attributed to $PM_{10–2.5}$ exposures results from the small number of controlled human exposure and animal toxicological studies that have evaluated the health effects of experimental $PM_{10–2.5}$ inhalation exposures. The evidence supporting the 2019 ISA's ''suggestive of, but not sufficient to infer, a causal relationship'' causality determinations for $PM_{10–2.5}$, including uncertainties in this evidence, is summarized below in sections III.B.1.a through III.B.1.f.

a. Mortality

i. Long-Term Exposures

Due to the dearth of studies examining the association between long-term $PM_{10–2.5}$ exposure and mortality, the 2009 ISA concluded that the evidence was ''inadequate to determine if a causal relationship exists'' (U.S. EPA, 2009a). As reported in the 2019 ISA, some cohort studies conducted in the U.S. and Europe report positive associations between long-term $PM_{10–2.5}$ exposure and total (nonaccidental) mortality, though results are inconsistent across studies (U.S. EPA, 2019a, Table 11–11). The examination of copollutant models in these studies remains limited and, when included, $PM_{10–2.5}$ effect estimates are often attenuated after adjusting for $PM_{2.5}$ (U.S. EPA, 2019a, Table 11–11). Across studies, $PM_{10–2.5}$ exposure concentrations are estimated using a variety of approaches, including direct measurements from dichotomous samplers, calculating the difference between PM_{10} and $PM_{2.5}$ concentrations

measured at collocated monitors, and calculating difference of area-wide concentrations of PM_{10} and $PM_{2.5}$. As discussed above, temporal and spatial correlations between these approaches have not been evaluated, contributing to uncertainty regarding the potential for exposure measurement error (U.S. EPA, 2019a, section 3.3.1.1 and Table 11–11). The 2019 ISA concludes that this uncertainty ''reduces the confidence in the associations observed across studies'' (U.S. EPA, 2019a, p. 11–125). The 2019 ISA additionally concludes that the evidence for long-term $PM_{10–2.5}$ exposures and cardiovascular effects, respiratory morbidity, and metabolic disease provide limited biological plausibility for $PM_{10–2.5}$-related mortality (U.S. EPA, 2019a, sections 11.4.1 and 11.4). Taken together, the 2019 ISA concludes that, ''this body of evidence is suggestive, but not sufficient to infer, that a causal relationship exists between long-term $PM_{10–2.5}$ exposure and total mortality'' (U.S. EPA, 2019a, p. 11–125).

ii. Short-Term Exposures

The 2009 ISA concluded that the evidence is ''suggestive of a causal relationship between short-term exposure to $PM_{10–2.5}$ and mortality'' (U.S. EPA, 2009a). The 2019 ISA included multicity epidemiologic studies conducted primarily in Europe and Asia that continue to provide consistent evidence of positive associations between short-term $PM_{10–2.5}$ exposure and total (nonaccidental) mortality (U.S. EPA, 2019a, Table 11–9). Although these studies contribute to increasing confidence in the $PM_{10–2.5}$-mortality relationship, the use of a variety of approaches to estimate $PM_{10–2.5}$ exposures continues to contribute uncertainty to the associations observed. Recent studies expand the assessment of potential copollutant confounding of the $PM_{10–2.5}$-mortality relationship and provide evidence that $PM_{10–2.5}$ associations generally remain positive in copollutant models, though associations are attenuated in some instances (U.S. EPA, 2019a, section 11.3.4.1, Figure 11–28, Table 11–10). The 2019 ISA concludes that, overall, the assessment of potential copollutant confounding is limited due to the lack of information on the correlation between $PM_{10–2.5}$ and gaseous pollutants and the small number of locations in which copollutant analyses have been conducted. Associations with cause-specific mortality (*i.e.,* cardiovascular and respiratory mortality) provide some support for associations with total (nonaccidental) mortality, though associations with respiratory mortality are more uncertain (*i.e.,* wider confidence intervals) and less consistent (U.S. EPA, 2019a, section 11.3.7). The 2019 ISA concludes that the evidence for $PM_{10–2.5}$-related cardiovascular effects provides only limited support for the biological plausibility of a relationship between short-term $PM_{10–2.5}$ exposure and cardiovascular mortality (U.S. EPA, 2019a, section 11.3.7). Based on the overall evidence, the 2019 ISA concludes that, ''this body of evidence is suggestive, but not sufficient to infer, that a causal relationship exists between short-term $PM_{10–2.5}$ exposure and total mortality'' (U.S. EPA, 2019a, p. 11–120).

b. Cardiovascular Effects

i. Long-Term Exposures

In the 2009 ISA, the evidence describing the relationship between long-term exposure to $PM_{10–2.5}$ and cardiovascular effects was characterized as ''inadequate to infer the presence or absence of a causal relationship.'' The limited number of epidemiologic studies reported contradictory results and experimental evidence demonstrating an effect of $PM_{10–2.5}$ on the cardiovascular system was lacking (U.S. EPA, 2019a, section 6.4).

The evidence relating long-term $PM_{10–2.5}$ exposures to cardiovascular mortality remains limited, with no consistent pattern of associations across studies and, as discussed above, uncertainty stemming from the use of various approaches to estimate $PM_{10–2.5}$ concentrations (U.S. EPA, 2019a, Table 6–70). The evidence for associations with cardiovascular morbidity has grown and, while results across studies are not entirely consistent, some epidemiologic studies report positive associations with ischemic heart disease (IHD) and MI (U.S. EPA, 2019a, Figure 6–34); stroke (U.S. EPA, 2019a, Figure 6–35); atherosclerosis (U.S. EPA, 2019a, section 6.4.5); venous thromboembolism (VTE) (U.S. EPA, 2019a, section 6.4.7); and blood pressure and hypertension (U.S. EPA, 2019a, Section 6.4.6). $PM_{10–2.5}$ cardiovascular mortality effect estimates are often attenuated, but remain positive, in copollutants models that adjust for $PM_{2.5}$. For morbidity outcomes, associations are inconsistent in copollutant models that adjust for $PM_{2.5}$, NO_2, and chronic noise pollution (U.S. EPA, 2019a, p. 6–276). The lack of toxicological evidence for long-term $PM_{10–2.5}$ exposures represents a data gap (U.S. EPA, 2019a, section 6.4.10), resulting in the 2019 ISA conclusion that ''evidence from experimental animal studies is of insufficient quantity to establish biological plausibility'' (U.S. EPA, 2019a, p. 6–277). Based largely on the observation of positive associations in some epidemiologic studies, the 2019 ISA concludes that ''evidence is suggestive of, but not sufficient to infer, a causal relationship between long-term $PM_{10–2.5}$ exposure and cardiovascular effects'' (U.S. EPA, 2019a, p. 6–277).

ii. Short-Term Exposures

The 2009 ISA found that the available evidence for short-term $PM_{10–2.5}$ exposure and cardiovascular effects was ''suggestive of a causal relationship.'' This conclusion was based on several epidemiologic studies reporting associations between short-term $PM_{10–2.5}$ exposure and cardiovascular effects, including IHD hospitalizations, supraventricular ectopy, and changes in heart rate variability (HRV). In addition, dust storm events resulting in high concentrations of crustal material were linked to increases in total cardiovascular disease emergency department visits and hospital admissions. However, the 2009 ISA noted the potential for exposure measurement error primarily due to the different methods used across studies to estimate $PM_{10–2.5}$ concentrations and copollutant confounding in these epidemiologic studies. In addition, there was only limited evidence of cardiovascular effects from a small number of experimental studies (e.g. animal toxicological studies and controlled human exposure studies) that examined short-term $PM_{10–2.5}$ exposures (U.S. EPA, 2009a, section 6.2.12.2). In the 2019 ISA, key uncertainties included the potential for exposure measurement error, copollutant confounding, and limited evidence of biological plausibility for cardiovascular effects following inhalation exposure (U.S. EPA, 2019a, section 6.3.13).

The evidence for short-term $PM_{10–2.5}$ exposure and cardiovascular outcomes has expanded since the 2009 ISA, though important uncertainties remain. The 2019 ISA notes that there are a small number of epidemiologic studies reporting positive associations between short-term exposure to $PM_{10–2.5}$ and cardiovascular-related morbidity outcomes. However, the 2019 ISA notes that there is limited evidence to support that these associations are biologically plausible, or independent of copollutant confounding. The 2019 ISA also concludes that it remains unclear how the approaches used to estimate $PM_{10–2.5}$ concentrations in epidemiologic studies compare amongst one another and subsequently how exposure measurement error varies between each method. Specifically, it is unclear how

well-correlated $PM_{10-2.5}$ concentrations are both temporally and spatially across these methods and therefore whether exposure measurement error varies across these methods. Taken together, the 2019 ISA concludes that ''the evidence is suggestive of, but not sufficient to infer, a causal relationship between short-term $PM_{10-2.5}$ exposures and cardiovascular effects'' (U.S. EPA, 2019a, p. 6–254).

c. Respiratory Effects—Short-Term Exposures

Based on a small number of epidemiologic studies observing associations with some respiratory effects and limited evidence from experimental studies to support biological plausibility, the 2009 ISA (U.S. EPA, 2009a) concluded that the relationship between short-term exposure to $PM_{10-2.5}$ and respiratory effects is ''suggestive of a causal relationship.'' Epidemiologic findings were consistent for respiratory infection and combined respiratory-related diseases, but not for COPD. Studies were characterized by overall uncertainty in the exposure assignment approach and limited information regarding potential copollutant confounding. Controlled human exposure studies of short-term $PM_{10-2.5}$ exposures found no lung function decrements and inconsistent evidence for pulmonary inflammation. Animal toxicological studies were limited to those using non-inhalation (*e.g.,* intra-tracheal instillation) routes of $PM_{10-2.5}$ exposure.

Recent epidemiologic findings consistently link $PM_{10-2.5}$ exposure to asthma exacerbation and respiratory mortality, with some evidence that associations remain positive (though attenuated in some studies of mortality) in copollutant models that include $PM_{2.5}$ or gaseous pollutants. Epidemiologic studies provide limited evidence for positive associations with other respiratory outcomes, including COPD exacerbation, respiratory infection, and combined respiratory-related diseases (U.S. EPA, 2019a, Table 5–36). As noted above for other endpoints, an uncertainty in these epidemiologic studies is the lack of a systematic evaluation of the various methods used to estimate $PM_{10-2.5}$ concentrations and the resulting uncertainty in the spatial and temporal variability in $PM_{10-2.5}$ concentrations compared to $PM_{2.5}$ (U.S. EPA, 2019a, sections 2.5.1.2.3 and 3.3.1.1). Specifically, the existing monitoring networks do not provide a great sense of how well correlated concentrations are both spatially and temporally across the $PM_{10-2.5}$ estimation methods and overall spatial and temporal patterns in $PM_{10-2.5}$ concentrations. Taken together, the 2019 ISA concludes that ''the collective evidence is suggestive of, but not sufficient to infer, a causal relationship between short-term $PM_{10-2.5}$ exposure and respiratory effects'' (U.S. EPA, 2019a, p. 5–270).

d. Cancer—Long-Term Exposures

In the 2012 review, little information was available from studies of cancer following inhalation exposures to $PM_{10-2.5}$. Thus, the 2009 ISA determined the evidence was ''inadequate to evaluate the relationship between long-term $PM_{10-2.5}$ exposures and cancer'' (U.S. EPA, 2009a). The scientific information evaluated in the 2019 ISA of long-term $PM_{10-2.5}$ exposure and cancer remains limited, with a few recent epidemiologic studies reporting positive, but imprecise, associations with lung cancer incidence (U.S. EPA, 2019a). Moreover, uncertainty remains in these studies with respect to exposure measurement error due to the use of $PM_{10-2.5}$ predictions that have not been validated by monitored $PM_{10-2.5}$ concentrations (U.S. EPA, 2019a, sections 3.3.2.3 and 10.3.4). Relatively few experimental studies of $PM_{10-2.5}$ have been conducted, though available studies indicate that $PM_{10-2.5}$ exhibits two key characteristics of carcinogens: genotoxicity and oxidative stress. While limited, such experimental studies provide some evidence of biological plausibility for the findings in a small number of epidemiologic studies (U.S. EPA, 2019a, section 10.3.4).

Taken together, the small number of epidemiologic and experimental studies, along with uncertainty with respect to exposure measurement error, contribute to the determination in the 2019 ISA that, ''the evidence is suggestive of, but not sufficient to infer, a causal relationship between long-term $PM_{10-2.5}$ exposure and cancer'' (U.S. EPA, 2019a, p. 10–87).

e. Metabolic Effects—Long-Term Exposures

The 2009 ISA did not make a causality determination for $PM_{10-2.5}$-related metabolic effects. One epidemiologic study in the 2019 ISA reports an association between long-term $PM_{10-2.5}$ exposure and incident diabetes, while additional cross-sectional studies report associations with effects on glucose or insulin homeostasis (U.S. EPA, 2019a, section 7.4). As discussed above for other outcomes, uncertainties with the epidemiologic evidence include the potential for copollutant confounding and exposure measurement error due to the different methods used across studies to estimate $PM_{10-2.5}$ concentrations (U.S. EPA, 2019a, Tables 7–14 and 7–15). The evidence base to support the biological plausibility of metabolic effects following $PM_{10-2.5}$ exposures is limited, but a cross-sectional study that investigated biomarkers of insulin resistance and systemic and peripheral inflammation may support a pathway leading to type 2 diabetes (U.S. EPA, 2019a, sections 7.4.1 and 7.4.3). Based on the expanded, though still limited evidence base, the 2019 ISA concludes that, ''[o]verall, the evidence is suggestive of, but not sufficient to infer, a causal relationship between [long]-term $PM_{10-2.5}$ exposure and metabolic effects'' (U.S. EPA, 2019a, p. 7–56).

f. Nervous System Effects—Long-Term Exposures

The 2009 ISA did not make a causality determination for $PM_{10-2.5}$-related nervous system effects. In the 2019 ISA, available epidemiologic studies report associations between $PM_{10-2.5}$ and impaired cognition and anxiety in adults in longitudinal analyses (U.S. EPA, 2019a, Table 8–25, section 8.4.5). Associations of long-term exposure with neurodevelopmental effects are not consistently reported in children (U.S. EPA, 2019a, sections 8.4.4 and 8.4.5). Uncertainties in these studies include the potential for copollutant confounding, as no studies examined copollutants models (U.S. EPA, 2019a, section 8.4.5), and for exposure measurement error, given the use of various methods to estimate $PM_{10-2.5}$ concentrations (U.S. EPA, 2019a, Table 8–25). In addition, there is limited animal toxicological evidence supporting the biological plausibility of nervous system effects (U.S. EPA, 2019a, sections 8.4.1 and 8.4.5). Overall, the 2019 ISA concludes that, ''the evidence is suggestive of, but not sufficient to infer, a causal relationship'' between long-term $PM_{10-2.5}$ exposure and nervous system effects (U.S. EPA, 2019a, p. 8–75).

C. Proposed Conclusions on the Primary PM_{10} Standard

In reaching proposed conclusions on the current primary PM_{10} standard (presented in section III.C.3), the Administrator has taken into account policy-relevant evidence-based considerations discussed in the PA (summarized in section III.C.2), as well as advice from the CASAC and public comments on the standard received thus far in the reconsideration (section III.C.1). In general, the role of the PA is

to help ''bridge the gap'' between the Agency's assessment of the available evidence, and the judgments required of the Administrator in determining whether it is appropriate to retain or revise the NAAQS. Evidence-based considerations draw upon the EPA's integrated evaluation of the scientific evidence of $PM_{10-2.5}$-related health effects presented in the 2019 ISA (summarized in section III.B above) to address key policy-relevant questions in the reconsideration.

The approach to reviewing the primary PM_{10} standard is consistent with requirements of the provisions of the CAA related to the review of the NAAQS and how the EPA and the courts have historically interpreted the CAA. As discussed in section I.A above, these provisions require the Administrator to establish primary standards that, in the Administrator's judgment, are requisite (*i.e.,* neither more nor less stringent than necessary) to protect public health with an adequate margin of safety. Consistent with the Agency's approach across all NAAQS reviews, the EPA's approach to informing these judgments is based on a recognition that the available health effects evidence generally reflects a continuum that includes ambient air concentrations for which scientists generally agree that health effects are likely to occur, through lower concentrations at which the likelihood and magnitude of response becomes increasingly uncertain. The CAA does not require the Administrator to establish a primary standard at a zero-risk level or at background concentration levels, but rather at a level that reduces risk sufficiently so as to protect public health, including the health of sensitive groups, with an adequate margin of safety.

The proposed decision on the adequacy of the primary PM_{10} standard described below is a public health policy judgment by the Administrator that draws on the scientific evidence for health effects and judgments about how to consider the uncertainties and limitations that are inherent in the scientific evidence. The four basic elements of the NAAQS (*i.e.,* indicator, averaging time, form, and level) have been considered collectively in evaluating the health protection afforded by the current standard. The Administrator's final decision will additionally consider public comments received on this proposed decision.

1. CASAC Advice in This Reconsideration

The CASAC has provided advice on the adequacy of the current primary PM_{10} standard in the context of its review of the draft PA (Sheppard, 2022a).[106] In this context, the CASAC supported the preliminary conclusion in the draft PA that the evidence reviewed in the 2019 ISA does not call into question the public health protection provided by the current primary PM_{10} standard against $PM_{10-2.5}$ exposures and concurs with the draft PA's overall preliminary conclusion that it is appropriate to consider retaining the current primary PM_{10} standard (Sheppard, 2022a, p. 4 of consensus letter). Additionally, the CASAC concurred that ''. . . at this time, PM_{10} is an appropriate choice as the indicator for $PM_{10-2.5}$'' and ''that it is important to retain the level of protection afforded by the current PM_{10} standard'' (Sheppard, 2022a, p. 4 of consensus letter). The CASAC also recognized uncertainties associated with the scientific evidence, including ''compared to $PM_{2.5}$ studies, the more limited number of epidemiology studies with positive statistically significant findings, and the difficulty in extracting the sole contribution of coarse PM to observed adverse health effects'' (Sheppard, 2022a, p. 19 of consensus responses).

The CASAC recommended several areas for additional research to reduce uncertainties in the $PM_{10-2.5}$ exposure estimates used in the epidemiologic studies, to evaluate the independence of $PM_{10-2.5}$ health effect associations, to evaluate the biological plausibility of $PM_{10-2.5}$-related effects, and to increase the number of studies examining $PM_{10-2.5}$-related health effects in at-risk populations (Sheppard, 2022a, p. 20 of consensus responses). Furthermore, the CASAC ''recognizes a need for, and supports investment in research and deployment of measurement systems to better characterize $PM_{10-2.5}$'' and to ''provide information that can improve public health'' (Sheppard, 2022a, p. 20 of consensus responses).

2. Evidence-Based Considerations in the Policy Assessment

With regard to the current evidence on health effects associated with long and short—term $PM_{10-2.5}$ exposure health effects, the PA notes that recent epidemiologic studies that continue to report positive associations with mortality and morbidity in cities across North America, Europe, and Asia, where $PM_{10-2.5}$ sources and composition are expected to vary widely (U.S. EPA, 2022b, section 4.3.1). While significant uncertainties remain, as described below and summarized in the PA (U.S. EPA, 2022b, section 4.5), the PA recognizes that this expanded body of evidence has broadened the range of effects that have been linked with $PM_{10-2.5}$ exposures. The uncertainties in the available epidemiologic studies contribute to the determinations in the 2019 ISA that the evidence for short- and long-term exposures to $PM_{10-2.5}$ and cardiovascular effects, cancer, and mortality and long-term $PM_{10-2.5}$ exposures and metabolic effects and nervous system effects is ''suggestive of, but not sufficient to infer'' causal relationships (U.S. EPA, 2019a; U.S. EPA, 2022b, section 4.3.1). Drawing from this information, the PA concludes that the evidence continues to provide support for maintaining a standard that provides some measure of protection against exposures to $PM_{10-2.5}$, regardless of location, sources of origin, or particle composition (U.S. EPA, 2022b, section 4.5).

With regard to uncertainties, the PA recognizes that the 2019 ISA notes that important uncertainties remain in the evidence base for $PM_{10-2.5}$-related health effects. As summarized in section III.B above and in the PA (U.S. EPA, 2022b, sections 4.3.1 and 4.5). These uncertainties include those related to variability in $PM_{10-2.5}$ exposure estimates used in epidemiologic studies, in the independence of $PM_{10-2.5}$ health effect associations, and in the biological plausibility of the $PM_{10-2.5}$-related health effects. These uncertainties contribute to the determinations in the 2019 ISA that the evidence for short- and long-term $PM_{10-2.5}$ exposure in key health effect categories is ''suggestive of, but not sufficient to infer'' causal relationships (U.S. EPA, 2019a). Taking this information into consideration, the PA concludes that, as in previous reviews, such uncertainties raised questions regarding the degree to which additional public health protection would be achieved by revising the existing PM_{10} standard (U.S. EPA, 2022b, section 4.5).

With regard to the indicator for the primary PM_{10} standard, the PA notes that the evidence continues to support retaining the PM_{10} indicator to provide public health protection against $PM_{10-2.5}$-related effects. Consistent with the approaches in previous reviews, a standard with a PM_{10} mass-based

[106] A limited number of public comments have also been received in this reconsideration to date, including comments focused on the draft PA. Of the public comments that addressed the adequacy of the current primary PM_{10} standard, most commenters supported the preliminary conclusion that it is appropriate to consider retaining the current primary PM_{10} standard, without revision. However, one nonprofit organization suggested that the primary PM_{10} standard should be strengthened to a level of 45 $\mu g/m^3$, consistent with the World Health Organization Global Air Quality Guideline (WHO, 2021).

indicator, in conjunction with a $PM_{2.5}$ mass-based standard, will result in controlling allowable concentrations of $PM_{10–2.5}$. Given that the use of the PM_{10} indicator does include consideration of both $PM_{2.5}$ and $PM_{10–2.5}$ concentrations, the 2019 ISA provides a comparison of the relative contribution of $PM_{2.5}$ and $PM_{10–2.5}$ to PM_{10} concentrations, finding that the relative contribution of $PM_{2.5}$ and $PM_{10–2.5}$ to PM_{10} concentrations can vary across the U.S. by region and season, with urban locations having a somewhat higher contribution of $PM_{2.5}$ contributing to PM_{10} concentrations than $PM_{10–2.5}$ (U.S. EPA, 2019a, section 2.5.1.1.4, Table 2–7). In these urban locations, where $PM_{2.5}$ concentrations are somewhat higher than in rural locations, the toxicity of the PM_{10} may be higher due to contaminating $PM_{2.5}$. Further, although uncertainties with the evidence persist, the strongest health effects evidence associated with $PM_{10–2.5}$ comes from epidemiologic studies conducted in urban areas. In light of this and consistent with the approaches in previous reviews, the PA concludes that a PM_{10} standard, set at a single unvarying level, will generally result in lower allowable concentrations of $PM_{10–2.5}$ in urban areas than in nonurban areas. In this way, the PM_{10} indicator will target protection by allowing less $PM_{10–2.5}$ in areas that experience high concentrations of potentially contaminating $PM_{2.5}$. Thus, the evidence continues to support retaining the PM_{10} indicator.

When the above information is taken together, the PA concludes that available evidence does not call into question the adequacy of the public health protection provided by the current primary PM_{10} standard in order to protect against $PM_{10–2.5}$ exposures. Specifically, the PA notes that while the evidence supports maintaining a PM_{10} standard to provide some measure of protection against $PM_{10–2.5}$ exposures, uncertainties in the evidence lead to questions regarding the potential public health implications of revising the existing PM_{10} standard. Thus, the PA concludes that the evidence does not call into question the adequacy of the public health protection afforded by the current primary PM_{10} standard (U.S. EPA, 2022b, section 4.5).

3. Administrator's Proposed Decision on the Current Primary PM_{10} Standard

This section summarizes the Administrator's considerations and proposed conclusions related to the current primary PM_{10} standard and presents his proposed decision to retain that standard, without revision. In establishing primary standards under the Act that are ''requisite'' to protect the public health with an adequate margin of safety, the Administrator is seeking to establish standards that are neither more nor less stringent than necessary for this purpose. He recognizes that the Act does not require that primary standards be set at a zero-risk level; rather, the NAAQS must be sufficiently protective, but not more stringent than necessary.

Given these requirements, and consistent with the primary $PM_{2.5}$ standards discussed above (section II.C.3), the Administrator's final decision in this reconsideration of the current primary PM_{10} standard will be a public health policy judgment that draws upon the scientific information examining the health effects of $PM_{10–2.5}$ exposures, including how to consider the range and magnitude of uncertainties inherent in that information. The Administrator recognizes that his final decision will be based on an interpretation of the scientific evidence that neither overstates nor understates its strengths and limitations, nor the appropriate inferences to be drawn.

Consistent with previous reviews, the Administrator first considers the available scientific evidence for $PM_{10–2.5}$-related exposures and health effects, as evaluated in the 2019 ISA. As an initial matter, the Administrator recognizes that the scientific evidence for $PM_{10–2.5}$-related effects available in this reconsideration is the same body of evidence that was available at the time of the 2020 review, as evaluated in the 2019 ISA and summarized in section III.B above. The 2019 ISA concludes that the evidence supports ''suggestive of, but not sufficient to infer'' causal relationships between short- and long-term exposures to $PM_{10–2.5}$ and cardiovascular effects, cancer, and mortality and long-term $PM_{10–2.5}$ exposures and metabolic effects and nervous system effects (U.S. EPA, 2019a). The Administrator notes that the evidence for several $PM_{10–2.5}$-related health effects has expanded since the completion of the 2009 ISA, but important uncertainties remain. Epidemiologic studies evaluated in the 2019 ISA continue to report positive associations between short-term exposure to $PM_{10–2.5}$ and mortality and morbidity in cities across North America, Europe, and Asia, where $PM_{10–2.5}$ sources and composition are expected to vary widely, but across studies inconsistency remains in the approaches used to estimate $PM_{10–2.5}$ exposures. While the Administrator recognizes that important uncertainties remain, he also recognizes that the expansion in the number of studies evaluating $PM_{10–2.5}$ exposures and health effects since the completion of the 2009 ISA has broadened the range of effects that may be linked with $PM_{10–2.5}$ exposures. The uncertainties in the epidemiologic studies contribute to the determinations in the 2019 ISA that the evidence for short and long-term $PM_{10–2.5}$ exposures and mortality, cardiovascular effects, metabolic effects, nervous system effects, and cancer is ''suggestive of, but not sufficient to infer'' causal relationships (U.S. EPA, 2019a; U.S. EPA, 2022b, section 4.3.1). Although most of these studies examined $PM_{10–2.5}$ health effect associations in urban areas, some studies have also linked mortality and morbidity with relatively high ambient concentrations of particles of non-urban crustal origin from dust storm events (U.S. EPA, 2019a).

In considering the available evidence, the Administrator recognizes that the evidence continues to provide support for maintaining a standard that provides some measure of protection against exposures to $PM_{10–2.5}$, regardless of location, source of origin, or particle composition, consistent with previous reviews (78 FR 3176, January 15, 2013; 85 FR 82726, December 18, 2020). Drawing from the evidence evaluated in the 2019 ISA and consideration of the scientific evidence in the PA, the Administrator notes that, consistent with previous reviews, the 2019 ISA and the PA highlight a number of uncertainties associated with the evidence, including those related to $PM_{10–2.5}$ exposure estimates used in epidemiologic studies, in the independence of $PM_{10–2.5}$ health effect associations, and in the biological plausibility of the $PM_{10–2.5}$-related effects. These uncertainties contribute to the determinations in the 2019 ISA that the evidence for short-term $PM_{10–2.5}$ exposures and key health effects is ''suggestive of, but not sufficient to infer'' causal relationships. In considering the available scientific evidence, consistent with approaches employed in past NAAQS reviews, the Administrator places the most weight on evidence supporting ''causal'' and ''likely to be causal'' relationships. In so doing, he notes that the available evidence for short-term $PM_{10–2.5}$ exposures and health effects does not support causality determinations of a ''causal relationship'' or ''likely to be causal relationship.'' Furthermore, the Administrator recognizes that, because of the uncertainties and limitations in the evidence base, the PA does not include a quantitative assessment of

$PM_{10-2.5}$ exposures and risk that might further inform decisions regarding the adequacy of the current 24-hour primary PM_{10} standard. Therefore, in light of the 2019 ISA conclusions that the evidence supports ''suggestive of, but not sufficient to infer'' causal relationships, specifically for cardiovascular effects, respiratory effects, cancer, and mortality and short-term exposures to $PM_{10-2.5}$, and the lack of available quantitative assessments, the Administrator judges that there are substantial uncertainties that raise questions regarding the degree to which additional public health improvements would be achieved by revising the existing PM_{10} standard. Furthermore, the Administrator recognizes that the 2019 ISA also concludes that the evidence supports ''suggestive of, but not sufficient to infer'' causal relationships for long-term $PM_{10-2.5}$-exposures and cardiovascular effects, metabolic effects, nervous system effects, cancer, and mortality. However, in considering the available evidence for long-term $PM_{10-2.5}$ exposures, he notes that there is limited evidence that would support consideration of an annual standard to provide protection against such effects, in conjunction with the current primary 24-hour PM_{10} standard. He preliminarily concludes that the current primary 24-hour $PM_{2.5}$ standard that reduces 24-hour exposures also likely reduces long-term average exposures, and therefore provides some margin of safety against the health effects associated with long-term $PM_{10-2.5}$ exposures.

In reaching proposed conclusions on adequacy of the current primary 24-hour PM_{10} standard, the Administrator also considers advice from the CASAC. As noted above, the CASAC recognizes uncertainties associated with the scientific evidence, including ''compared to $PM_{2.5}$ studies, the more limited number of epidemiology studies with positive statistically significant findings, and the difficulty in extracting the sole contribution of coarse PM to observed adverse health effects'' (Sheppard, 2022a, p. 19 of consensus responses). Given these uncertainties, the CASAC agrees with the PA conclusion that the scientific evidence does not call into question the adequacy of the primary PM_{10} standard and supports consideration of retaining the current standard, noting that ''[t]he CASAC supports this decision'' (Sheppard, 2022a, p. 4 of consensus letter). Additionally, the CASAC concurred that ''. . . at this time, PM_{10} is an appropriate choice as the indicator for $PM_{10-2.5}$'' and ''that it is important to retain the level of protection afford by the current PM_{10} standard'' (Sheppard, 2022a, p. 4 of consensus letter).

When the above information is taken together, the Administrator proposes to conclude that the available scientific evidence continues to support a PM_{10} standard to provide some measure of protection against $PM_{10-2.5}$ exposures. This proposed conclusion reflects the available evidence for $PM_{10-2.5}$-related health effects, for both short and long-term exposure, as evaluated in the 2019 ISA. However, he also recognizes that important limitations in the evidence remain. Consistent with the decisions in previous reviews, the Administrator proposes to conclude that these limitations lead to considerable uncertainty regarding the potential public health implications of revising the level of the current primary 24-hour PM_{10} standard. Thus, based on his consideration of the evidence and associated uncertainties and limitations for $PM_{10-2.5}$-related health effects, as described above, and his consideration of CASAC advice on the primary PM_{10} standard, the Administrator proposes to retain the current standard, without revision. The Administrator solicits comments on this proposed decision.

Having reached the proposed decision described here based on the interpretation of the $PM_{10-2.5}$-related health effects evidence, as evaluated in the 2019 ISA; the evaluation of policy-relevant aspects of the evidence in the PA; the advice and recommendations from the CASAC; public comments received to date in their reconsideration; and the public health policy judgments described above, the Administrator recognizes that other interpretations, assessments and judgments might be possible. Therefore, the Administrator solicits comment on the array of issues associated with reconsideration of the primary 24-hour PM_{10} standard, including public health and science policy judgments inherent in his proposed decision, as described above, and the rationales upon which such views are based.

IV. Communication of Public Health

A. Air Quality Index Overview

Information on the public health implications of ambient concentrations of criteria pollutants is made available primarily by Air Quality Index (AQI) reporting through the EPA's AirNow website.[107] The current AQI has been in use since its inception in 1999.[108] It provides useful, timely, and easily understandable information about the daily degree of pollution. The goal of the AQI is to establish a nationally uniform system of indexing pollution concentrations for ozone, carbon monoxide, nitrogen dioxide, PM, and sulfur dioxide. The AQI is recognized internationally as a proven tool to effectively communicate air quality information to the public. In fact, many countries have created similar indices based on the AQI.

The AQI converts an individual pollutant concentration in a community's air to a number on a scale from 0 to 500. Reported AQI values for specific pollutants enable the public to know whether air pollution levels in a particular location are characterized as good (0–50), moderate (51–100), unhealthy for sensitive groups (101–150), unhealthy (151–200), very unhealthy (201–300), or hazardous (301+). Across criteria pollutants, the AQI index value of 100 typically corresponds to the level of the short-term (*e.g.,* 24-hour, 8-hour, or 1-hour standard) NAAQS for each pollutant. Below an index value of 100, an intermediate value of 50 is defined either as the level of the annual standard if an annual standard has been established (*e.g.,* $PM_{2.5}$, nitrogen dioxide), a concentration equal to one-half the value of the 24-hour standard used to define an index value of 100 (*e.g.,* carbon monoxide), or a concentration based directly on health effects evidence (*e.g.,* ozone). An AQI value greater than 100 means that a pollutant is in one of the unhealthy categories (*i.e.,* unhealthy for sensitive groups, unhealthy, very unhealthy, or hazardous). An AQI value at or below 100 means that a pollutant concentration is in one of the satisfactory categories (*i.e.,* moderate or good). The scientific evidence on pollutant-related health effects for each NAAQS review evaluated in the ISA[109] support decisions related to pollutant concentrations at which to set the various AQI breakpoints, which delineate the AQI categories for each individual pollutant (*i.e.,* the pollutant concentrations corresponding to index values of 150, 200, 300, and 500). The AQI is reported three ways, all of which

[107] See *http://www.airnow.gov/.*

[108] In 1976, the EPA established a nationally uniform air quality index, then called the Pollutant Standard Index (PSI), for use by State and local agencies on a voluntary basis (41 FR 37660, September 7, 1976; 52 FR 24634, July 1, 1987). In August 1999, the EPA adopted revisions to this air quality index (64 FR 42530, August 4, 1999) and renamed the index the AQI.

[109] In some NAAQS reviews, there may also be an ISA Supplement or a Provisional Assessment of scientific evidence that becomes available during a review after an ISA is finalized. To the extent that such evidence can inform decisions on the AQI, that information is also considered.

are useful and complementary. The daily AQI is reported for the previous day and used to observe trends in community air quality, the AQI forecast helps people plan their outdoor activities for the next day, and the near-real-time AQI, or NowCast AQI, tells people whether it is a good time for outdoor activity.

Historically, State and local agencies have primarily used the AQI to provide general information to the public about air quality and its relationship to public health. For more than two decades, many states and local agencies, as well as the EPA and other Federal agencies, have been developing new and innovative programs and initiatives to provide more information related to air quality and health messaging to the public in a more timely way. These initiatives, including air quality forecasting, near real-time data reporting through the AirNow website, use of data from air quality sensors on the Fire and Smoke Map, and air quality action day programs, provide useful, up-to-date, and timely information to the public about air pollution and its health effects. Such information can help the public learn when their well-being may be compromised, so they can take actions to avoid or to reduce exposures to ambient pollution at concentrations of concern. This information can also encourage the public to take actions that will reduce air pollution on days when concentrations are projected to be of concern to local communities (*e.g.,* air quality action day programs can encourage individuals to drive less or carpool). The EPA and state, local and Tribal agencies recognize that these programs are interrelated with AQI reporting and with the information related to the effects of air pollution on public health that is evaluated through the periodic review, and revision when appropriate, of the NAAQS.

B. Air Quality Index Category Breakpoints for $PM_{2.5}$

One purpose of the AQI is to communicate to the public when air quality is poor and thus when they should consider taking actions to reduce their exposures. The higher the AQI value, the higher the level of air pollution and the greater the health concern. In recognition of the scientific information available that is informing the reconsideration of the 2020 final decision on the primary $PM_{2.5}$ standards, including a number of new controlled human exposure and epidemiologic studies published since the completion of the 2009 ISA, as well as additional epidemiologic studies from other peer reviewed documents that evaluate the health effects of wildfire smoke exposure and that can inform the AQI at higher $PM_{2.5}$ concentrations, the EPA proposes to make two sets of changes to the $PM_{2.5}$ sub-index of the AQI. First, the EPA proposes to continue to use the approach used in the revisions to the AQI in 2012 (77 FR 38890, June 29, 2012) of setting the lower breakpoints (50, 100 and 150) to be consistent with the levels of the primary $PM_{2.5}$ annual and 24-hour standards and proposes to revise the lower breakpoints to be consistent with any changes to the primary $PM_{2.5}$ standards that are part of this reconsideration. Second, the EPA proposes to revise the upper AQI breakpoints (200 and above) and to replace the linear-relationship approach used in 1999 to set these breakpoints, with an approach that more fully considers the $PM_{2.5}$ health effects evidence from controlled human exposure and epidemiologic studies that have become available in the last 20 years. Thus, the EPA considers it appropriate to consider scientific evidence for these purposes beyond the scope of the ISA. More details on these proposed revisions to the AQI are provided below.

Although revisions of the air quality criteria and NAAQS for PM generally prompt changes to the AQI, the AQI is not part of the NAAQS. The AQI is aimed at communicating risks of ambient concentrations which may far exceed the level of the NAAQS. While the AQI was not originally developed to be used as a regulatory tool or for other purposes and EPA does not provide guidance on the use of the AQI for such purposes, the EPA acknowledges that some organizations and entities have identified other uses for the AQI.[110] As such, the EPA is requesting information about how other organizations and entities are applying the AQI. The EPA's goal is to update the $PM_{2.5}$ AQI in conjunction with the Agency's final decisions on the primary annual and 24-hour $PM_{2.5}$ standards, if proposed revisions to such standards are promulgated.

1. Air Quality Index Values of 50, 100 and 150

With respect to the lower AQI breakpoints, the EPA concludes that it is still appropriate to continue to set these breakpoints to be consistent with the primary annual and 24-hour $PM_{2.5}$ standard levels. The lowest AQI value of 50 provides the breakpoint between the ''good'' and ''moderate'' categories. At and below this concentration, air quality is considered ''good'' for everyone. Above this concentration, in the ''moderate'' category, the AQI contains advisories for unusually sensitive individuals. The EPA has historically set this breakpoint at the level of the primary annual $PM_{2.5}$ standard. In doing so, the EPA has recognized that: (1) the annual standard is set to provide protection to the public, including at-risk populations, from $PM_{2.5}$ concentrations which, when experienced on average for a year, have the potential to result in adverse health effects; and that (2) the AQI exposure period represents a shorter exposure period (*e.g.,* 24-hour (or less)) while focusing on the most sensitive individuals. The EPA sees no basis for deviating from this approach in this reconsideration. Thus, the EPA proposes to set the AQI value of 50 at a daily (*i.e.,* 24-hour) average concentration equal to the level of the primary annual $PM_{2.5}$ standard that is promulgated. In this document, the EPA is proposing to revise the primary annual $PM_{2.5}$ standard level to 9 to 10 $\mu g/m^3$ and soliciting comments on levels down to 8 $\mu g/m^3$ and up to 11 $\mu g/m^3$ (section II.D.3.a).

The historical approach to setting an AQI value of 100, which is the breakpoint between the ''moderate'' and ''unhealthy for sensitive groups'' categories, and above which advisories are generated for sensitive groups, is to set it at the same level as the primary 24-hour $PM_{2.5}$ standard. In so doing, the EPA has recognized that the primary 24-hour $PM_{2.5}$ standard is set to provide protection to the public, including at-risk populations, from short-term exposures to $PM_{2.5}$ concentrations which have the potential to result in adverse health effects. Given this, it is appropriate to generate advisories for sensitive groups at concentrations above this level. In the past, state, local, and Tribal air quality agencies have expressed strong support for this approach (78 FR 3086, January 15, 2013). The EPA sees no basis to deviate from this approach in this reconsideration. In this proposal, the EPA is proposing to retain the current primary 24-hour $PM_{2.5}$ standard with its level of 35 $\mu g/m^3$ but is taking comment on revising the level of that standard to 25 $\mu g/m^3$ (section II.D.3.b). Thus, the EPA proposes to retain the AQI value of 100 set at the level of the current primary 24-hour $PM_{2.5}$ standard concentration of 35 $\mu g/m^3$ (*i.e.,* 24-hour average), but if the level of the 24-hour

[110] For example, the Occupational Safety and Health divisions in California, Oregon, and Washington have linked outdoor worker regulations to the upper AQI breakpoints.

standard is revised to a different concentration, the EPA is proposing to set the final AQI value of 100 equal to any revised level of the primary 24-hour $PM_{2.5}$ standard.

With respect to an AQI value of 150, which is the breakpoint between the ''unhealthy for sensitive groups'' and ''unhealthy categories,'' this breakpoint concentration in this reconsideration is based upon the considering the same health effects information, as assessed in the 2019 ISA and ISA Supplement and described in section II above, that informs the proposed decisions on the level of the 24-hour standard and the AQI value of 100. Previously, the Agency has used a proportional adjustment in which the AQI value of 150 was set proportionally to the AQI value of 100. This proportional adjustment inherently recognizes that the available epidemiologic studies provide no evidence of discernible thresholds, below which effects do not occur in either sensitive groups or in the general population, that could inform conclusions regarding concentrations at which to set this breakpoint. Given that the epidemiologic evidence continues to be the most relevant health effects evidence for informing this range of AQI values, the EPA sees no basis to deviate from this approach in this reconsideration. Therefore, the EPA proposes to set an AQI value of 150 proportionally, depending on the breakpoint concentration of the AQI value of 100. This means that if the EPA retains the current primary 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$, we propose to also retain the current AQI value of 150 at a daily (*i.e.,* 24-hour average) concentration of 55 $\mu g/m^3$. If, however, the EPA revises the level of the primary 24-hour $PM_{2.5}$ standard, we propose to adjust the AQI value of 150 proportional to that revision (*e.g.,* a 24-hour standard of 30 $\mu g/m^3$ might result in an AQI value for 150 of 45 $\mu g/m^3$).

2. Air Quality Index Values of 200 and Above

In 1999, the EPA established AQI breakpoints for the AQI values of 200 and above (64 FR 42530, August 4, 1999). For this approach the AQI values between 100 and 500 were based on $PM_{2.5}$ concentrations that generally reflected a linear relationship between increasing index values and increasing $PM_{2.5}$ concentrations.[111] It was found that this linear relationship was generally consistent with the health effect evidence, which suggested that as $PM_{2.5}$ concentrations increase, increasingly larger numbers of people are likely to experience serious health effects in this range of $PM_{2.5}$ concentrations (64 FR 42536, August 4, 1999). For the AQI breakpoint of 500, the concentration was based on the method used to establish a previously existing PM_{10} breakpoint that was informed by studies conducted in London using the British Smoke method, which uses a different particle size cutpoint.[112] Due to limited ambient $PM_{2.5}$ monitoring data available at that time, the decision on the 500 breakpoint concentration for $PM_{2.5}$ was based on the stated assumption that PM concentrations measured by the British Smoke method were approximately equivalent to $PM_{2.5}$ concentrations (64 FR 42530, August 4, 1999). However, the assumption of approximate equivalence between the British Smoke method and the current $PM_{2.5}$ monitoring method is not consistent with the view cited in the 1987 **Federal Register** document about the PM_{10} AQI value of 500, in which the British Smoke method was noted to have a particle size cutpoint of 4.5 microns (52 FR 24688, July 1, 1987). Given that the British Smoke method has a larger particle size cutpoint than the current $PM_{2.5}$ monitoring method which has a cutpoint of 2.5 microns, a concentration of 500 $\mu g/m^3$ based on the British Smoke method would be equivalent to a lower $PM_{2.5}$ concentration.

As part of this reconsideration, the EPA recognizes that the health effects evidence associated with $PM_{2.5}$ exposure has greatly expanded in recent years. While many of the new studies evaluated in the 2019 ISA focused on examining health effects associated with exposure to lower $PM_{2.5}$ concentrations, there are also several new studies, specifically controlled human exposure studies, that can provide information about health effects at concentrations well above the standard levels. Additionally, there are also studies now available and evaluated in other Agency documents that can inform health effects at higher $PM_{2.5}$ concentrations. Thus, the EPA concludes that it is appropriate to reevaluate the upper AQI breakpoints, taking into account the expanded body of scientific evidence. In particular, because these breakpoints were established in 1999 (64 FR 42530, August 4, 1999), several new epidemiologic studies have become available that provide information about exposures during high pollution events, such as wildfires. Additionally, multiple controlled human exposure studies have become available that provide information about health effects across a range of concentrations. While it remains unclear the exact $PM_{2.5}$ concentrations at which specific health effects occur, the more recent studies do provide more refined information about the concentration range in which these effects might occur. For example, while human exposure studies generally report only subclinical effects, the consistent observation of these effects in multiple studies can provide an indication of subclinical effects that are on the pathway to more serious health effects as $PM_{2.5}$ concentrations increase above 55 $\mu g/m^3$. These studies provide support for coherence of effects across scientific disciplines and potentially biologically plausible pathways for the overt population-level health effects observed in epidemiologic studies. Therefore, taking into account the short exposure time period in these studies (*e.g.,* 1–6 hours) and that the studies generally do not include at-risk (or sensitive) populations, but rather young, healthy adults, these studies, in conjunction with information from epidemiologic studies, the EPA preliminarily concludes it would be appropriate to be more cautionary and offer advisories to the public for reducing exposures at lower concentrations than recommended with the current AQI breakpoints. Thus, the discussion below focuses on the EPA's proposed revisions to the AQI breakpoints of 200 and above and the EPA's interpretation of the available health effects evidence that supports those proposed revisions.

The AQI value of 200 is the breakpoint between the ''unhealthy'' and ''very unhealthy'' categories. At AQI values above 200, the AQI would be providing a health warning that the risk of anyone experiencing a health

[111] The AQI breakpoint at 150 was originally set in 1999 to be linearly related to the concentrations at the 100 and 500 breakpoints but then revised in 2012 to be proportional to the AQI breakpoint concentration at 100 (78 FR 3181, January 15, 2013).

[112] The current AQI value of 500 for PM_{10} was set in 1987 at the concentration of 600 $\mu g/m^3$ based on a 24-hour average, on the basis of increased mortality associated with historical wintertime pollution episodes in London (52 FR 24687 to 24688, July 1, 1987). Particle concentrations during these episodes, measured by the British Smoke method, were in the range of 500 to 1000 $\mu g/m^3$. In the 1987 rulemaking that established the upper bound index value for PM_{10}, the EPA cited a generally held opinion that the British Smoke method measures PM with a cutpoint of approximately 4.5 microns (52 FR 24688, July 1, 1987). In establishing this value for PM_{10}, the EPA assumed that concentrations of PM_{10}, which includes both coarse ($PM_{10-2.5}$) and fine particles ($PM_{2.5}$), during episodes of concern, would be about 100 $\mu g/m^3$ higher than the PM concentration measured in terms of British Smoke (52 FR 24688, July 1, 1987). The PM_{10} upper bound index value of 600 $\mu g/m^3$ was developed by selecting the lower end of the range of concentrations during the historical wintertime pollution episodes in London (500 $\mu g/m^3$) and adding a margin of 100 $\mu g/m^3$ to account for this measurement difference.

effect following short-term exposures to these $PM_{2.5}$ concentrations has increased. To inform proposed decisions on this breakpoint, the EPA takes note of studies indicating the potential for respiratory or cardiovascular effects that are associated with more serious health outcomes (*e.g.,* emergency department visits, hospital admissions). The controlled human exposure studies evaluated in the 2009 and 2019 ISAs provide evidence of inflammation as well as cardiovascular effects in healthy subjects at and above 120 μg/m³. For example, Ramanathan et al. (2016) observed a transient reduction in antioxidant/anti-inflammatory function after exposing healthy young subjects to a mean concentration of 150 μg/m³ of $PM_{2.5}$ for 2 hours. Urch et al. (2010) also reported increased markers of inflammation when exposing both asthmatic and non-asthmatic subjects to a mean concentration of 140 μg/m³ of $PM_{2.5}$ for 3 hours. In studies specifically examining cardiovascular effects, Ghio et al. (2000) and Ghio et al. (2003) exposed healthy subjects to a mean concentration of 120 μg/m³ for 2 hours and reported significantly increased levels of fibrinogen, a marker of coagulation that increases during inflammation. Sivagangabalan et al. (2011) exposed healthy subjects to a mean concentration of 150 μg/m³ of $PM_{2.5}$ for 2 hours and noted an increased QT interval (3.4 ± 1.4) indicating some evidence for conduction abnormalities, an indicator of possible arrhythmias. Lastly, Brook et al. (2009) reported a transient increase of 2.9 mm Hg in diastolic blood pressure in healthy subjects during the 2-hour exposure to a mean concentration of 148 μg/m³ of $PM_{2.5}$.

In addition to epidemiologic studies evaluated in the 2019 ISA that analyzed exposures at ambient $PM_{2.5}$ concentrations, there are a number of recent epidemiologic studies focusing on wildfire smoke that have become available that were evaluated in the EPA's recently released peer-reviewed assessment on wildland fire (U.S. EPA, 2021b). One of these studies, Hutchinson et al. (2018), conducted a bidirectional case-crossover analysis to examine associations between wildfire-specific $PM_{2.5}$ exposure and respiratory-related healthcare encounters (*i.e.,* ED visits, inpatient hospital admissions, and outpatient visits) prior and during the 2007 San Diego wildfires. This study found positive and significant associations to $PM_{2.5}$ exposures and respiratory-related healthcare encounters. Further, during the initial 5-day period of the wildfire event, the study observed that there was evidence of increases in a number of respiratory-related outcomes particularly ED visits for asthma, upper respiratory infection, respiratory symptoms, acute bronchitis, and all respiratory-related visits (Hutchinson et al., 2018), giving the EPA increased confidence in the association between exposure to $PM_{2.5}$ and respiratory-related outcomes at concentrations experienced during this time period. When examining the air quality during the wildfire event, $PM_{2.5}$ concentrations were highest during the initial five days of the wildfire, with 24-hour average $PM_{2.5}$ concentrations of 89.1 μg/m³ across all zip codes and with the highest 24-hour average of 160 μg/m³ on the first day (Hutchinson et al., 2018).

When considering this collective body of evidence from controlled human exposure and epidemiologic studies, the Agency proposes to set an AQI value of 200 at a daily (*i.e.*, 24-hour average) concentration of $PM_{2.5}$ of 125 μg/m³. This concentration is at the lower end of the concentrations consistently shown to be associated with effects in controlled human exposure studies following short-term exposures (*e.g.,* 2–3 hours) and in young, healthy adults (Ghio et al., 2000; Ghio et al., 2003; Urch et al., 2010; Ramanathan et al., 2016; Sivagangabalan et al., 2011; and Brook et al., 2009) and also within the range of 5-day average and maximum concentrations observed to be associated with respiratory-related outcomes following exposure to wildfire smoke (Hutchinson et al., 2018).

The AQI value of 300 denotes the breakpoint between the ''very unhealthy'' and ''hazardous'' categories, and thus marks the beginning of the ''hazardous'' AQI category. At AQI values above 300, the AQI provides a health warning that everyone is likely to experience effects following short-term exposures to these $PM_{2.5}$ concentrations. To inform decisions on this AQI breakpoint, the EPA takes note of controlled human exposure studies that consistently show subclinical effects which are often associated with more severe cardiovascular outcomes. As discussed above, Brook et al. (2009) reported a transient increase of 2.9 mm Hg in diastolic blood pressure in healthy subjects during the 2-hour exposure to a mean concentration of 148 μg/m³ of $PM_{2.5}$. Bellavia et al. (2013) exposed healthy subjects to an average $PM_{2.5}$ concentration of 242 μg/m³ for 2 hours and reported increased systolic blood pressure (2.53 mm Hg). Tong et al. (2015) exposed healthy subjects to an average $PM_{2.5}$ concentration of 253 μg/m³ for 2 hours and observed a significant increase in diastolic blood pressure (2.1 mm Hg) and a nonsignificant increase in systolic blood pressure (2.5 mm Hg). Lucking et al. (2011) reported impaired vascular function and increased potential for coagulation when exposing healthy subjects to diesel exhaust (DE) with an average $PM_{2.5}$ concentration of 320 μg/m³ for a duration of 1 hour.[113] These studies all provided evidence of impaired vascular function, including vasodilatation impairment and increased thrombus formation, with Tong et al. (2015), Bellavia et al. (2013), Brook et al. (2009) all reporting increases in blood pressure. Additionally, Behbod et al. (2013) reported increased inflammatory markers following a 2-hour exposure to an average $PM_{2.5}$ concentration of 250 μg/m³ in healthy subjects.

In addition to the controlled human exposure studies discussed above, the epidemiologic study conducted by DeFlorio-Barker et al. (2019) examined the relationship between wildfire smoke and cardiopulmonary hospitalizations among adults 65 years of age and older from 2008–2010 in 692 U.S. counties. The authors reported a 2.22% increase in all-cause respiratory hospitalizations on wildfire smoke days for a 10 μg/m³ increase in 24-hour average $PM_{2.5}$ concentrations (DeFlorio-Barker et al., 2019). The maximum 24-hour average concentration in this study on wildfire smoke days was 212.5 μg/m³ (DeFlorio-Barker et al., 2019). In considering this study, the EPA notes the increased probability that even healthy adults experience effects at this maximum exposure concentration, particularly given that this maximum concentration is near the exposure concentrations in controlled human exposure studies that consistently reported evidence of impaired vascular function and several that reported increases in blood pressure in healthy adults following 2-hour exposures.

Based on the information above, the EPA proposes to revise the 300 level of the AQI, which marks the beginning of the ''hazardous'' AQI category, to a concentration that is consistent with the $PM_{2.5}$ concentrations associated with health effects as reported in the controlled human exposure and epidemiologic studies discussed above. Specifically, the Agency proposes to set an AQI value of 300 at a daily (*i.e.,* 24-hour average) $PM_{2.5}$ concentration of

[113] Although participants in Lucking et al. (2011) were exposed to DE, the authors also conducted analyses using a particle trap, and as noted in the 2019 ISA, this type of study design allows for the assessment of the role of $PM_{2.5}$ on the health effects observed by removing PM from the DE mixture.

225 μg/m³. This concentration falls between the 2-hour average concentrations reported in controlled human exposure studies found to be consistently associated, in healthy adults, with impaired vascular function and/or increases in blood pressure, which can both be a precursor to more severe cardiovascular effects following short-term (1- to 2-hour) exposures, and the maximum 24-hour average $PM_{2.5}$ concentrations on wildfire smoke days reported in the epidemiologic study conducted by DeFlorio-Barker et al. (2019).

Lastly, the EPA is also proposing revisions to the 500 value of the AQI. The 500 value of the AQI is within the ''hazardous'' category but is specified and used to calculate the slope of the AQI values in the ''hazardous category'' above and below AQI values of 500. In the past, this breakpoint had a very prominent role in determining the current upper AQI values given that it was used as part of the linear relationship with the concentration at the AQI value of 100 to determine the AQI values of 200 and 300 in 1999 (64 FR 42530, August 4, 1999).

As discussed above, the current breakpoint concentration for the 500 value of the AQI was set in 1999 at a 24-hour average $PM_{2.5}$ concentration of 500 μg/m³ and was based on studies conducted in London using the British Smoke method, which used a different particle size cutpoint and likely overestimated the $PM_{2.5}$ concentration. In looking to improve upon that approach, the EPA considers several recent controlled human exposure studies that observe health effects which are clearly associated with more severe cardiovascular outcomes and note that these seem to follow exposures to high $PM_{2.5}$ concentrations that are well above those typically observed in ambient air. In controlled human exposure studies, Vieira et al. (2016a) and Vieira et al. (2016b) exposed healthy subjects and subjects with heart failure to diesel exhaust (DE) with a mean $PM_{2.5}$ concentration of 325 μg/m³ for 21 minutes and reported decreased stroke volume, and increased arterial stiffness (an indicator of endothelial dysfunction) in both healthy and heart failure subjects.[114] Also as discussed above, Lucking et al. (2011) exposed healthy subjects to DE with a mean $PM_{2.5}$ concentration of 320 μg/m³ for 1 hour.[115] The types of cardiovascular effects observed in these controlled human exposure studies have been linked with the exacerbation of ischemic heart disease (IHD) and heart failure as well as myocardial infarction (MI) and stroke.

In addition to the controlled human exposure studies discussed above, recent epidemiologic studies examining the relationship between wildfire smoke and respiratory health can also inform proposed decisions on the concentration for the AQI value of 500. As noted earlier in this section, Hutchinson et al. (2018) reported increases in a number of respiratory-related outcomes particularly ED visits for asthma, upper respiratory infection, respiratory symptoms, acute bronchitis, and all respiratory-related visits during the initial 5-day period of the 2007 San Diego fire. During the initial 5-day window, $PM_{2.5}$ concentrations were found to be at their highest with the 95th percentile of 24-hour average concentrations of 333 μg/m³.

Although studies of short-term (*i.e.,* daily) exposures to wildfire smoke are more informative in considering alternative level for the AQI value of 500 since they mirror the 24-hour exposure timeframe, additional information from epidemiologic studies of longer-term exposures (*i.e.,* over many weeks) during wildfire events can provide supporting information. For example, Orr et al. (2020) conducted a longitudinal study that examined whether exposure to wildfire smoke from a multi-month fire resulted in respiratory effects in subsequent years. The authors conducted respiratory health assessments of adults living in Seeley Lake and Thompson Falls, MT, during the 3-month summer wildfire event that occurred in 2017 as well as follow-up visits in each of the two years following the wildfire (Orr et al., 2020). During the 2017 wildfire event (August 1 to September 19, 2017), Orr et al. (2020) reported that many days during the multi-month fire had $PM_{2.5}$ concentrations above 300 μg/m³, resulting in a daily average $PM_{2.5}$ concentration of 220.9 μg/m³ with a maximum $PM_{2.5}$ concentration of 638 μg/m³. This study included full spirometry tests for all study participants during the initial 2017 visit and again in 2018 and 2019 to assess lung function and reported that the average FEV_1/FVC (forced expiratory volume in 1 second/forced vital capacity) decreased significantly in 2018 (71.6% observed; 77.35% predicted) and 2019 (73.4% observed; 76.52% predicted) (Orr et al., 2020). This study suggests that exposure to high $PM_{2.5}$ concentrations during a multi-week fire event may lead to long-term health consequences in the future, such as declines in lung function.

The controlled human exposure studies provide biological plausibility for increases in respiratory-related health care events during the wildfires documented in epidemiologic studies. The collective evidence from controlled human exposure and epidemiologic studies, which includes decreases in stroke volume, increased arterial stiffness, impaired vascular function and respiratory-related healthcare encounters provide health-based evidence to inform proposed decisions on the level of the AQI value of 500. Given the concentrations observed in these studies, the Agency proposes to revise the AQI value of 500 to a level set at a daily (*i.e.,* 24-hour average) $PM_{2.5}$ concentration of 325 μg/m³. This concentration is at or below the lowest concentrations observed in the controlled human exposure studies associated with more severe effects discussed above and also at the low end of the daily concentrations observed in the epidemiologic studies conducted by Hutchinson et al. (2018) and Orr et al. (2020).

3. Summary

Table 1 below summarizes the proposed breakpoints for the $PM_{2.5}$ sub-index.

TABLE 1—PROPOSED BREAKPOINTS FOR $PM_{2.5}$ SUB-INDEX

AQI category	Index values	Current breakpoints (μg/m³, 24-hour average)	Proposed breakpoints (μg/m³, 24-hour average)
Good	0–50	0.0–12.0	0.0–(9.0–10.0)

[114] These effects were attenuated when the DE was filtered, to reduce $PM_{2.5}$ concentrations, indicating the effects were likely associated with $PM_{2.5}$ exposure.

[115] When applying a particle trap, $PM_{2.5}$ concentrations were reduced, and effects associated with cardiovascular function including impaired vascular function, as measured by vasodilatation and thrombus formation were attenuated indicating associations with $PM_{2.5}$.

TABLE 1—PROPOSED BREAKPOINTS FOR $PM_{2.5}$ SUB-INDEX—Continued

AQI category	Index values	Current breakpoints (μg/m³, 24-hour average)	Proposed breakpoints (μg/m³, 24-hour average)
Moderate	51–100	12.1–35.4	(9.1–10.1)–35.4
Unhealthy for Sensitive Groups	101–150	35.5–55.4	35.5–55.4
Unhealthy	151–200	55.5–150.4	55.5–125.4
Very Unhealthy	201–300	150.5–250.4	125.5–225.4
Hazardous [1]	301+	250.5	225.5

[1] AQI values between breakpoints are calculated using equation 1 in appendix G. For AQI values in the hazardous category, AQI values greater than 500 should be calculated using equation 1 and the $PM_{2.5}$ concentration specified for the AQI value of 500.

As discussed above, the EPA recognizes that the health effects evidence associated with $PM_{2.5}$ exposure has greatly expanded in recent years and concludes that the body of scientific evidence supports the need to revise many of the AQI breakpoints. This is particularly true of the AQI values of 200 and above, where the EPA concludes that the available controlled human exposure and epidemiologic studies support offering advisories to the public for reducing exposures at lower concentrations than recommended with the current AQI breakpoints. However, the EPA also recognizes that there are interpretations and judgments that must be applied in making the determinations of these breakpoints. Thus, the EPA is soliciting comment on the proposed revisions to the AQI described above. In particular, for the AQI values of 50, 100 and 150, the EPA is soliciting comment on the proposed decision to continue to use the approach used in AQI revisions in 2012 (77 FR 38890, June 29, 2012) of setting the lower breakpoints (50, 100, and 150) to be consistent with the levels of the primary annual and 24-hour $PM_{2.5}$ standards and proposed decision to revise the lower breakpoints to be consistent with any changes to the primary $PM_{2.5}$ standards that are part of this reconsideration. With respect to the AQI values of 200 and above, the EPA is soliciting comment on the proposed decision to revise those AQI values, as well as comment on the approach being applied, the health studies viewed as most relevant in these proposed decisions, and the proposed AQI breakpoint concentrations. The EPA also notes that while the newer studies do provide more refined information about the concentration range in which health effects might occur, the evidence continues to support a continuum of effects in concentration exposures in the range of those defined by the upper AQI values, with increasing $PM_{2.5}$ concentrations being associated with increasingly larger numbers of people likely experiencing serious health effects. Given this, the EPA is also soliciting comment on maintaining the linear relationship approach used to set the upper AQI values in 1999 but using a different linear relationship (64 FR 42530, August 4, 1999). For example, the EPA could set the AQI value of 150 based on the primary NAAQS and the AQI value of 300 (which is the breakpoint that identifies the starting concentration for the highest AQI category) based on the considerations discussed above and using those values to develop a linear relationship for the AQI values for 200 and 500. Under this approach, if the AQI breakpoint for 150 is set at 55.4 μg/m³ and the AQI breakpoint for 300 is set at 225.4 μg/m³, the AQI breakpoint for 200 would be 112.4 μg/m³ and the AQI breakpoint for 500 would be 452.4 μg/m³. The EPA solicits comments on whether to use a linear approach for higher breakpoints, the appropriate breakpoints to use for such an approach, and the appropriate values for breakpoints under other approaches, falling within the range of the current breakpoints and the breakpoints identified by these various approaches, as well as to retain and not change the existing breakpoints at this time.

C. Air Quality Index Category Breakpoints for PM_{10}

The EPA proposes to retain the PM_{10} sub-index of the AQI consistent with the proposed decision to retain the primary PM_{10} standard, and consistent with the health effects information that supports this proposed decision, as discussed in section III.D above.

D. Air Quality Index Reporting

With respect to the reporting requirements for the AQI, there have been many technological advances in air quality monitoring and data reporting since the appendix G to 40 CFR part 58 was last revised in 1999. Federal, state, local, and Tribal agencies have used these changes to make health information and air quality data more readily available and easier to access. Given this, it is useful to update the reporting requirements and recommendations to match current practices and ensure the public has the most useful and timely information to take health-protective behaviors.

Currently, appendix G defines daily reporting as five days per week. When this reporting requirement was originated in 1999 the technology available at that time was not sufficient to calculate and report the AQI more than five days per week without requiring additional staffing on the weekends. Since that time, advances in technology have allowed for reporting seven days per week automatically without expending additional resources on weekends. As a result, most state, local, and Tribal air agencies now report the AQI seven days per a week. Given these technological advances and noting that reporting agencies currently report the AQI seven days per week, the EPA is proposing that state, local, and Tribal agencies that report the AQI be required to report it seven days a week, ensuring that the public continues to have access to daily air quality and health information that they can use to take steps to protect their health.

Improvements in monitoring networks and modeling capabilities have also enabled the ability to report the AQI in near real-time. This allows state, local, and Tribal air agencies to provide timely air quality information to the public for making health-protective decisions and to help satisfy AQI reporting requirements. The availability of near real-time AQI data also allows for more timely responses by the public when air quality conditions are changing rapidly, such as during wildfire smoke events. Sub-daily reporting of the AQI can be critical when there are rapidly change conditions and/or high pollution events so that the public is able to make informed decisions to protect their health. Many state, local, and Tribal air agencies currently report the AQI hourly to ensure that the public has access to

accurate and timely information. In recognition of these advances, and to continue to provide for near-real time AQI reporting that the public has come to rely on, the EPA proposes to recommend that state, local, and Tribal agencies report the AQI in near-real time. Like air quality forecasting, which also allows the public to make health-protective, near-real time AQI reporting is recommended but not required.

In lieu of or along with reporting the near-real-time AQI directly to the public, most state/local and Tribal agencies submit hourly air quality data to the EPA. The EPA uses this near-real-time data in the National, Interactive and Fire and Smoke maps on the AirNow website, and to create products for use by weather service providers and the media. Some state, local, and Tribal air quality agencies also use these products on their own websites and in their own applications (*i.e.,* the California Air Resources Board uses the data in its California Smoke Spotter application). To continue to ensure the availability of the products that the public and many stakeholders rely upon, the EPA is proposing to recommend that state, local, and Tribal air quality agencies submit hourly data to the EPA's air quality database. Submitting hourly data to the EPA for use on the AirNow website and in other products also enables state, local, and Tribal air quality agencies to meet the recommendation to report the AQI in near-real-time.

The Agency is updating the reporting requirements and near-real-time reporting and data submission recommendations for the AQI. The Agency is reformatting the question-and-answer format used in appendix G to align with the current standard formatting used in the Code of Federal Regulations. The EPA is not taking comment on or reopening the language that has merely been moved or rearranged as there are no substantive changes.

Another change the EPA is proposing to make to appendix G is with regard to Table 2– Breakpoints for the AQI for purposes of clarity. We are proposing to collapse the two rows presented for the Hazardous Category into one. The two rows in the current table specify pollutant concentrations for two AQI ranges within the Hazardous category (301–400 and 401–500), with an intermediate break at 400. This breakpoint of 400, along with those for 200 and 300, were defined and are the historical basis for the Alert, Warning, and Emergency episode levels included in 40 CFR part 51, appendix L, as part of the Prevention of Air Pollution Emergency Episodes program (44 FR 92, May 10, 1979). The 400 breakpoint for all criteria pollutants in the current Table 2 is set at the proportional pollutant concentration approximately halfway between the index values of 300 and 500. In proposing updated AQI breakpoints for $PM_{2.5}$, the EPA considered adjusting the 400 breakpoint similarly. However, the EPA concluded that collapsing the two rows into a single range (301–500) would provide a more transparent and easy-to-follow presentation of the pollutant concentrations corresponding to the AQI range for the Hazardous category. Moreover, collapsing the Hazardous category into a single row in Table 2 has no substantive effect on the Emergency Episode program in 40 CFR part 51, appendix L. Thus, the EPA is proposing to remove the breakpoint of 400 from the table in appendix G but this change would not substantively affect the derivation of the AQI for any pollutant.

In addition, the EPA plans to move some information currently in appendix G into the Technical Assistance Document for the Reporting of Daily Air Quality, or TAD (U.S. EPA, 2018a), so that it can be updated in a more timely manner to reflect current scientific and health effects evidence and current communication methods, thereby assisting state, local, and Tribal agencies in providing accurate and timely information to the public. Information that will be moved from appendix G to the TAD includes the definitions of the sensitive (at-risk) populations for each pollutant. This definition is typically evaluated and updated, as warranted, in most NAAQS reviews, even if the standard is not revised. Generally, if the standard is not revised in a review of the NAAQS, then appendix G is also not revised. Moving the definitions of sensitive groups to the TAD allows them to be updated even when a NAAQS is not revised to be consistent with the definitions of the sensitive (at-risk) populations identified in the ISA for a NAAQS review. Data calculations for non-required mathematical equations, (*i.e.,* the NowCast), are currently and will continue to be included in the TAD. The EPA works with state, local, and Tribal air agencies to modify these calculations as needed, which may not be associated with a NAAQS review. Also, recognizing that the ways that air quality and health information is supplied to the news media and public changes regularly, information about suggested approaches will be taken out of appendix G and discussed in the TAD.

V. Rationale for Proposed Decisions on the Secondary PM Standards

This section presents the rationale for the Administrator's proposed decision that no change to the current secondary PM standards is required at this time to provide requisite protection against the public welfare effects of PM within the scope of this reconsideration (*i.e.,* visibility, climate, and materials effects).[116] This rationale is based on a thorough review of the scientific evidence generally published through December 2017,[117] as presented in the 2019 ISA (U.S. EPA, 2019a), on the non-ecological public welfare effects of PM pertaining to the presence of PM in ambient air, specifically visibility, climate, and materials effects. Additionally, this rationale is based on a thorough evaluation of some studies that became available after the literature cutoff date of the 2019 ISA that could either further inform the adequacy of the current PM NAAQS or address key scientific topics that have evolved since the literature cutoff date for the 2019 ISA, generally through March 2021, as presented in the ISA Supplement[118] (U.S. EPA, 2022a). The selection of welfare effects evaluated within the ISA Supplement was based on the causality determinations reported in the 2019 ISA and the subsequent use of scientific

[116] Consistent with the 2016 Integrated Review Plan (U.S. EPA, 2016), other welfare effects of PM, such as ecological effects, are being considered in the separate, on-going review of the secondary NAAQS for oxides of nitrogen, oxides of sulfur and PM. Accordingly, the public welfare protection provided by the secondary PM standards against ecological effects such as those related to deposition of nitrogen- and sulfur-containing compounds in vulnerable ecosystems is being considered in that separate review. Thus, the Administrator's conclusion in this reconsideration of the 2020 final decision will be focused only and specifically on the adequacy of public welfare protection provided by the secondary PM standards from effects related to visibility, climate, and materials and hereafter ''welfare effects'' refers to non-ecological welfare effects (*i.e.,* visibility, climate, and materials effects).

[117] In addition to the 2020 review's opening ''call for information'' (79 FR 71764, December 3, 2014), the 2019 ISA identified and evaluated studies and reports that have undergone scientific peer review and were published or accepted for publication between January 1, 2009 through approximately January 2018 (U.S. EPA, 2019a, p. ES–2). References that are cited in the 2019 ISA, the references that were considered for inclusion but not cited, and electronic links to bibliographic information and abstracts can be found at: *https://hero.epa.gov/hero/particulate-matter.*

[118] As described in more detail in the ISA Supplement, ''the scope of this Supplement provides specific criteria for the types of studies considered for inclusion within the Supplement. Specifically, studies must be peer reviewed and published between approximately January 2018 and March 2021'' (U.S. EPA, 2022a, section 1.2.2).

evidence in the 2020 PA.[119] Specifically, for welfare effects, the focus within the ISA Supplement is on visibility effects. The ISA Supplement does not include an evaluation of studies on climate or materials effects. The Administrator's rationale also takes into account: (1) the PA evaluation of the policy-relevant information in the 2019 ISA and ISA Supplement and presentation of quantitative analysis of air quality related to visibility impairment; (2) CASAC advice and recommendations, as reflected in discussions of the drafts of the ISA Supplement and PA at public meetings and in the CASAC's letters to the Administrator; and (3) public comments received during the development of these documents.

In presenting the rationale for the Administrator's proposed decision and its foundations, section V.A provides background and introductory information for this reconsideration of the secondary PM standards. It includes background on the 2020 final decision to retain the secondary PM standards (section V.A.1) and also describes the general approach for this reconsideration (section V.A.2). Section V.B summarizes the key aspects of the currently available evidence and quantitative information for PM-related visibility impairment and section V.C summarizes the available information for other PM-related welfare effects. Section V.D presents the Administrator's proposed conclusions on the current secondary PM standards (V.D.III), drawing on both evidence- and quantitative information-based considerations (section V.D.1) and advice from the CASAC (V.D.2).

[119] As described in section 1.2.1 of the ISA Supplement, ''the selection of welfare effects to evaluate within this Supplement is based on the causality determinations reported in the 2019 PM ISA and the subsequent use of scientific evidence in the 2020 PM PA. The 2019 PM ISA concluded a *causal relationship* for each of the welfare effects categories evaluated (*i.e.,* visibility, climate effects, and materials effects). While the 2020 PM PA considered the broader set of evidence for these effects, for climate effects and material effects, it concluded that there remained 'substantial uncertainties with regard to the quantitative relationships with PM concentrations and concentration patterns that limit[ed] [the] ability to quantitatively assess the public welfare protection provided by the standards from these effects (U.S. EPA, 2020a). Given these uncertainties and limitations, the basis of the discussion on conclusions regarding the secondary standards in the 2020 PM PA primarily focused on visibility effects. Therefore, this Supplement focuses only on visibility effects in evaluating newly available scientific information and is limited to studies conducted in the U.S. and Canada'' (U.S. EPA, 2022a, section 1.2.1).

A. General Approach

This reconsideration of the 2020 final decision on the secondary PM standards relies on the EPA's assessments of the current scientific evidence and associated quantitative analyses to inform the Administrator's judgments regarding secondary standards that are requisite to protect the public welfare from known or anticipated adverse effects associated with the pollutant's presence in the ambient air. The EPA's assessments are primarily documented in the 2019 ISA, ISA Supplement, and PA, all of which have received CASAC review and public comment (83 FR 53471, October 23, 2018; 83 FR 55529, November 6, 2018; 85 FR 4655, January 27, 2020; 86 FR 52673, September 22, 2021; 86 FR 54186, September 30, 2021; 86 FR 56263, October 8, 2021; 87 FR 958, January 7, 2022; 87 FR 22207, April 14, 2022; 87 FR 31965, May 26, 2022). In bridging the gap between the scientific assessments of the 2019 ISA and ISA Supplement and the judgments required of the Administrator in determining whether the current standards provide the requisite public welfare protection, the PA evaluates policy implications of the evaluation of the current evidence in the 2019 ISA and ISA Supplement, and the quantitative information documented in the PA. In evaluating the public welfare protection afforded by the current standards against PM-related effects within the scope of this reconsideration, the four basic elements of the NAAQS (indicator, averaging time, level, and form) are considered collectively.

The final decision on the adequacy of the current secondary standards is a public welfare policy judgment to be made by the Administrator. In reaching conclusions with regard to the standard, the decision will draw on the scientific information and analyses about welfare effects, and associated public welfare significance, as well as judgments about how to consider the range and magnitude of uncertainties that are inherent in the scientific evidence and analyses. This approach is based on the recognition that the available evidence generally reflects a continuum that includes ambient air exposures at which scientists agree that effects are likely to occur through lower levels at which the likelihood and magnitude of responses become increasingly uncertain. This approach is consistent with the requirements of the provisions of the Clean Air Act related to the review of NAAQS and with how the EPA and the courts have historically interpreted the Act. These provisions require the Administrator to establish secondary standards that, in the judgment of the Administrator, are requisite to protect public welfare from known or anticipated adverse effects associated with the presence of the pollutant in the ambient air. In so doing, the Administrator seeks to establish standards that are neither more nor less stringent than necessary for this purpose. The Act does not require that standards be set at a zero-risk level, but rather at a level that reduces risk sufficiently so as to protect the public welfare from known or anticipated adverse effects.

The subsections below provide background and introductory information. Background on the 2020 decision to retain the current standards, including the rationale for that decision, for non-visibility effects and visibility effects is summarized in sections V.A.1.a and V.A.1.b below, respectively. This is followed, in section V.A.2, by an overview of the general approach for the reconsideration of the 2020 final decision. Following this introductory section and subsections, the subsequent sections summarize current information and analyses, including that newly available in this reconsideration. The Administrator's proposed conclusions on the secondary PM standards, based on the current information, are provided in section V.D.3.

1. Background on the Current Standards

The current secondary PM standards were affirmed in 2020 based on the scientific and technical information available at that time, as well as the Administrator's judgments regarding the available welfare effects evidence, the appropriate degree of public welfare protection for the existing standards, and available air quality information on visibility impairment that may be allowed by such a standard (85 FR 82684, December 18, 2020). With the 2020 decision, the Administrator retained the secondary 24-hour $PM_{2.5}$ standard, with its level of 35 $\mu g/m^3$, the annual $PM_{2.5}$ standard, with its level of 15.0 $\mu g/m^3$, and the 24-hour PM_{10} standard, with its level of 150 $\mu g/m^3$. The subsections below focus on the key considerations, and the Administrator's conclusions, for climate and materials effects (section V.A.1.a) and visibility effects (section V.A.2.b) in the 2020 review.

a. Non-Visibility Effects

In light of the robust evidence base, the 2019 ISA concluded there to be causal relationships between PM and climate effects and materials effects (U.S. EPA, 2019a, sections 13.3.9 and 13.4.2). The 2020 final decision was

based on a thorough review in the 2019 ISA of the scientific information on PM-induced climate and materials effects. The decision also took into account: (1) assessments in the 2020 PA of the most policy-relevant information in the 2019 ISA regarding evidence of adverse effects of PM to climate and materials, (2) uncertainties in the available evidence to inform a quantitative assessment of PM-related climate and materials effects, (3) CASAC advice and recommendations, and (4) public comments received during the development of these documents and on the proposal document.

Consistent with the general approach routinely employed in NAAQS reviews, the initial consideration in the 2020 review of the secondary standards was with regard to the adequacy of protection provided by the existing standards. Key aspects of the consideration are summarized in section V.A.1.a.i below.

i. Considerations Regarding Adequacy of the Existing Standards for Non-Visibility Effects in the 2020 Review

In considering non-visibility welfare effects in the 2020 review, as discussed above, the Administrator concluded that, while it is important to maintain an appropriate degree of control of fine and coarse particles to address non-visibility welfare effects, ''it is generally appropriate to retain the existing standards and that there is insufficient information to establish any distinct secondary PM standards to address climate and materials effects of PM'' (85 FR 82744, December 18, 2020).

With regard to climate, the Administrator recognized that there were a number of improvements and refinements to climate models since the 2012 review. However, while the evidence continued to support a causal relationship between PM and climate effects, the Administrator noted that significant limitations continued to exist related to quantifying the contributions of direct and indirect effects of PM and PM components on climate forcing (U.S. EPA, 2020a, sections 5.2.2.1.1 and 5.4). He also recognized that the models continued to exhibit considerable variability in estimates of PM-related climate impacts at regional scales (*e.g.,* ~100 km) as compared to simulations at global scales. Therefore, the resulting uncertainty led the Administrator to conclude that the available scientific information in the 2020 review remained insufficient to quantify climate impacts associated with particular concentrations of PM in ambient air (U.S. EPA, 2020a, section 5.2.2.2.1) or to evaluate or consider a level of PM air quality in the U.S. to protect against climate effects and that there was insufficient information available to base a national ambient standard on climate impacts (85 FR 82744, December 18, 2020).

With regard to materials effects, the Administrator noted that the evidence available in the 2019 ISA continued to support a causal relationship between materials effects and PM deposition (U.S. EPA, 2019a, section 13.4). He recognized that the deposition of fine and coarse particles to materials can lead to physical damage and/or impaired aesthetic qualities. Particles can contribute to materials damage by adding to the natural weathering processes and by promoting the corrosion of metals, the degradation of building materials, and the weakening of material components. While some new information was available in the 2019 ISA, the information was from studies primarily conducted outside of the U.S. in areas where PM concentrations in ambient air are higher than those observed in the U.S. (U.S. EPA, 2020a, section 13.4). Additionally, the information assessed in the 2019 ISA did not support quantitative analyses of PM-related materials effects in the 2020 review (U.S. EPA, 2020a, section 5.2.2.2.2). Given the limited amount of information available and its inherent uncertainties and limitations, the Administrator concluded that he was unable to relate soiling or damage to specific levels of PM in ambient air or to evaluate or consider a level of air quality to protect against such materials effects, and that there was insufficient information available to support a distinct national ambient standard based on materials effects (85 FR 82744, December 18, 2020).

In the 2020 review, the CASAC agreed with the 2020 PA conclusions that, while these effects are important, ''the available evidence does not call into question the protection afforded by the current secondary PM standards'' and recommended that the secondary standards ''should be retained'' (Cox, 2019b, p. 3 of letter). In reaching a final decision in the 2020 review, for all of the reasons discussed above and recognizing the CASAC conclusion that the evidence provided support for retaining the current secondary PM standards, the Administrator concluded that it was appropriate to retain the existing secondary PM standards, without revision. For climate and materials effects, this conclusion reflected his judgment that, although it remains important to maintain secondary $PM_{2.5}$ and PM_{10} standards to provide some degree of control over long- and short-term concentrations of both fine and coarse particles, there was insufficient information to establish distinct secondary PM standards to address non-visibility PM-related welfare effects (85 FR 82744, December 18, 2020).

b. Visibility Effects

The 2019 ISA concluded that, ''the evidence is sufficient to conclude that a causal relationship exists between PM and visibility impairment'' (U.S. EPA, 2019a, section 13.2.6). The 2020 decision on the adequacy of the secondary standards with regard to visibility effects was a public welfare policy judgment made by the Administrator, which drew upon the available scientific evidence for PM-related visibility effects and on analyses of visibility impairment, as well as judgments about the appropriate weight to place on the range of uncertainties inherent in the evidence and analyses. The 2020 final decision was based on a thorough review in the 2019 ISA of the scientific information on PM-related visibility effects. The decision also took into account: (1) assessments in the 2020 PA of the most policy-relevant information in the 2019 ISA regarding evidence of adverse effects of PM on visibility; (2) air quality analyses of the $PM_{2.5}$ visibility index and design values based on the form and averaging time of the existing secondary 24-hour $PM_{2.5}$ standard; (3) CASAC advice and recommendations; and (4) public comments received during the development of these documents and on the 2020 proposal document.

Consistent with the general approach routinely employed in NAAQS reviews, the initial consideration in the 2020 review of the secondary PM standards was with regard to the adequacy of the protection provided by the then-existing standards. Key aspects of that consideration are summarized in section V.A.1.b.i below.

i. Consideration Regarding the Adequacy of the Existing Standards for Visibility Effects in the 2020 Review

In considering the visibility effects in the 2020 review, the Administrator noted the long-standing body of evidence for PM-related visibility impairment. This evidence, which is based on the fundamental relationship between light extinction and PM mass, demonstrated that ambient PM can impair visibility in both urban and remote areas, and had changed very little since the 2012 review (U.S. EPA, 2019a, section 13.1; U.S. EPA, 2009a, section 9.2.5). The evidence related to public perception of visibility

impairment was from studies from four areas in North America.[120] These studies provided information to inform our understanding of levels of visibility impairment that the public judged to be ''acceptable'' (U.S. EPA, 2010a; 85 FR 24131, April 30, 2020). In considering these public preference studies, the Administrator noted that, as described in the 2019 ISA, no new visibility studies had been conducted in the U.S. and there was little newly available information with regard to acceptable levels of visibility impairment in the U.S. The Administrator recognized that visibility impairment can have implications for people's enjoyment of daily activities and their overall well-being, and therefore, considered the degree to which the current secondary standards protect against PM-related visibility impairment.

Consistent with the 2012 review, in the 2020 review, the Administrator first concluded that a target level of protection for a secondary PM standard is most appropriately defined in terms of a visibility index that directly takes into account the factors (*i.e.,* species composition and relative humidity) that influence the relationship between $PM_{2.5}$ in ambient air and PM-related visibility impairment. In defining a target level of protection, the Administrator considered the specific aspects of such an index, including the appropriate indicator, averaging time, form and level (78 FR 82742–82744, December 18, 2020).

First, with regard to indicator, the Administrator noted that in the 2012 review, the EPA used an index based on estimates of light extinction by $PM_{2.5}$ components calculated using an adjusted version of the IMPROVE algorithm, which allows the estimation of the light extinction using routinely monitored components of $PM_{2.5}$ and $PM_{10–2.5}$, along with estimates of relative humidity. The Administrator recognized that, while there have been some revisions to the IMPROVE algorithm since the time of the 2012 review, our fundamental understanding of the relationship between PM in ambient air and light extinction had changed little and the various IMPROVE algorithms appropriately reflected this relationship across the U.S. In the absence of a monitoring network for direct measurement of light extinction, he concluded that a calculated light extinction indicator that utilizes the IMPROVE algorithms continued to provide a reasonable basis for defining a target level of protection against PM-related visibility impairment (78 FR 82742–82744, December 18, 2020).

In further defining the characteristics of a visibility index, the Administrator next considered the appropriate averaging time, form, and level of the index. Given the available scientific information the review, and in considering the CASAC's advice and public comments, the Administrator concluded that, consistent with the decision in the 2012 review, a visibility index with a 24-hour averaging time and a form based on the 3-year average of annual 90th percentile values remained reasonable. With regard to the averaging time and form of such an index, the Administrator noted analyses conducted in the last review that demonstrated relatively strong correlations between 24-hour and subdaily (*i.e.,* 4-hour average) $PM_{2.5}$ light extinction (78 FR 3226, January 15, 2013), indicating that a 24-hour averaging time is an appropriate surrogate for the subdaily time periods of the perception of PM-related visibility impairment and the relevant exposure periods for segments of the viewing public. This decision in the 2020 review also recognized that a 24-hour averaging time may be less influenced by atypical conditions and/or atypical instrument performance (78 FR 3226, January 15, 2013). The Administrator recognized that there was no new information to support updated analyses of this nature, and therefore, he believed these analyses continued to provide support for consideration of a 24-hour averaging time for a visibility index in this review. With regard to the statistical form of the index, the Administrator noted that, consistent with the 2012 review: (1) a multi-year percentile form offers greater stability from the occasional effect of interannual meteorological variability (78 FR 3198, January 15, 2013; U.S. EPA, 2011, p. 4–58); (2) a 90th percentile represents the median of the distribution of the 20 percent worst visibility days, which are targeted in Federal Class I areas by the Regional Haze Program; and (3) public preference studies did not provide information to identify a different target than that identified for Federal Class I areas (U.S. EPA, 2011, p. 4–59). Therefore, the Administrator judged that a visibility index based on estimates of light extinction, with a 24-hour averaging time and a 90th percentile form, averaged over three years, remained appropriate (78 FR 82742–82744, December 18, 2020).

With regard to the level of a visibility index, consistent with the 2012 review, the Administrator judged that it was appropriate to establish a target level of protection of 30 deciviews (dv),[121] [122] reflecting the upper end of the range of visibility impairment judged to be acceptable by at least 50% of study participants in the available public preference studies (78 FR 3226, January 15, 2013). The 2011 PA identified a range of levels from 20 to 30 dv based on the responses in the public preference studies available at that time (U.S. EPA, 2011, section 4.3.4). At the time of the 2012 review, the Administrator noted a number of uncertainties and limitations in public preference studies, including the small number of stated preference studies available, the relatively small number of study participants, the extent to which the study participants may not be representative of the broader study area population in some of the studies, and the variations in the specific materials and methods used in each study. In considering the available preference studies, with their inherent uncertainties and limitations, the prior Administrator concluded that the substantial degree of variability and uncertainty in the public preference studies should be reflected in a target level of protection based on the upper end of the range of candidate protection levels (CPLs).

Given that there were no new preference studies available in the 2020 review, the Administrator's judgments were based on the same studies, with the same range of levels, available in the 2012 review. As identified in the 2020 PA (U.S. EPA, 2020a, section 5.5), there were a number of limitations and uncertainties associated with these studies, including the following:

- Available studies may not represent the full range of preferences for visibility in the U.S. population, particularly given the potential variability in preferences based on the conditions commonly encountered and the scenes being viewed.
- Available preference studies were conducted 15 to 30 years ago and may

[120] Preference studies were available in four urban areas. Three western preference studies were available, including one in Denver, Colorado (Ely et al., 1991), one in the lower Fraser River valley near Vancouver, British Columbia, Canada (Pryor, 1996), and one in Phoenix, Arizona (BBC Research & Consulting, 2003). A pilot focus group study was also conducted for Washington, DC (Abt Associates, 2001), and a replicate study with 26 participants was also conducted for Washington, DC (Smith and Howell, 2009). More details about these studies are available in Appendix D of the 2022 PA (U.S. EPA, 2022b).

[121] Deciview (dv) refers to a scale for characterizing visibility that is defined directly in terms of light extinction. The deciview scale is frequently used in the scientific and regulatory literature on visibility.

[122] For comparison, 20 dv, 25 dv, and 30 dv are equivalent to 64, 112, and 191 megameters (Mm^{-1}), respectively.

not accurately represent the current day preferences of people in the U.S.

- The variety of methods used in the preference studies may potentially influence the responses as to what level of impairment is deemed acceptable.
- Factors that are not captured in the methods of the preference studies, such as the time of day when light extinction is the greatest or the frequency of impairment episodes, may influence people's judgment on acceptable visibility (U.S. EPA, 2020a, section 5.2.1.1).

Therefore, in considering the scientific information, with its uncertainties and limitations, as well as public comments on the level of the target level of protection against visibility impairment, the Administrator concluded that it was appropriate to again use a level of 30 dv for the visibility index (78 FR 82742–82744, December 18, 2020).

Having concluded that the protection provided by a standard defined in terms of a $PM_{2.5}$ visibility index, with a 24-hour averaging time, and a 90th percentile form, averaged over 3 years, set at a level of 30 dv, was requisite to protect public welfare with regard to visual air quality, the Administrator next considered the degree of protection from visibility impairment afforded by the existing suite of secondary PM standards.

In this context, the Administrator considered the updated analyses of visibility impairment presented in the 2020 PA (U.S. EPA, 2020a, section 5.2.1.2), which reflected a number of improvements since the 2012 review. Specifically, the updated analyses examined multiple versions of the IMPROVE equation, including the version incorporating revisions since the time of the 2012 review. These updated analyses provided a further understanding of how variation in the inputs to the algorithms affect the estimates of light extinction (U.S. EPA, 2020a, Appendix D). Additionally, for a subset of monitoring sites with available $PM_{10-2.5}$ data, the updated analyses better characterized the influence of coarse PM on light extinction than in the 2012 review (U.S. EPA, 2020a, section 5.2.1.2).

The results of the updated analyses in the 2020 PA were consistent with those from the 2012 review. Regardless of which version of the IMPROVE equation was used, the analyses demonstrated that, based on 2015–2017 data, the 3-year visibility metric was at or below about 30 dv in all areas meeting the current 24-hour $PM_{2.5}$ standard, and below 25 dv in most of those areas. In locations with available $PM_{10-2.5}$ monitoring, which met both the current 24-hour secondary $PM_{2.5}$ and PM_{10} standards, 3-year visibility index metrics were at or below 30 dv regardless of whether the coarse fraction was included as an input to the algorithm for estimating light extinction (U.S. EPA, 2020a, section 5.2.1.2). While the inclusion of the coarse fraction had a relatively modest impact on the estimates of light extinction, the Administrator recognized the continued importance of the PM_{10} standard given the potential for larger impacts on light extinction in areas with higher coarse particle concentrations, which were not included in the analyses in the 2020 PA due to a lack of available data (U.S. EPA, 2019a, section 13.2.4.1; U.S. EPA, 2020a, section 5.2.1.2). He noted that the air quality analyses showed that all areas meeting the existing 24-hour $PM_{2.5}$ standard, with its level of 35 $\mu g/m^3$, had visual air quality at least as good as 30 dv, based on the visibility index. Thus, the secondary 24-hour $PM_{2.5}$ standard would likely be controlling relative to a 24-hour visibility index set at a level of 30 dv. Additionally, areas would be unlikely to exceed the target level of protection for visibility of 30 dv without also exceeding the existing secondary 24-hour $PM_{2.5}$ standard. Thus, the Administrator judged that the 24-hour $PM_{2.5}$ standard provided sufficient protection in all areas against the effects of visibility impairment, *i.e.,* that the existing 24-hour $PM_{2.5}$ standard would provide at least the target level of protection for visual air quality of 30 dv which he judged appropriate (78 FR 82742–82744, December 18, 2020).

2. General Approach and Key Issues in This Reconsideration of the 2020 Final Decision

To evaluate whether it is appropriate to consider retaining the current secondary PM standards, or whether consideration of revision is appropriate, the EPA has adopted an approach in this reconsideration that builds upon the general approach used in past reviews and reflects the body of evidence and information now available. Accordingly, the approach in this reconsideration takes into consideration the approaches used in past reviews, including the substantial assessments and evaluations performed in those reviews, and also takes into account the more recent scientific information and air quality data now available to inform understanding of the key policy-relevant issues in the reconsideration. As summarized above, the Administrator's decisions in the 2020 review were based on an integration of PM welfare effects information with the judgments on the public welfare significance of key effects, policy judgments as to when the standard is requisite, consideration of CASAC advice, and consideration of public comments.

Similarly, in this reconsideration, we draw on the current information from studies of PM-related visibility effects, quantitative analyses of PM-related visibility impairment, and information from studies of non-visibility welfare effects. In so doing, we consider both the information available at the time of the 2012 and 2020 reviews and information more recently available, including that which has been critically analyzed and characterized in the 2019 ISA and ISA Supplement [123] for visibility, climate, and materials effects. The evaluations in the PA, of the potential implications of various aspects of the scientific evidence in the 2019 ISA and ISA Supplement (building on prior such assessments), augmented by the quantitative air quality, exposure or risk-based information, are also considered along with the associated uncertainties and limitations.

B. Overview of Welfare Effects Evidence

The information summarized here is based on the scientific assessment of the welfare effects evidence available in this reconsideration; this assessment is documented in the 2019 ISA and ISA Supplement and its policy implications are further discussed in the PA. While the 2019 ISA provides the broad scientific foundation for this reconsideration, we recognize that additional literature has become available since the cutoff date of the 2019 ISA that expands the body of evidence related to visibility effects that can inform the Administrator's judgment on the adequacy of the current secondary PM standards. As such, the ISA Supplement builds on the information in the 2019 ISA with a targeted identification and evaluation of new scientific information regarding visibility effects. As described in the ISA Supplement and the PA, the selection of welfare effects to evaluate

[123] As noted above and described in detail in section 1.4.2 of the PA, the ISA Supplement focuses on a thorough evaluation of some studies that became available after the literature cutoff date of the 2019 ISA that could either further inform the adequacy of the current PM NAAQS or address key scientific topics that have evolved since the literature cutoff date for the 2019 ISA. The selection of the welfare effects to evaluate within the ISA Supplement were based on the causality determinations reported in the 2019 ISA and the subsequent use of scientific evidence in the 2020 PA. Specifically, for welfare effects, the focus within the ISA Supplement is on visibility effects. The ISA Supplement does not include an evaluation of studies on climate or materials effects.

within the ISA Supplement were based on the causality determinations reported in the 2019 ISA and the subsequent use of scientific evidence in the 2020 PA (U.S. EPA, 2019a, section 1.2; U.S. EPA, 2022a, section 1.4.2). The ISA Supplement focuses on U.S. and Canadian studies that provide new information on public preferences for visibility impairment and/or developed new methodologies or conducted quantitative analyses of light extinction (U.S. EPA, 2022a, section 1.2). Such studies of visibility effects and quantitative relationships between visibility impairment and PM in ambient air were considered to be of greatest utility in informing the Administrator's conclusions on the adequacy of the current secondary PM standards. The visibility effects evidence presented within the 2019 ISA, along with the targeted identification and evaluation of new scientific information in the ISA Supplement, provides the scientific basis for the reconsideration of the 2020 final decision on the secondary PM standards for visibility effects. For climate and materials effects, the 2020 PA concluded that there were substantial uncertainties associated with the quantitative relationships with PM concentrations and the concentration patterns that limited the ability to quantitatively assess the public welfare protection provided by the standards from these effects. Therefore, the evaluation of the information related to these effects draws heavily from the 2019 ISA and 2020 PA. The subsections below briefly summarize the nature of PM-related visibility (section V.B.1.a), climate (section V.B.1.b), and materials (section V.B.1.c) effects.

1. Nature of Effects

Visibility impairment can have implications for people's enjoyment of daily activities and for their overall sense of well-being (U.S. EPA, 2009a, section 9.2). The strongest evidence for PM-related visibility impairment comes from the fundamental relationship between light extinction and PM mass (U.S. EPA, 2009a), which confirms a well-established ''causal relationship exists between PM and visibility impairment'' (U.S. EPA, 2009a, p. 2–28). Beyond its effects on visibility, the 2009 ISA also identified a causal relationship ''between PM and climate effects, including both direct effects of radiative forcing and indirect effects that involve cloud and feedbacks that influence precipitation formation and cloud lifetimes'' (U.S. EPA, 2009a, p. 2–29). The evidence also supports a causal relationship between PM and effects on materials, including soiling effects and materials damage (U.S. EPA, 2009a, p. 2–31).

The evidence available in this reconsideration is consistent with the evidence available at the time of the 2012 and 2020 reviews and supports the conclusions of causal relationships between PM and visibility, climate, and materials effects (U.S. EPA, 2019a, chapter 13). Evidence newly available in this reconsideration augments the previously available evidence of the relationship between PM and visibility impairment (U.S. EPA, 2019a, section 13.2; U.S. EPA, 2022a, section 4), climate effects (U.S. EPA, 2019a, section 13.3), and materials effects (U.S. EPA, 2019a, section 13.4).

a. Visibility

Visibility refers to the visual quality of a human's view with respect to color rendition and contrast definition. It is the ability to perceive landscape form, colors, and textures. Visibility involves optical and psychophysical properties involving human perception, judgment, and interpretation. Light between the observer and the object can be scattered into or out of the sight path and absorbed by PM or gases in the sight path. Consistent with conclusions of causality in the 2012 and 2020 reviews, the 2019 ISA concludes that ''the evidence is sufficient to conclude that a causal relationship exists between PM and visibility impairment'' (U.S. EPA, 2019a, section 13.2.6). These conclusions are based on the strong and consistent evidence that ambient PM can impair visibility in both urban and remote areas (U.S. EPA, 2019a, section 13.1; U.S. EPA, 2009a, section 9.2.5).

The fundamental relationship between light extinction and PM mass, and the EPA's understanding of this relationship, has changed little since the 2009 ISA (U.S. EPA, 2009a). The combined effect of light scattering and absorption by particles and gases is characterized as light extinction, *i.e.,* the fraction of light that is scattered or absorbed per unit of distance in the atmosphere.[124] Light extinction is measured in units of 1/distance, which is often expressed in the technical literature as visibility per megameter (abbreviated Mm^{-1}). Higher values of light extinction (usually given in units of Mm^{-1} or dv) correspond to lower visibility. When PM is present in the air, its contribution to light extinction is typically much greater than that of gases (U.S. EPA, 2019a, section 13.2.1). The impact of PM on light scattering depends on particle size and composition, as well as relative humidity. All particles scatter light, as described by the Mie theory, which relates light scattering to particle size, shape, and index of refraction (U.S. EPA, 2019a, section 13.2.3; Mie, 1908, Van de Hulst, 1981). Fine particles scatter more light than coarse particles on a per unit mass basis and include sulfates, nitrates, organics, light-absorbing carbon, and soil (Malm et al., 1994). Hygroscopic particles like ammonium sulfate, ammonium nitrate, and sea salt increase in size as relative humidity increases, leading to increased light scattering (U.S. EPA, 2019a, section 13.2.3).

As at the time of the 2012 and 2020 reviews, direct measurements of PM light extinction, scattering, and absorption continue to be considered more accurate for quantifying visibility than PM mass-based estimates because measurements do not depend on assumptions about particle characteristics (*e.g.,* size, shape, density, component mixture, etc.) (U.S. EPA, 2019a, section 13.2.2.2). Measurements of light extinction can be made with high time resolution, allowing for characterization of subdaily temporal patterns of visibility impairment. A number of measurement methods have been used for visibility impairment (*e.g.,* transmissometers, integrating nephelometers, teleradiometers, telephotometers, and photography and photographic modeling), although each of these methods has its own strengths and limitations (U.S. EPA, 2019a, Table 13–1). While some recent research confirms and adds to the body of knowledge regarding direct measurements as is described in the 2019 ISA and ISA Supplement, no major new developments have been made with these measurement methods since prior reviews (U.S. EPA, 2019a, section 13.2.2.2; U.S. EPA, 2022a, section 4.2).

In the absence of a robust monitoring network for the routine measurement of light extinction across the U.S., estimation of light extinction based on existing PM monitoring can be used. The theoretical relationship between light extinction and PM characteristics, as derived from Mie theory (U.S. EPA, 2019a, Equation 13.5), can be used to estimate light extinction by combining mass scattering efficiencies of particles

[124] All particles scatter light and, although a larger particle scatters more light than a similarly shaped smaller particle of the same composition, the light scattered per unit of mass is greatest for particles with diameters from ~0.3–1.0 μm (U.S. EPA, 2009a, section 2.5.1; U.S. EPA, 2019a, section 13.2.1). Particles with hygroscopic components (*e.g.,* particulate sulfate and nitrate) contribute more to light extinction at higher relative humidity than at lower relative humidity because they change size in the atmosphere in response to relative humidity.

with particle concentrations (U.S. EPA, 2019a, section 13.2.3; U.S. EPA, 2009a, sections 9.2.2.2 and 9.2.3.1). This estimation of light extinction is consistent with the method used in previous reviews. The algorithm used to estimate light extinction, known as the IMPROVE algorithm,[125] provides for the estimation of light extinction (b_{ext}), in units of Mm^{-1}, using routinely monitored components of fine ($PM_{2.5}$) and coarse ($PM_{10-2.5}$) PM. Relative humidity data are also needed to estimate the contribution by liquid water that is in solution with the hygroscopic components of PM. To estimate each component's contribution to light extinction, their concentrations are multiplied by extinction coefficients and are additionally multiplied by a water growth factor that accounts for their expansion with moisture. Both the extinction efficiency coefficients and water growth factors of the IMPROVE algorithm have been developed by a combination of empirical assessment and theoretical calculation using particle size distributions associated with each of the major aerosol components (U.S. EPA, 2019a, sections 13.2.3.1 and 13.2.3.3).

At the time of the 2012 review, two versions of the IMPROVE algorithm were available in the literature—the *original IMPROVE algorithm* (Lowenthal and Kumar, 2004, Malm and Hand, 2007, Ryan et al., 2005) and the *revised IMPROVE algorithm* (Pitchford et al., 2007). As described in detail in the PA (U.S. EPA, 2022b, section 5.3.1.1) and the 2019 ISA (U.S. EPA, 2019a, section 13.2.3), the algorithm has been further evaluated and refined since the time of the 2012 review (Lowenthal and Kumar, 2016), particularly for PM characteristics and relative humidity in remote areas. All three versions of the IMPROVE algorithm were considered in evaluating visibility impairment in this reconsideration.

Consistent with the evidence available at the time of the 2012 and 2020 reviews, our understanding of public perception of visibility impairment comes from visibility preference studies conducted in four areas in North America.[126] The detailed methodology for these studies are described in the PA (U.S. EPA, 2022b, section 5.3.1.1), the 2019 ISA (U.S. EPA, 2019a), and the 2009 ISA (U.S. EPA, 2019a). In summary, the study participants were queried regarding multiple images that were either photographs of the same location and scenery that had been taken on different days on which measured extinction data were available or digitized photographs onto which a uniform ''haze'' had been superimposed. Results of the studies indicated a wide range of judgments on what study participants considered to be acceptable visibility across the different study areas, depending on the setting depicted in each photograph. Based on the results of the four cities, a range encompassing the $PM_{2.5}$ visibility index values from images that were judged to be acceptable by at least 50 percent of study participants across all four of the urban preference studies was identified (U.S. EPA, 2010a, p. 4–24; U.S. EPA, 2020a, Figure 5–2). Much lower visibility (considerably more haze resulting in higher values of light extinction) was considered acceptable in Washington, DC, than was in Denver, and 30 dv reflected the level of impairment that was determined to be ''acceptable'' by at least 50 percent of study participants (78 FR 3226–3227, January 15, 2013).

Since the completion of the 2009 and 2019 ISAs, there has been only one public preference study that has become available in the U.S. This study uses images of the Grand Canyon, AZ, described in the ISA Supplement (U.S. EPA, 2022a). The Grand Canyon study, conducted by Malm et al. (2019), has a similar study design to that used in the public preference studies discussed above; however, there are several important differences that make it difficult to directly compare the results of the Malm et al. (2019) study with other public preference studies. As an initial matter, the Grand Canyon study was conducted in a Federal Class I area, as opposed to in an urban area, with a scene depicted in the photographs that did not include urban features.[127] We recognize that public preferences with respect to visibility in Federal Class 1 areas may well differ from visibility preferences in urban areas and other contexts, although there is currently a lack of information to on such questions. Further, the Malm et al. (2019) study also used a much lower range of superimposed ''haze'' than the preference studies discussed above.[128] It is unclear whether the participant preferences are a function in part of the range of potential values presented, such that the participant preferences for the Grand Canyon were generally lower[129] than the other preference studies in part because of the lower range of superimposed ''haze'' for the images in that study, or if their preferences would vary if presented with images with a range of superimposed ''haze'' more comparable to the levels used in the other studies (*i.e.,* more ''haze'' superimposed on the images).

The Malm et al. (2019) study also explored alternate methods for evaluating ''acceptable'' levels of visual air quality from the preference studies, including the use of scene-specific visibility indices as potential indicators of visibility levels as perceived by the observer (Malm et al., 2019). In addition to measures of atmospheric haze, such as atmospheric extinction, used in previously available preference studies, other indices for visual air quality include color and achromatic contrast of single landscape figures, average and equivalent contrast of an entire scene, edge detection algorithms such as the Sobel index, and just-noticeable difference or change indexes. The results reported by Malm et al. (2019) suggest that scene-dependent metrics, such as contrast, may be useful alternate predictors of preference levels compared to universal metrics like light extinction (U.S. EPA, 2022a, section 4.2.1). This is because extinction alone is not a measure of ''haze,'' but of light attenuation per unit distance, and visible ''haze'' is dependent on both light extinction and distance to a landscape feature (U.S. EPA, 2022a, section 4.2.1). However, there are very few studies available that use scene-dependent metrics (*i.e.,* contrast) to evaluate public preference information, which makes it difficult to evaluate

[125] The algorithm is referred to as the IMPROVE algorithm as it was developed specifically to use monitoring data generated at IMPROVE network sites and with equipment specifically designed to support the IMPROVE program and was evaluated using IMPROVE optical measurements at the subset of monitoring sites that make those measurements (Malm et al., 1994).

[126] Preference studies were available in four urban areas in the last review: Denver, Colorado (Ely et al., 1991), Vancouver, British Columbia, Canada (Pryor, 1996), Phoenix, Arizona (BBC Research & Consulting, 2003), and Washington, DC (Abt Associates, 2001; Smith and Howell, 2009).

[127] The Grand Canyon study used a single scene looking west down the canyon with a small landscape feature of a 100-km-distant mountain (Mount Trumbull), along with other closer landscape features. The scenes presented in the previously available visibility preference studies are presented in more detail in Table D–9 in the PA (U.S. EPA, 2022b, Appendix D).

[128] The Grand Canyon study superimposed light extinction ranging from 3 dv to 20 dv on the image slides shown to participants compared to the previously available preference studies. In those studies, the visibility ranges presented were as low as 9 dv and as high as 45 dv. The visibility ranges presented in the previously available visibility preference studies are described in more detail in Table D–9 in the PA (U.S. EPA, 2022b, Appendix D).

[129] In the Grand Canyon study, the level of impairment that was determined to be ''acceptable'' by at least 50 percent of study participants was 7 dv (Malm et al., 2019).

them as an alternative to the light extinction approach.

b. Climate

The available evidence continues to support the conclusion of a causal relationship between PM and climate effects (U.S. EPA, 2019a, section 13.3.9). Since the 2012 review, climate impacts have been extensively studied and recent research reinforces and strengthens the evidence evaluated in the 2009 ISA. Recent evidence provides greater specificity about the details of radiative forcing effects [130] and increases the understanding of additional climate impacts driven by PM radiative effects. The Intergovernmental Panel on Climate Change (IPCC) assesses the role of anthropogenic activity in past and future climate change, and since the completion of the 2009 ISA, has issued the Fifth IPCC Assessment Report (AR5; IPCC, 2013) which summarizes any key scientific advances in understanding the climate effects of PM since the previous report. As in the 2009 ISA, the 2019 ISA draws substantially on the IPCC report to summarize climate effects. As discussed in more detail in the PA (U.S. EPA, 2022b, section 5.3.2.1.1), the general conclusions are similar between the IPCC AR4 and AR5 reports with regard to effects of PM on global climate. Consistent with the evidence available in the 2012 review, the key components, including sulfate, nitrate, organic carbon (OC), black carbon (BC), and dust, that contribute to climate processes vary in their reflectivity, forcing efficiencies, and direction of forcing. Since the completion of the 2009 ISA, the evidence base has expanded with respect to the mechanisms of climate responses and feedbacks to PM radiative forcing; however, the recently published literature assessed in the 2019 ISA does not reduce the considerable uncertainties that continue to exist related these mechanisms.

As described in the PA (U.S. EPA, 2022b, section 5.3.2.1.1), PM has a very heterogeneous distribution globally and patterns of forcing tend to correlate with PM loading, with the greatest forcings centralized over continental regions. The climate response to this PM forcing, however, is more complicated since the perturbation to one climate variable (*e.g.,* temperature, cloud cover, precipitation) can lead to a cascade of effects on other variables. While the initial PM radiative forcing may be concentrated regionally, the eventual climate response can be much broader spatially or be concentrated in remote regions, and may be quite complex, affecting multiple climate variables with possible differences in the direction of the forcing in different regions or for different variables (U.S. EPA, 2019a, section 13.3.6). The complex climate system interactions lead to variation among climate models, which have suggested a range of factors which can influence large-scale meteorological processes and may affect temperature, including local feedback effects involving soil moisture and cloud cover, changes in the hygroscopicity of the PM, and interactions with clouds (U.S. EPA, 2019a, section 13.3.7). However, there remains insufficient evidence to related climate effects to specific PM levels in ambient air or to establish a quantitative relationship between PM and climate effects, particularly at a regional scale. Further research is needed to better characterize the effects of PM on regional climate in the U.S. before PM climate effects can be quantified.

c. Materials

Consistent with the evidence assessed in the 2009 ISA, the available evidence continues to support the conclusion that there is a causal relationship between PM deposition and materials effects. Effects of deposited PM, particularly sulfates and nitrates, to materials include both physical damage and impaired aesthetic qualities, generally involving soiling and/or corrosion (U.S. EPA, 2019a, section 13.4.2). Because of their electrolytic, hygroscopic, and acidic properties and their ability to sorb corrosive gases, particles contribute to materials damage by adding to the effects of natural weathering processes, by potentially promoting or accelerating the corrosion of metals, degradation of painted surfaces, deterioration of building materials, and weakening of material components.[131] There is a limited amount of recently available data for consideration in this review from studies primarily conducted outside of the U.S. on buildings and other items of cultural heritage. However, these studies involved concentrations of PM in ambient air greater than those typically observed in the U.S. (U.S. EPA, 2019a, section 13.4).

Building on the evidence available in the 2009 ISA, and as described in detail in the PA (U.S. EPA, 2022b, section 5.3.2.1.2) and in the 2019 ISA (U.S. EPA, 2019a, section 13.4), research has progressed on (1) the theoretical understanding of soiling of items of cultural heritage; (2) the quantification of degradation rates and further characterization of factors that influence damage of stone materials; (3) materials damage from PM components besides sulfate and black carbon and atmospheric gases besides SO_2; (4) methods for evaluating soiling of materials by PM mixtures; (5) PM-attributable damage to other materials, including glass and photovoltaic panels; (6) development of dose-response relationships for soiling of building materials; and (7) damage functions to quantify material decay as a function of pollutant type and load. While the evidence of PM-related materials effects has expanded somewhat since the completion of the 2009 ISA, there remains insufficient evidence to relate soiling or damage to specific PM levels in ambient air or to establish a quantitative relationship between PM and materials degradation. The recent evidence assessed in the 2019 ISA is generally similar to the evidence available in the 2009 ISA, including associated limitations and uncertainties and a lack of evidence to inform quantitative relationships between PM and materials effects, therefore leading to similar conclusions about the PM-related effects on materials.

C. Summary of Air Quality and Quantitative Information

Beyond the consideration of the scientific evidence, as discussed in section V.B above, quantitative analyses of PM air quality, when available, can also inform conclusions on the adequacy of the public welfare protection provided by the current secondary PM standards.

1. Visibility Effects

In the 2012 and 2020 reviews, quantitative analyses for PM-related visibility effects focused on daily visibility impairment, given the short-term nature of PM-related visibility effects. The evidence and information available in this reconsideration

[130] Radiative forcing (RF) for a given atmospheric constituent is defined as the perturbation in net radiative flux, at the tropopause (or the top of the atmosphere) caused by that constituent, in watts per square meter (Wm^{-2}), after allowing for temperatures in the stratosphere to adjust to the perturbation but holding all other climate responses constant, including surface and tropospheric temperatures (Fiore et al., 2015; Myhre et al., 2013). A positive forcing indicates net energy trapped in the Earth system and suggests warming of the Earth's surface, whereas a negative forcing indicates net loss of energy and suggests cooling (U.S. EPA, 2019a, section 13.3.2.2).

[131] As discussed in the 2019 ISA (U.S. EPA, 2019a, section 13.4.1), corrosion typically involves reactions of acidic PM (*i.e.,* acidic sulfate or nitrate) with material surfaces, but gases like SO_2 and nitric acid (HNO_3) also contribute. Because ''the impacts of gaseous and particulate N and S wet deposition cannot be clearly distinguished'' (U.S. EPA, 2019a, p. 13–1), the assessment of the evidence in the 2019 ISA considers the combined impacts.

continues to provide support for the short-term (*i.e.,* hourly or daily) nature of PM-related visibility impairment. As such, the quantitative analyses presented in the PA continue to focus on daily visibility impairment and utilize a two-phase assessment approach for visibility impairment, consistent with the approaches taken in past reviews. First, the PA considers the appropriateness of the elements (indicator, averaging time, form, and level) of the visibility index for providing protection against PM-related visibility effects. Second, recent air quality was used to evaluate the relationship between the current secondary 24-hour $PM_{2.5}$ standard and the visibility index. The information available since the 2012 review includes an updated equation for estimating light extinction, summarized in the PA (U.S. EPA, 2022b, section 5.3.1.1) and described in the 2019 ISA (U.S. EPA, 2019a, section 13.2.3.3), as well as more recent air monitoring data, that together allow for development of an updated assessment of PM-related visibility impairment in study locations in the U.S.

a. Target Level of Protection in Terms of a $PM_{2.5}$ Visibility Index

In evaluating the adequacy of the current secondary PM standards, the PA first evaluates the appropriateness of the elements (indicator, averaging time, form, and level) identified for a distinct secondary standard to protect against visibility effects. In previous reviews, the visibility index was set at a level of 30 dv, with estimated light extinction as the indicator, a 24-hour averaging time, and a 90th percentile form, averaged over three years.

With regard to an indicator for the visibility index, the PA recognizes the lack of availability of methods and an established network for directly measuring light extinction (U.S. EPA, 2022b, section 5.3.1.1). Therefore, consistent with previous reviews, the PA concludes that a visibility index based on estimates of light extinction by $PM_{2.5}$ components derived from an adjusted version of the original IMPROVE algorithm to be the most appropriate indicator for the visibility index in this reconsideration. As described in section 5.3.1.1 of the PA, the IMPROVE algorithm estimates light extinction using routinely monitored components of $PM_{2.5}$ and $PM_{10-2.5}$, along with estimates of relative humidity (U.S. EPA, 2022b, section 5.3.1.1).

With regard to averaging time, the PA notes that the evidence continues to provide support for the short-term nature of PM-related visibility effects. Given that there is no new information available regarding the time periods during which visibility impairment occurs or public preferences related to specific time periods for visibility impairment, the PA concludes that it is appropriate to continue to focus on daily visibility impairment. In so doing, the PA relies on analyses that were conducted in the 2012 review that showed relatively strong correlations between 24-hour and sub-daily (*i.e.,* 4-hour average) $PM_{2.5}$ light extinction that indicated that a 24-hour averaging time is an appropriate surrogate for the sub-daily time periods relevant for visual perception (U.S. EPA, 2011, Figures G–4 and G–5; Frank, 2012). These analyses continue to provide support for a 24-hour averaging time for the visibility index in this reconsideration. Consistent with previous reviews, the PA also notes that the 24-hour averaging time may be less influenced by atypical conditions and/or atypical instrument performance than a sub-daily averaging time (85 FR 82740, December 18, 2020; 78 FR 3226, January 15, 2013).

With regard to the form for the visibility index, the available information continues to provide support for a 3-year average of annual 90th percentile values. Given that there is no new information to inform selection of an alternate form, as in previous reviews, the PA notes that the 3-year average form provides stability from the occasional effect of inter-annual meteorological variability that can result in unusually high pollution levels for a particular year (85 FR 82741, December 18, 2020; 78 FR 3198, January 15, 2013; U.S. EPA, 2011, p. 4–58). In so doing, the PA considers the evaluation in the 2010 Urban-Focused Visibility Assessment (UFVA) of three different statistical forms: 90th, 95th, and 98th percentiles (U.S. EPA, 2010a, Chapter 4). In considering this evaluation of statistical forms from the 2010 UFVA, consistent with the 2011 PA, the PA notes that the Regional Haze Program targets the 20 percent most impaired days for visibility improvements in visual air quality in Federal Class I areas and that the median of the distribution of these 20 percent most impaired days would be the 90th percentile. The 2011 PA also noted that strategies that are implemented so that 90 percent of days would have visual air quality that is at or below the level of the visibility index would reasonably be expected to lead to improvements in visual air quality for the 20 percent most impaired days. Additionally, as in the 2011 PA, the PA recognizes that the available public preference studies do not address frequency of occurrence of different levels of visibility (U.S. EPA, 2022b, section 5.3.1.2). Therefore, the analyses and consideration for the form of a visibility index from the 2011 PA continue to provide support for a 90th percentile form, averaged across three years, in defining the characteristics of a visibility index in this reconsideration.

With regard to the level for the visibility index, the PA recognizes that there is an additional public preference study (Malm et al., 2019) available in this reconsideration. As noted above, however, this study differs from the previously available public preference studies in several ways which makes it difficult to integrate this newly available study with the previously available studies. Most significantly, this study was evaluated public preferences for visibility in the Grand Canyon, perhaps the most notable Class I area in the country for visibility purposes. Therefore, the PA concludes that the Grand Canyon study is not directly comparable to the other available preferences studies and public preferences of visibility impairment in the Malm et al. (2019) are not appropriate to consider in identifying a range of levels for the target level of protection against visibility impairment for this reconsideration of the secondary PM NAAQS.

Therefore, the PA continues to rely on the same studies [132] and the range of 20 to 30 dv identified from those studies in previous reviews. With regard to selecting the appropriate target level of protection for visibility impairment within this range, the PA notes that in previous reviews, a level at the upper end of the range (*i.e.,* 30 dv) was selected given the uncertainties and limitations associated with the public preference studies (U.S. EPA, 2022b, section 5.3.1.1). However, the PA also recognizes that (1) the degree of protection provided by a secondary PM NAAQS is not determined solely by any one element of the standard but by all elements (*i.e.,* indicator, averaging time, form, and level) being considered together, and (2) decisions regarding the adequacy of the current secondary standards is a public welfare policy judgment to be made by the Administrator. As such, the Administrator may judge that a target

[132] As noted above, the available public preference studies include those conducted in Denver, Colorado (Ely et al., 1991), Vancouver, British Columbia, Canada (Pryor, 1996), Phoenix, Arizona (BBC Research & Consulting, 2003), and Washington, DC (Abt Associates, 2001; Smith and Howell, 2009).

level of protection below the upper end of the range (*i.e.,* less than 30 dv) is appropriate, depending on his public welfare policy judgments, which draw upon the available scientific evidence for PM-related visibility effects and on analyses of visibility impairment, as well as judgments about the appropriate weight to place on the range of uncertainties inherent in the evidence and analyses.

In considering the available public preference studies, consistent with past reviews, the PA concludes that it is reasonable to consider a range of 20 to 30 dv for selecting a target level of protection, including a high value of 30 dv, a midpoint value of 25 dv, and a low value of 20 dv. A target level of protection at or in the upper end of the range would focus on the Washington, DC, preference study results (Abt Associates, 2001; Smith and Howell, 2009) which identified 30 dv as the level of impairment that was determined to be ''acceptable'' by at least 50 percent of study participants. The public preferences of visibility impairment in the Washington, DC, study are likely to be generally representative of urban areas that do not have valued scenic elements (*e.g.,* mountains) in the distant background. This would be more representative of areas in the middle of the country and many areas in the eastern U.S., as well as possibly some areas in the western U.S.

A target level of protection in the middle of the range would be most closely associated with the level of impairment that was determined to be ''acceptable'' by at least 50 percent of study participants in the Phoenix, AZ, study (BBC Research & Consulting, 2003), which was 24.3 dv. This study, while methodologically similar to the other public preference studies, included participants that were selected as a representative sample of the Phoenix area population [133] and used computer-generated images to depict specific uniform visibility impairment conditions. This study yielded the best results of the four public preference studies in terms of the least noisy preference results and the most representative selection of participants. Therefore, based on this study, the use of 25 dv to represent a midpoint within the range of target levels protection is well supported.

A target level of protection at or just above the lower end of the range would focus on the Denver, CO, study, but may not be as strongly supported as higher levels within the range (Ely et al., 1991). Older studies, such as those conducted in Denver, CO (Ely et al., 1991), and British Columbia, Canada (Pryor, 1996), used photographs that were taken at different times of the day and on different days to capture a range of light extinction levels needed for the preference studies. Compared to studies that used computer-generated images (*i.e.,* those in Phoenix, AZ, and Washington, DC) there was more variability in scene appearance in these older studies that could affect preference rating and includes uncertainties associated with using ambient measurements to represent sight path-averaged light extinction values rather than superimposing a computer-generated amount of haze onto the images. When using photographs, the intrinsic appearance of the scene can change due to meteorological conditions (*i.e.,* shadow patterns and cloud conditions) and spatial variations in ambient air quality that can result in ambient light extinction measurement not being representative of the sight-path-averaged light extinction. Computer-generated images, such as those generated with WinHaze, do not introduce such uncertainties, as the same base photograph is used (*i.e.,* there is no intrinsic change in scene appearance) and the modeled haze that is superimposed on the photograph is determined based on uniform light extinction throughout the scene.

In addition to differences in preferences that may arise from photographs versus computer-generated images, urban visibility preference may differ by location, and such differences may arise from differences in the cityscape scene that is depicted in the images. These differences are related to the perceived value of objects and scenes that are included in the image, as objects at a greater distance have a greater sensitivity to perceived visibility changes as light extinction is changed compared to similar scenes with objects at shorter distances. For example, a person (regardless of their location) evaluating visibility in an image with more scenic elements such as mountains or natural views may value better visibility conditions in these images compared to the same level of visibility impairment in an image that only depicts urban features such as buildings and roads. That is, if a person was shown the same level of visibility impairment in two images depicting different scenes—one with mountains in the background and urban features in the foreground and one with no mountains in the background and nearby buildings in the image without mountains in the distance—may find the amount of haze to be unacceptable in the image with the mountains in the distance because of a greater perceived value of viewing the mountains, while finding the amount of haze to be acceptable in the image with the buildings because of a lesser value of viewing the cityscape or an expectation that such urban areas may generally have higher levels of haze in general. This is consistent when comparing the differences between the Denver, CO, study results (which found the 50% acceptance criteria occurred at the best visual air quality levels among the four cities) and the Washington, DC, results (which found the 50% acceptability criteria occurred at the worst visual air quality levels among the four cities). These results may occur because the most prominent and picturesque feature of the cityscape of Denver is the visible snow-covered mountains in the distance, while the prominent and picturesque features of the Washington, DC, cityscape are buildings relatively nearby without prominent and/or values scenic features that are more distant. Given these variabilities in preferences it is unclear to what extent, the available evidence provides strong support for a target level of protection at the lower end of the range. Future studies that reduce sources of noisiness and uncertainty in the results could provide more information that would support selection of a target level of protection at or just above the lower end of the range.

Taken together, the PA concludes that available information continues to support a visibility index with estimated light extinction as the indicator, a 24-hour averaging time, and a 90th percentile form, averaged over three years, with a level within the range of 20 to 30 dv.

b. Relationship Between the $PM_{2.5}$ Visibility Index and the Current Secondary 24-Hour $PM_{2.5}$ Standard

The PA presents quantitative analyses based on recent air quality that evaluate the relationship between recent air quality and calculated light extinction. As in previous reviews, these analyses explored this relationship as an estimate of visibility impairment in terms of the

[133] The other preference studies did not include populations that were necessarily representative of the population in the area for which the images being judged. For example, in the Denver, CO, study, participants were from intact groups (*i.e.,* those who were meeting for other reasons) and were asked to provide a period of time during a regularly scheduled meeting to participate in the study (Ely et al., 1991). As another example, in the British Columbia, Canada, study, participants were recruited from undergraduate and graduate students enrolled in classes at the University of British Columbia's Department of Geography (Pryor, 1996).

24-hour $PM_{2.5}$ standard and the visibility index. Generally, the results of the updated analyses are similar to those based on the data available at the time of the 2012 and 2020 reviews (U.S. EPA, 2022b, section 5.3.1.2). As discussed in section V.C.1.a above, the PA concludes that the available evidence continues to support a visibility index with estimated light extinction as the indicator, a 24-hour averaging time, and a 90th percentile form, averaged over three years, with a level within the range of 20 to 30 dv. These analyses evaluate visibility impairment in the U.S. under recent air quality conditions, particularly those conditions that meet the current standards, and the relative influence of various factors on light extinction. Given the relationship of visibility with short-term PM, we focus particularly on the short-term PM standards.[134] Compared to the 2012 review, updated analyses incorporate several refinements, including (1) the evaluation of three versions of the IMPROVE equation to calculate light extinction (U.S. EPA, 2022b, Appendix D, Equations D–1 through D–3) in order to better understand the influence of variability in equation inputs; [135] (2) the use of 24-hour relative humidity data, rather than monthly average relative humidity as was used in the 2012 review (U.S. EPA, 2022b, section 5.3.1.2, Appendix D); and (3) the inclusion of the coarse fraction in the estimation of light extinction (U.S. EPA, 2022b, section 5.3.1.2, Appendix D).

The analyses in the reconsideration are updated from the 2012 and 2020 reviews and include 60 monitoring sites that measure $PM_{2.5}$ and PM_{10} and are geographically distributed across the U.S. in both urban and rural areas (U.S. EPA, 2022b, Appendix D, Figure D–1).

When light extinction was calculated using the revised IMPROVE equation, in areas that meet the current 24-hour $PM_{2.5}$ standard for the 2017–2019 time period, all sites have light extinction estimates at or below 26 dv (U.S. EPA, 2022b, Figure 5–3). For the four locations that exceed the current 24-hour $PM_{2.5}$ standard, light extinction estimates range from 22 dv to 27 dv (U.S. EPA, 2022b, Figure 5–3). These findings are consistent with the findings of the analyses using the same IMPROVE equation in the 2012 review with data from 102 sites with data from 2008–2010 and in the 2020 review with data from 67 sites with data from 2015–2017. The analyses presented in the PA indicate similar findings to those from the analyses in the 2012 and 2020 reviews, i.e., the updated quantitative analysis shows that the 3-year visibility metric was no higher than 30 dv [136] at sites meeting the current secondary PM standards, and at most such sites the 3-year visibility index values are much lower (*e.g.,* an average of 20 dv across the 60 sites).[137]

When light extinction was calculated using the revised IMPROVE equation,[138] the resulting 3-year visibility metrics are nearly identical to light extinction estimates calculated using the original IMPROVE equation (U.S. EPA, 2022b, Figure 5–4), but some sites are just slightly higher. Using the revised IMPROVE equation, for those sites that meet the current 24-hour $PM_{2.5}$ standard, the 3-year visibility metric is at or below 26 dv. For the four locations that exceed the current 24-hour $PM_{2.5}$ standard, light extinction estimates range from 22 dv to 29 dv (U.S. EPA, 2022b, Figure 5–4). These results are similar to those for light extinction calculated using the original IMPROVE equation,[139] and those from previous reviews.

When light extinction was calculated using the refined equation from Lowenthal and Kumar (2016), the resulting 3-year visibility metrics are slightly higher at all sites compared to light extinction estimates calculated using the original IMPROVE equation (U.S. EPA, 2022b, Figure 5–5).[140] These higher estimates are to be expected, given the higher OC multiplier included in the IMPROVE equation from Lowenthal and Kumar (2016), which reflects the use of data from remote areas with higher concentrations of organic PM when validating the equation. As such, it is important to note that the Lowenthal and Kumar (2016) version of the equation may overestimate light extinction in non-remote areas, including the urban areas in the updated analyses in this reconsideration.

Nevertheless, when light extinction is calculated using the Lowenthal and Kumar (2016) equation for those sites that meet the current 24-hour $PM_{2.5}$ standard, the 3-year visibility metric is generally at or below 28 dv. For those sites that exceed the current 24-hour $PM_{2.5}$ standard, three of these sites have a 3-year visibility metric ranging between 26 dv and 30 dv, while one site in Fresno, California that exceeds the current 24-hour $PM_{2.5}$ standard and has a 3-year visibility index value of 32 dv (compared to 29 dv when light extinction is calculated with the original IMPROVE equation) (see U.S. EPA, 2022b, Appendix D, Table D–3). At this site, it is likely that the 3-year visibility metric using the Lowenthal and Kumar (2016) equation would be below 30 dv if $PM_{2.5}$ concentrations were reduced such that the 24-hour $PM_{2.5}$ level of 35 $\mu g/m^3$ was attained.

In considering visibility impairment under recent air quality conditions, the PA recognizes that the differences in the inputs to equations estimating light extinction can influence the resulting values. For example, given the varying chemical composition of emissions from different sources, the 2.1 multiplier in the Lowenthal and Kumar (2016) equation may not be appropriate for all source types. At the time of the 2012 review, the EPA judged that a 1.6 multiplier for converting OC to organic matter (OM) was more appropriate, for

[134] The analyses presented in the PA focus on the visibility index and the current secondary 24-hour $PM_{2.5}$ standard with a level of 35 $\mu g/m^3$. However, we recognize that all three secondary PM standards influence the PM concentrations associated with the air quality distribution. As noted in section V.A.1 above, the current secondary PM standards include the 24-hour $PM_{2.5}$ standard, with its level of 35 $\mu g/m^3$, the annual $PM_{2.5}$ standard, with its level of 15.0 $\mu g/m^3$, and the 24-hour PM_{10} standard, with its level of 150 $\mu g/m^3$. With regard to the annual $PM_{2.5}$ standard, we note that all 60 areas included in the analyses meet the current secondary annual PM standard (U.S. EPA, 2022b, Table D–7).

[135] While the $PM_{2.5}$ monitoring network has an increasing number of continuous FEM monitors reporting hourly $PM_{2.5}$ mass concentrations, there continue to be data quality uncertainties associated with providing hourly $PM_{2.5}$ mass and component measurements that could be input into IMPROVE equation calculations for sub-daily visibility impairment estimates. As detailed in the PA, there are uncertainties associated with the precision and bias of 24-hour $PM_{2.5}$ measurements (U.S. EPA, 2022b, p. 2–18), as well as to the fractional uncertainty associated with 24-hour PM component measurements (U.S. EPA, 2022b, p. 2–21). Given the uncertainties present when evaluating data quality on a 24-hour basis, the uncertainty associated with sub-daily measurements may be even greater. Therefore, the inputs to these light extinction calculations are based on 24-hour average measurements of $PM_{2.5}$ mass and components, rather than sub-daily information.

[136] A 3-year visibility metric with a level of 30 dv would be at the upper end of the range of levels identified from the public preference studies.

[137] When light extinction is calculated using the original IMPROVE equation, all 60 sites have 3-year visibility metrics below 30 dv, 58 sites are at or below 25 dv, and 26 sites are at or below 20 dv (see U.S. EPA, 2022b, Appendix D, Table D–3).

[138] As described in more detail in the PA, the revised IMPROVE equation divides PM components into smaller and larger sizes of particles in $PM_{2.5}$, with separate mass scattering efficiencies and hygroscopic growth functions for each size category (U.S. EPA, 2022b, section 5.3.1.1).

[139] When light extinction is calculated using the revised IMPROVE equation, all 60 sites have 3-year visibility metrics below 30 dv, 56 sites are at or below 25 dv, and 26 sites are at or below 20 dv (see U.S. EPA, 2022b, Appendix D, Table D-3).

[140] When light extinction is calculated using the Lowenthal and Kumar IMPROVE equation, 59 sites have 3-year visibility metrics below 30 dv, 45 sites are at or below 25 dv, and 15 sites are at or below 20 dv. The one site with a 3-year visibility metric of 32 dv exceeds the secondary 24-hour $PM_{2.5}$ standard, with a design value of 56 $\mu g/m^3$ (see U.S. EPA, 2022b, Appendix D, Table D–3).

the purposes of estimating visibility index at sites across the U.S., than the 1.4 or 1.8 multipliers used in the original and revised IMPROVE equations, respectively. A multiplier of 1.8 or 2.1 would account for the more aged and oxygenated organic PM that tends to be found in more remote regions than in urban regions, whereas a multiplier of 1.4 may underestimate the contribution of organic PM found in remote regions when estimating light extinction (78 FR 3206, January 15, 2013; U.S. EPA, 2012, p. IV–5). The available scientific information and results of the air quality analyses indicate that it may be appropriate to select inputs to the IMPROVE equation (*e.g.,* the multiplier for OC to OM) on a regional basis rather than a national basis when calculating light extinction. This is especially true when comparing sites with localized PM sources (such as sites in urban or industrial areas) to sites with PM derived largely from biogenic precursor emissions (that contribute to widespread secondary organic aerosol formation), such as those in the southeastern U.S. The PA notes, however, that conditions involving PM from such different sources have not been well studied in the context of applying a multiplier to estimate light extinction, contributing uncertainty to estimates of light extinction for such conditions.

At the time of the 2012 review, the EPA noted that $PM_{2.5}$ is the size fraction of PM responsible for most of the visibility impairment in urban areas (77 FR 38980, June 29, 2012). Data available at the time of the 2012 review suggested that, generally, $PM_{10–2.5}$ was a minor contributor to visibility impairment most of the time (U.S. EPA, 2010a) although the coarse fraction may be a major contributor in some areas in the desert southwestern region of the U.S. Moreover, at the time of the 2012 review, there were few data available from $PM_{10–2.5}$ monitors to quantify the contribution of coarse PM to calculated light extinction. Since that time, an expansion in $PM_{10–2.5}$ monitoring efforts has increased the availability of data for use in estimating light extinction with both $PM_{2.5}$ and $PM_{10–2.5}$ concentrations included as inputs in the equations. The analysis in the 2020 review addressed light extinction at 20 of the 67 $PM_{2.5}$ sites where collocated $PM_{10–2.5}$ monitoring data were available. Since the 2020 review, $PM_{10–2.5}$ monitoring data are available at more locations and the analyses presented in the PA include those for light extinction estimated with coarse and fine PM at all 60 sites. Generally, the contribution of the coarse fraction to light extinction at these sites is minimal, contributing less than 1 dv to the 3-year visibility metric (U.S. EPA, 2020a, section 5.2.1.2). However, the PA notes that in the updated quantitative analyses, only a few sites were in locations that would be expected to have high concentrations of coarse PM, such as the Southwest. These results are consistent with those in the analyses in the 2019 ISA, which found that mass scattering from $PM_{10–2.5}$ was relatively small (less than 10%) in the eastern and northwestern U.S., whereas mass scattering was much larger in the Southwest (more than 20%) particularly in southern Arizona and New Mexico (U.S. EPA, 2019a, section 13.2.4.1, p. 13–36).

Overall, the findings of these updated quantitative analyses are generally consistent with those in the 2012 and 2020 reviews. The 3-year visibility metric was generally below 26 dv in most areas that meet the current 24-hour $PM_{2.5}$ standard. Small differences in the 3-year visibility metric were observed between the variations of the IMPROVE equation, which may suggest that it may be more appropriate to use one version over another in different regions of the U.S. based on PM characteristics such as particle size and composition to more accurately estimate light extinction.

2. Non-Visibility Effects

Consistent with the evidence available at the time of the 2012 and 2020 reviews, and as described in detail in the PA (U.S. EPA, 2022b, section 5.3.2.2), the data remain insufficient to conduct quantitative analyses for PM effects on climate and materials. For PM-related climate effects, as explained in more detail in the PA (U.S. EPA, 2022b, section 5.3.2.1.1), our understanding of PM-related climate effects is still limited by significant key uncertainties. The recently available evidence does not appreciably improve our understanding of the spatial and temporal heterogeneity of PM components that contribute to climate forcing (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). Significant uncertainties also persist related to quantifying the contributions of PM and PM components to the direct and indirect effects on climate forcing, such as changes to the pattern of rainfall, changes to wind patterns, and effects on vertical mixing in the atmosphere (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). Additionally, while improvements have been made to climate models since the completion of the 2009 ISA, the models continue to exhibit variability in estimates of the PM-related climate effects on regional scales (*e.g.,* ~100 km) compared to simulations at the global scale (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). While our understanding of climate forcing on a global scale is somewhat expanded since the 2012 review, significant limitations remain to quantifying potential adverse PM-related climate effects in the U.S. and how they would vary in response to incremental changes in PM concentrations across the U.S. As such, while recent research is available on climate forcing on a global scale, the remaining limitations and uncertainties are significant, and the recent global scale research does not translate directly for use at regional spatial scales. Therefore, the evidence does not provide a clear understanding at the necessary spatial scales for quantifying the relationship between PM mass in ambient air and the associated climate-related effects in the U.S. that would be necessary for informing consideration of a national PM standard on climate in this reconsideration (U.S. EPA, 2022b, section 5.3.2.2.1; U.S. EPA, 2019a, section 13.3).

For PM-related materials effects, as explained in more detail in the PA (U.S. EPA, 2022b, section 5.3.2.1.2), the available evidence has been somewhat expanded to include additional information about the soiling process and the types of materials impacted by PM. This evidence provides some limited information to inform dose-response relationships and damage functions associated with PM, although most of these studies were conducted outside of the U.S. where PM concentrations in ambient air are typically above those observed in the U.S. (U.S. EPA, 2022b, section 5.3.2.1.2; U.S. EPA, 2019a, section 13.4). The evidence on materials effects characterized in the 2019 ISA also includes studies examining effects of PM on the energy efficiency of solar panels and passive cooling building materials, although the evidence remains insufficient to establish quantitative relationships between PM in ambient air and these or other materials effects (U.S. EPA, 2022b, section 5.3.2.1.2). While the available evidence assessed in the 2019 ISA is somewhat expanded since the time of the 2012 review, quantitative relationships have not been established for PM-related soiling and corrosion and frequency of cleaning or repair that further the understanding of the public welfare implications of materials effects (U.S. EPA, 2022b, section 5.3.2.2.2; U.S. EPA, 2019a, section 13.4). Therefore, there is insufficient information to inform quantitative analyses assessing

materials effects to inform consideration of a national PM standard on materials in this reconsideration (U.S. EPA, 2022b, section 5.3.2.2.2; U.S. EPA, 2019a, section 13.4).

D. Proposed Conclusions on the Secondary PM Standards

In reaching proposed conclusions on the current secondary PM standards (presented in section IV.D.3), the Administrator has taken into account policy-relevant evidence- and quantitative information-based considerations discussed in the PA (summarized in section IV.D.2), as well as advice from the CASAC and public comment on the standards received thus far in the reconsideration (section IV.D.1). In general, the role of the PA is to help ''bridge the gap'' between the Agency's assessment of the current evidence and quantitative analyses, and the judgments required of the Administrator in determining whether it is appropriate to retain or revise the NAAQS. Evidence-based considerations draw upon the EPA's integrated assessment of the scientific evidence of PM-related welfare effects presented in the 2019 ISA and ISA Supplement (summarized in section V.B above) to address key policy-relevant questions in the reconsideration. Similarly, the quantitative information-based considerations (summarized in section V.C above) focused on the potential for PM-related welfare effects under recent air quality conditions for the purposes of addressing the policy-relevant questions.

This approach to reviewing the secondary standards is consistent with the requirements of the provisions of the CAA related to the review of the NAAQS and with how the EPA and the courts have historically interpreted the CAA. As discussed in section I.A above, these provisions require the Administrator to establish secondary standards that, in the Administrator's judgment, are requisite (*i.e.,* neither more nor less stringent than necessary) to protect the public welfare from known or anticipated adverse effects associated with the presence of the pollutant in ambient air. Consistent with the Agency's approach across all NAAQS reviews, the EPA's approach to informing these judgments is based on a recognition that the available welfare effects evidence generally reflects a continuum that includes ambient air exposures for which scientists generally agree that effects are likely to occur through lower levels at which the likelihood and magnitude of response become increasingly uncertain. The CAA does not require the Administrator to establish secondary standards at a zero-risk level, but rather at a level that reduces risk sufficiently so as to protect the public welfare from known or anticipated adverse effects.

The proposed decision on the adequacy of the current secondary standards described below is a public welfare policy judgment by the Administrator that draws upon the scientific evidence for the relevant welfare effects, quantitative analyses of air quality, as available, and judgments about how to consider the uncertainties and limitations that are inherent in the scientific evidence and quantitative analyses. The four basic elements of the NAAQS (*i.e.,* indicator, averaging time, form, and level) have been considered collectively in evaluating the public welfare protection afforded by the current standard against PM-related visibility, climate and materials effects. The Administrator's final decision will additionally consider public comments received on this proposed decision.

1. CASAC Advice in This Reconsideration

The CASAC provided its advice regarding the current secondary standards in the context of its review of the draft PA (Sheppard, 2022a).[141] In its comments on the draft PA, the CASAC first recognized the scientific evidence is sufficient to support a causal relationship between PM and visibility effects, climate effects and materials effects.

With regard to visibility effects, the CASAC recognized that the identification of a target level of protection for the visibility index is based on a limited number of studies and suggested that ''additional region- and view-specific visibility preference studies and data analyses are needed to support a more refined visibility target'' (Sheppard, 2022a, p. 21 of consensus responses). While the CASAC did not recommend revising either the target level of protection for the visibility index or the level of the current 24-hour $PM_{2.5}$ standard, they did state that a visibility index of 30 deciviews ''needs to be justified'' and ''[i]f a value of 20–25 deciviews is deemed to be an appropriate visibility target level of protection, then a secondary 24-hour $PM_{2.5}$ standard in the range of 25–35 μg/m^3 should be considered'' (Sheppard, 2022a, p. 21 of consensus responses).

The CASAC also recognized the limited availability of monitoring methods and networks for directly measuring light extinction. As such, they suggest that ''[a] more extensive technical evaluation of the alternatives for visibility indicators and practical measurement methods (including the necessity for a visibility FRM) is need for future reviews'' (Sheppard, 2022a, p. 22 of consensus letter). The majority of the CASAC ''recommend[ed] that an FRM for a directly measured $PM_{2.5}$ light extinction indicator be developed'' to inform the consideration of the protection afforded by the secondary PM standards against visibility impairment, the minority of the CASAC ''believe that a light extinction FRM is not necessary to set a secondary standard protective of visibility'' (Sheppard, 2022a, p. 22 of consensus responses).

With regard to climate and materials effects, the CASAC noted that substantial uncertainties remain in the scientific evidence for these effects. The CASAC suggested a number of areas for future research to further inform our understanding of these effects, including more climate-related research and research that would allow for quantitative assessment of the relationship between materials effects and PM in ambient air.

2. Evidence- and Quantitative Information-Based Considerations in the Policy Assessment

The secondary PM standards include the 24-hour $PM_{2.5}$ standard, with its level of 35 μg/m^3 as the 98th percentile, averaged over three years; the annual $PM_{2.5}$ standard, with its level of 15.0 μg/m^3 as the annual mean, averaged over three years; and the 24-hour PM_{10} standard, with its level of 150 μg/m^3, not to be exceeded more than once per year on average over three years. Together, these standards provide protection against both long-term average and short-term peak PM concentrations. For example, the 24-hour $PM_{2.5}$ standard is most effective at limiting peak 24-hour $PM_{2.5}$ concentrations, but in doing so, also has an effect on annual average $PM_{2.5}$ concentrations. Additionally, the annual standard is most effective in controlling ''typical'' or average $PM_{2.5}$ concentrations, but also provides some

[141] A limited number of public comments have also been received in this reconsideration to date, including comments focused on the draft PA. Of those public comments that addressed the adequacy of the secondary PM standards, the majority of commenters support the preliminary conclusion that it is appropriate to consider retaining the current secondary PM standards, without revision. These commenters generally cite to a lack of newly available evidence and information that would inform consideration of alternative secondary PM standards to protect against PM-related effects on visibility, climate, and materials. One commenter, however, supported the revision of the secondary PM standards to provide additional protection against PM-related visibility effects.

measure of protection against peak exposures.

The PA considers the degree to which the available scientific evidence and quantitative information supports or calls into question the adequacy of the protection afforded by the current secondary PM standards. In doing so, the PA considers the evidence assessed in the 2019 ISA and ISA Supplement, including the extent to which the evidence for PM-related visibility impairment, climate effects, or materials effects alters key conclusions from the 2020 review. The PA also considers quantitative analyses of visibility impairment and the extent to which they may indicate different conclusions from those in the 2020 review regarding the degree of protection from adverse effects provided by the current secondary standards.

Consistent with the approaches used in previous reviews, the quantitative analyses in the PA utilized a two-phase assessment for visibility impairment. First, the PA considered the appropriateness of the elements (indicator, averaging time, form, and level) of the visibility index for providing protection against PM-related visibility effects. Second, the PA evaluated the relationship between the current secondary 24-hour $PM_{2.5}$ standard and the visibility index.

With regard to the appropriateness of the visibility index and its target level of protection against PM-related visibility effects, the PA notes that there is limited information available in this reconsideration beyond that available in previous reviews to inform conclusions on the elements (indicator, averaging time, form, and level) of the visibility index (described in more detail in section V.C.1.a above). In considering the available information, the PA concludes that the available information continues to support a visibility index with estimated light extinction as the indicator, a 24-hour averaging time, and a 90th percentile form, averaged over three years, with a level within the range of 20 to 30 dv.

With regard to the relationship between the current secondary 24-hour $PM_{2.5}$ standard and the visibility index, the PA presents updated analyses based on recent air quality information, with a focus on locations meeting the current secondary 24-hour $PM_{2.5}$ and PM_{10} standards. In the absence of advances in the monitoring methods for directly measuring light extinction, and given the lack of a robust monitoring network for the routine measurement of light extinction across the U.S. (section V.B.1.a), as in previous reviews, the PA analyses use calculated light extinction to estimate PM-related visibility impairment (U.S. EPA, 2022b, section 5.3.1.2). Compared to the 2012 review, updated analyses incorporate several refinements. These include (1) the evaluation of three versions of the IMPROVE equation to calculate light extinction (U.S. EPA, 2022b, Appendix D, Equations D–1 through D–3) in order to better understand the influence of variability in equation inputs;[142] (2) the use of 24-hour relative humidity data, rather than monthly average relative humidity as was used in the 2012 review (U.S. EPA, 2022b, section 5.3.1.2, Appendix D); and (3) the inclusion of the coarse fraction in the estimation of light extinction (U.S. EPA, 2022b, section 5.3.1.2, Appendix D). The PA's updated analyses include 60 monitoring sites that measure $PM_{2.5}$ and PM_{10} that are geographically distributed across the U.S. in both urban and rural areas (U.S. EPA, 2022b, Appendix D, Figure D–1).[143]

In areas that meet the current 24-hour $PM_{2.5}$ standard for the 2017–2019 time period, all sites have light extinction estimates at or below 26 dv using the original and revised IMPROVE equations (U.S. EPA, 2022b, section 5.3.1.2). In addition, the four locations that exceeds the current 24-hour $PM_{2.5}$ standard have light extinction estimates that range from 22 to 27 dv when using the original IMPROVE equation (U.S. EPA, 2022b, Figure 5–3) and from 22 to 29 dv when using the revised IMPROVE equation (U.S. EPA, 2022b, Figure 5–4). The analyses presented in the PA indicate similar findings to those from the analyses in the 2012 and 2020 reviews, *i.e.,* the updated quantitative analysis shows that the 3-year visibility metric was no higher than 30 dv (the upper end of the range of target levels of protection) at sites meeting the current secondary PM standards, and at most such sites the 3-year visibility index values are much lower (*e.g.,* an average of 20 dv across the 60 sites).[144]

When light extinction is calculated using the updated IMPROVE equation from Lowenthal and Kumar (2016), the resulting 3-year visibility metrics are slightly higher at all sites compared to light extinction calculated using the original and revised IMPROVE equations (U.S. EPA, 2022b, Figure 5–5). The slightly higher estimates of light extinction are consistent with the higher OC multiplier included in the IMPROVE equation from Lowenthal and Kumar (2016), reflecting the use of data from remote areas with higher concentrations of organic PM when validating that equation. As such, it is important to note that the Lowenthal and Kumar (2016) version of the IMPROVE equation may overestimate light extinction in non-remote areas, including in the urban areas included in the analyses presented in the PA.

Nevertheless, when light extinction is calculated using the Lowenthal and Kumar (2016) equation for those sites that meet the current 24-hour $PM_{2.5}$ standard, the 3-year visibility metric is generally at or below 28 dv.[145] For the sites that exceed the current 24-hour $PM_{2.5}$ standard, three of the sites have a 3-year visibility metric ranging between 26 dv and 30 dv, while one site in Fresno, California that exceeds the current 24-hour $PM_{2.5}$ standard has a 3-year visibility index value of 32 dv (compared to 29 dv when light extinction is calculated with the original IMPROVE equation) (see U.S. EPA, 2022b, Appendix D, Table D–3). At this site, it is likely that the 3-year visibility metric using the Lowenthal and Kumar (2016) equation would be below 30 dv if $PM_{2.5}$ concentrations were reduced such that the 24-hour $PM_{2.5}$ level of 35 $\mu g/m^3$ was attained.

In the 2012 review, the EPA noted that $PM_{2.5}$ is the size fraction of PM responsible for most of the visibility impairment in urban areas (77 FR 38980, June 29, 2012). Data available at the time of the 2012 review suggested that $PM_{10-2.5}$ is often a minor contributor to visibility impairment (U.S. EPA,

[142] While the $PM_{2.5}$ monitoring network has an increasing number of continuous FEM monitors reporting hourly $PM_{2.5}$ mass concentrations, there continue to be data quality uncertainties associated with providing hourly $PM_{2.5}$ mass and component measurements that could be input into IMPROVE equation calculations for sub-daily visibility impairment estimates. Therefore, the inputs to these light extinction calculations are based on 24-hour average measurements of $PM_{2.5}$ mass and components, rather than sub-daily information.

[143] These sites are those that have a valid 24-hour $PM_{2.5}$ design value for the 2015–2017 period and met strict criteria for PM species for this analysis, based on 24-hour average $PM_{2.5}$ and $PM_{10-2.5}$ mass and component data that were available from monitors in the IMPROVE network, CSN, and NCore Multipollutant Monitoring Network (U.S. EPA, 2022b, Appendix D).

[144] As noted above in section V.1.C.b, when light extinction is calculated using the original IMPROVE equation, all 60 sites have 3-year visibility metrics below 30 dv, 58 sites are at or below 25 dv, and 26 sites are at or below 20 dv (see U.S. EPA, 2022b, Appendix D, Table D–3). When light extinction is calculated using the revised IMPROVE equation, all 60 sites have 3-year visibility metrics below 30 dv, 56 sites are at or below 25 dv, and 26 sites are at or below 20 dv (see U.S. EPA, 2022b, Appendix D, Table D–3).

[145] As noted above in section V.1.C.b, when light extinction is calculated using the Lowenthal and Kumar IMPROVE equation, 59 sites have 3-year visibility metrics below 30 dv, 45 sites are at or below 25 dv, and 15 sites are at or below 20 dv. The one site with a 3-year visibility metric of 32 dv exceeds the secondary 24-hour $PM_{2.5}$ standard, with a design value of 56 $\mu g/m^3$ (see U.S. EPA, 2022b, Appendix D, Table D–3).

2010a), though it may make a larger contribution in some areas in the desert southwestern region of the U.S. However, at the time of the 2012 review, there were few data available from $PM_{10-2.5}$ monitors to quantify the contribution of coarse PM to calculated light extinction. Since that time, an expansion in $PM_{10-2.5}$ monitoring efforts has increased the availability of data for use in estimating light extinction with both $PM_{2.5}$ and $PM_{10-2.5}$ concentrations included as inputs in the equations. The analysis in the 2020 review addressed light extinction at 20 of the 67 $PM_{2.5}$ sites where collocated $PM_{10-2.5}$ monitoring data were available. Since the 2020 review, $PM_{10-2.5}$ monitoring data are available at more locations and the analyses presented in the PA include those for light extinction estimated with coarse and fine PM at all 60 sites. Generally, the contribution of the coarse fraction to light extinction at these sites is minimal, contributing less than 1 dv to the 3-year visibility metric, as assessed and presented in the 2020 PA (U.S. EPA, 2020a, section 5.2.1.2). However, the PA notes that in the updated quantitative analyses, only a few sites were in locations that would be expected to have high concentrations of coarse PM, such as the Southwest. These results are consistent with those in the analyses in the 2019 ISA, which found that mass scattering from $PM_{10-2.5}$ was relatively small (less than 10%) in the eastern and northwestern U.S., whereas mass scattering was much larger in the Southwest (more than 20%) particularly in southern Arizona and New Mexico (U.S. EPA, 2019a, section 13.2.4.1, p. 13–36).

In summary, the findings of these updated quantitative analyses are generally consistent with those in the 2012 and 2020 reviews. The 3-year visibility metric was generally below 26 dv in most areas that meet the current 24-hour $PM_{2.5}$ standard when light extinction is calculated using the original and revised IMPROVE equations, and generally at or below 28 dv when using the Lowenthal and Kumar (2016) equation to estimate light extinction. Small differences in the 3-year visibility metric were observed between the variations of the IMPROVE equation. When light extinction is calculated using the revised IMPROVE equation, there is a generally ±1–2 dv at the study locations compared to light extinction calculated using the original IMPROVE equation (U.S. EPA, 2022b, Appendix D, Table D–3). When light extinction is calculated using the Lowenthal and Kumar (2016) equation, the difference compared to using either the original or revised IMPROVE equation generally ranges from no difference to up to 4 dv greater in areas that meet the current secondary 24-hour $PM_{2.5}$ standard (U.S. EPA, 2022b, Appendix D, Table D–3). As noted in previous reviews, a change of 1 to 2 dv in light extinction under many viewing conditions will be perceived as a small, but noticeable, change in the appearance of a scene, regardless of the initial amount of visibility impairment (U.S. EPA, 2004a; U.S. EPA, 2010a). Given that there is more variability when estimating light extinction using the Lowenthal and Kumar (2016) IMPROVE equation compared to the original or revised IMPROVE equations, it is important to recognize that the PA notes that the Lowenthal and Kumar (2016) equation may not be appropriate for all locations and source types. For example, the larger multiplier used in the Lowenthal and Kumar (2016) may be more appropriate for estimating light extinction in more remote areas where there is more aged and oxygenated organic PM compared to in urban areas. As such, the PA recognizes that one version of the IMPROVE equation is not necessarily more accurate or precise in estimating light extinction, and that differences in locations may support the selection of inputs to the IMPROVE equation or of the appropriate IMPROVE equation to estimate light extinction on a regional basis rather than on a national basis. Overall, regardless of the IMPROVE equation that is used to estimate light extinction, in areas that meet the current 24-hour $PM_{2.5}$ standards, the 3-year visibility metric is at or below 28 dv, which is in the upper range of levels for the target level of protection identified from the public preference studies (*i.e.,* 20 to 30 dv). In fact, even in areas that exceed the secondary 24-hour $PM_{2.5}$ standard, and regardless of the IMPROVE equation that is used to calculate light extinction, all study locations have 3-year visibility index values at or below 30 dv, which is the upper end of the range of target levels of protection.

With regard to PM-related climate effects, the PA recognizes that while the evidence base has expanded since the completion of the 2009 ISA, the recent evidence has not appreciably improved the understanding of the spatial and temporal heterogeneity of PM components that contribute to climate forcing (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). Despite continuing research, there are still significant limitations in quantifying the contributions of PM and PM components to the direct and indirect effects on climate forcing (*e.g.,* changes to the pattern of rainfall, changes to wind patterns, effects on vertical mixing in the atmosphere) (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). In addition, while a number of improvements and refinements have been made to climate models since the 2012 review, these models continue to exhibit variability in estimates of the PM-related climate effects on regional scales (*e.g.,* ~100 km) compared to simulations at the global scale (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). While recent research has added to the understanding of climate forcing on a global scale, there remain significant limitations to quantifying potential adverse effects from PM on climate in the U.S. and how they would vary in response to incremental changes in PM concentrations in the U.S. Overall, the PA recognizes that while new research is available on climate forcing on a global scale, the remaining uncertainties and limitations are significant, and the new global scale research does not translate directly to use at regional spatial scales. Thus, the evidence does not provide a clear understanding at the spatial scales needed for the NAAQS of a quantitative relationship between concentrations of PM mass in ambient air and the associated climate-related effects (U.S. EPA, 2022b, sections 5.3.2.2.1 and 5.5). The PA concludes that the evidence does not call into question the adequacy of the current secondary PM standards for climate effects.

With regard to materials effects, the PA notes the availability of recent evidence in this reconsideration related to the soiling process and the types of materials that are affected. Such evidence provides some limited information to inform dose-response relationships and damage functions associated with PM, though most recent studies have been conducted outside the U.S. in areas where PM concentrations in ambient air are higher than those observed in the U.S. (U.S. EPA, 2022b, section 5.3.2.1.2; U.S. EPA, 2019a, section 13.4). The recent evidence includes studies examining PM-related effects on the energy efficiency of solar panels and passive cooling building materials, though there remains insufficient evidence to establish quantitative relationships between PM in ambient air and these or other materials effects (U.S. EPA, 2022b, section 5.3.2.1.2). While recent research has expanded the body of evidence for PM-related materials effects, the PA recognizes the lack of information to inform quantitative analyses assessing

materials effects or the potential public welfare implications of such effects (U.S. EPA, 2022b, section 5.3.2.2.2). Thus, the PA concludes that the evidence does not call into question the adequacy of the current secondary PM standards for materials effects.

Overall, the PA recognizes that the newly available welfare effects evidence, critically assessed in the 2019 ISA as part of the full body of evidence, and visibility effects evidence, assessed in the ISA Supplement, reaffirms the conclusions on the visibility, climate, and materials effects of PM as recognized in the 2012 and 2020 reviews (U.S. EPA, 2022b, sections 5.3.1.1, 5.3.2.1, and 5.5). Further, there is a general consistency of the currently available evidence with the evidence that was available in previous reviews, including with regard to key aspects of the decision to retain the standards in the 2012 and 2020 reviews (U.S. EPA, 2022b, sections 5.3.1.1, 5.3.2.1, and 5.5). The quantitative analyses for visibility impairment for recent air quality conditions indicate that estimated light extinction in areas meeting the current secondary 24-hour $PM_{2.5}$ standards have a 3-year visibility index at or below 30 dv (*i.e.,* the upper end of the range of target levels of protection identified in the 2012 and 2020 reviews) and most areas have 3-year visibility index values at or below the midpoint of the range of target levels of protection (*i.e.,* 25 dv) (U.S. EPA, 2022b, sections 5.3.1.2 and 5.5). Collectively, the PA finds that the evidence and quantitative information-based considerations support consideration of retaining the current secondary PM standards, without revision (U.S. EPA, 2022b, section 5.5).

3. Administrator's Proposed Decision on the Current Secondary PM Standards

This section summarizes the Administrator's considerations and conclusions related to the current secondary $PM_{2.5}$ and PM_{10} standards and presents his proposed decision that no change is required for those standards at this time. The CAA provisions require the Administrator to establish secondary standards that, in the judgment of the Administrator, are requisite to protect public welfare from known or anticipated adverse effects associated with the presence of the pollutant in the ambient air. In so doing, the Administrator seeks to establish standards that are neither more nor less stringent than necessary for this purpose. The Act does not require that standards be set at a zero-risk level, but rather at a level that reduces risk sufficiently so as to protect the public welfare from known or anticipated adverse effects. The final decision on the adequacy of the current secondary standards is a public welfare policy judgment to be made by the Administrator. The decision should draw on the scientific information and analyses about welfare effects, and associated public welfare significance, as well as judgments about how to consider the range and magnitude of uncertainties that are inherent in the scientific evidence and analyses. This approach is based on the recognition that the available evidence generally reflects a continuum that includes ambient air exposures at which scientists agree that effects are likely to occur through lower levels at which the likelihood and magnitude of responses become increasingly uncertain. This approach is consistent with the requirements of the provisions of the Clean Air Act related to the review of NAAQS and with how the EPA and the courts have historically interpreted the Act.

Given these requirements, the Administrator's final decision in this reconsideration will be a public welfare policy judgment that draws upon the scientific and technical information examining PM-related visibility impairment, climate effects and materials effects, including how to consider the range and magnitude of uncertainties inherent in that information. The Administrator recognizes that his final decision will be based on an interpretation of the scientific evidence and technical analyses that neither overstates nor understates their strengths and limitations, nor the appropriate inferences to be drawn.

As an initial matter in considering the secondary standards, the Administrator notes the longstanding body of evidence for PM-related visibility impairment. As in previous reviews, this evidence continues to demonstrate a causal relationship between ambient PM and effects on visibility (U.S. EPA, 2019a, section 13.2). The Administrator recognizes that visibility impairment can have implications for people's enjoyment of daily activities and for their overall sense of well-being. Therefore, as in previous reviews, he considers the degree to which the current secondary standards protect against PM-related visibility impairment. In so doing, and consistent with previous reviews, the Administrator considers the protection provided by the current secondary standards against PM-related visibility impairment in conjunction with the Regional Haze Program as a means of achieving appropriate levels of protection against PM-related visibility impairment in urban, suburban, rural, and Federal Class I areas across the country. Programs implemented to meet the secondary PM NAAQS, along with the requirements of the Regional Haze Program established for protecting against visibility impairment in Class I areas, would be expected to improve visual air quality across all areas.

In addition, the Administrator notes that the Regional Haze Program was established by Congress specifically to achieve ''the prevention of any future, and the remedying of existing, impairment of visibility in mandatory Class I areas, which impairment results from man-made air pollution,'' and that Congress established a long-term program to achieve that goal (CAA section 169A). The Administrator finds that in adopting section 169A, Congress set a goal of eliminating anthropogenic visibility impairment at Class I areas, as well as a framework for achieving that goal which extends well beyond the planning process and timeframe for attaining secondary NAAQS. Thus, recognizing that the Regional Haze Program will continue to contribute to reductions in visibility impairment in Class I areas, the Administrator proposes to conclude that addressing visibility impairment in Class I areas is beyond the scope of the secondary PM NAAQS and that setting the secondary PM NAAQS at a level that would remedy visibility impairment in Class I areas would result in standards that are more stringent than is requisite.

In further considering what standards are requisite to protect against adverse public welfare effects from visibility impairment, the Administrator adopts an approach consistent with the approach used in previous reviews (section V.A.1.b). That is, he first identifies an appropriate target level of protection in terms of a PM visibility index that accounts for the factors that influence the relationship between particles in the ambient air and visibility (*i.e.,* size fraction, species composition, and relative humidity). He then considers air quality analyses examining the relationship between this PM visibility index and the current secondary 24-hour $PM_{2.5}$ standard in locations meeting the current 24-hour $PM_{2.5}$ and PM_{10} standards (U.S. EPA, 2022b, section 5.3.1.2).

To identify a target level of protection, the Administrator first considers the characteristics of the visibility index and defines its elements (indicator, averaging time, form, and level). With regard to the indicator for the visibility index, the Administrator recognizes that there is a lack of availability of methods

and an established network for directly measuring light extinction, consistent with the conclusions reached in the PA (U.S. EPA, 2022b, section 5.3.1.1) and with the CASAC's recommendation for additional research on direct measurement methods for light extinction (Sheppard, 2022a, p. 21 of consensus responses). He notes that in the 2012 and 2020 reviews, given the lack of such monitoring data, the EPA used an index based on estimates of light extinction by $PM_{2.5}$ components calculated using an adjusted version of the original IMPROVE algorithm. As described above (sections V.B.1.a and V.D.2), this algorithm allows the estimation of light extinction using routinely monitored components of $PM_{2.5}$ and $PM_{10-2.5}$,[146] along with estimates of relative humidity. While revisions have been made to the IMPROVE algorithm since the 2012 review (U.S. EPA, 2022b, section 5.3.1.1), the Administrator recognizes that our fundamental understanding of the relationship between ambient PM and light extinction has changed little since the 2012 review. He further recognizes that the results of the quantitative analyses in the PA that examined three versions of the IMPROVE equation indicate that there are very small differences in estimates of light extinction between the equations, and that it is not always clear that one version of the IMPROVE equation is more appropriate for estimating light extinction across the U.S. than other versions of the IMPROVE equation. He does, however, recognize that the PA suggests that it may be appropriate to select inputs to the IMPROVE equation (*e.g.,* the multiplier for OC to OM) on a regional basis rather than a national basis when calculating light extinction (U.S. EPA, 2022b, section 5.3.1.2), and he further notes the CASAC's recognition that PM-visibility relationships are region specific (Sheppard, 2022a, p. 21 of consensus responses). In the absence of a robust monitoring network to directly measure light extinction (sections V.B.1.a and V.D.2), he preliminarily judges that estimated light extinction, as calculated using one or more versions of the IMPROVE algorithms, continues to be the most appropriate indicator for the visibility index in this reconsideration.

In further defining the characteristics of a visibility index based on estimates of light extinction, the Administrator considers the appropriate averaging time, form, and level of the index. With regard to the averaging time and form, the Administrator notes that in previous reviews, a 24-hour averaging time was selected and the form was defined as the 3-year average of annual 90th percentile values. The Administrator recognizes that the evidence available in this reconsideration and described in the PA continue to provide support for the short-term nature of PM-related visibility effects. In so doing, he relies on analyses of 24-hour and sub-daily $PM_{2.5}$ light extinction to inform his conclusions on averaging time. The Administrator notes that there are strong correlations between 24-hour and sub-daily (*i.e.,* 4-hour average) $PM_{2.5}$ light extinction), indicating that a 24-hour averaging time is an appropriate surrogate for the sub-daily time periods relevant for visual perception (U.S. EPA, 2011, Appendix G, section G.4). He further recognizes that the longer averaging time may be less influenced by atypical conditions and/or atypical instrument performance. Considering this information, and noting that the CASAC did not provide advice or recommendations with regard to the averaging time of the visibility index, the Administrator preliminarily judges that it the 24-hour averaging time continues to be appropriate for the visibility index.

With regard to the form of the visibility index, the Administrator notes that consistent with the approach taken in other NAAQS, including the current secondary 24-hour $PM_{2.5}$ NAAQS, a multi-year percentile form offers greater stability to the air quality management process by reducing the possibility that statistically unusual indicator values will lead to transient violations of the standard. Using a 3-year average provides stability from the occasional effects of inter-annual meteorological variability that can result in unusually high pollution levels for a particular year (U.S. EPA, 2011, p. 4–58). In considering the percentile that would be appropriate with the 3-year average, the Administrator first notes that the Regional Haze Program targets the 20% most impaired days for improvements in visual air quality in Class I areas.[147] Based on analyses examining 90th, 95th, and 98th percentile forms, the Administrator preliminarily judges that a focus similar to the Regional Haze Program focused on improving the 20% most impaired days suggest that the 90th percentile, which represents the median of the 20% most impaired days, such that 90% of days have visual air quality that is at or below the target level of protection of the visibility index, would be reasonably expected to lead to improvements in visual air quality for the 20% most impaired days (U.S. EPA, 2011, p. 4–59). In the analyses of percentiles, the results suggest that a higher percentile value could have the effect of limiting the occurrence of days with peak PM-related light extinction in areas outside of Federal Class I areas to a greater degree. However, the Administrator preliminarily concludes that it is appropriate to balance concerns about focusing on the group of most impaired days with concerns about focusing on the days with peak visibility impairment. Additionally, the Administrator notes that the CASAC did not provide advice or recommendations related to the form of the visibility index. Therefore, the Administrator preliminarily judges that it remains appropriate to define a visibility index in terms of a 24-hour averaging time and a form based on the 3-year average of annual 90th percentile values.

With regard to the level of the visibility index, the Administrator first notes that the information that is available regarding the range of levels of visibility impairment judged to be acceptable by at least 50% of study participants in the visibility preference studies is largely the same as was in previous reviews.[148] As such, the Administrator notes that the PA identifies a range of 20 to 30 dv as appropriate for considering the level for the visibility index. Furthermore, the Administrator notes that a level at the upper end of the range (*i.e.,* 30 dv) was selected for the 2012 and 2020 reviews, given the uncertainties and limitations associated with the public preference studies (U.S. EPA, 2022b, section 5.3.1.1). In considering the available public preference studies and the range of target levels of protection derived from the studies, the Administrator notes that, while methodologically similar, the studies have inherent differences that impact the responses from the study participants. He notes that the images used to evaluate public preferences differed significantly depending on geographical location, and that public preferences for visual air

[146] In the 2012 review, the focus was on $PM_{2.5}$ components given their prominent role in PM-related visibility impairment in urban areas and the limited data available for $PM_{10-2.5}$ (77 FR 38980, June 29, 2012; U.S. EPA, 2022b, section 5.3.1.2).

[147] As noted above, the Administrator views the Regional Haze Program as a complement to the secondary PM NAAQS, and thus takes into consideration its approach to improving visibility in considering how to address visibility outside of Class I areas.

[148] For reasons stated above, the Administrator does not find it appropriate to use the most recent preference study (Malm et al., 2019) for purposes of identifying a target level of protection for the visibility index.

quality can vary depending on the scenic elements depicted in the images. He also recognizes that the older studies (*i.e.,* those in Denver, CO, and British Columbia, Canada) used photographs, paired with ambient measurements of light extinction, as opposed to the computer-generated images in more recent studies (*i.e.,* those in Phoenix, AZ, and Washington, DC), which introduces more variability in scene appearance that can influence preferences. Furthermore, the distances of objects depicted in the images can influence the perceived visibility changes, as objects at a greater distance have more sensitivity to changes in visibility impairment compared to those at shorter distances. The Administrator recognizes that these differences, and the uncertainties and limitations that result from them, are important to consider when identifying a target level of protection for the visibility index, particularly in identifying the appropriate level of protection that would be neither more nor less stringent than necessary for a national standard.

In addition to the methodological differences across the public preferences studies, the Administrator takes note of the uncertainties and limitations associated with the studies and discussed in the PA. In particular, the Administrator notes that available studies may not capture the full range of visibility preferences in the U.S. population, particularly given the potential for preferences to vary based on the visibility conditions commonly encountered and the types of scenes being viewed and factors that are not captured by the methods used in available preference studies may influence people's judgments on acceptable visibility, including the duration of visibility impairment, the time of day during which light extinction is greatest, and the frequency of episodes of visibility impairment (U.S. EPA, 2022b, section 5.3.1.1).

In considering the appropriate target level of protection for the visibility index, the Administrator also takes note of the CASAC's advice. Specifically, he notes that the CASAC recognizes that such a judgment is based on a limited number of visibility preference studies, with studies conducted in the western U.S. reporting public preferences for visibility impairment associated with the lower end of the range of levels, while studies conducted in the eastern U.S. reporting public preferences associated with the upper end of the range. While the CASAC did not specifically recommend a level for the visibility index, they did state that a visibility index of 30 deciviews ''needs to be justified'' (Sheppard, 2022a, p. 21 of consensus responses). In considering the available information and the CASAC's advice, the Administrator notes that the public preference studies were conducted in several geographical areas across the U.S., and while they provide insight to regional preferences for visibility impairment, none of these studies identify a specific level of visibility impairment that would be perceived as ''acceptable'' or ''unacceptable'' across the whole U.S. population. The Administrator notes that there have long been significant questions about how to set a national standard for visibility that is not overprotective for some areas of the U.S. In establishing the Regional Haze Program to improve visibility in Class I areas, Congress noted that ''as a matter of equity, the national ambient air quality standards cannot be revised to adequately protect visibility in all areas of the country.'' H.R. Rep. 95–294 at 205. Similarly, in the 1997 review, the Administrator at that time noted significant differences in visibility in the eastern U.S. compared to the western U.S. due to background conditions, found that a standard set to protect against visibility impairment nationwide would be significantly overprotective and not justified for some parts of the country, and concluded it was appropriate to rely on the Regional Haze Program in conjunction with the secondary PM NAAQS to achieve the requisite degree of protection from visibility impairment (62 FR 38652, July 18, 1997). For the reasons noted above, the Administrator is not seeking to set a standard that would eliminate visibility impairment in Class I areas, but significant uncertainties remain regarding how to judge visibility impairment across the entire range of daily outdoor activities for Americans across the country. Thus, the Administrator recognizes that there are substantial uncertainties and limitations in the public preference studies that should be considered when selecting a target level of protection for the visibility index. The Administrator proposes to conclude that the uncertainties and variability inherent in the public preference studies warrant setting a higher target level of protection than if the underlying methods and results from the public preference studies were more consistent. In so doing, the Administrator first preliminarily judges that, consistent with similar judgments in past reviews, it is appropriate to recognize that the secondary 24-hour $PM_{2.5}$ standard is intended to address visibility impairment across a wide range of regions and circumstances, and that the current standard works in conjunction with the Regional Haze Program to improve visibility, and therefore, it is appropriate to establish a target level of protection based on the upper end of the range of levels. In considering the information available in this reconsideration and the CASAC's advice, the Administrator proposes to conclude that the protection provided by a visibility index based on estimated light extinction, a 24-hour averaging time, and a 90th percentile form, averaged over 3 years, set at a level of 30 dv (the upper end of the range of levels) would be requisite to protect public welfare with regard to visibility impairment.

Having provisionally concluded that it remains appropriate in this reconsideration to define the target level of protection in terms of a visibility index based on estimated light extinction as described above (*i.e.,* with a 24-hour averaging time; a 3-year, 90th percentile form; and a level of 30 dv), the Administrator next considers the degree of protection from visibility impairment afforded by the existing secondary standards. He considers the updated analyses of PM-related visibility impairment presented in the PA (U.S. EPA, 2022b, section 5.3.1.2), which reflect several improvements over the 2012 review. Specifically, the updated analyses examine multiple versions of the IMPROVE algorithm, including the version incorporating revisions since the 2012 review (section V.B.1.a). This approach provides an improved understanding of how variation in equation inputs impacts calculated light extinction (U.S. EPA, 2022b, Appendix D). In addition, all of the sites included in the analyses had $PM_{10–2.5}$ data available, which allows for better characterization of the influence of the coarse fraction on light extinction (U.S. EPA, 2022b, section 5.3.1.2).

The Administrator notes that the results of these updated analyses are consistent with the results from the 2012 and 2020 reviews. Regardless of the IMPROVE equation used, these analyses demonstrate that the 3-year visibility metric is at or below 28 dv in all areas meeting the current 24-hour $PM_{2.5}$ standard (section V.C.1.b). Given the results of these analyses, the Administrator concludes that the updated scientific evidence and technical information support the adequacy of the current secondary $PM_{2.5}$ and PM_{10} standards to protect against PM-related visibility impairment. While the inclusion of the coarse fraction had a relatively modest impact on calculated

light extinction in the analyses presented in the PA, he nevertheless recognizes the continued importance of the PM_{10} standard given the potential for larger impacts in locations with higher coarse particle concentrations, such as in the southwestern U.S., for which only a few sites met the criteria for inclusion in the analyses in the PA (U.S. EPA, 2019a, section 13.2.4.1; U.S. EPA, 2022b, section 5.3.1.2).

With regard to the adequacy of the secondary 24-hour $PM_{2.5}$ standard, the Administrator notes that the CASAC stated that ''[i]f a value of 20–25 deciviews is deemed to be an appropriate visibility target level of protection, then a secondary 24-hour $PM_{2.5}$ standard in the range of 25–35 μg/m^3 should be considered'' (Sheppard, 2022a, p. 21 of consensus responses). The Administrator recognizes that the CASAC recommended the Administrator provide additional justification for a visibility index target of 30 dv but did not specifically recommend that he choose an alternative level for the visibility index. The Administrator has considered the CASAC's advice, together with the available scientific evidence and quantitative information in reaching his proposed conclusions. The Administrator recognizes conclusions regarding the appropriate weight to place on the scientific and technical information examining PM-related visibility impairment including how to consider the range and magnitude of uncertainties inherent in that information is a public welfare policy judgment left to the Administrator. As such, the Administrator notes his conclusion on the appropriate visibility index (*i.e.,* with a 24-hour averaging time; a 3-year, 90th percentile form; and a level of 30 dv) and his conclusions regarding the quantitative analyses of the relationship between the visibility index and the current secondary 24-hour $PM_{2.5}$ standard. In so doing, he proposes to conclude that the current secondary standards provide requisite protection against PM-related visibility effects. With respect to non-visibility welfare effects, the Administrator considers the evidence for PM-related impacts on climate and on materials and concludes that it is generally appropriate to retain the existing secondary standards and that it is not appropriate to establish any distinct secondary PM standards to address non-visibility PM-related welfare effects. With regard to climate, he recognizes that a number of improvements and refinements have been made to climate models since the time of the 2012 review. However, despite continuing research and the strong evidence supporting a causal relationship with climate effects (U.S. EPA, 2019a, section 13.3.9), the Administrator notes that there are still significant limitations in quantifying the contributions of the direct and indirect effects of PM and PM components on climate forcing (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). He also recognizes that models continue to exhibit considerable variability in estimates of PM-related climate impacts at regional scales (*e.g.,* ~100 km), compared to simulations at the global scale (U.S. EPA, 2022b, sections 5.3.2.1.1 and 5.5). The resulting uncertainty leads the Administrator to preliminarily conclude that the scientific information available in this reconsideration remains insufficient to quantify, with confidence, the impacts of ambient PM on climate in the U.S. (U.S. EPA, 2022b, section 5.3.2.2.1) and that there is insufficient information at this time to base a national ambient standard on climate impacts.

With respect to materials effects, the Administrator notes that the available evidence continues to support the conclusion that there is a causal relationship with PM deposition (U.S. EPA, 2019a, section 13.4). He recognizes that deposition of particles in the fine or coarse fractions can result in physical damage and/or impaired aesthetic qualities. Particles can contribute to materials damage by adding to the effects of natural weathering processes and by promoting the corrosion of metals, the degradation of painted surfaces, the deterioration of building materials, and the weakening of material components. While some recent evidence on materials effects of PM is available in the 2019 ISA, the Administrator notes that this evidence is primarily from studies conducted outside of the U.S. in areas where PM concentrations in ambient air are higher than those observed in the U.S. (U.S. EPA, 2019a, section 13.4). Given the limited amount of information on the quantitative relationships between PM and materials effects in the U.S., and uncertainties in the degree to which those effects could be adverse to the public welfare, the Administrator preliminarily judges that the scientific information available in this reconsideration remains insufficient to quantify, with confidence, the public welfare impacts of ambient PM on materials and that there is insufficient information at this time to support a distinct national ambient standard based on materials impacts.

Taken together, the Administrator proposes to conclude that the scientific and technical information for PM-related visibility impairment, climate impacts, and materials effects, with its attendant uncertainties and limitations, supports the current level of protection provided by the secondary PM standards as being requisite to protect against known and anticipated adverse effects on public welfare. For visibility impairment, this proposed conclusion reflects his consideration of the evidence for PM-related light extinction, together with his consideration of updated analyses of the protection provided by the current secondary $PM_{2.5}$ and PM_{10} standards. For climate and materials effects, this conclusion reflects his preliminary judgment that, although it remains important to maintain secondary $PM_{2.5}$ and PM_{10} standards to provide some degree of control over long- and short-term concentrations of both fine and coarse particles, it is generally appropriate not to change the existing secondary standards and that it is not appropriate to establish any distinct secondary PM standards to address PM-related climate and materials effects at this time. As such, the Administrator recognizes that current suite of secondary standards (*i.e.,* the 24-hour $PM_{2.5}$, 24-hour PM_{10}, and annual $PM_{2.5}$ standards) together provide such control for both fine and coarse particles and long- and short-term visibility and non-visibility (*e.g.,* climate and materials) [149] effects related to PM in ambient air. His proposed conclusions on the secondary standards are consistent with advice from the CASAC, which noted substantial uncertainties remain in the scientific evidence for climate and materials effects. Thus, based on his consideration of the evidence and analyses for PM-related welfare effects, as described above, and his consideration of CASAC advice on the secondary standards, the Administrator proposes not to change those standards (*i.e.,* the current 24-hour and annual $PM_{2.5}$ standards, 24-hour PM_{10} standard) at this time. The Administrator solicits comments on this proposed conclusion.

The Administrator additionally recognizes that the available evidence on visibility impairment generally reflects a continuum and that the public preference studies did not identify a specific level of visibility impairment that would be perceived as ''acceptable'' or ''unacceptable'' across the whole U.S. population. However, he notes a

[149] As noted earlier, other welfare effects of PM, such as ecological effects, are being considered in the separate, on-going review of the secondary NAAQS for oxides of nitrogen, oxides of sulfur and PM.

judgment of a target level of protection, below 30 dv and down to 25 dv, could be supported if more weight was put on the public preference study performed in the Phoenix, AZ, study (BBC Research & Consulting, 2003), which yielded the best results of the four public preference studies in terms of the least noisy preference results and the most representative selection of participants. While the Administrator notes that CASAC did not recommend revising the level of the current 24-hour $PM_{2.5}$ standard, the Administrator recognizes that, should an alternative level be considered for the visibility index, that the CASAC recommends also considering revisions to the secondary 24-hour $PM_{2.5}$ standard (Sheppard, 2022a, p. 21 of consensus responses). Thus, the Administrator solicits comment on the appropriateness of a target level of protection for visibility below 30 dv and down as low as 25 dv, and of revising the level of the current secondary 24-hour $PM_{2.5}$ standard to a level as low as 25 $\mu g/m^3$. Any comments on such revisions should include an explanation of the basis for the commenters' views.

E. Proposed Decisions on the Secondary PM Standards

Taking the above considerations into account, upon reconsidering the public welfare protection provided by the current secondary PM standards for the known and anticipated adverse effects within the scope of this reconsideration, in light of the currently available scientific evidence and quantitative information, the Administrator proposes not to change the current secondary PM standards at this time. In the Administrator's preliminary judgment, such a suite of secondary PM standards and the rationale supporting not revising the current standards are reasonably judged to reflect the appropriate consideration of the strength of the available evidence and other information and their associated uncertainties and the advice of CASAC.

The Administrator recognizes that the final suite of standards will reflect his ultimate judgment in the final rulemaking, and in the on-going review of the secondary NAAQS for oxides of nitrogen, oxides of sulfur, and PM, as to the suite of secondary PM standards that are requisite to protect the public welfare from known or anticipated adverse effects associated with the pollutant's presence in the ambient air. The final judgment to be made by the Administrator will appropriately consider the requirement for standards that are neither more nor less stringent than necessary and will recognize that the CAA does not require that secondary standards be set at a zero-risk level, but rather at a level that reduces risk sufficiently so as to protect the public welfare from known or anticipated adverse effects.

The Administrator also solicits comment on whether it would be appropriate to revise the current secondary 24-hour $PM_{2.5}$ standard, in conjunction with considering a lower target level of protection for the visibility index below 30 dv, and as low as 25 dv. The Administrator takes note that, while the CASAC did not recommend changes to the current level of 35 $\mu g/m^3$ for the secondary 24-hour $PM_{2.5}$ standard, they indicated that alternative levels should be considered if a lower target level of protection (*i.e.,* lower than 30 dv) for the visibility index was judged to be appropriate. Thus, the Administrator additionally solicits comment on the appropriateness of revising the level of the current secondary 24-hour $PM_{2.5}$ standard to a level as low as 25 $\mu g/m^3$. Any comments on such revisions should include an explanation of the basis for the commenters' views.

Having reached the proposed decision described here based on interpretation of the welfare effects evidence for this reconsideration, as assessed in the 2019 ISA and ISA Supplement, and the quantitative analyses of visibility impairment in the PA; the evaluation of policy-relevant aspects of the evidence and quantitative analyses in the PA; the advice and recommendations from the CASAC; public comments received to date in this reconsideration; and the public welfare policy judgments described above, the Administrator recognizes that other interpretations, assessments and judgments might be possible. Therefore, the Administrator solicits comment on the array of issues associated with reconsideration of the secondary PM standards, including public welfare and science policy judgments inherent in his proposed decision, as described above, and the rationales upon which such views are based.

VI. Interpretation of the NAAQS for PM

A. Proposed Amendments to Appendix K: Interpretation of the NAAQS for Particulate Matter

The EPA proposes to revise appendix K to make the PM_{10} data handling procedures for the 24-hour PM_{10} standards specified in 40 CFR 50.6 more consistent with those for other NAAQS pollutants and to codify existing practices. The proposed revisions, which describe site-level computations, site-to-site combinations, and daily validity requirements are discussed in more detail below.

1. Updating Design Value Calculations To Be on a Site-Level Basis

First, the EPA proposes to require PM_{10} design values be calculated on a site-level basis. Past practice has been to calculate a monitor-level design value for each individual PM_{10} monitor when more than one monitor is located at a single site; however, this practice is inconsistent with the data handling for $PM_{2.5}$ and several other NAAQS pollutants. This inconsistency with $PM_{2.5}$ has led to public confusion about the applicable PM_{10} design value and data completeness criteria at a site because operators are more accustomed to site-level monitoring requirements. To resolve this confusion, the EPA believes it would be appropriate to identify a single design value for each site; the EPA is proposing an analytic approach to combine data collected from multiple PM_{10} monitors collocated at a site to obtain a single set of daily PM_{10} concentration data for that site. This proposal to move from monitor-level to site-level PM_{10} design values is supported by the high level of consistency in the measurement data obtained across the various Federal reference and equivalent PM_{10} monitoring instruments currently in operation (U.S. EPA, 2009a, section 3.4.1.1).

The proposed approach would provide for monitoring agencies to designate in their annual network plan one monitor as the primary monitor for each site.[150] Once a primary monitor has been determined for a site, missing daily PM_{10} concentrations for the primary monitor would be substituted from any other monitors located at the site. In the event of two or more monitors operating at the same site, missing daily PM_{10} concentrations for the primary monitor would be substituted with daily values averaged across the other collocated monitors. The EPA notes that at the time of this proposal, there were more than 100 sites nationwide with two or more monitors operating simultaneously.

This proposed approach for combining data across collocated monitors at a site is consistent with the existing approach described in appendix N to part 50 for the current $PM_{2.5}$ NAAQS. The EPA invites public comment on the scientific validity of

[150] In the absence of a primary monitor designation, the primary monitor would default to the monitor with the most complete daily dataset in each year.

combining data across PM_{10} monitors and the merits of the proposed approach for combining data across multiple PM_{10} monitors collocated at a site.

2. Codifying Site Combinations To Maintain a Continuous Data Record

Second, and complementary to the first proposed revision described above, the EPA proposes to maintain the existing practice of combining data from nearby monitoring sites to determine a valid design value, known as a ''site combination.'' Site combinations typically involve situations where one site closes and another begins monitoring a short distance away within a few days, and the monitoring agency wishes to combine the data from the two sites to maintain a continuous data record. The EPA Regional offices have approved over ten site combinations for PM_{10} since the promulgation of the 1987 PM_{10} NAAQS; these will be considered approved site combinations if these revisions are promulgated.

Relatedly, the EPA proposes to maintain the existing practice of allowing monitoring agencies to submit site combination requests to the appropriate Regional Administrator through the EPA's Air Quality System (AQS) database. Site combinations may be approved by the Regional Administrator after they determine that the measured air quality concentrations do not differ substantially between the two sites. To make this determination for a requested site combination, the Regional Administrator may request additional information from the Agency including detailed information on the locations and distance between the two sites, levels of ambient concentrations measured at the two sites, and local emissions or meteorology data. To improve transparency, the EPA will make records of all approved site combinations available in the AQS database and will update design value calculations in AQS when approved site combinations are implemented. The EPA invites public comment on the merits of the proposed process for approving site combinations to obtain valid design values for the PM_{10} NAAQS.

3. Clarifying Daily Validity Requirements for Continuous Monitors

Third, the EPA proposes to maintain the existing practice of considering daily averages to be valid if at least 75 percent of the hourly averages (*i.e.,* 18 hourly values) for the 24-hour period are available unless a substitution test can show validity on days with seven or more missing hours.

B. Proposed Amendments to Appendix N: Interpretation of the NAAQS for $PM_{2.5}$

The EPA proposes to revise appendix N by updating references to the proposed revision(s) of the standards and changing data handling provisions related to combining data from nearby monitoring sites to codify existing practices that are currently being implemented as EPA standard operating procedures.

1. Updating References to the Proposed Revision(s) of the Standards

The EPA proposes to maintain the existing practice of combining data from nearby monitoring sites to determine a valid design value, known as a ''site combination.'' Site combinations typically involve situations where one site closes and another begins monitoring a short distance away within a few days, and the monitoring agency wishes to combine the data from the two sites to maintain a continuous data record. The EPA Regional offices have approved over 40 site combinations for $PM_{2.5}$ since the promulgation of the 1997 $PM_{2.5}$ NAAQS; these will be considered approved site combinations if these revisions are promulgated.

2. Codifying Site Combinations To Maintain a Continuous Data Record

Relatedly, the EPA proposes to maintain the existing practice of allowing monitoring agencies to submit site combination requests to the appropriate Regional Administrator through the EPA's Air Quality System (AQS) database. Site combinations may be approved by the Regional Administrator after they determine that the measured air quality concentrations do not differ substantially between the two sites. To make this determination for a requested site combination, the Regional Administrator may request additional information from the Agency including detailed information on the locations and distance between the two sites, levels of ambient concentrations measured at the two sites, and local emissions or meteorology data. To improve transparency, the EPA will make records of all approved site combinations available in the AQS database and will update design value calculations in AQS when approved site combinations are implemented. The EPA invites public comment on the merits of the proposed process for approving site combinations to obtain valid design values for the $PM_{2.5}$ NAAQS.

VII. Proposed Amendments to Ambient Monitoring and Quality Assurance Requirements

The EPA is proposing revisions to ambient air monitoring requirements for PM to improve the usefulness of and appropriateness of data used in regulatory decision making. These proposed changes focus on ambient monitoring requirements found in 40 CFR parts 50 (appendix L), 53, and 58 with associated appendices (A, B, C, D, and E). These proposed changes include addressing updates in the approval of reference and equivalent methods, updates in quality assurance statistical calculations to account for lower concentration measurements, updates to support improvements in PM methods, a revision to the $PM_{2.5}$ network design to account for at-risk populations, and updates to the Probe and Monitoring Path Siting Criteria for NAAQS pollutants.

The EPA last completed revisions to PM ambient air monitoring regulations as a part of the PM NAAQS review completed in 2012 (78 FR 3085, January 15, 2013). This final rulemaking included revisions to ensure the suite of standards for PM provide requisite protection of public health and welfare as well as corresponding revisions to the data handling conventions for PM and to the ambient air monitoring, reporting, and network design requirements. Other pollutant-specific monitoring updates have occurred in conjunction with revisions to the NAAQS. In such cases, the monitoring revisions were typically finalized as part of the final rulemaking for the NAAQS.[151] Specific proposed changes are described below.

A. Proposed Amendment in 40 CFR Part 50 (Appendix L): Reference Method for the Determination of Fine Particulate Matter as $PM_{2.5}$ in the Atmosphere—Addition of the Tisch Cyclone as an Approved Second Stage Separator

The EPA is proposing a technical change to appendix L to include the addition of an alternative $PM_{2.5}$ particle size separator to that of the WINS and the VSCC size separators. The new separator is the TE–$PM_{2.5}$C cyclone manufactured by Tisch Environmental Inc., Cleves, Ohio, and has been shown to have performance equivalent to that of the originally specified WINS impactor with regards to aerodynamic cutpoint and $PM_{2.5}$ concentration measurement. In addition, the new TE–$PM_{2.5}$C has a service interval comparable to the VSCC separator and is significantly longer than the service

[151] Links to the NAAQS final rules are available at: *https://www.epa.gov/criteria-air-pollutants.*

interval for the WINS. Generally, the TE–$PM_{2.5}$C is also physically interchangeable with the WINS and VSCC where both are manufactured for the same sampler. The proposal would allow the WINS, VSCC, or TE–$PM_{2.5}$C to be used in a $PM_{2.5}$ FRM sampler. As is the case for the WINS and VSCC, the TE–$PM_{2.5}$C is now also an approved size separator for candidate $PM_{2.5}$ FEMs. Currently, the EPA has designated one $PM_{2.5}$ sampler configured with TE–$PM_{2.5}$C separator as a Class II $PM_{2.5}$ equivalent method and one as a $PM_{10–2.5}$ equivalent method. Upon promulgation of this proposed change to appendix L, these instruments would be redesignated as $PM_{2.5}$ and $PM_{10–2.5}$ FRMs, respectively. Owners of such samplers would contact the sampler manufacturer to receive a new reference method label for the samplers.

B. Proposed Amendments to Ambient Air Monitoring Reference and Equivalent Methods in 40 CFR Part 53

The EPA is proposing clarifications to the regulations associated with submittal of candidate FRM and FEM applications for review by the EPA. Revisions are also proposed in instances where current regulatory specifications are no longer pertinent and require updating. In addition, the EPA has compiled a list of noted minor errors to correct in regulations associated with the testing requirements and acceptance criteria for Federal reference methods (FRMs) and Federal equivalent methods (FEMs) in part 53. These errors are typically not associated with the content of **Federal Register** documents but often relate to transcription errors and typographical errors in the electronic CFR (eCFR) and printed versions of the CFR.

1. Update to Program Title and Delivery Address for FRM and FEM Application and Modification Requests

The EPA is proposing to update the name of the program and delivery address for the EPA review of FRM and FEM Applications and Modification Requests (§ 53.4). These revisions are due solely to organizational changes and do not affect the structure or role of the Reference and Equivalent Methods Designation Program in reviewing new FRM and FEM application requests and requests to modify existing designated instruments.

2. Requests for Delivery of a Candidate FRM or FEM Instrument

As part of the current applicant review process, § 53.4(d) allows the EPA to request only candidate $PM_{2.5}$ FRMs and Class II or Class III equivalent methods for test purposes. The EPA proposes to revise this section to allow the EPA to request any candidate FRM, FEM, or a designated FRM or FEM associated with a Modification Request, regardless of NAAQS pollutant type or metric.

3. Amendments to Requirements for Submission of Materials in § 53.4(b)(7) for Language and Format

The EPA proposes to amend § 53.4(b)(7), which specifies the format(s) in which all submissions must be received, to specify that all written application materials must be submitted to the EPA in English in MS Word format and that submitted data must be submitted in MS Excel format.

4. Amendment to Designation of Reference and Equivalent Methods

The EPA proposes to clarify the terms of new FRM and FEM methods (§ 53.8(a)) to ensure that candidate samplers and analyzers are not publicly announced, marketed, or sold as FRMs until the EPA's approval has been formally announced in the **Federal Register.**

5. Amendment to One Test Field Campaign Requirement for Class III $PM_{2.5}$ FEMs

Field comparability tests for candidate Class III $PM_{2.5}$ FEMs include the requirement that a total of five field campaigns must be conducted at four separate sites: A, B, C, and D. The site D specifications of § 53.35(b)(1)(ii)(D) require that the site ''. . . shall be in a large city east of the Mississippi River, having characteristically high sulfate concentrations and high humidity levels.'' However, dramatic decreases in ambient sulfate concentration make it difficult for applicants to routinely meet the high sulfate concentration requirement. Therefore, the EPA proposes to revise the site D specifications to read ''. . . shall be in a large city east of the Mississippi River, having characteristically high humidity levels.''

6. Amendment to Use of Monodisperse Aerosol Generator

Wind tunnel evaluation of candidate PM_{10} inlets and evaluation of candidate $PM_{2.5}$ fractionators under static conditions requires the generation and use of monodisperse calibration aerosols of specified aerodynamic sizes. In the current regulations (§ 53.61(g)), the TSI Incorporated Vibrating Orifice Aerosol Generator (VOAG) is the only approved monodisperse generator for this purpose. However, TSI Incorporated no longer manufacturers nor supports the VOAG. Therefore, the EPA proposes to add a commercially available monodisperse aerosol generator—the Model 1520 Flow-Focusing Monodisperse Aerosol Generator, MSP Corporation, Shoreview, MN—to the list of approved generators for this purpose.

7. Corrections to 40 CFR Part 53 (Reference and Equivalent Methods)

Certain provisions of § 53.14, Modification of a reference or equivalent method, incorrectly state an EPA response deadline of 30 days for receipt of modification materials in response to an EPA notice. Per a 2015 amendment (80 FR 65460, 65416; October 26, 2015), all EPA response deadlines for modifications of reference or equivalent methods are 90 days from day of receipt.

The EPA proposes corrections to the following tables: Table A–1 to Subpart A of Part 53—Summary of Applicable Requirements for Reference and Equivalent Methods for Air Monitoring of Criteria Pollutants identifies the applicable 40 CFR part 50 appendices and 40 CFR part 53 subparts for each criteria pollutant. The four rows in the section for $PM_{10–2.5}$ erroneously do not include the footnote instruction that the aforementioned pollutant alternative Class III requirements may be substituted in regard to Appendix O to Part 50—Reference Method for the Determination of Coarse Particulate Matter as $PM_{10–2.5}$ in the Atmosphere.

Table B–1 SO_2 states the interference equivalent for each interferent is ±0.005 ppm for both the standard- and lower-range limits, with the exception of nitric oxide (NO) for the lower-range limit per note 4. When testing the lower range of SO_2, the limit for NO is ±0.003 ppm, therefore an incorrect lower limit (±0.0003) is currently stated in note 4 for this exception to the SO_2 lower-range limit.

The EPA proposes corrections to the following figures: After the EPA received an inquiry regarding the interaction of NO and O_3, the EPA investigated the interferent testing requirements stated by 40 CFR part 53, subpart B. The EPA has determined that during the 2011 SO_2 amendment and subsequent 2015 O_3 amendment, several typographical errors were introduced into Table B–3, the most significant of which is the omission of note 3, which instructs the applicant to not mix the pollutant with the interferent. Additionally, appendix A to subpart B of part 53 provides figures depicting optional forms for reporting test results. Figure B–3 lists an incorrect formula: the lower detectible limit section is missing the proper operator in the LDL

calculation formula and Figure B–5 lists an incorrect calculation metric: there is a typesetting error in the calculation of the standard deviation. The EPA proposes to correct the typesetting errors.

The EPA proposes correcting typesetting errors in several formulas provided throughout § 53.43.

C. Proposed Changes to 40 CFR Part 58 (Ambient Air Quality Surveillance)

1. Quality Assurance Requirements for Monitors Used in Evaluations for National Ambient Air Quality Standards

The EPA has evaluated the quality system as part of the PM NAAQS reconsideration and identified several areas that could be improved in light of lower average ambient $PM_{2.5}$ concentrations across the country and the proposed more revised primary annual $PM_{2.5}$ NAAQS described in section II above. Thus, we assessed $PM_{2.5}$ concentration data across a range of values to determine if any changes were warranted to their use in the statistics used to evaluate the data qualify in the $PM_{2.5}$ network. This section describes that work and any proposed changes as a result. Other changes proposed in this section include clarifications and other improvements that will better assist with the consistency and operations of quality assurance programs.

a. Quality System Requirements

The EPA has reconsidered the appendix A, section 2.3.1.1, goal for acceptable measurement uncertainty for automated and manual $PM_{2.5}$ methods currently stated as an upper 90 percent confidence limit for the coefficient of variation (CV) of 10 percent and ±10 percent for total bias. The average $PM_{2.5}$ concentrations across the nation have steadily declined since the promulgation of the first $PM_{2.5}$ standard (U.S. EPA, 2022, section 2.3). As ambient concentrations decrease, the bias is inflated using the current bias statistic in 4.2.5. The EPA has developed a new bias statistic to minimize the effect of low $PM_{2.5}$ concentrations on bias and is proposing to revise section 4.2.5 to implement this new bias statistic. The EPA has concluded that with this change to the bias statistic, the coefficient of variation (CV) of 10 percent and ±10 percent for total bias is still an acceptable goal for estimating total bias in the networks. The technical justification and background for this change is documented in a technical memorandum to the docket for this rulemaking titled ''Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network.'' [152]

The EPA is proposing to update and clarify ambient air monitoring requirements found in appendix A, section 2.6.1, pertaining to EPA Protocol Gas standards used for ambient air monitoring and the Ambient Air Protocol Gas Verification Program. Appendix A would be revised to clarify that in order to participate in the Ambient Air Protocol Gas Verification Program, producers of Protocol Gases must adhere to the requirements of 40 CFR 75.21(g), and only regulatory ambient air monitoring programs may submit cylinders for assay verification to the EPA Ambient Air Protocol Gas Verification Program. The EPA is proposing to include an allowable uncertainty of ±2.0 percent for EPA Protocol Gas standards used in ambient air monitoring. This allowable uncertainty limit would match the existing limit set by the EPA's continuous emission monitoring program found in part 75, appendix A, section 5.1.4(b), and would make the EPA's regulations of quality assurance of ambient air monitors more uniform and consistent.

b. Measurement Quality Check Requirements

The EPA is proposing to remove section 3.1.2.2 from appendix A. This provision in the quality assurance requirements for ambient air monitoring allows for NO_2 compressed gas standards to be used to generate audit standards. However, NO_2 compressed gas standards are not currently designated by the EPA's Office of Research and Development (ORD) as an EPA Protocol Gas Standard. As such, this provision conflicts with section 2.6.1 of appendix A that requires that any standard used for generating test atmospheres be an EPA Protocol Gas Standard. The EPA is aware that there is a need for NO_2 compressed gas standards for direct read NO_2 monitoring methods. If these NO_2 compressed gas standards can, in the future, be proven to be stable and approvable as EPA Protocol Gas Standards, the EPA will consider restoring this provision to appendix A.

The EPA is proposing to revise the requirement in section 3.1.3.3 pertaining to the validation of the gaseous cylinders used for the National Performance Audit Program (NPAP). The EPA proposes to change the requirement for annual verification to the ORD-recommended certification periods for standards identified in Table 2–3 of the EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (appendix A, section 6.0(4)). These ORD-recommended periods are based on the periods for which similar gas mixtures over specific concentration ranges have been shown to be stable, as documented in the peer-reviewed literature or in concentration stability data submitted by the National Institute of Standards and Technology (NIST) and specialty gas producers and reviewed by the EPA. In effect, this would decrease the cost and burden on the Protocol Gas Verification Program (PGVP), which performs these verifications annually. The EPA anticipates this will also decrease the delay in returning tanks back to the auditors. This would provide auditors with longer periods with valid certifications to perform audits without annual interruptions for the verification process.

The EPA is proposing to adjust the minimum value required by appendix A, section 3.2.4, to be considered valid sample pairs for the $PM_{2.5}$ Performance Evaluation Program (PEP) from 3 $\mu g/m^3$ to 2 $\mu g/m^3$. As discussed above, ambient $PM_{2.5}$ concentrations have decreased, and many samples being collected now are below the 3 $\mu g/m^3$ threshold and deemed invalid for purposes of a valid audit sample. Therefore, decreasing this threshold from 3 $\mu g/m^3$ to 2 $\mu g/m^3$ would increase the number of valid PEP sample pairs collected, which would reduce the number of re-audits that need to be performed to compensate for invalid sample pairs. Inclusion of values down to 2 $\mu g/m^3$ would represent the concentrations occurring in routine monitoring operations and are included in annual mean concentrations of the networks. Reducing the number of re-audits would reduce audit costs to monitoring organizations while better representing the data in the networks. The technical justification and background for this change is documented in a technical memorandum to the docket for this rulemaking titled ''Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network.'' [153]

[152] Noah, G. (2022). Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072*.

[153] Noah, G. (2022). Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network. Memorandum to

Continued

c. Calculations for Data Quality Assessments

The EPA is proposing to update the appendix A, section 4.2.1, Equations 6 and 7, for calculating the *Collocated Quality Control Sampler Precision Estimate for PM_{10}, $PM_{2.5}$ and Pb.*

The proposed changes are:

Equation 6

$$d_i = \frac{X_i - Y_i}{(X_i + Y_i)/2} \cdot 100$$

to

$$t_i = \frac{X_i - Y_i}{\sqrt{(X_i + Y_i)/2}} \times 100$$

and

Equation 7

$$CV = \sqrt{\frac{n \cdot \sum_{i=1}^{n} d_i^2 - \left(\sum_{i=1}^{n} d_i\right)^2}{2n(n-1)}} \cdot \sqrt{\frac{n-1}{X^2_{0.1,n-1}}}$$

to

$$CV90_{NAQQS} = 100 * \sqrt{\frac{k \times \sum_{i=1}^{k} t_i^2 - \left(\sum_{i=1}^{k} t_i\right)^2}{2k(k-1)}} \times \sqrt{\frac{k-1}{NAAQS\ Concentration * X^2_{0.1,k-1}}}$$

These new statistics are designed to address the inflated precision values that result from using these calculations to compare low concentrations that are now observed in the networks. The current precision estimate uses a relative percent difference (RPD) when comparing two collocated samplers. As the two numbers used in the comparison get smaller, the statistic generally produces a result that is inflated. A precision statistic calculated for low-concentration data may show poor agreement even if the nominal values are relatively close to each other. By using the square root in the denominator in these statistics, the variability is more constant across all concentrations thereby reducing the inflated effect. The EPA believes this proposed change would provide the correct context for considering inflated RPDs when calculating the bias estimate. The technical justification and background for this change is documented in a technical memorandum to the docket for this rulemaking titled ''Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network.'' [154]

The EPA is proposing to update the appendix A, section 4.2.5, Equation 8, calculation for the Performance Evaluation Programs Bias Estimate for $PM_{2.5}$ from

the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072.*

[154] Noah, G. (2022). Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072.*

$$100 * \frac{\sum_{i=1}^{n} d_i}{n} \quad \text{where} \quad d_i = \frac{meas - audit}{audit} \times 100$$

to

$$100 * \frac{\sum_{i=1}^{n} s_i}{n\sqrt{NAAQS\ concentration}} \quad \text{where} \quad s_i = \frac{meas - audit}{\sqrt{audit}} \times 100$$

Again, because the average ambient PM concentrations across the nation have steadily declined since the promulgation of the $PM_{2.5}$ standard, the current method of calculation may not be appropriate for determining bias for these lower ambient concentrations and newer sampling methodologies. The current bias estimate uses a percent difference (PD), referenced in appendix A, section 4.1.1, when comparing an audit sampler against a routine sampler. As the two numbers used in the comparison get smaller, the statistic generally produces a result that is inflated. A bias statistic calculated for low-concentration data may show poor agreement even if the nominal values are relatively close to each other. This may be misleading when trying to assess bias and summarizing data to be used in decision making. The EPA believes this proposed change would provide the correct context for considering inflated RPDs when calculating the bias estimate. The technical justification and background for this change is documented in a technical memorandum to the docket for this rulemaking titled ''Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network.'' [155]

d. References

The EPA proposes to update the references and hyperlinks in appendix A, section 6. Several of the reference documents have been updated and the web locations have changed. This proposal provides accuracy in identifying and locating essential supporting documentation so that historical documents that do not represent current practices are not used. The EPA believes that it is important that interested parties—especially ambient air monitoring organizations and stakeholders—have the most current materials that provide clarifications and guidance on the interpretation of the regulations.

The EPA is also proposing to add a footnote to Table A–1 of Appendix A to Part 58—Minimum Data Assessment Requirements for NAAQS Related Criteria Pollutant Monitors. The proposed footnote would clarify the allowable time (*i.e.,* every two weeks, once a month, once a quarter, once every 6 months, or distributed over all 4 quarters depending on the check) between checks and encourage monitoring organizations to perform data assessments at regular intervals. The EPA believes this proposal is appropriate because the current stipulation is unclear regarding the specified interval for required verifications. For example, under the current flow rate verification for PM_{10} (low vol.), $PM_{2.5}$, and Pb-PM_{10}, a flow check could be performed on April 1 and not checked again until May 31, leaving approximately two months between checks. Following this practice would leave large intervals of time between verifications, and if a check fails using the described practice, an unacceptably large data loss could result. Also, a check could be performed on the last day of a quality control (QC) check interval and then on the first day of the following interval, with only a day or two between checks. This is not the intended practice for QC measures that are meant to ensure equipment is continually operating properly over an operational period. For this reason, the EPA is proposing to clarify the allowable time between checks.

2. Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring

This section on Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring was developed in parallel to the proposed changes associated with appendix A. Thus, this section includes similar detail and proposed changes for evaluating quality system statistics for $PM_{2.5}$, clarifications, and other improvements that will better assist with the consistency and operations of quality assurance programs for PSD.

[155] Noah, G. (2022). Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072.*

a. Quality System Requirements

The EPA has reconsidered the appendix A, section 2.3.1.1, goal for acceptable measurement uncertainty for automated and manual $PM_{2.5}$ methods currently stated as an upper 90 percent confidence limit for the CV of 10 percent and ±10 percent for total bias. The average PM concentrations across the nation have steadily declined since the promulgation of the first $PM_{2.5}$ standard (U.S. EPA, 2022, section 2.3). As ambient concentrations decrease, the bias is inflated using the current bias statistic in section 4.2.5. Using a new statistic to replace the existing statistic in section 4.2.5 developed to eliminate the effect of low concentrations on bias, the EPA has concluded that the coefficient of variation (CV) of 10 percent and ±10 percent for total bias is still an acceptable goal for estimating total bias in the networks. The technical justification and background for this change is documented in a technical memorandum to the docket for this rulemaking titled ''Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network.'' [156]

The EPA is proposing to update and clarify ambient air monitoring requirements found in appendix A, section 2.6.1, pertaining to EPA Protocol Gas standards used for ambient air monitoring and the Ambient Air Protocol Gas Verification Program. Appendix A would be revised to clarify that in order to participate in the Ambient Air Protocol Gas Verification Program, producers of Protocol Gases must adhere to the requirements of 40 CFR 75.21(g), and only regulatory ambient air monitoring programs may submit cylinders for assay verification to the EPA Ambient Air Protocol Gas Verification Program. The EPA is proposing to include an allowable uncertainty of ±2.0 percent for EPA Protocol Gas standards used in ambient air monitoring. This allowable uncertainty limit would match the existing limit set by the EPA's continuous emission monitoring program found in part 75, appendix A, section 5.1.4(b), and would make the EPA's regulations more uniform and consistent.

b. Measurement Quality Check Requirements

The EPA is proposing to remove section 3.1.2.2 from appendix A. This provision in the quality assurance requirements for ambient air monitoring allows for NO_2 compressed gas standards to be used to generate audit standards. However, NO_2 compressed gas standards are not currently designated by the EPA's ORD as an EPA Protocol Gas Standard. As such, this provision conflicts with section 2.6.1 of appendix A that requires that any standard used for generating test atmospheres be an EPA Protocol Gas Standard. The EPA is aware that there is a need for NO_2 compressed gas standards for direct read NO_2 monitoring methods. If these NO_2 compressed gas standards can, in the future, be proven to be stable and approvable as EPA Protocol Gas Standards, the EPA will consider restoring this provision to appendix A.

The EPA is proposing to revise the requirement in section 3.1.3.3 pertaining to the validation of the gaseous cylinders used for the NPAP. The EPA proposes to change the requirement for annual verification to the ORD-recommended certification periods for standards identified in Table 2–3 of the EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (appendix A, section 6.0(4)). These ORD-recommended periods are based on the periods for which similar gas mixtures over specific concentration ranges have been shown to be stable, as documented in the peer-reviewed literature or in concentration stability data submitted by NIST and specialty gas producers and reviewed by the EPA. In effect, this would decrease the cost and burden on the PGVP, which performs these verifications annually. The EPA anticipates this will also decrease the delay in returning tanks back to the auditors. This would provide auditors with longer periods with valid certifications to perform audits without annual interruptions for the verification process.

The EPA is proposing to adjust the minimum value required by appendix A, section 3.2.4, to be considered valid sample pairs for the $PM_{2.5}$ Performance Evaluation Program (PEP) from 3 $\mu g/m^3$ to 2 $\mu g/m^3$. As discussed above, ambient $PM_{2.5}$ concentrations have decreased, and many samples being collected now are below the 3 $\mu g/m^3$ threshold and deemed invalid for purposes of a valid audit sample. Therefore, decreasing this threshold from 3 $\mu g/m^3$ to 2 $\mu g/m^3$ would increase the number of valid PEP sample pairs collected, which would reduce the number of re-audits that need to be performed to compensate for invalid sample pairs. Inclusion of values down to 2 $\mu g/m^3$ would represent the concentrations occurring in routine monitoring operations and are included in annual mean concentrations of the networks. Reducing the number of re-audits would reduce audit costs to monitoring organizations while better representing the data in the networks. The technical justification and background for this change is documented in a technical memorandum to the docket for this rulemaking titled ''Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network.'' [157]

c. Calculations for Data Quality Assessments

The EPA is proposing to update the appendix A, section 4.2.5, Equation 8, calculation for the Performance Evaluation Programs Bias Estimate for $PM_{2.5}$ from

[156] Noah, G. (2022). Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072*.

[157] Noah, G. (2022). Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072*.

$$100 * \frac{\sum_{i=1}^{n} d_i}{n} \quad \text{where} \quad d_i = \frac{meas - audit}{audit} \times 100$$

to

$$100 * \frac{\sum_{i=1}^{n} s_i}{n\sqrt{NAAQS\ concentration}} \quad \text{where} \quad s_i = \frac{meas - audit}{\sqrt{audit}} \times 100$$

Again, because the average ambient PM concentrations across the nation have steadily declined since the promulgation of the $PM_{2.5}$ standard, the current method of calculation may not be appropriate for determining bias for these lower ambient concentrations and newer sampling methodologies. The current bias estimate uses a PD, referenced in appendix A, section 4.1.1, when comparing an audit sampler against a routine sampler. As the two numbers used in the comparison get smaller, the statistic generally produces a result that is inflated. A bias statistic calculated for low-concentration data may show poor agreement even if the nominal values are relatively close to each other. This may be misleading when trying to assess bias and summarizing data to be used in making decisions. The EPA believes this proposed change would provide the correct context for considering inflated RPDs when calculating the bias estimate. The technical justification and background for this change is documented in a technical memorandum to the docket for this rulemaking titled ''Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network.'' [158]

d. References

The EPA proposes to update the references and hyperlinks in appendix A, section 6. Several of the reference documents have been updated and the web locations have changed. This proposal provides accuracy in identifying and locating essential supporting documentation so that historical documents that do not represent current practices are not used. The EPA believes that it is important that interested parties—especially ambient air monitoring organizations and stakeholders—have the most current materials that provide clarifications and guidance on the interpretation of the regulations.

The EPA is also proposing to add a footnote to Table A–1 of Appendix A to Part 58—Minimum Data Assessment Requirements for NAAQS Related Criteria Pollutant Monitors. The proposed footnote would clarify the allowable time (*i.e.,* every two weeks, once a month, once a quarter, once every six months, or distributed over all four quarters depending on the check) between checks and encourage monitoring organizations to perform data assessments at regular intervals. The EPA believes this proposal is appropriate because the current stipulation is unclear regarding the specified interval for required verifications. For example, under the current flow rate verification for PM_{10} (low vol.), $PM_{2.5}$, and Pb-PM_{10}, a flow check could be performed on April 1 and not checked again until May 31, leaving approximately two months between checks. Following this practice would leave large intervals of time between verifications, and if a check fails using the described practice, an unacceptably large data loss could result. Also, a check could be performed on the last day of a QC check interval and then on the first day of the following interval, with only a day or two between checks. This is not the intended practice for quality control measures that are meant to ensure equipment is continually operating properly over an operational period. For this reason, the EPA is proposing to clarify the allowable time between checks.

3. Proposed Amendments to PM Ambient Air Quality Methodology

a. Proposal To Revoke Approved Regional Methods (ARMs)

The EPA is proposing to remove provisions for approval and use of Approved Regional Methods (ARMs) throughout parts 50 and 58 of the CFR. ARMs are continuous $PM_{2.5}$ methods that have been approved specifically within a State or local air agency monitoring network for purposes of comparison to the NAAQS and to meet other monitoring objectives. However, at this time, there are no approved ARMs, nor does the EPA anticipate any will be requested. There are, however, more than a dozen approved FEMs for $PM_{2.5}$. These approved FEMs are eligible for comparison to the NAAQS and to meet other monitoring objectives.

The EPA first proposed a process to approve and use ARMs in January of 2006 (71 FR 2709, January 17, 2006). At that time, there were no approved continuous $PM_{2.5}$ methods available to compare to the NAAQS. The hope was that approved ARMs would quickly start the use of $PM_{2.5}$ continuous methods that worked well in monitoring agency networks, since the benefits of regulatory-grade automated methods were not available at that time to air agency programs. It was hoped that the benefits of automated $PM_{2.5}$ methods—including real-time data reporting of $PM_{2.5}$ to support forecasting and reporting of the AQI while also providing a regulatory dataset eligible for comparison to the $PM_{2.5}$ NAAQS—would encourage the development of ARMs. The idea to encourage ARMs was conceived following review of data across the country demonstrating that some agencies were achieving acceptable data comparability with their $PM_{2.5}$ methods compared to collocated FRMs; however, those methods did not necessarily provide consistent data across the country. At that time, there were no approved $PM_{2.5}$ continuous FEMs and it was unclear how soon any might be approved. However, by March 2008, the EPA's Reference and Equivalent Methods program had approved the first $PM_{2.5}$ continuous FEM (73 FR 13224, March 12, 2008). Over the next eight years, an additional 12 $PM_{2.5}$ continuous FEMs were approved. With many commercially available $PM_{2.5}$ continuous FEMs available to air agencies, almost all agencies soon began implementing one or more $PM_{2.5}$ FEMs in their network. By 2020, monitoring agencies were

[158] Noah, G. (2022). Task 16 on PEP/NPAP Task Order: Bias and Precision DQOs for the $PM_{2.5}$ Ambient Air Monitoring Network. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072.*

reporting $PM_{2.5}$ continuous FEM data from 660 sites across the country (U.S. EPA, 2022, section 2.2.3.1). Therefore, with a large and growing network of $PM_{2.5}$ continuous FEMs and no approved applications for ARMs in the 16 years that this provision has been available, the EPA is proposing to remove this provision, including any related language, and to instead rely on the existing network of approved $PM_{2.5}$ FEMs and future approved FEMs. The EPA notes that although references to ARMs occur across part 50 and part 58, the EPA is not reopening the substance of the provisions where these references occur and is only proposing regulatory text for these provisions for the purpose of removing the reference to ARMs.

b. Proposal for Calibration of PM Federal Equivalent Methods (FEMs)

The EPA is proposing to modify its specifications for PM FEMs described in appendix C to part 58. Specifically, the EPA is proposing that valid State, local, and Tribal air monitoring data generated in routine networks and submitted to the EPA may be used to improve the PM concentration measurement performance of approved FEMs. This approach, initiated by instrument manufacturers, would be implemented as a national solution in factory calibrations of approved FEMs through a firmware update. This would apply to any PM FEM methods (*i.e.,* PM_{10}, $PM_{2.5}$, and $PM_{10-2.5}$). The EPA is proposing this modification because there are some approved PM FEMs that are not currently meeting measurement quality objectives (MQOs) when evaluating data nationally (U.S. EPA, 2022, section 2.2.3.1) meaning that an update to a factory calibration may be appropriate; however, there is not a clearly defined process to update the calibration of an FEM. While there are several types of data available to use as the reference for such updates (*e.g.,* routinely operated FRMs, audit program FRMs, and chemical speciation sampler data), we are proposing to use routinely operated State, local, and Tribal FRMs as the basis of comparison upon which to calibrate FEMs. The goal of updating factory calibrations would be to increase the number of routinely operating FEMs meeting MQOs across the networks in which they are operated. The EPA has received input from CASAC (Sheppard, 2022, p. 2 of consensus responses) and State, local, and Tribal agencies (National Association of Clean Air Agencies (NACAA) Monitoring Committee 01/20/22; Association of Air Pollution Control Agencies (AAPCA) Ambient Monitoring Committee 01/26/2022; Tribal air quality professionals call on 02/17/22), all of which expressed strong interest in improving FEM data comparability to collocated FRMs. While there are other approaches that could improve data comparability between PM FEMs and collocated FRMs, The EPA believes that this approach represents the most reliable approach to update FEM factory calibrations, since the existing FRM network data that meets MQOs would be used to set updated factory calibrations. While the Agency is proposing to add this language to more expressly define a process to update factory calibrations of approved PM FEMs, the EPA believes that the existing rules for updating approved FRMs and FEMs found at 40 CFR 53.14 may also continue to be utilized for this purpose as appropriate. This section allows instrument manufactures to submit to the EPA a ''Modification of a reference or equivalent method.'' Submitting a modification request may be appropriate to ensure an approved FEM continues to meet the 40 CFR 53.9, ''Conditions of designation''. Specifically, 40 CFR 53.9(c) requires that, ''Any analyzer, PM_{10} sampler, $PM_{2.5}$ sampler, or $PM_{10-2.5}$ sampler offered for sale as part of an FRM or FEM shall function within the limits of the performance specifications referred to in § 53.20(a), § 53.30(a), § 53.35, § 53.50, or § 53.60, as applicable, for at least 1 year after delivery and acceptance when maintained and operated in accordance with the manual referred to in § 53.4(b)(3).'' Thus, instrument manufactures are encouraged to seek improvements to their approved FEM methods as needed to continue to meet data quality needs as operated across the network. Instrument manufactures have an option to pursue that now and may have an additional option in the future should we finalize this proposal for calibration of PM FEMs.

In the PA (U.S. EPA, 2022b, section 2.2.3.1), the EPA analyzed the quality of data from FRM samplers and continuous $PM_{2.5}$ FEM monitors operating in routine networks to determine whether they meet the MQOs for $PM_{2.5}$ FRMs and FEMs (40 CFR part 58, appendix A, section 2.3.1.1): ''Measurement Uncertainty for Automated and Manual $PM_{2.5}$ Methods. The goal for acceptable measurement uncertainty is defined for precision as an upper 90 percent confidence limit for the coefficient of variation (CV) of 10 percent and ±10 percent for total bias.'' When aggregating data across the country, all $PM_{2.5}$ FRMs meet the MQOs for these methods. But of $PM_{2.5}$ continuous FEMs aggregated across the country, some meet the MQOs, and others do not.

One of the major challenges to ensuring uniform data from PM methods is that there are no accepted standards against which to calibrate PM methods. This was discussed in the 2004 Air Quality Criteria for Particulate Matter (U.S. EPA, 2004b). PM reference methods typically include the design and performance requirements set forth in the 40 CFR part 50. This is a contrast to FRMs and FEMs for gaseous NAAQS pollutants for which there are accepted calibration standards; in the case of ozone, there is even a standard reference photometer that can be used to calibrate approved methods in the field or laboratory. For PM monitoring methods, in the absence of accepted calibration standards, acceptable data quality is determined by comparing to other PM FRMs. One challenge to comparing to other PM FRMs during the initial field testing for purposes of FEM approval is that the dataset will in almost all cases be substantially more limited than what's available in routine networks once deployed. Thus, we seek to encourage instrument manufacturers of approved FEMs to evaluate data in routine networks and consider improvements to their FEM calibration, as needed.

The EPA is proposing to use routine and collocated FRM data operated by State, local, and Tribal agencies as the basis to update factory calibrations. Routine State, local, and Tribal agency FRM data form the largest portion of the monitored air quality data used in epidemiologic studies that are being used to inform proposed decisions regarding the adequacy of the public health protection afforded by the primary $PM_{2.5}$ NAAQS, as discussed in section II above. While the EPA is proposing to use routine FRM data, there are other reference datasets that could be considered. For example, the agency has an FRM audit program[159] operated by independent operators and laboratories. This program is highly valuable to the success of the $PM_{2.5}$ monitoring program by providing independent data to assess the quality of routinely operated FRMs and FEMs. If we used the audit program data as the basis for calibrating continuous monitors, we would lose the ability to collect independent data from audit monitors to assess the operation of routine monitors. Therefore, by using routinely operated FRMs to calibrate continuous FEMs, the Agency will continue to maintain the independence

[159] See: *https://www.epa.gov/amtic/national-pm25-performance-evaluation-program.*

of the FRM audit program to assess the quality of routinely operated FRM and continuous FEM data. The EPA also has chemical speciation data available at sites where the Chemical Speciation Network (CSN) or IMPROVE samplers are operated; however, these samplers use technologies that operate at different flow rates and with different-size selective devices than approved FRMs, and neither of these programs use FRMs as the basis to collect samples. Therefore, while CSN and IMPROVE data can be useful to help determine the aerosol chemistry of $PM_{2.5}$ and may provide additional validation of collocated FRM or FEM data, by themselves these data are not appropriate to update factory calibration of continuous FEMs.

The EPA proposes to direct instrument companies and other interested stakeholders to the EPA's Air Quality System (AQS) database [160] to access the valid routine network data that the Agency proposes to allow for use in updating factory calibration of continuous FEMs. There are several ways to obtain data from the AQS database, and many do not require registration. For example, daily processed datasets by year are publicly available at the website of ''Pre-Generated Data Fields.'' [161] The data utilized would need to be valid PM FRM and FEM data that are collocated and aligned to the same date. For example, for $PM_{2.5}$ mass concentrations, there are files by year for '' $PM_{2.5}$ FRM/FEM Mass'' identified with a parameter code of 88101. This information, already aggregated to daily data, represent the time-period of midnight-to-midnight local standard time. While any years of data may be considered, instrument companies should normally use at least two years of recent data where we are past the certification period for the previous-year data, which is May 1st of each year. Including at least two years of data is intended to address cases where one of the years may have high or low air quality concentrations. Data in the current year and previous year when we are not past the May 1st certification date can be considered to test data with a correction established from a previous year or more than one year. If multiple factors are included, any new statistical correction or corrections should be based on one or more calendar years, with independent testing of that data on another year or more that was not used to develop the equation(s).

The EPA also encourages instrument companies to consider and implement all the ways to optimize $PM_{2.5}$ FEMs. This may include, but is not limited to, whether a method's data can be improved by operating the FEM inside a heating, ventilation, and air-conditioning (HVAC)-controlled shelter or outside with minimal or no HVAC control; optimizing heating of the airstream to avoid condensation while retaining semi-volatile PM captured on the FRM; and any specialized guidance or training that may help monitoring agencies optimize their data quality and comparability to collocated FRMs. Other options might include updates to unique coefficients used in the factory calibration such as the density of the aerosol, where applicable. Such changes would normally need to be approved by the EPA according to existing rules found at 40 CFR 53.14.

Another challenge to consider is how to deal with potential outliers that may exist in the validated State, local, and Tribal agency network data available from AQS that would be used to establish new factory calibrations. One of the reasons to use data from the AQS database is that there are tens of thousands of collocated data pairs available that include many of the approved continuous $PM_{2.5}$ FEMs. Having a large data set will diminish the effect of any one or more outliers. However, acknowledging that the goal of this proposed change is to update factory calibrations to increase the number of routinely operating FEMs meeting MQOs across the networks in which they are operated, we propose that instrument companies may, but are not required to, check for and exclude any potential outliers. Additionally, we propose that the range of data may be limited to those concentrations that are within the normal operating ranges of most sites, but this is not required. This approach, for example, could include 24-hour average $PM_{2.5}$ concentrations up to the level of the primary 24-hour $PM_{2.5}$ NAAQS or some percentile above that level (*e.g.,* 125% of the 24-hour NAAQS). The rationale for this is that there are very few sites with routine concentrations above the level of the primary 24-hour $PM_{2.5}$ NAAQS, and the establishment of any equation with this data would need to be constructed carefully to avoid having data below the primary annual $PM_{2.5}$ NAAQS drive the coefficients used above the level of the primary 24-hour $PM_{2.5}$ NAAQS.

Ideally, the geographic coverage of the data used in establishing a new factory calibration would be national in scope; however, instrument companies can only use the data that is available. For widely used $PM_{2.5}$ FEMs, this will not be an issue, but for less-operated $PM_{2.5}$ FEMs, there may be limitations in the geographic scope of data produced. Another challenge may be a large grouping of sites in one part of the country that drives development of an equation used across all networks. Instrument companies may limit the use of sites with large groupings in one or more geographical area so that the data are more geographically representative across the network so long as there is a reasonable rationale as to why data from certain sites are not being included. With a new factory calibration available, instrument companies will need to test the performance of the updated calibration across a variety of sites. Testing of an updated factory calibration can be accomplished by utilizing a different year or years other than the time-period used to establish the revised factory calibration or a subset of data across all years. Testing should also include the range of sites in which the method is used.

Building off the geographic location of the sites in which an updated factory calibration is tested with previously collected data, the EPA considered what performance level should be acceptable. Ideally, an updated factory calibration would work such that a significantly larger number of, or all, individual sites operating with the updated factory calibration would meet the MQOs. However, due to several complicating factors such as seasonal changes in temperature and humidity, elevation, differences in aerosol composition, and differences in concentration between more polluted urban sites and relatively cleaner rural sites (some of which read well below the proposed revisions to the level of the primary annual $PM_{2.5}$ NAAQS discussed in section II above), the EPA should not expect that every site will necessarily meet the MQOs. Therefore, the goal of this proposal is to increase the number of routinely operating FEMs meeting MQOs across the networks in which they are operated, especially for sites near the level of the NAAQS proposed elsewhere in this proposal. Since there are multiple MQOs to consider, the EPA proposes to place the most attention on improvements to the bias MQO goal because this statistic will likely have the most influence on improving the resultant data collected. In attempting to address this goal, instrument companies may be interested in testing their original data used in field studies of their candidate FEMs with an updated

[160] See: *https://www.epa.gov/aqs.*

[161] See: *https://aqs.epa.gov/aqsweb/airdata/download_files.html.*

factory calibration. While this could be a useful exercise to understand the sensitivity of the original and any updated factory calibration, the EPA proposes not to require meeting the performance criteria of the original field testing as a condition of approving an updated factory calibration.

Regarding how frequently factory calibrations should be updated, the EPA believes it would be most appropriate to not define a specific time-period for updates. Rather, updates should be based on the available of quality data being produced across the network. Monitoring agencies routinely check their data comparability to collocated FRMs, including as part of annual data certification where an AMP–256 report describing data quality is included as part of the certification package (§ 58.15(c)). In addition, monitoring agencies typically provide a more thorough review of their networks and accompanying data quality as part of the five-year assessments due to the EPA pursuant to 40 CFR 58.10(d).

Another important aspect to implementing updated factory calibrations is the treatment of data already collected under the original factory calibration. There are two time periods to consider. First, there is the time-period before the EPA approves an updated to a factory calibration. We propose that data collected prior to an approved update to a factory calibration be allowed to remain as measured based on the factory calibration that was approved at the time the data was collected. Second, there is the time-period between when an updated factory calibration is approved by the EPA and when that updated calibration is implemented in the field. While ideally, this time-period would be short, there may be reasons why some agencies and the sites they run cannot easily update the firmware with the updated factory calibration. We solicit comment on how to handle these situations and whether there should be an allowance to correct such data.

The EPA sought early input from State, local, and Tribal monitoring agencies (NACAA Monitoring Committee 01/20/22; AAPCA Ambient Monitoring Committee 01/26/2022; Tribal air quality professionals call on 02/17/22) regarding how best to address the issue of some $PM_{2.5}$ FEMs having bias issues. Many monitoring agencies identified that they strongly favor a national solution that can be accomplished and implemented through a firmware upgrade or similar resolution that is consistent with the approach described above. One State suggested that the EPA should consider and allow site-by-site corrections between FRM and collocated FEMs with ongoing collocation at a 1:6 sample frequency for FRMs. The rationale for site-by-site corrections was that there are differences in the types of aerosol composition and concentration between urban and rural locations and having site-by-site corrections would ensure that each type of location is individually calibrated to a collocated FRM rather than to a consistent factory calibration that may average out any differences. In contrast, other monitoring agencies expressed concern about the challenges of implementing a site-by-site approach, especially for those agencies who stated that they would not be able to redeploy the FRMs that would be necessary to perform the site-by-site corrections in their networks for reasons including no longer having FRMs, not having staff available to support and operate the FRMs, and no longer have gravimetric laboratory capacity to support a larger inventory of FRMs operating in their networks.

The CASAC also provided input on the FEM bias issue. As part of their review of the draft PA, the CASAC stated that ''the FEM bias needs to be addressed to make the FRMs and FEMs more comparable'' (Sheppard, 2022a, p. 2 of consensus responses). The CASAC offered two options for the EPA to consider. ''One option would be to allow states to develop correction factors for co-located FRMs and FEMs. These correction factors could be used to adjust FEM concentrations downward (or upward) to be comparable to FRMs. Another option would be for the EPA to revise the 'equivalency box' (EB) criteria used to judge whether the bias of a new continuous $PM_{2.5}$ monitor relative to an FRM is acceptable during field testing'' (Sheppard, 2022a, p. 2 of consensus responses). The CASAC's first option is consistent with the input received during early input described above. The EPA believes that the second option should be considered in future reviews of the PM NAAQS to help establish updated goals for data quality from $PM_{2.5}$ FEMs. The existing network of commercially available $PM_{2.5}$ FRMs and some of the continuous FEMs are already meeting the MQOs at the existing concentrations, which are at or below the proposed revisions to the level of the primary annual $PM_{2.5}$ NAAQS discussed in section II above. However, the EPA recognizes that not all $PM_{2.5}$ FEMs are meeting MQOs and, therefore, the EPA intends to address improvements to existing FEMs that are not meeting MQOs as described above.

In attempting to address the comparability of $PM_{2.5}$ FEMs to collocated FRMs through our proposal to allow updates to factory calibrations, the EPA recognizes that other potential solutions do not need to be mutually exclusive. That is, there can be multiple approaches to improve the comparability of $PM_{2.5}$ FRMs to continuous FEMs. Therefore, the EPA solicits comment on additional ways to improve $PM_{2.5}$ data comparability between $PM_{2.5}$ FRMs and collocated continuous FEMs.

The EPA encourages early dialogue with instrument companies considering an update to any part (*e.g.,* hardware, software, and/or firmware revision) of an approved FEM designation. Dialogue with the EPA as well as applications by instrument manufactures can be initiated by contacting the EPA ORD's Reference and Equivalent (R&E) Methods Designation program. The contact information for this can be found at 40 CFR 53.4, ''Applications for reference or equivalent method determinations.''

In summary, the EPA is proposing that valid State, local, and Tribal air monitoring data generated in routine networks and submitted to the EPA may be used to update factory calibrations included as part of approved FEMs. This approach, initiated by instrument manufacturers, subject to EPA approval, would be implemented as a national solution in factory calibrations of approved FEMs through a firmware update. This would apply to any PM FEM methods (*i.e.,* PM_{10}, $PM_{2.5}$, and $PM_{10-2.5}$). As part of this process, the EPA proposes that a range of data based on the most representative concentrations up to all available concentrations may be used in developing and testing a new factory calibration, that a representative set of geographic locations can be used, that outliers may be included or not included, that a new factory calibration should be developed using data from at least two years and tested on a separate year(s) of data, that updates to factory calibrations can occur as often as needed, and should be evaluated by monitoring agencies as part of routine data assessments such as during certification of data and five year assessments, that the EPA recognizes only data from existing operating sites is available, and that an updated factory calibration does not have to work with the original field study data submitted that led to the designation as an FEM. The EPA solicits input on this approach and any alternatives that would lead to more sites meeting the bias MQO with automated FEMs, especially for those sites that are near the level of the primary annual $PM_{2.5}$ NAAQS, as

proposed to be revised in section II above.

4. Proposed Amendment to the $PM_{2.5}$ Monitoring Network Design Criteria To Address At-Risk Communities

To enhance protection of air quality in communities subject to disproportionate air pollution risk, particularly in light of the proposed range for a revised $PM_{2.5}$ annual standard, the EPA proposes to modify our $PM_{2.5}$ monitoring network design criteria to include an environmental justice factor that accounts for proximity of populations at increased risk of adverse health effects from $PM_{2.5}$ exposures to sources of concern. Specifically, the EPA proposes to modify our existing requirement (40 CFR part 58, appendix D, section 4.7.1(b)(3)): ''For areas with additional required SLAMS, a monitoring station is to be sited in an area of poor air quality,'' to additionally address at-risk communities with a focus on anticipated exposures from local sources of emissions. The scientific evidence evaluated in the 2019 ISA and ISA Supplement indicates that sub-populations at potentially greater risk from $PM_{2.5}$ exposures include: children, lower socioeconomic status (SES) [162] populations, minority populations (particularly Black populations), and people with certain preexisting diseases (particularly cardiovascular disease and asthma). The EPA is proposing that communities with relatively higher proportions of sub-populations at greater risk from $PM_{2.5}$ exposure within the jurisdiction of a state or local monitoring agency should be considered ''at-risk communities'' for these purposes.

The $PM_{2.5}$ network design criteria has led to a robust national network of $PM_{2.5}$ monitoring stations. These monitoring stations are largely in Core-Based Statistical Areas (CBSAs) [163] across the country that include many $PM_{2.5}$ monitor sites in at-risk communities. Many of the epidemiologic studies evaluated in the 2019 ISA and ISA Supplement, including those that provide evidence of disparities in $PM_{2.5}$ exposure and health risk in minority populations and low SES populations, often use data from these existing $PM_{2.5}$ monitoring sites. However, we anticipate that if the level of the annual NAAQS is lowered, characterizing localized air quality issues may become even more important around local emission sources. The EPA believes that adding a network design requirement to specifically locate monitors in at-risk communities will improve our characterization of exposures for at-risk communities where localized air quality issues may exist. Requiring the siting of $PM_{2.5}$ monitoring stations in at-risk communities allows other methods to be operated alongside $PM_{2.5}$ measurements to support multiple monitoring objectives (40 CFR part 58, appendix D, section 1.1). The EPA believes that it is appropriate to formalize the monitoring network's characterization of $PM_{2.5}$ concentrations in communities at increased risk, to provide these areas with the level of protection intended with the $PM_{2.5}$ NAAQS. The addition of this requirement will also lead to enhanced local data that will allow regulatory air quality agencies to assist communities to reduce exposures and to help inform future implementation and reviews of the NAAQS.

As described in section II.B.2 above and in more detail in the PA (U.S. EPA, 2022b, section 3.3.2), the public health implications of health effects associated with $PM_{2.5}$ in ambient air are dependent on the type and severity of effects, as well as the size of the population affected and whether there are populations and/or lifestages at increased risk of a $PM_{2.5}$-related health effect. The 2019 ISA cites extensive evidence indicating that ''both the general population as well as specific populations and lifestages are at risk for $PM_{2.5}$-related health effects'' (U.S. EPA, 2019, p. 12–1). Factors that may contribute to increased risk of $PM_{2.5}$-related health effects include lifestage, pre-existing diseases (cardiovascular disease and respiratory disease), race/ethnicity, and socioeconomic status. The increased risk faced by these sub-populations raises environmental justice [164] concerns. Section II of this preamble, section 12.5 of the 2019 ISA (U.S. EPA, 2019a) and section 3.3.3 of the ISA Supplement (U.S. EPA, 2022a) provide extensive discussion on the evidence for disparities in $PM_{2.5}$ exposures and $PM_{2.5}$-related health risks of these sub-populations.

Consistent with the requirement of the Clean Air Act to protect sensitive sub-populations, the EPA is particularly concerned with protecting sub-populations identified as being at higher risk of adverse health effects from $PM_{2.5}$ exposure in the 2019 ISA, ISA Supplement and PA (U.S. EPA, 2019a; U.S. EPA, 2022a; U.S. EPA, 2022b). The EPA finds it appropriate to better characterize the localized air quality in communities with relatively higher proportions of these sub-populations to ensure these sub-populations receive the intended level of protection of a revised NAAQS proposed earlier in section II. Thus, the EPA is proposing to modify the $PM_{2.5}$ ambient monitoring network design criteria to add a provision pertaining to sub-populations identified as at increased risk for $PM_{2.5}$ exposures and health risks associated with $PM_{2.5}$ (''at-risk communities'').

An enhanced network should include representation of at-risk communities who live near emission sources of concern such as, but not limited to, major ports, rail yards, airports, industrial areas, or major transportation corridors. The EPA finds it appropriate, in light of the evidence of increased risk to these communities, to better characterize exposures given proximity to local sources of concern. For example, the EPA believes it is worthwhile to characterize localized ambient concentrations occurring when there are emission sources located in a part of a metropolitan area that are different than the design value [165] site of the same metropolitan area. Thus, while there may be sites with higher overall maximum concentrations in another part of the same metropolitan area, those sites are covered by our long-standing existing requirement that monitors be placed ''. . . in the area of expected maximum concentration'' [§ 58.1 and appendix D, section 4.7.1(b)(1)].

$PM_{2.5}$ concentrations have generally trended down when averaged across all monitoring sites over the last two decades since $PM_{2.5}$ measurements

[162] SES is a composite measure that includes metrics such as income, occupation, and education, and can play a role in populations' access to healthy environments and healthcare.

[163] CBSAs—Metropolitan and Micropolitan Statistical Areas are collectively referred to as Core-Based Statistical Areas. Metropolitan statistical areas have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. Micropolitan statistical areas are a set of statistical areas that have at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.

[164] The EPA defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The EPA further defines the term fair treatment to mean that ''no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.''

[165] Design value is defined in § 58.1 as the calculated concentration according to the applicable appendix of 40 CFR part 50 for the highest site in an attainment or nonattainment area.

commenced nationally in 1999.[166] This downward trend has resulted in lower background concentrations being measured upwind of urban areas; however, the impact of local emissions on $PM_{2.5}$ may not be known if there is not a requirement to monitor ambient air in these areas. For example, the presence of new local sources of fine particle air pollution proximate to at-risk communities, such as significant increases in heavy duty truck traffic since monitors were originally sited, should be taken into consideration. As explained in the PA (U.S. EPA, 2022b), measured $PM_{2.5}$ at near-road monitoring stations include an increment relative to other sites in the same CBSA. The near-road sites will complement any new or moved sites located to specifically address at-risk communities near sources of concern. We anticipate the significance of local emissions may increase if, as proposed, the level of the annual $PM_{2.5}$ NAAQS is lowered. Thus, the EPA seeks to support communities with at-risk populations in proximity to local sources of concern so that they have access to $PM_{2.5}$ NAAQS-comparable data to ensure compliance with the $PM_{2.5}$ NAAQS and for other data uses.

To successfully select and deploy an ambient air monitoring station, monitoring agencies must comply with the requirements of the EPA network design criteria (40 CFR part 58, appendix D, section 4.7), consider input from the community and other interested stakeholders, and then overlay the requirements and input with logistically available options in the neighborhoods they intend to monitor. Often, monitoring agencies partner with schools and other government agencies that have access to property in a neighborhood so that the desired monitoring stations can be sited, deployed, and maintained. Locating monitoring stations in neighborhoods should be done in a way that provides a good representation of the particulate matter exposures of the communities in which they are located. Alternatively, monitoring stations can be located directly next to emission sources of concern. However, these locations, known as ''source-oriented'' sites, may not necessarily represent the exposures in community or the effect of a multitude of emissions that can impact a neighborhood.

To ensure monitoring sites are appropriately representing exposure in at-risk communities, we propose that sites represent ''area-wide'' air quality near local sources of concern. Sites representing ''area-wide'' air quality are those monitors sited at neighborhood, urban, and regional scales, as well as those monitors sited at either micro- or middle-scale that are identified as being representative of many such locations in the same Metropolitan Statistical Area (MSA).[167] Most existing as well as new or moved sites are expected to be neighborhood-scale, which means that the monitoring stations would typically represent conditions throughout some reasonably homogeneous urban sub-region with dimensions of a few kilometers [part 58, appendix D, section 4.7.1(c)(3)]. Additionally, as described in § 58.30, sites representing ''area-wide'' air quality have a long-standing applicability to both the annual and 24-hour $PM_{2.5}$ NAAQS. Siting in a community representing ''area-wide'' air quality as proposed is consistent with other network design objectives pursuant to which we locate monitors where people live, work, and play.

The types of sites that are minimally required as part of the $PM_{2.5}$ network design are associated with two geopolitical levels: MSAs and states. The minimum number and type of sites that are required within an MSA are a function of the population of the MSA, based on the latest available information from the Census Bureau, and the design value of the existing network of $PM_{2.5}$ sites reported for that MSA. MSAs with design values at or above 85% of any $PM_{2.5}$ NAAQS are required to operate one more site than those MSAs with values that are less than 85% of any $PM_{2.5}$ NAAQS (40 CFR part 58, appendix D, Table D–5). Each MSA required to operate at least one monitoring station is to site the monitor at neighborhood or larger scale in an area of expected maximum concentration. MSAs with a population of 1 million or more are required to operate a $PM_{2.5}$ monitor at a NO_2 near-road station in the same MSA. Thus, according to Table D–5 of appendix D to part 58, only those MSAs with a population of greater than 1 million with the most recent 3-year design value greater than or equal to 85% of any $PM_{2.5}$ NAAQS are required to operate at least three $PM_{2.5}$ monitoring stations. Since one of these sites would be the site in the area of expected maximum concentration, which most often will be the design value site, and the other the near-road site, only the third location would not address either of those two requirements.

The requirement for a third monitoring station in a MSA, where it exists, would take on the revised network design requirement to address at-risk communities near sources of concern. Many existing sites in the area of expected maximum concentration or near-road sites that are located in at-risk communities. Thus, having multiple sites located in at-risk communities may be appropriate so long as each siting criteria is achieved. Also, while we are proposing this modification to our network design criteria, we recognize that the number of monitors to support key monitoring objectives, including addressing at-risk communities, could go well beyond what is currently minimally required. Many monitoring agencies already operate more monitoring sites than are minimally required and we expect this to continue in considering siting monitors in at-risk communities. Thus, the existing and robust network of almost 1,000 $PM_{2.5}$ sites nationally will continue to protect all populations at the level of the NAAQS discussed in section II of this proposal, by always having at least one site in the area of expected maximum concentration for each CBSA where monitoring is required. Many existing and a few new sites will form an important sub-component of the $PM_{2.5}$ network by characterizing air quality in at-risk communities, particularly with respect to sources of concern.

Monitoring requirements applicable at the state level include measuring regional background and regional transport (40 CFR part 58, appendix D, section 4.7.3). These required sites at the state level are largely located in rural areas and may include use of IMPROVE samplers or continuous $PM_{2.5}$ monitors. The sites required at the state level complement sites required at the MSA level. Together the sites already required at the state level combined with existing siting requirements at the MSA level as well as the proposed revisions described herein to address at-risk communities will achieve several monitoring objectives, including comparison to the NAAQS and AQI. The availability of data from regional background and regional transport sites compared to data from design value sites already allow for calculating incremental exposure in communities with the highest design value location. With the proposed addition of a siting requirement for at-risk communities and the use of data from these sites compared to select regional background and regional transport sites as well as other sites in the same MSA, we can

[166] See: *https://www.epa.gov/air-trends/particulate-matter-pm25-trends.*

[167] MSA means a CBSA associated with at least one urbanized area of 50,000 population or greater. The central-county, plus adjacent counties with a high degree of integration, comprise the area.

assess the incremental burden of exposure from local emissions to at-risk communities.

In addition to using data from the robust network of almost 1,000 $PM_{2.5}$ sites for NAAQS and AQI purposes, having a stable network of long-term sites is especially valuable for trends and as an input to long term health and epidemiology studies that support reviews of the PM NAAQS. Therefore, while we are proposing to add a $PM_{2.5}$ network design criteria to address at-risk communities, many sites are likely already in valuable locations meeting one of the existing network design criteria (*i.e.,* being in an area-wide area of expected maximum concentration or collocated with near-road sites) and supporting multiple monitoring objectives. Also, in many communities there may already be sites meeting the network design criteria we are proposing for at-risk communities. Thus, acknowledging the value of having long-term data from a consistent set of network sites, on balance the EPA believes that the movement of sites should be minimized, especially in MSA's with a small number of sites. However, a small number of new sites [168] are expected to be required due to the existing minimum monitoring requirements (Table D–5 of appendix D to part 58) and the revised primary annual $PM_{2.5}$ NAAQS proposed in section II of this proposal. Also, sites do on occasion need to move due to loss of leases, no longer meeting siting criteria, or other reasons. For any of these cases, we believe it is appropriate to include prioritizing establishing sites in at-risk communities near sources of concern, should new sites be established, or existing locations be lost, and replacement sites need to be identified. Therefore, the EPA proposes that annual monitoring network plans [40 CFR 58.10(a)(1)] that include the few newly required sites and five-year assessments [40 CFR 58.10(d)] include a provision to examine the ability of existing and proposed sites to support air quality characterization for areas with at-risk populations in the community and the objective discussed herein.

Assessing and prioritizing at-risk communities for monitoring can be accomplished through several approaches. The most critical aspect of prioritizing which communities to monitor is their representation of the at-risk populations described earlier in this section. The other major consideration is whether the community is near source(s) of concern. While many CBSA's have one or more sources of concern described above, some CBSA's will not have the level of emissions from sources of concern that result in an elevated level of measured $PM_{2.5}$ concentrations in surrounding communities. Since one of our other siting criteria to ''. . . be in the area of expected concentration'' [§ 58.1 and appendix D, section 4.7.1(b)(1)] ensures there is a monitoring site in the community with the highest exposure in each CBSA with a monitoring requirement, on balance the EPA believes we should include being in an at-risk community for CBSAs with a third site requirement when there are no sources of concern identified in a CBSA or such sources do exist but are not expected to lead to elevated levels of measured $PM_{2.5}$ concentrations.

To identify at-risk communities to consider for the proposed monitoring requirement, tools such as the EPA's EJSCREEN [169] are available. The EPA solicits comment on other tools and/or datasets that can could be utilized to identify the at-risk communities described above. With information on at-risk communities, monitoring agencies need data that can best inform where there may be elevated levels of exposures from sources of concern. While we use FRMs and FEMs to determine compliance with the NAAQS, there are several additional datasets available that may be useful in evaluating the potential for elevated levels of exposure to communities near sources of concern. Potential datasets include non-regulatory data (CSN, IMPROVE, and AQI non-regulatory $PM_{2.5}$ continuous monitors), modelling data—which utilizes emission inventory and meteorological data, emerging sensor networks such as used in the EPA's AirNow fire and smoke map,[170] and satellites—which measure radiance and with computational algorithms are then used to estimate $PM_{2.5}$ from aerosol optical depth (AOD). The 2019 ISA and PA (U.S. EPA, 2019a; U.S. EPA, 2022b) include details on each these, except for the AirNow fire and smoke map, which first became operational in 2020. Each of these datasets have advantages and disadvantages, especially when attempting to determine exposure concentrations for the averaging times of the $PM_{2.5}$ NAAQS described in section II (*i.e.,* annual NAAQS and 24-hour NAAQS). The EPA solicits comment on datasets most useful to identify communities with high exposures for $PM_{2.5}$ NAAQS (*i.e.,* annual or 24-hour), including any discussion on limitations or advantages of the dataset of interest. The EPA is soliciting comment on the use of these datasets for the purpose of identifying communities where the proposed monitoring requirement would apply and not for the purpose of satisfying the proposed monitoring requirement.

The monitoring methods appropriate for use at these proposed sites are FRMs and automated continuous FEMs. These are the methods that are eligible to compare to the $PM_{2.5}$ NAAQS, which will be the primary objective for collecting this data. There are several other monitoring objectives that would benefit from use of automated continuous FEMs. For example, having hourly data available from automated continuous FEMs would allow sites to provide data in near-real time to support forecasting and near real-time reporting of the AQI. Automated continuous methods are also useful to support evaluation of other methods such as low-cost sensors. When used in combination with on-site wind speed and wind direction measurements, automated FEMs can provide useful pollution roses indicating the origin of emissions that affect a community. Additionally, when collocated with continuous carbon methods such as an aethalometer, automated FEMs can help identify potential local carbon sources contributing to increased exposure in the community. The EPA and the CASAC worked collaboratively in 2010 (Russell and Samet, 2010) to define a list of measurements that would be useful to implement in the near-road environment, and a subset of these measurements may additionally be of value to characterize the exposure in at-risk communities. While either FRMs or automated FEMs may be used at a site for comparison to the $PM_{2.5}$ NAAQS, the EPA encourages use of automated continuous FEMs at sites in at-risk communities.

Although there are only a few new sites required,[171] plus any potentially moved sites in cases where a site lease is lost, EPA believes we should build upon our existing regulatory process for selecting and approving these sites (40

[168] Gantt, B. (2022). Analyses of Minimally Required $PM_{2.5}$ Sites Under Alternative NAAQS. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072.*

[169] See: *https://www.epa.gov/ejscreen.*

[170] See: *https://fire.airnow.gov/.*

[171] Gantt, B. (2022). Analyses of Minimally Required $PM_{2.5}$ Sites Under Alternative NAAQS. Memorandum to the Rulemaking Docket for the Review of the National Ambient Air Quality Standards for Particulate Matter (EPA–HQ–OAR–2015–0072). Available at: *https://www.regulations.gov/docket/EPA-HQ-OAR-2015-0072.*

CFR 58.10). For example, the timeline to implement the proposed $PM_{2.5}$ sites in at-risk communities should allow monitoring agencies enough time for communities and other interested parties to provide their input regarding moving or adding new sites, while also minimally disrupting ongoing operations of monitoring agency programs. Another important factor is to ensure all existing $PM_{2.5}$ sites have data available for comparison to a revised $PM_{2.5}$ NAAQS, which is discussed in section II of this proposal. With a final rule from this proposal expected in 2023, we believe it would be appropriate to provide at least 12 months from the effective date of a final rule for monitoring agencies to initiate planning to implement these measures by seeking input from communities and other interested parties, and to consider revisions to their $PM_{2.5}$ networks or explain how the existing network meets the objectives of this proposed modification. Thus, the EPA proposes that monitoring agencies identify their initial approach to the question of whether any new or moved sites are needed and to identify the potential communities in which the agencies are considering adding monitoring, if applicable, as well as identifying how they intend to meet the proposed revised criteria for $PM_{2.5}$ network design to address at-risk communities. These aspects that will potentially affect the siting of new and moved sites should be addressed in the agencies' annual monitoring network plans due to each applicable EPA Regional office no later than July 1, 2024 (40 CFR 58.10). Specifics on the resulting proposed new or moved sites for $PM_{2.5}$ network design to address at-risk communities would need to be detailed in the annual monitoring network plans due to each applicable EPA Regional office no later than July 1, 2025 (40 CFR 58.10). We are proposing that any new or moved sites would be required to be implemented and fully operational no later than 24 months from the date of approval of a plan or January 1, 2027, whichever comes first, but the EPA solicits comment on whether less time is needed (*e.g.,* 12 months from plan approval and/or January 1, 2026).

In summary, the EPA is proposing to modify our $PM_{2.5}$ network design criteria to include an environmental justice factor to address at-risk communities with a focus on exposures from sources of concern. While this proposal would require that sites be located in at-risk communities, particularly those whose air quality is potentially affected by local sources of concern, such sites should still meet the requirement for being considered ''area-wide'' air quality. Specific areas of interest we seek comment on include how to identify at-risk communities, the sources of concern important to consider, the datasets to identify communities with high exposures, and the most useful measurements to collocate with $PM_{2.5}$ in at-risk communities. The EPA seeks comment on these areas of interest as well as the proposed modification of our $PM_{2.5}$ network design objectives and implementation as described herein.

5. Proposed Revisions to Probe and Monitoring Path Siting Criteria

The EPA is proposing changes to monitoring requirements in the Appendix E—Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring. Since 2006, multiple rule revisions were made to establish siting requirements for $PM_{10-2.5}$ and O_3 monitoring sites (71 FR 2748, January 17, 2006), Near-Road NO_2 monitoring sites (75 FR 6535, February 9, 2010), Near-Road CO monitoring sites (76 FR 54342, August 31, 2011), and Near-Road $PM_{2.5}$ monitoring sites (78 FR 3285, January 15, 2013). Through these multiple revisions to the regulatory text, some requirements were inadvertently omitted, and, over time, the clarity of this appendix was reduced through these omissions that, in a few instances, led to unintended and conflicting regulatory requirements. The EPA proposes to reinstate portions of previous Probe and Monitoring Path Siting Criteria Requirements from previous rulemaking where appropriate to restore the original intent. The proposed changes that affect the overall appendix follow, while those specific to the various sections of the appendix will be addressed under a specific section heading. The EPA notes that appendix E is being reprinted in its entirety with this proposal because this section is being reorganized for clarity in addition to being selectively revised as described in detail below. The EPA is soliciting comment on the specific provisions of appendix E proposed for revision. However, there are a number of provisions that are being reprinted solely for clarity to assist the public in understanding the changes being proposed and reconciling requirements between different portions of the text; the EPA is not soliciting comment on those provisions and considers changes to those provisions to be beyond the scope of this proposed rulemaking.

a. Providing Separate Section for Open Path Monitoring Requirements

The current appendix E regulation combines open path monitor siting requirements with requirements for siting samplers and monitors that utilize probe inlets. While this approach allowed the EPA to promulgate an abbreviated regulation for probe-siting requirements, the EPA now has determined that the clarity of the requirements for each monitoring method type has been diminished by this combination. As such, the EPA is proposing to relocate all open path monitor siting criteria requirements to a separate section in this appendix. Providing separate sections for these distinct monitoring method types will allow the EPA to more clearly articulate minimum technical siting requirements for each. Further rationale for creating these separate sections is that the regulatory monitoring community has not submitted to AQS measurement results from open path monitors since 2009. Because these open path monitoring methods are rarely used for monitoring to compare to the NAAQS, the EPA believes that moving the open path siting criteria to their own section will make clearer the probe siting criteria for the ambient air monitoring methods that are now most commonly utilized by monitoring organizations.

b. Amending Distance Precision for Spacing Offsets

The EPA proposes to require that when rounding is performed to assess compliance with these siting requirements, the distance measurements will be rounded such as to retain at least two significant figures. The EPA proposes to communicate this rounding requirement in the regulatory text using footnotes in Table E–1, Table E–2, and Table E–3 of the current regulation.

c. Clarifying Summary Table of Probe Siting Criteria

To provide additional specificity and flexibility to the summary table for probe siting criteria (see current Table E–4 in appendix E), the EPA proposes to change the ''>'' (greater than) symbols to ''≥'' (greater than or equal to) symbols. This minor revision will more clearly express the EPA's intent that the distance offsets provided in the current Table E–4 in appendix E are acceptable for NAAQS compliance monitoring.

d. Adding Flexibility for the Spacing From Minor Sources

Current requirements for the spacing of probe inlets and monitoring paths from minor sources of SO_2 and NO_2

stipulate that the probe inlets and monitoring paths must be away from these minor sources (see current section 3(b) in appendix E). The EPA proposes to clarify and provide flexibility by changing this requirement to a goal. The EPA proposes to replace the ''must'' in this regulation with a ''should''. As stated in section 1(c) of the current rule, a ''must'' defines a requirement while a ''should'' specifies a goal. Since the current rule does not specify how far the probe must be spaced from such minor sources, the EPA proposes that a ''should'' in this regulation is more appropriate. Minor sources can have adverse impacts on the representativeness of the ambient pollutant concentrations sampled by the probe inlet. As such, the EPA recommends that sites with these minor sources be avoided whenever practicable and probe inlets spaced as far from these minor sources as possible when alternative monitoring stations are not suitable.

e. Amendments and Clarification for the Spacing From Obstructions and Trees

The EPA proposes to clarify and redefine that the minimum arc required to be free of obstructions for a probe inlet or monitoring path is 270 degrees. Currently this portion of the regulation (see current section 4(b) of appendix E) specifies 180 degrees as this minimum arc. However, this requirement is inconsistent with the requirement found in footnote 5 of Table E–4 in appendix E that specifies the probe inlet or monitoring path must have unrestricted airflow of 270 degrees around the probe and 180 degrees for the arc is only allowed if the probe is on the side of a building or a wall. These inconsistent regulatory requirements were introduced in the 2006 rulemaking when the 270-degree requirement was omitted from the text of section 4(b) (see 71 FR 61236, October 17, 2006).

There are also inconsistent requirements in the current regulation regarding the spacing of probe inlets from the driplines of trees. Section 5(a) of appendix E requires the probe inlet must be no closer than 10 meters to the driplines of any trees, while footnote 3 of Table E–4 of the appendix E qualifies that this minimum 10-meter offset is only required when the tree also acts as an obstruction.

f. Reinstating Minimum 270-Degree Arc and Clarifying 180-Degree Arc in Regulatory Text

The EPA proposes to correct identified inconsistencies in this regulation by reinstating the 270-degree requirement in section 4(b) of appendix E. Additionally, the EPA proposes to further clarify this regulation by stating that the continuous 180-degree minimum arc of unrestricted airflow provision is reserved for monitors sited on the side of a building or a wall to comply with network design criteria requirements specified in appendix D of part 58. Examples include CO monitoring in urbanized areas that relies on monitoring in street canyons and near-road monitoring where a continuous arc of 270 degrees of unrestricted airflow is not routinely possible given limited monitor siting options.

g. Clarification on Obstacles That Act as an Obstruction

The EPA proposes to clarify the definitions of ''obstructions'' and ''obstacles'' in the regulatory text (see section 4 of the current appendix E). While obstacles should be avoided as much as is practicable, logistical constraints may dictate that some obstacles are present within the vicinity of the monitoring probe inlet. Obstructions to the air flow of the probe inlet are those obstacles that are horizontally closer than twice the vertical distance the obstacle protrudes above the probe inlet and can be reasonably thought to scavenge reactive gases or to restrict the airflow for any pollutant. The EPA does not generally consider objects or obstacles such as flag poles or site towers for NO_y convertors or towers for meteorological sensors, etc. to be obstructions.

h. Amending and Clarifying the 10-Meter Tree Dripline Requirement

The EPA proposes to reconcile the conflicting requirements in section 5(a) and Table E–4, footnote 3 of the current regulation by deleting the qualification in footnote 3 of Table E–4 to require that the probe inlet must always be no closer than 10 meters to the tree dripline. The EPA also proposes to reinstate the goal that was omitted from section 5(a) during previous rule revisions, that monitor probe inlets should be at least 20 meters from the driplines of trees. Additionally, the EPA proposes to clarify section 5(a) of the current regulation by adding that when the tree or group of trees is considered an obstruction, then the regulatory requirements of section 4(a) apply.

i. Amending Spacing Requirement for Microscale Monitoring

To obtain representative ambient air monitoring measurements for source-oriented and microscale air monitoring stations, it is important to have unobstructed airflow between the monitor's probe inlet and the source under investigation. This reasoning was used by the EPA when near-road NO_2 monitoring stations were required to have an unobstructed airflow between the monitor probe and the outside nearest edge of the traffic lane (see current section 4(d) of this regulation). To assist in further clarifying the monitoring siting criteria for the spacing from obstructions and spacing from trees, the EPA proposes to change from a goal to a requirement that microscale sites for any pollutant shall have no trees or shrubs blocking the line-of-sight fetch between the monitor's probe inlet and the source under investigation. The EPA proposes to communicate this requirement by changing the ''should'' to a ''shall'' in the regulatory text of section 5(c). The EPA does not consider small obstacles such as shrubs that are below this fetch to adversely impact the representativeness of the air quality measurements results. This proposed revision of section 4(d) will bring more consistency to appendix E.

j. Amending Waiver Provisions

The EPA believes the effects of any requirements in this proposal that may be considered to be new are minor. While we are attempting to clarify probe and siting criteria as part of our monitoring regulations, the Agency fully intends to maintain waiver provisions that exist in the regulation for these siting criteria (see current section 10). For cases where long-term trend sites or monitors that determine the design value for their area cannot reasonably meet these regulatory siting requirements, the EPA encourages monitoring organizations to work with their respective EPA Regional Offices to determine if a waiver from these siting criteria is appropriate.

Even though the current regulation adequately and clearly identifies which monitoring situations are eligible for the EPA to consider waiving the requirements for probe-siting criteria (see current section 10), these waiver provisions are silent regarding how long an approved waiver remains in force and effect. Environmental conditions (*e.g.,* airflow due to changes in growth of trees, shrubs, construction of buildings or other obstructions) around monitoring stations are prone to change over time. As such, the EPA has identified that previously approved waivers should be periodically reevaluated to ensure that the conditions upon which the original waiver was approved still exist and that the siting conditions have not degraded to an unacceptable level. The EPA proposes to modify section 10.3 of the

current regulation to state that waivers from the probe-siting criteria must be renewed minimally every 5 years. Ideally, sites needing a waiver renewal should be inspected by the EPA such as during a Technical Systems Audit (TSA) typically conducted at a subset of sites within each Primary Quality Assurance Organization (PQAO) every three years. However, virtual inspections may also be acceptable using documentation such as photos and traffic counts. Dates for the most recent approval of a waiver must then be included in the applicable network assessment and annual monitoring network plan. The EPA proposes to revise § 58.10(b)(10) of the regulation to maintain consistency in the text for probe siting criteria requirements and annual monitoring network plans. This proposal leverages the existing annual assessment requirements found in § 58.10(a)(1) and (d).

k. Broadening of Acceptable Probe Materials

The current regulatory specifications for acceptable probe materials for sampling reactive gases are limited to borosilicate glass, fluorinated ethylene propylene (FEP) Teflon®, or their equivalent (see section 9 of the regulation). The EPA's selection of ''or its equivalent'' in the current regulatory text was intended to allow flexibility to monitoring organizations when selecting suitable sampling train materials. In practice, however, this text has resulted in potentially suitable materials not being used for sampling trains due to concerns that the material may not meet these regulatory requirements. The current requirements for acceptable probe materials were promulgated in 1979. Since 1979, several potential alternatives to borosilicate glass and FEP were developed and are commercially available.

Because some of these alternative materials have advantages over the currently approved materials (*e.g.,* cost and durability), the EPA has received numerous inquiries from monitoring organizations regarding the regulatory suitability of these materials. Monitoring organizations have expressed particular interest in the potential use of PVDF (polyvinylidene fluoride) which is marketed under the registered tradename of Kynar® by Arkema Inc. (Colombes, France). In response to these inquiries, the EPA's Office of Research and Development (ORD) recently designed and conducted a laboratory study to determine the transport efficiency of O_3, SO_2, NO_2, and CO through several candidate tubing materials (Johnson, 2022). Based on these tests results, the EPA is proposing to revise Section 9 of the current regulation to add polyvinylidene fluoride (PVDF), polytetrafluoroethylene (PTFE), and perfluoroalkoxy (PFA) to the list of approved materials for efficiently transporting gaseous criteria pollutants. The EPA also proposes to clarify that the residence-time criteria for sampling reactive gas through these approved materials applies to all O_3, SO_2, and NO_2 monitors. In conjunction with the previously approved borosilicate glass and FEP materials, including these three new materials would provide monitoring organizations with a wider variety of efficient sampling and transport materials needed for conducting NAAQS compliance monitoring.

The EPA has also studied and approved the use of Nafion™ upstream of ozone analyzers to minimize measurement bias associated with high ambient RH levels (U.S. EPA, 2020b). Minimal loss of ozone occurred in these systems as long as the Nafion™ system was conditioned beforehand. Nafion™ is composed primarily of PTFE and can be considered equivalent to PTFE. It has been shown in ORD's recent tests described above to exhibit virtually no loss of ozone at 20 second residence times.

D. Taking Comment on Incorporating Data From Next Generation Technologies

1. Background on Use of FRM and FEM Monitors

The EPA approves FRM and FEM monitors for criteria pollutant measurements in the **Federal Register** after careful review of applications describing extensive testing of the methods operation and performance. The siting of these monitors across State, local, and Tribal networks is subject to detailed requirements for network design detailed in appendix D to 40 CFR part 58 with probe and siting criteria described in appendix E for 40 CFR part 58. The operation of these monitors is subject to extensive quality assurance requirements detailed in appendix A to 40 CFR part 58, which ensures data quality statistics are produced to inform the quality of the data needed to ensure regulatory grade decisions are made with data of known quality. The EPA believes these requirements are important for ensuring the degree of accurate and precise data which is appropriate for regulatory decision-making, particularly decisions about attainment or nonattainment of the NAAQS. However, the EPA also recognizes that the capital and operating costs of these monitors is substantial, which requires the EPA and states to prioritize where monitors should be deployed. The EPA recognizes that making use of broader air quality data sets which are less expensive can provide important benefits, even if the EPA does not consider those datasets suitable for all regulatory purposes. In some circumstances in the past, for example, the EPA has used non-FRM monitoring to inform decisions about the boundaries of a nonattainment area, although the data was not sufficient to support a finding that an area was in nonattainment. Likewise, the EPA has incorporated sensor data into its fire and smoke map for the purpose of informing the public of potential imminent health risks, even though that data would not be comparable to the NAAQS for purposes of determining attainment. There are multiple uses of air quality data and the EPA believes there may be additional opportunities to develop broader air quality datasets which provide benefits to the EPA and the public even where the data is not from FRM/FEM monitors and is not suitable for comparison to the NAAQS.

2. Next Generation Technologies: Data Considerations

The EPA and our State, local, and Tribal partners in cooperation with other Federal agencies have made great strides in integrating data from routine air monitoring methods with data from next generation technologies to address emerging air quality issues. For example, the EPA and U.S. Forest Service (USFS), in consultation with other partners, launched the publicly available AirNow Fire and Smoke Map,[172] which has received over 26 million page views since its release in July 2020. This fire and smoke map has been an invaluable tool for the public, providing refined spatial information on current Air Quality Index (AQI) conditions, fire and smoke plumes locations, actions for communities to take based on local air quality, and links to Smoke Forecast Outlooks developed by specially trained air resource advisors. Data are brought together from multiple systems including permanent and temporary $PM_{2.5}$ continuous monitoring sites, sensors, and satellite derived fire and smoke data. With the success of the fire and smoke map and a robust and growing network of $PM_{2.5}$ continuous FEMs and sensor network data, as well as existing and future satellites products, the EPA is interested in considering further enhancements to

[172] See: *https://fire.airnow.gov.*

the evolution of data products to meet new and emerging non-regulatory air quality data needs. Below we describe each of the major data sets, their advantages, and any challenges to their use. We then solicit input on additional approaches and/or products to incorporating data from next generation technologies that can help address important non-regulatory air quality data needs.

3. $PM_{2.5}$ Continuous FEMs

As described in the PA, State, local, and Tribal monitoring agencies are using an increasing number of $PM_{2.5}$ continuous FEMs. These methods are primarily deployed to meet two monitoring objectives: first, to compare to the NAAQS, and second, to report and support forecasting of the AQI. $PM_{2.5}$ continuous FEMs have some key advantages over FRMs, most notably that they provide automated hourly measurement of $PM_{2.5}$ available in near real time. The continuous $PM_{2.5}$ data are reported as soon as practicable after the end of each hour, usually within 5–10 minutes, and are used in multiple applications of real-time data such as such as by State, local, and Tribal websites,[173] [174] the EPA's AirNow website, and national media outlets. Recent improvements in the availability and exchange of near real-time data through a dedicated AirNow Application Programming Interface (API) allow for efficient exchange of data between the EPA, other Federal agencies, and commercial data providers such as low-cost sensor networks. The efficient exchange of data through the AirNow API was a key advancement in the successful implementation of the EPA AirNow's fire and smoke map. The $PM_{2.5}$ continuous FEM data are critical to ''ground truthing'' other datasets such as sensors and satellites for two important reasons. First, $PM_{2.5}$ continuous FEMs are subject to extensive regulatory-grade quality assurance and quality control as required by appendix A to 40 CFR part 58. Second, $PM_{2.5}$ continuous FEMs are located in accordance with strict siting criteria according to appendix E to 40 CFR part 58. The siting criteria assure that measured data represent ambient air at ground level where people are breathing and are thus exposed to particle pollution. The EPA and State, local, and Tribal agencies are working to upgrade many existing FRM-only sites with $PM_{2.5}$ continuous FEMs through use of American Rescue Plan funds.[175] Despite these investments, there are major challenges to monitoring agencies' ability to have enough trained and available staff to support their regulatory monitoring networks, especially in remote locations, and to have the capital resources to implement new monitoring stations. So, while there may be some improvements to the existing network of almost 1,000 $PM_{2.5}$ regulatory-grade monitoring stations, regulatory instruments will not produce data everywhere that it is desired. Thus, the integration of $PM_{2.5}$ continuous FEMs with other datasets is an important opportunity to address existing and emerging air quality data needs for non-regulatory purposes.

4. $PM_{2.5}$ Satellite Products

Satellite-based instruments provide measurements of radiance that can be used to calculate the aerosol optical depth (AOD) of the atmosphere. For over a decade, satellite AOD values have been used in models that incorporate multiple datasets to predict surface level $PM_{2.5}$ concentrations over the U.S. (hereafter, satellite-$PM_{2.5}$). Despite some heterogeneity in performance under varying conditions, the satellite-$PM_{2.5}$ datasets have significantly advanced in terms of accuracy in recent years (Di et al., 2019; van Donkelaar et al., 2019; Zhang and Kondragunta, 2021). The EPA is using satellite-$PM_{2.5}$ datasets in a variety of contexts. Satellite-$PM_{2.5}$ data was included in a comparative analysis of hybrid modeling methods in the PA (U.S. EPA, 2022b). The EPA is also working with the National Aeronautics and Space Administration (NASA) and National Oceanic and Atmospheric Administration (NOAA) to use satellite-$PM_{2.5}$ in the AirNow system.[176] The EPA also uses satellite AOD and many other satellite data products in the development of our photochemical modeling platforms that are used in regulatory and policy assessments both by the EPA and by our State and local partners.

Each satellite data product has its own strengths and limitations. One strength is the spatial coverage, which can be once-a-day globally for polar orbiting satellites or over a fixed field of view continuously for geostationary satellites. Satellite-$PM_{2.5}$ data has the limitation that it is not a direct measurement of $PM_{2.5}$ concentrations, but rather is derived through a model that connects the total column AOD to surface $PM_{2.5}$. In addition, the satellite products are only capable of making daytime measurements because they rely on sunlight. In fact, most satellite-$PM_{2.5}$ data products use the surface monitor network as an input. As such, the satellite-$PM_{2.5}$ data does not substitute for a ground-based monitor; rather it complements the monitor network. The EPA continues to explore ways to use the wealth of data from satellites to address important air quality questions consistent with their strengths and limitations.

5. Use of Air Sensors

The term ''air sensor'' is a simplified way of referring to a class of technology that has expanded on the market in recent years and has common traits of directly reading a pollutant in the air, being smaller in size, and often sold at lower prices that support a wider number of monitoring locations than possible in the past. As explained on the EPA's Air Sensor Toolbox website,[177] air sensor monitors that are lower in cost, portable, and generally easier to operate than regulatory-grade monitors are widely used in the United States to understand air quality conditions. Many refer to this class of technology as ''low-cost air sensors,'' ''air sensor devices,'' or ''air quality sensors.'' Potential uses for these non-regulatory air sensor technologies include, but are not limited to, science education, supplementing regulatory air quality measurements, conducting research, measuring local air quality to better understand sources of pollution, locating leaks at industrial facilities, and emergency response.

The growth in use of sensors included in the EPA's fire and smoke map provides a platform to build upon. There are thousands of PM sensors whose data are coordinated and overlaid with routine and temporary $PM_{2.5}$ continuous monitors as well as satellite-derived data on fires and smoke. Sensors offer an opportunity to supplement higher-cost regulatory monitoring to provide data for the non-regulatory uses as described above. However, there are several challenges to using sensors. Each commercially available PM sensor appears to have its own data quality challenges depending on season, aerosol encountered, and meteorological conditions (typically temperature and relative humidity). The EPA has gone to considerable length to ensure the $PM_{2.5}$ sensor data on the fire and smoke map have a correction available with collocated FRMs and

[173] See: *https://www.airnow.gov/partners/state-and-local-partners/*.

[174] See: *https://www.airnow.gov/partners/tribal-partners/*.

[175] See: *https://www.epa.gov/arp/enhanced-air-quality-monitoring-funding-under-arp*.

[176] The EPA provided an update on the Health and Air Quality Applied Scientist Team (HAQAST) AirNow Project at the NASA HAQAST meeting in Texas in June 2022. For more information, see: *https://haqast.org/haqast-houston-june-1-2/*.

[177] See: *https://www.epa.gov/air-sensor-toolbox*.

FEMs.[178] This was possible due to the large number of air sensors that are the same make and model located across the country. Thus, an important challenge for the use of sensors is the spatial richness in sensor networks needed to make integrating the dataset with other monitoring data viable. Even with corrected sensor data in hand, publicly shared sensor data lacks reliability and accountability for ensuring that basic siting criteria are met. Sensors are often installed by members of the public who share data to the sensor network, which is generally understood as implicitly representing that the sensor is located in ambient air although, in fact, the sensor may be located inside a home or next to a highly localized source of emissions such as the flue of a home heating system. In areas with many reporting sensors, these concerns about siting may be lessened through site-to site comparison of data; however, the absence of any confirmed information about siting presents challenges for use of sensor data.

6. Summary

The near real-time integration of data from $PM_{2.5}$ continuous monitors, sensors, and satellites has been proven through use of the EPA's fire and smoke map. This mapping product is possible though the use of API's where data sets are automatically shared on pre-specified computer servers. Given the success of the fire and smoke map, the EPA is interested in pursuing additional approaches and/or products that can help address important non-regulatory air quality data needs. Therefore, the EPA solicits comment on the most important data uses and data sets to consider in future products. Such approaches and/or products could utilize historical or near real-time data. For example, what are the advantages and disadvantages of using existing data and tools to identify PM hot spots across an area of interest? Could satellite data or a combined surface layer ($PM_{2.5}$ FRM and FEM data, sensor data, and satellite data) be useful in siting regulatory monitors? Could combined surfaces layers be useful in determining the boundaries of nonattainment areas? Could combined surface layers be useful in exploring potential emission sources to consider in SIP planning? To what extent would requirements for data formats, units, or timescales of interest need to evolve to best address these needs? What other datasets should the EPA consider merging with the data sets listed above to help better inform air quality management, including prioritizing network investments for potential new sites such as in at risk communities described elsewhere in this proposal? The EPA seeks input and prioritization on each of these questions to help improve the utility of data to better support air quality management to improve public health and the environment.

VIII. Clean Air Act Implementation Requirements for the PM NAAQS

The proposed revision to the primary annual $PM_{2.5}$ NAAQS discussed in section II above, if finalized, would trigger a process under which states [179] will make recommendations to the Administrator regarding area designations. States also will be required to review their existing section 110 infrastructure state implementation plans and modify them if necessary to implement a revised NAAQS. A revised primary annual $PM_{2.5}$ NAAQS will need to be incorporated into the implementation of applicable air permitting requirements and the transportation conformity and general conformity processes, and states will need to review existing regulations for these programs that already cover $PM_{2.5}$ to determine the extent to which any changes are needed. This section provides background information for understanding the possible implications of the proposed NAAQS changes and describes the EPA's plans for providing states guidance needed to assist their implementation efforts. This section also describes existing EPA interpretations of CAA requirements and other EPA guidance relevant to implementation of a revised $PM_{2.5}$ NAAQS. Given the strong scientific evidence for disparities in $PM_{2.5}$ exposures and $PM_{2.5}$-related health risk among certain populations (as discussed in section II of this document), the EPA included in its 2016 $PM_{2.5}$ State Implementation Plan (SIP) Requirements Rule (81 FR 58010, August 24, 2016) (which was written to be applicable for any future NAAQS revisions) included a number of key recommendations for states to advance environmental justice through their attainment planning process. In addition, as discussed throughout this section, environmental justice considerations are evaluated with regard to the several specific program elements of the overall implementation process.

State and local air agencies have a critically important role in implementing the NAAQS, including this proposed $PM_{2.5}$ NAAQS, should it become finalized. Given the information provided in this proposed rulemaking, state and local air agencies are encouraged to begin to consider how they might develop implementation plans that encourage early emission reductions as well as emission reductions that facilitate or amplify reductions affecting overburdened communities. The public is encouraged to share information on this important topic and although this rulemaking is not requesting comment specifically on this topic, information on this topic may be submitted for informational purposes to the docket for this proposed rulemaking. The EPA may consider whether additional guidance on the topic of environmental justice and $PM_{2.5}$ implementation is appropriate, beyond what is already included in the existing $PM_{2.5}$ SIP Requirements Rule. The EPA encourages air agencies and other stakeholders to review the existing $PM_{2.5}$ SIP Requirements Rule and the information provided therein regarding environmental justice considerations in $PM_{2.5}$ air planning. To be clear, nothing in the above text should be interpreted as seeking comment in this proposal on any aspect of the 2016 $PM_{2.5}$ SIP Requirements Rule.

With respect to the topics covered in this section, the EPA welcomes the public to provide input to the Agency through comments. However, because these issues are not relevant to the establishment of a revised primary annual $PM_{2.5}$ NAAQS, and because no specific revisions are proposed for the regulations implementing the $PM_{2.5}$ NAAQS (*i.e.,* 40 CFR part 51, subpart Z), the EPA does not expect to respond to these comments in the final action on this proposal (nor is it required to do so).

A. Designation of Areas

After the EPA establishes or revises a NAAQS, the CAA requires the EPA and the states to take steps to ensure that the new or revised NAAQS is met. The first step, known as the initial area designations, involves identifying areas of the country that either meet or do not meet the new or revised NAAQS, along with the nearby areas contributing to the violations.

Section 107(d)(1) of the CAA states that, ''By such date as the Administrator may reasonably require, but not later than 1 year after promulgation of a new or revised national ambient air quality standard for any pollutant under section 109, the Governor of each state shall

[178] See: *https://www.epa.gov/research-states/airnow-fire-and-smoke-map-extension-us-wide-correction-purpleair-pm25-sensors.*

[179] This and all subsequent references to ''state'' are meant to include State, local, and Tribal agencies responsible for the implementation of a $PM_{2.5}$ control program.

. . . submit to the Administrator a list of all areas (or portions thereof) in the State'' and that making recommendations for whether the EPA should designate those areas as nonattainment, attainment, or unclassifiable.[180] The CAA provides the EPA discretion to require states to submit their designations recommendations within a reasonable amount of time not exceeding 1 year. The CAA also stipulates that ''the Administrator may not require the Governor to submit the required list sooner than 120 days after promulgating a new or revised national ambient air quality standard.'' Section 107(d)(1)(B)(i) further provides, ''Upon promulgation or revision of a NAAQS, the Administrator shall promulgate the designations of all areas (or portions thereof) . . . as expeditiously as practicable, but in no case later than 2 years from the date of promulgation. Such period may be extended for up to one year in the event the Administrator has insufficient information to promulgate the designations.'' With respect to the NAAQS setting process, courts have interpreted the term ''promulgation'' to be signature and widespread dissemination of a final rule.[181] One way the EPA intends to account for environmental justice in the implementation process is to promptly issue designations in accordance with the statutory requirements to ensure expeditious public health protections for all populations, including those currently experiencing disparities in $PM_{2.5}$ exposures and $PM_{2.5}$-related health risk.

If the EPA agrees with the designation recommendation of the state, then it may proceed to promulgate the designations for such areas. If, however, the EPA disagrees with the state's recommendation, then the EPA may elect to make modifications to the recommended designations. By no later than 120 days prior to promulgating the final designations, the EPA is required to notify states of any intended modifications to the designations of any areas or portions thereof, including the boundaries of areas, as the EPA may deem necessary. States then have an opportunity to comment on the EPA's tentative designation decision. If a state elects not to provide designation recommendations, then the EPA must timely promulgate the designation that it deems appropriate. While section 107(d) of the CAA specifically addresses the designations process for states, the EPA intends to follow the same process for tribes to the extent practicable, pursuant to section 301(d) of the CAA regarding Tribal authority, and the Tribal Authority Rule (63 FR 7254, February 12, 1998). To provide clarity and consistency in doing so, the EPA issued a guidance memorandum to our Regional Offices on working with tribes during the designations process (Page, 2011a).

Monitoring data are currently available from numerous existing $PM_{2.5}$ Federal Equivalent Methods (FEM) and Federal Reference Methods (FRM) sites to determine compliance with the proposed revised $PM_{2.5}$ primary annual NAAQS. As discussed in section II above, the EPA is proposing to: (1) revise the level of the primary annual $PM_{2.5}$ standard and retain the current primary 24-hour $PM_{2.5}$ standard (section II.D.3); and (2) not change the current secondary annual and 24-hour $PM_{2.5}$ standards at this time (section V.D.3). Consistent with the process used in previous area designations efforts, the EPA will evaluate each area on a case-by-case basis considering the specific facts and circumstances unique to the area [182] to support area boundaries decisions for the revised standard. Section 107(d) explicitly requires that the EPA designate as nonattainment not only the area that is violating the pertinent standard, but also those nearby areas that contribute to the violation in the violating area. For the reason noted earlier, the EPA believes it is important to consider environment justice within the framework of this area-specific analysis. Consistent with past practice, the EPA expects to address issues relevant to area designations more fully in a separate designations-specific memorandum around the time of promulgation of any revised $PM_{2.5}$ NAAQS.[183] Examples of issues that may be included in the separate designations-specific memorandum may include, but are not limited to, exceptional events demonstrations for wildfire and/or prescribed fires on wildland, factors to consider in identifying appropriate designations for areas and boundaries, among other relevant topics. For informational purposes, the public can comment on the process and schedule for the initial area designations and nonattainment boundary setting effort associated with a new or revised $PM_{2.5}$ NAAQS. As noted above, the EPA does not expect to respond to these comments in the final regulatory action establishing the NAAQS.

As in past iterations of the $PM_{2.5}$ NAAQS, the EPA intends to make the designations for any revised NAAQS based on the most recent 3 years of complete and valid air quality data. Accordingly, the EPA recommends that states base their initial designation recommendations on the most current available 3 years of complete and valid air quality data. The EPA intends to use available air quality data from the current $PM_{2.5}$ mass and speciation monitoring networks and other technical information. The EPA will then base the final designations on 3 consecutive years of certified air quality monitoring data, likely 2021–2023.[184]

In some areas, State or Tribal air agencies may have flagged air quality data for certain days in the Air Quality System due to potential impacts from exceptional events (*i.e.,* such as wildfires or high wind dust storms). Air quality concentrations on such days may affect the calculation of design values for regulatory air monitoring sites in determining whether such sites may violate the revised $PM_{2.5}$ NAAQS, and therefore could influence the initial area designations for this revised NAAQS. Under the 2016 Exceptional Events Rule (see ''Treatment of Data Influenced by Exceptional Events; Final Rule,'' 81 FR 68216, October 3, 2016), an air agency may submit to the EPA a demonstration with supporting information and analyses for each monitor and day the air agency claims should be excluded from design value calculations for regulatory purposes. The EPA has provided a number of tools to assist air agencies in preparing their demonstrations [185] and will continue to work with air agencies as they identify, prepare and submit exceptional events demonstrations. The EPA recognizes that some areas and stakeholders may be

[180] While the CAA says ''designating'' with respect to the Governor's letter, in the full context of the CAA section it is clear that the Governor actually makes a recommendation to which the EPA must respond via a specified process if the EPA does not accept it.

[181] *API* v. *Costle*, 609 F.2d 20 (D.C. Cir. 1979)

[182] The EPA has historically used area-specific analyses to support nonattainment area boundary recommendations and final boundary determinations by evaluating factors such as air quality data, emissions and emissions-related data (*e.g.,* population density and degree of urbanization, traffic and commuting patterns), meteorology, geography/topography, and jurisdictional boundaries. We expect to follow a similar process when establishing area designations for any new or revised $PM_{2.5}$ NAAQS.

[183] *https://www3.epa.gov/pmdesignations/2012standards/docs/april2013guidance.pdf.*

[184] In certain circumstances in which the Administrator has insufficient information to promulgate area designations within 2 years from the promulgation of a new or revised NAAQS, CAA section 107(d)(1)(B)(i) provides the EPA may extend the designations schedule by up to 1 year.

[185] *See* EPA's Exceptional Events homepage at *https://www.epa.gov/air-quality-analysis/treatment-air-quality-data-influenced-exceptional-events-homepage-exceptional.*

concerned about wildfire and prescribed fire related impacts to designations and/or other forthcoming actions of regulatory significance for which a state may want to submit an exceptional events demonstration. The EPA has already issued guidance addressing development of exceptional events demonstrations for both wildfire and prescribed fires on wildland. Existing guidance and other tools are available on the EPA's website identified above. The air agency is required to follow the exceptional events demonstration submission deadlines that are identified in Table 2 to 40 CFR 50.14(c)(2)(vi)—''Schedule for Initial Notification and Demonstration Submission for Data Influenced by Exceptional Events for Use in Initial Area Designations.'' Further, the EPA has notified states of areas subject to mitigation plan provisions. Within 2 years of the notification, if the air agency has not submitted a required mitigation plan, the EPA will not concur with the air agency's request to exclude data until the required plan is submitted and verified.

As noted earlier, the EPA intends to provide designation guidance to the states and tribes around the time of the promulgation of a revised NAAQS, to assist in formulating these recommendations. With regard to the area designations process, if, after evaluating the state recommendations in light of the technical factors, the Administrator intends to modify any state area recommendation, the EPA will notify the appropriate state Governor no later than 120 days prior to making final designations decisions. A state that believes the Administrator's intended modification is inappropriate will have the opportunity to demonstrate to the EPA why it believes its original recommendation (or a revised recommendation) is more appropriate before final designations are promulgated. The Administrator will take any additional input from the state into account in making final designation decisions. If the Administrator departs from the stated intentions in the initial 120-day notification letter in a way that does not match the most recently received recommendation from the Governor (or tribe) as of the date of the final designation, the Administrator will provide an additional 120-day notification letter notifying the Governor of such modifications. The EPA invites preliminary comment on all aspects of the designation process at this time, which the Agency will consider in developing any updated guidance.

B. Section 110(a)(1) and (2) Infrastructure SIP Requirements

The CAA directs states to address basic SIP requirements to implement, maintain, and enforce the NAAQS. Under CAA sections 110(a)(1) and (2), states are required to have state implementation plans that provide the necessary air quality management infrastructure including, among other things, enforceable emissions limitations, an ambient monitoring program, an enforcement program, air quality modeling capabilities, and adequate personnel, resources, and legal authority. After the EPA promulgates a new or revised NAAQS, states are required to make a new SIP submission to establish that they meet the necessary structural requirements for such new or revised NAAQS or make changes to do so. The EPA refers to this type of SIP submission as an ''infrastructure SIP submission.'' Under CAA sections 110(a)(1), all states are required to make these infrastructure SIP submissions within 3 years after promulgation of a new or revised primary standard. While the CAA authorizes the EPA to set a shorter time for states to make these SIP submissions, the EPA does not currently intend to do so.

Under CAA section 110(a)(1) and (2), states are required to make SIP submissions that address a number of requirements pertaining to implementation, maintenance, and enforcement of a new or revised NAAQS. The specific subsections in CAA section 110(a)(2) require states to address a number of requirements, as applicable: (A) Emissions limits and other control measures, (B) Ambient air quality monitoring/data system, (C) Programs for enforcement of control measures and for construction or modification of stationary sources, (D)(i) Interstate pollution transport; and (D)(ii) Interstate and international pollution abatement, (E) Adequate resources and authority, conflict of interest, and oversight of local governments and regional agencies, (F) Stationary source monitoring and reporting, (G) Emergency episodes, (H) SIP revisions, (I) Plan revisions for nonattainment areas, (J) Consultation with government officials, public notification, PSD and visibility protection, (K) Air quality modeling and submission of modeling data, (L) Permitting fees, and (M) Consultation and participation by affected local entities. These requirements apply to all SIP submissions in general, but the EPA has provided specific guidance to states concerning its interpretation of these requirements in the specific context of infrastructure SIP submissions for a new or revised NAAQS (Page, 2013).

The EPA interprets the CAA such that two elements identified in section 110(a)(2) are not subject to the 3-year submission deadline of section 110(a)(1) and thus states are not required to address them in the context of an infrastructure SIP submission. The elements pertain to part D, in title I of the CAA, which addresses plan requirements for nonattainment areas. Therefore, for the reasons explained below, the following section 110(a)(2) elements are considered by the EPA to be outside the scope of infrastructure SIP actions: (1) the portion of section 110(a)(2)(C), programs for enforcement of control measures and for construction or modification of stationary sources that applies to permit programs applicable in designated nonattainment areas, (known as ''nonattainment new source review'') under part D; and (2) section 110(a)(2)(I), which requires a SIP submission pursuant to part D, in its entirety. The EPA does not expect states to address the requirement for a new or revised NAAQS in the infrastructure SIP submissions to include regulations or emissions limits developed specifically for attaining the relevant standard in areas designated nonattainment for the proposed revised $PM_{2.5}$ NAAQS. States will be required to submit infrastructure SIP submissions for a revised $PM_{2.5}$ NAAQS before they are required to submit nonattainment plan SIP submissions to demonstrate attainment with the same NAAQS. States are required to submit nonattainment plans to provide for attainment and maintenance of a revised $PM_{2.5}$ NAAQS within 18 months from the effective date of nonattainment area designations as required under CAA section 189(a)(2)(B). The EPA reviews and acts upon these later SIP submissions through a separate process. For this reason, the EPA does not expect states to address new nonattainment area emissions controls per section 110(a)(2)(I) in their infrastructure SIP submissions.

One of the required infrastructure SIP elements is that each state's SIP must contain adequate provisions to prohibit, consistent with the provisions of title I of the CAA, emissions from within the state that will significantly contribute to nonattainment in, or interfere with maintenance by, any other state of the primary or secondary NAAQS.[186] This element is often referred to as the ''good neighbor'' or ''interstate transport''

[186] CAA section 110(a)(2)(D)(i)(I).

provision.[187] The provision has two prongs: significant contribution to nonattainment (prong 1) and interference with maintenance (prong 2). The EPA and states must give independent significance to prong 1 and prong 2 when evaluating downwind air quality problems under CAA section 110(a)(2)(D)(i)(I).[188] Further, case law has established that the EPA and states must implement requirements to meet interstate transport obligations in alignment with the applicable statutory attainment schedule of the downwind areas impacted by upwind-state emissions.[189] Thus, the EPA anticipates that states will need to address interstate transport obligations associated with any revised PM NAAQS, if finalized, in alignment with the provisions of subpart 4 of part D of the CAA, as discussed in more detail in section VIII.C below. Specifically, states must implement any measures required to address interstate transport obligations as expeditiously as practicable and no later than the next statutory attainment date, *i.e.,* for this NAAQS revision, if finalized, as expeditiously as practicable but no later than the end of the sixth calendar year following nonattainment area designations. *See* CAA section 188(c).

The EPA anticipates developing further information and coordinating with states with respect to the requirements of CAA section 110(a)(2)(D)(i)(I) for implementation of any revised PM NAAQS. We note that states may elect to make SIP submissions that address certain infrastructure SIP elements separately from the others. In recent years, due in part to the complexity of addressing interstate transport obligations, some states have found it efficient to make SIP submissions to address the interstate transport provisions separately from other infrastructure SIP elements.

It is the responsibility of each state to review its air quality management program's existing SIP provisions in light of each new or revised NAAQS to determine if any revisions are necessary to implement a new or revised NAAQS. Most states have revised and updated their SIPs in recent years to address requirements associated with other revised NAAQS. For some states, it may be the case that for a number of infrastructure elements, the state may believe it already has adequate state regulations already adopted and approved into the SIP to address a particular requirement with respect to any revised $PM_{2.5}$ NAAQS. For such portions of the state's infrastructure SIP submission, the state may provide an explanation of how its existing SIP provisions are adequate.

If a state determines that existing SIP-approved provisions are adequate in light of the revised $PM_{2.5}$ NAAQS with respect to a given infrastructure SIP element (or sub-element), then the state may make a SIP submission ''certifying'' that the existing SIP contains provisions that address those requirements of the specific section 110(a)(2) infrastructure elements.[190] In the case of such a certification submission, the state does not have to include a copy of the relevant provision (*e.g.,* rule or statute) itself. Rather, the state in its infrastructure SIP submission may provide citations to the SIP-approved state statutes, regulations, or non-regulatory measures, as appropriate, which meet the relevant CAA requirement. Like any other SIP submission, that state can make such a certification only after it has provided reasonable notice and opportunity for public hearing. This ''reasonable notice and opportunity for public hearing'' requirement for infrastructure SIP submissions is to meet the requirements of CAA sections 110(a) and 110(l). Under the EPA's regulations at 40 CFR part 51, if a public hearing is held, an infrastructure SIP submittal must include a certification by the state that the public hearing was held in accordance with the EPA's procedural requirements for public hearings. See 40 CFR part 51, appendix V, section 2.1(g), and see 40 CFR 51.102.

In consultation with its EPA Regional office, a state should follow all applicable EPA regulations governing infrastructure SIP submissions in 40 CFR part 51—*e.g.,* subpart I (Review of New Sources and Modifications), subpart J (Ambient Air Quality Surveillance), subpart K (Source Surveillance), subpart L (Legal Authority), subpart M (Intergovernmental Consultation), subpart O (Miscellaneous Plan Content Requirements), subpart P (Protection of Visibility), and subpart Q (Reports). For the EPA's general criteria for infrastructure SIP submissions, refer to 40 CFR part 51, appendix V, Criteria for Determining the Completeness of Plan Submissions. The EPA recommends that states electronically submit their infrastructure SIPs to the EPA through the State Plan Electronic Collaboration System (SPeCS),[191] an online system available through the EPA's Central Data Exchange.

C. Implementing Any Revised $PM_{2.5}$ NAAQS in Nonattainment Areas

Part D of the CAA describes the various program requirements that apply to nonattainment areas for different NAAQS. Section 172 (found in subpart 1 of part D) includes general SIP requirements, and sections 188–190 (found in subpart 4 of part D) include SIP requirements that specifically govern implementation for the PM_{10} and $PM_{2.5}$ NAAQS. All $PM_{2.5}$ nonattainment areas are initially classified as Moderate per CAA section 188(a). Under section 189(a)(2), states are required to submit attainment plan SIP submissions to the EPA within 18 months of the effective date of area designations. These plans need to show how the nonattainment area will attain the primary $PM_{2.5}$ standards ''as expeditiously as practicable,'' but presumptively by no later than the end of the 6th calendar year after the effective date of designations. For example, if the EPA finalizes nonattainment designations for a revised $PM_{2.5}$ NAAQS in 2024, then the outermost statutory Moderate area attainment date would be December 31, 2030. If the state fails to attain the standard by the end of the 6th calendar year after the effective date of designations, the EPA is required to reclassify the area to Serious, and the state then must attain the standard by the end of the 10th calendar year after the effective date of designations (*e.g.,* December 31, 2034).

On August 24, 2016, the EPA issued a detailed SIP Requirements Rule for implementing the $PM_{2.5}$ NAAQS (81 FR 58010, August 24, 2016) ($PM_{2.5}$ SIP Requirements Rule). It provides guidance and establishes additional regulatory requirements for states regarding development of attainment plans for nonattainment areas for the 1997, 2006, and 2012 revisions of the $PM_{2.5}$ NAAQS. The EPA also intended this implementation rule to apply to nonattainment areas designated pursuant to any future revisions of the $PM_{2.5}$ NAAQS. The rule covers a number of SIP requirements for nonattainment areas, including a nonattainment area emissions inventory, policies regarding $PM_{2.5}$ precursor pollutants (*i.e.,* SO_2, NO_X,

[187] CAA section 110(a)(2)(D)(i)(II) also addresses certain interstate effects that states must address and thus is also sometimes referred to as relating to ''interstate transport.''

[188] *See North Carolina* v. *EPA,* 531 F.3d 896, 909–11 (D.C. Cir. 2008).

[189] *See id.* 911–13. *See also Wisconsin* v. *EPA,* 938 F.3d 303, 313–20 (D.C. Cir. 2019); *Maryland* v. *EPA,* 958 F.3d 1185, 1203–04 (D.C. Cir. 2020).

[190] A ''certification'' approach would not be appropriate for the interstate pollution control requirements of CAA section 110(a)(2)(D)(i).

[191] *https://cdx.epa.gov/.*

VOC, and ammonia), control strategies (such as reasonably available control measures and reasonably available control technology), air quality modeling, attainment demonstrations, reasonable further progress requirements, quantitative milestones, and contingency measures. Guidance provided in the $PM_{2.5}$ SIP Requirements Rule is supplemented by other EPA guidance documents, including guidance on emissions inventory development (80 FR 8787, February 19, 2015; U.S. EPA, 2017), optional $PM_{2.5}$ precursor demonstrations (U.S. EPA, 2019b),[192] and guidance on air quality modeling for meeting air quality goals for the ozone and $PM_{2.5}$ NAAQS and regional haze program (U.S. EPA, 2018b).

Under the basic approach outlined in the $PM_{2.5}$ SIP Requirements Rule, a state would first develop an updated emissions inventory of sources and emissions activities in the nonattainment area. It would then use air quality modeling or other tools to estimate the air quality improvement that can be expected in the nonattainment area by the attainment year due to enforceable and existing ''on the books'' Federal, state, and local emissions reduction measures. The state also would work with the regulated community and other stakeholders to evaluate potential control measures for emissions sources and activities in the nonattainment area, and identify the additional reasonably available control measures (RACM) and reasonably available control technology (RACT) that can be implemented by these sources in order to attain the standard as expeditiously as practicable, but no later than by the end of the 6th calendar year after the effective date of designations.

The evaluation of air quality improvement associated with potential future emissions reductions is commonly performed with sophisticated air quality modeling tools. Given that fine particle concentrations are affected both by regionally-transported pollutants (*e.g.,* SO_2 and NO_X emissions from power plants) and emissions of direct $PM_{2.5}$ and other pollutants from local sources in the nonattainment area (*e.g.,* steel mills, rail yards, highway mobile sources), the EPA recommends the use of regional photochemical models (such as CMAQ and CAMx), in combination with source-oriented dispersion models (such as the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD)), as needed, to develop $PM_{2.5}$ attainment strategies for any revised $PM_{2.5}$ NAAQS. The EPA SIP modeling guidance provides details on the development of attainment demonstrations, and the EPA will continue to assist air agencies in modeling and technical analyses (80 FR 8787, February 19, 2015; U.S. EPA, 2017).

The $PM_{2.5}$ SIP Requirements Rule provides recommendations to states regarding when and how to consider environmental justice in the context of $PM_{2.5}$ attainment planning. Some of the considerations for states include: (1) identifying areas with overburdened communities where more ambient monitoring may be warranted; (2) targeting emissions reductions that may be needed to attain the $PM_{2.5}$ NAAQS; and (3) increasing opportunities for meaningful involvement for overburdened populations (80 FR 58010, 58136, August 25, 2016). The EPA expects states to consider these and other factors as part of their SIP development process.

The $PM_{2.5}$ SIP Requirements Rule outlines some examples of how states can implement these recommendations.[193] For instance, states can use modeling and screening tools to better understand where sources of $PM_{2.5}$ or $PM_{2.5}$ precursor emissions are located and identify areas that may be candidates for additional ambient monitoring. Furthermore, once these target areas are identified, states can prioritize direct $PM_{2.5}$ or $PM_{2.5}$ precursor control measures and enforcement strategies in these areas to reduce ambient $PM_{2.5}$ and achieve the NAAQS. The EPA recognizes that states have flexibility under the CAA to concentrate state resources on controlling sources of $PM_{2.5}$ emissions that directly and adversely affect certain populations currently experiencing disparities in $PM_{2.5}$ exposures and $PM_{2.5}$-related health risk, thereby maximizing health benefits for those populations. Moreover, states can establish opportunities to bolster meaningful involvement in a number of ways, such as communicating with communities with disparities in exposures and risks in appropriate languages and developing enhanced notice-and-comment opportunities for those communities.

As previously mentioned, the 2016 $PM_{2.5}$ SIP Requirements Rule is structured in such a way that it provides guidance and regulatory requirements for remaining nonattainment areas for the 1997, 2006, and 2012 revisions of the $PM_{2.5}$ NAAQS, as well as for nonattainment areas designated pursuant to any future revisions of the $PM_{2.5}$ NAAQS. Thus, the EPA is not proposing changes to the current $PM_{2.5}$ SIP Requirements Rule in this proposed rulemaking, and therefore is not requesting comment on that rule.

D. Implementing the Primary and Secondary PM_{10} NAAQS

As summarized in sections III.C.3 and III.D.3 above, the EPA is proposing to retain the current primary and secondary 24-hour PM_{10} standards to protect against the health effects associated with short-term exposures to thoracic coarse particles and against the welfare effects considered in this reconsideration (*i.e.,* visibility, climate, and materials effects). The EPA intends to retain the existing implementation strategy for meeting the CAA requirements for the PM_{10} NAAQS. States and emissions sources should continue to follow the existing guidance and regulations for implementing the current standards.

E. Prevention of Significant Deterioration and Nonattainment New Source Review Programs for the Proposed Revised Primary Annual $PM_{2.5}$ NAAQS

The CAA, at parts C and D of title I, contains preconstruction review and permitting programs applicable to new major stationary sources and major modifications of existing major sources. The preconstruction review of each new major stationary source and major modification applies on a pollutant-specific basis, and the requirements that apply for each pollutant depend on whether the area in which the source is situated is designated as attainment (or unclassifiable) or nonattainment for that pollutant. In areas designated attainment or unclassifiable for a pollutant, the Prevention of Significant Deterioration (PSD) requirements under part C apply to construction at major sources. In areas designated nonattainment for a pollutant, the Nonattainment New Source Review (NNSR) requirements under part D apply to major source construction. Collectively, those two sets of permit requirements are commonly referred to as the ''major New Source Review'' or ''major NSR'' programs.

Until the EPA designates an area with respect to the proposed revised $PM_{2.5}$

[192] Provides guidance on developing demonstrations under section 189(e) intended to show that a certain $PM_{2.5}$ precursor in a particular nonattainment area does not significantly contribute to $PM_{2.5}$ concentrations that exceed the standard.

[193] For more information on the EPA's recommendations and examples, *see* 81 FR 58010, 58137, August 24, 2016.

NAAQS, the NSR provisions applicable under an area's designation for the 1997, 2006, and 2012 $PM_{2.5}$ NAAQS would continue to apply. *See* 40 CFR 51.166(i)(2) and 52.21(i)(2). That is, for areas designated as attainment/unclassifiable for the 1997, 2006, and 2012 $PM_{2.5}$ NAAQS, PSD will apply to new major stationary sources and major modifications that trigger major source permitting requirements for $PM_{2.5}$. For areas designated nonattainment for the 1997, 2006, or 2012 $PM_{2.5}$ NAAQS, NNSR requirements will apply for new major stationary sources and major modifications that trigger major source permitting requirements for $PM_{2.5}$. When the new designations for the proposed revised $PM_{2.5}$ NAAQS, if finalized, become effective, those designations will further inform whether PSD or NNSR applies to $PM_{2.5}$ in a particular area. New major sources and major modifications will be subject to the PSD program requirements for $PM_{2.5}$ if they are located in an area that does not have a current nonattainment designation under CAA section 107 for $PM_{2.5}$.[194]

The EPA has assessed the proposed revision of the level of the primary annual $PM_{2.5}$ NAAQS and is not proposing any changes to the NSR program regulations as part of this proposal to revise the $PM_{2.5}$ NAAQS. Sources and reviewing authorities will be able to use existing NSR regulatory provisions. Under the PSD program, the applicant must demonstrate that the new or modified source emissions increase does not cause or contribute to a NAAQS violation. In 2017, the EPA revised the *Guideline on Air Quality Models* (published as appendix W to 40 CFR part 41) to address primary and secondary $PM_{2.5}$ impacts in making this demonstration and has since provided associated technical guidance, models and tools, such as the recent ''Final Guidance for Ozone and Fine Particulate Matter Permit Modeling'' (July 29, 2022).[195] The EPA will consider whether changes or updates to PSD program guidance or associated tools are warranted as a result of the proposed revision to the primary annual $PM_{2.5}$ NAAQS, should it be finalized, and would communicate such changes through separate action(s) following promulgation of a revised standard.

The statutory requirements for a PSD permit program set forth under part C of title I of the CAA (sections 160 through 169) are addressed by the EPA's PSD regulations found at 40 CFR 51.166 (minimum requirements for an approvable PSD SIP) and 40 CFR 52.21 (PSD permitting program for permits issued under the EPA's Federal permitting authority). These regulations already apply for $PM_{2.5}$ in areas that have been designated attainment or unclassifiable for $PM_{2.5}$ whenever a proposed new major source or major modification triggers PSD requirements for $PM_{2.5}$.

For PSD, a ''major stationary source'' is one with the potential to emit 250 tons per year (tpy) or more of any regulated NSR pollutant, unless the new or modified source is classified under a list of 28 source categories contained in the statutory definition of ''major emitting facility'' in section 169(1) of the CAA. For those 28 source categories, a ''major stationary source'' is one with the potential to emit 100 tpy or more of any regulated NSR pollutant. A ''major modification'' is a physical change or a change in the method of operation of an existing major stationary source that results, first, in a significant emissions increase of a regulated NSR pollutant and, second, in a significant net emissions increase of that pollutant. See 40 CFR 51.166(b)(2)(i), 40 CFR 52.21(b)(2)(i). The EPA PSD regulations define the term ''regulated NSR pollutant'' to include any pollutant for which a NAAQS has been promulgated and any pollutant identified in the EPA regulations as a constituent or precursor to such pollutant. See 40 CFR 51.166(b)(49), 40 CFR 52.21(b)(50). These regulations identify SO_2 and NO_X as precursors to $PM_{2.5}$ in all attainment and unclassifiable areas. See 40 CFR 51.166(b)(49)(i), 40 CFR 52.21(b)(50)(i). Thus, for $PM_{2.5}$, the PSD program currently requires the review and control of emissions of direct $PM_{2.5}$ emissions and SO_2 and NO_X (as precursors to $PM_{2.5}$), as applicable.[196] Among other things, for each regulated NSR pollutant emitted or increased in a significant amount, the PSD program requires a new major stationary source or a major modification to apply the ''best available control technology'' (BACT) and to conduct an air quality impact analysis to demonstrate that the proposed major stationary source or major modification will not cause or contribute to a violation of any NAAQS or PSD increment.[197] See CAA section 165(a)(3) and (4), 40 CFR 51.166(j) and (k), 40 CFR 52.21(j) and (k). The PSD requirements may also include, in appropriate cases, an analysis of potential adverse impacts on Class I areas. See CAA sections 162(a) and 165, 40 CFR 51.166(p); 40 CFR 52.21(p)).[198] The EPA has developed the Guideline on Air Quality Models and other documents to, among other things, provide methods and guidance for demonstrating compliance with the $PM_{2.5}$ NAAQS and PSD increments for $PM_{2.5}$.[199]

The EPA has historically interpreted the requirement for an air quality impact analysis under CAA section 165(a)(3) and the implementing regulations to include a requirement to demonstrate that emissions from the proposed facility will not cause or contribute to a violation of any NAAQS

[194] 40 CFR 51.166(i)(2) and 52.21(i)(2)

[195] On July 29, 2022, the EPA issued ''Final Guidance for Ozone and Fine Particulate Matter Permit Modeling,'' available at *https://www.epa.gov/system/files/documents/2022-07/Guidance_for_O3_PM25_Permit_Modeling.pdf*. This guidance provides the EPA's recommendations for how a stationary source seeking a PSD permit may demonstrate that it will not cause or contribute to a violation of the National Ambient Air Quality Standards for Ozone and $PM_{2.5}$ and PSD increments for $PM_{2.5}$, as required under section 165(a)(3) of the Clean Air Act and 40 CFR 51.166(k) and 52.21(k). The EPA has also previously issued two technical guidance documents for use in conducting these demonstrations: ''Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program,'' available at *https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf*, and ''Guidance on the Use of Models for Assessing the Impacts of Emissions from Single Sources on the Secondarily Formed Pollutants: Ozone and $PM_{2.5}$,'' available at *https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-16-005.pdf*.

[196] Sulfur dioxide is a precursor to $PM_{2.5}$ in all attainment and unclassifiable areas. NO_X is presumed to be a precursor to $PM_{2.5}$ in all attainment and unclassifiable areas, unless a state or the EPA demonstrates that emissions of NO_X from sources in a specific area are not a significant contributor to that area's ambient $PM_{2.5}$ concentrations. VOC is presumed not to be a precursor to $PM_{2.5}$ in any attainment or unclassifiable area, unless a state or the EPA demonstrates that emissions of VOC from sources in a specific area are a significant contributor to that area's ambient $PM_{2.5}$ concentrations.

[197] By establishing the maximum allowable level of ambient pollutant concentration increase in a particular area, an increment defines ''significant deterioration'' of air quality in that area. Increments are defined by the CAA as maximum allowable increases in ambient air concentrations above a baseline concentration and are specified in the PSD regulations by pollutant and area classification (Class I, II and III). 40 CFR 51.166(c), 40 CFR 52.21(c); 75 FR 64864; October 20, 2010.

[198] Congress established certain Class I areas in section 162(a) of the CAA, including international parks, national wilderness areas, and national parks that meet certain criteria. Such Class I areas, known as mandatory Federal Class I areas, are afforded special protection under the CAA. In addition, States and Tribal governments may establish Class I areas within their own political jurisdictions to provide similar special air quality protection.

[199] *See* 40 CFR part 51, appendix W; 82 FR 5182, January 17, 2017; *See also* U.S. EPA, 2021c. The EPA provided an initial version of the same guidance for public comment on February 10, 2020. Upon consideration of the comments received, and consistent with Executive Order 13990, the EPA revised the initial draft guidance and posted the revised version for additional public comment.

that is in effect as of the date a PSD permit is issued, except to the extent that a pending permit application was subject to grandfathering provisions that the EPA had established through rulemaking. The EPA is not proposing such provisions for this action. In past NAAQS revision rules, including the 2012 $PM_{2.5}$ NAAQS (78 FR 3086, January 15, 2013) and 2015 Ozone NAAQS (80 FR 65292, October 26, 2015), the EPA included limited grandfathering provisions that exempted certain pending PSD permit actions (those that had reached a particular stage in the permitting process at the time the revised NAAQS was promulgated or became effective) from the requirement to demonstrate that the proposed emissions increases would not cause or contribute to a violation of the revised NAAQS. In August 2019, the U.S. Court of Appeals for the D.C. Circuit vacated the grandfathering provision in the PSD rules applicable to the 2015 Ozone NAAQS, finding that the provision contradicted ''Congress's 'express policy choice' not to allow construction which will 'cause or contribute to' nonattainment of 'any' effective NAAQS, regardless of when they are adopted or when a permit was completed.'' *Murray Energy Corp.* v. *EPA,* 936 F.3d 597, 627 (D.C. Cir. 2019).[200] Based on that court decision, the EPA is not proposing any grandfathering provision for this proposed $PM_{2.5}$ NAAQS revision, if finalized. Accordingly, PSD permits issued on or after the effective date of any final revised $PM_{2.5}$ NAAQS would require a demonstration that the proposed emissions increases would not cause or contribute to a violation of the revised $PM_{2.5}$ NAAQS.

The EPA anticipates that, if this rule is finalized as proposed, the existing $PM_{2.5}$ air quality in some areas will not be in attainment of the new revised primary annual $PM_{2.5}$ NAAQS, and that these areas will be designated as ''nonattainment'' at a later date, consistent with the designation process described in the preceding sections. However, until such nonattainment designation occurs, proposed new major sources and major modifications located in any area currently designated attainment or unclassifiable for $PM_{2.5}$ will continue to be subject to the PSD program requirements for $PM_{2.5}$.[201] This raises the question as to how a source can be issued a PSD permit in light of known existing ambient violations of the revised NAAQS. Section 165(a)(3)(B) of the CAA states that a proposed source may not construct unless it demonstrates that it will not cause or contribute to a violation of any NAAQS. This statutory requirement is implemented through a provision contained in the PSD regulations at 40 CFR 51.166(k) and 52.21(k).[202] If a source cannot make this demonstration, or if its initial air quality impact analysis shows that the source's impact would cause or contribute to a violation, a PSD permit may not be issued unless the permit applicant compensates for the adverse impact that would otherwise cause or contribute to a violation of the NAAQS. While the PSD regulations do not explicitly specify remedial actions that a prospective source can take to address such a situation, the EPA has historically recognized in regulations, and through other actions, that sources applying for PSD permits may utilize offsets as part of the required PSD demonstration under CAA section 165(a)(3)(B).[203]

Part D of title I of the CAA includes preconstruction review and permitting requirements applicable to new major stationary sources and major modifications located in areas designated nonattainment for a pollutant for which a NAAQS has been established (*i.e.,* a criteria pollutant). The relevant part D requirements are typically referred to as the NNSR program. The EPA's regulations for the NNSR programs are contained in 40 CFR 51.165 and 52.24 and part 51, appendix S. Specifically, the EPA has developed minimum program requirements for an NNSR program that is approvable in a SIP, and those requirements, which include requirements for $PM_{2.5}$, are contained in 40 CFR 51.165. In addition, 40 CFR part 51, appendix S, contains requirements constituting an interim NNSR program. This program enables NNSR permitting in nonattainment areas by states that lack a SIP-approved NNSR permitting program during the time between the date of the relevant designation and the date that the EPA approves into the SIP a NNSR program. *See* 40 CFR part 51, appendix S, section I; 40 CFR 52.24(k).

For NNSR, ''major stationary source'' is generally defined as a source with the potential to emit at least 100 tpy of the regulated NSR pollutant for which the area is designated nonattainment. In some cases, however, the CAA and the NNSR regulations define ''major stationary source'' for NNSR in terms of a lower rate dependent on the pollutant and degree of nonattainment in the area. For $PM_{2.5}$, in addition to the general threshold level of 100 tpy, a lower major source threshold of 70 tpy applies in Serious $PM_{2.5}$ nonattainment areas pursuant to subpart 4 of part D, title I of the CAA. *See* 40 CFR 51.165(a)(1)(iv)(A)(*1*)(*vii*) and (*viii*); 40 CFR part 51, appendix S, II.A.4.(i)(a)(7) and (8).

Under the NNSR program, direct $PM_{2.5}$ emissions and emissions of each $PM_{2.5}$ precursor are reviewed separately in accordance with the applicable major source threshold. For example, the threshold for Serious $PM_{2.5}$ nonattainment areas is 70 tpy of direct $PM_{2.5}$, as well as for the $PM_{2.5}$ precursors SO_2, NO_X, VOC, and ammonia.[204] See 40 CFR 51.165(a)(1)(iv)(A)(*1*)(*vii*) and (*viii*); 40 CFR part 51, appendix S, II.A.4.(i)(a)(7) and (8). For modifications, NNSR applies to proposed physical changes or changes in the method of operation of an existing stationary source where (1) the source is major for the nonattainment pollutant (or a precursor for that pollutant) and (2) the physical change or change in the method of operation of a major stationary source results, first, in a significant emissions increase of a regulated NSR pollutant and, second, in a significant net emissions increase of that same

[200] While the specifics of this case involved the 2015 ozone NAAQS, the case was based upon an interpretation of CAA section 165(a) and therefore applies equally to any PSD grandfathering for a new or revised NAAQS.

[201] Any proposed major stationary source or major modification triggering PSD requirements for $PM_{2.5}$ that does not receive its PSD permit by the effective date of a new nonattainment designation for the area where the source would locate would then be required to satisfy applicable NNSR preconstruction permit requirements for $PM_{2.5}$.

[202] 40 CFR 51.166(k) requires that SIPs shall provide that the owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of: (i) any national ambient air quality standard in any air quality control region; or (ii) any applicable maximum allowable increase over the baseline concentration in any area.

[203] *See, e.g.,* Page, 2010; 44 FR 3274, 3278, January 16, 1979; See also *In re Interpower of New York, Inc.,* 5 E.A.D. 130, 141 (EAB 1994) (describing an EPA Region 2 PSD permit that relied in part on offsets to demonstrate the source would not cause or contribute to a violation of the NAAQS). 52 FR 24634, 24684, July 1, 1987; 78 FR 3085, 3261–62, Jan. 15, 2013. The EPA has recognized the ability of sources to obtain offsets in the context of PSD though the PSD provisions of the Act do not expressly reference offsets as the NNSR provisions of the Act do. *See* 80 FR 65292, 65441, October 26, 2015.

[204] All recognized precursors to $PM_{2.5}$ are regulated as precursors for NNSR. *See* 40 CFR 51.165(a)(1)(xxxvii)(C)(*2*). No significant emission rate is established by the EPA for ammonia, and states are required to define ''significant'' for ammonia for their respective areas unless the state pursues the optional precursor demonstration to exclude ammonia from planning requirements. *See* 40 CFR 51.165(a)(1)(x)(F); 40 CFR 51.165(a)(13).

nonattainment pollutant (or same precursor for that pollutant). *See* 40 CFR 51.165(a)(1)(v)(A); 40 CFR part 51, appendix S, II.A.5.(i).

For example, to qualify as a major modification for SO_2 (as a $PM_{2.5}$ precursor) in a moderate $PM_{2.5}$ nonattainment area, the existing source would have to have the potential to emit 100 tpy or more of SO_2, and the project would have to result in an increase in SO_2 emissions of 40 tpy or more. See 40 CFR 51.165(a)(1)(x)(A). New major stationary sources and major modifications for $PM_{2.5}$ subject to NNSR must comply with the ''lowest achievable emission rate'' (LAER) as defined in the CAA and NNSR rules, as well as performing other analyses as required under section 173 of the CAA.

Following the promulgation of any revised NAAQS for $PM_{2.5}$, some new nonattainment areas for $PM_{2.5}$ may result. Where a state does not have an NNSR program or where the current NNSR program does not apply to $PM_{2.5}$, that state will be required to submit the necessary SIP revisions to ensure that new major stationary sources and major modifications for $PM_{2.5}$ undergo preconstruction review pursuant to the NNSR program. States are required to submit nonattainment plans to provide for attainment and maintenance of a revised $PM_{2.5}$ NAAQS within 18 months from the effective date of nonattainment area designations as required under CAA section 189(a)(2)(B). Therefore, states whose existing NNSR program requirements, if any, cannot be interpreted to apply to the revised primary annual $PM_{2.5}$ NAAQS at that time will be allowed to issue the necessary permits in accordance with the applicable nonattainment permitting requirements contained in 40 CFR part 51, appendix S, which would apply to the revised $PM_{2.5}$ NAAQS upon its effective date. *See* 73 FR 28321, 28340, May 16, 2008.

Finally, the EPA recommends that, where appropriate, PSD and NNSR permitting authorities assess impacts to communities with environmental justice concerns. For example, this may include conducting a demographic analysis to inform development of a plan for community outreach and engagement, conducting a cumulative emissions impact analysis,[205] or considering the environmental and social costs imposed on the impacted community when conducting an alternative sites analysis.[206] Another option could be improving the understanding of the potential impact of minor sources by generating an emissions inventory for such minor sources, including sources that are not currently required to report emissions, to generate options on how emissions can be reduced in the target area. *See* 81 FR 58010, 58137. The EPA anticipates developing further information and consulting with permitting authorities on how to best address environmental justice in the permitting process.

F. Transportation Conformity Program

Transportation conformity is required under CAA section 176(c) to ensure that transportation plans, transportation improvement programs (TIPs) and federally supported highway and transit projects will not cause or contribute to any new air quality violation, increase the frequency or severity of any existing violation, or delay timely attainment or any required interim emissions reductions or other milestones. Transportation conformity applies to areas that are designated as nonattainment or nonattainment areas that have been redesignated to attainment with an approved CAA section 175A maintenance plan (*i.e.,* maintenance areas) for transportation-related criteria pollutants: carbon monoxide, ozone, NO_2, $PM_{2.5}$, and PM_{10}. Transportation conformity for any new or revised NAAQS for $PM_{2.5}$ does not apply until one year after the effective date of the nonattainment designation for that NAAQS. *See* CAA section 176(c)(6) and 40 CFR 93.102(d)). The EPA's Transportation Conformity Rule[207] establishes the criteria and procedures for determining whether transportation activities conform to the SIP. The EPA is not proposing changes to the transportation conformity rule in this proposed rulemaking. The EPA notes that the transportation conformity rule already addresses the $PM_{2.5}$ and PM_{10} NAAQS. However, in the future, the EPA will review the need to issue or revise guidance describing how the current conformity rule applies in nonattainment and maintenance areas for any new or revised primary or secondary PM NAAQS, as needed.

G. General Conformity Program

The general conformity program implements CAA section 176(c) and requires that Federal agencies do not adopt, accept, approve, or fund activities that are not consistent with state air quality goals. General conformity applies to any Federal action (*e.g.,* funding, licensing, permitting, or approving) if (1) the action takes place in a nonattainment or maintenance area for any of the criteria pollutants and (2) it is not a Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) project as defined in 40 CFR 93.101 (these projects are covered under the transportation conformity program described above).

The EPA's General Conformity Rule[208] establishes the criteria and procedures for determining if a Federal action conforms to the applicable attainment plan. General conformity for any revised $PM_{2.5}$ NAAQS does not apply until one year after the effective date of the nonattainment designation for that NAAQS. The EPA is not proposing changes to the General Conformity Rule in this proposed rulemaking. The EPA notes that the General Conformity Rule already addresses the $PM_{2.5}$ and PM_{10} NAAQS.

IX. Statutory and Executive Order Reviews

Additional information about these statutes and Executive orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders*.

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is an economically significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket. The EPA prepared an illustrative analysis of the potential costs and benefits associated with this action. This analysis is contained in the document ''Regulatory Impact Analysis for the Proposed Reconsideration of the National Ambient Air Quality Standards for Particulate Matter,'' which is available in the Regulatory Impact Analysis (RIA) docket (EPA–HQ–OAR–2019–0587) and briefly summarized below. The RIA estimates the costs and monetized human health benefits in 2032, after

[205] The permitting authority may conduct a cumulative analysis of the projected $PM_{2.5}$ emissions from all emission units at the proposed facility and $PM_{2.5}$ emissions from nearby facilities, to provide a more complete assessment of the ambient air impacts of the proposed facility on affected communities. See 40 CFR part 51, appendix W, section 9.2.3.

[206] Section 173(a)(5) of the CAA requires for an NNSR permit ''an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source [that] demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification.'' This requirement is referred to as the ''alternative sites analysis.''

[207] 40 CFR part 93, subpart A

[208] 40 CFR 93.150 through 93.165

implementing existing and expected regulations and assessing emissions reductions to meet the current annual and 24-hour particulate matter NAAQS (12/35 μg/m^3), associated with applying national control strategies for the proposed annual and 24-hour alternative standard levels of 10/35 μg/m^3 and 9/35 μg/m^3, as well as the following two more stringent alternative standard levels: (1) an alternative annual standard level of 8 μg/m^3 in combination with the current 24-hour standard (*i.e.,* 8/35 μg/m^3), and (2) an alternative 24-hour standard level of 30 μg/m^3 in combination with the proposed annual standard level of 10 μg/m^3 (*i.e.,* 10/30 μg/m^3). Table 2 provides a summary of the estimated monetized benefits, costs, and net benefits associated with applying national control strategies toward reaching alternative standard levels. However, the CAA and judicial decisions make clear that the economic and technical feasibility of attaining ambient standards are not to be considered in setting or revising NAAQS, although such factors may be considered in the development of state plans to implement the standards. Accordingly, although an RIA has been prepared, the results of the RIA have not been considered in issuing this proposed rule.

TABLE 2—ESTIMATED MONETIZED BENEFITS, COSTS, AND NET BENEFITS OF THE ILLUSTRATIVE CONTROL STRATEGIES APPLIED TOWARD THE PRIMARY ALTERNATIVE ANNUAL AND DAILY STANDARD LEVELS OF 10/35 μg/m^3, 10/30 μg/m^3, 9/35 μg/m^3, AND 8/35 μg/m^3 IN 2032 FOR THE U.S.

[Millions of 2017$]

	10/35	10/30	9/35	8/35
Benefits[a]	$8,500 and $17,000	$9,600 and $20,000	$21,000 and $43,000	$46,000 and $95,000
Costs[b]	$95	$260	$390	$1,800
Net Benefits	$8,400 and $17,000	$9,300 and $19,000	$20,000 and $43,000	$44,000 and $93,000

Notes: Rows may not appear to add correctly due to rounding. We focus results to provide a snapshot of costs and benefits in 2032, using the best available information to approximate social costs and social benefits recognizing uncertainties and limitations in those estimates. The estimated costs and monetized human health benefits associated with applying national control strategies do not fully account for all the emissions reductions needed to reach the proposed and more stringent alternative standard levels for some standard levels analyzed.

[a] We assume that there is a cessation lag between the change in PM exposures and the total realization of changes in mortality effects. Specifically, we assume that some of the incidences of premature mortality related to $PM_{2.5}$ exposures occur in a distributed fashion over the 20 years following exposure, which affects the valuation of mortality benefits at different discount rates. Similarly, we assume there is a cessation lag between the change in PM exposures and both the development and diagnosis of lung cancer. The benefits are associated with two point estimates from two different epidemiologic studies, and we present the benefits calculated at a real discount rate of 3 percent. The benefits exclude additional health and welfare benefits that could not be quantified.

[b] The costs are annualized using a 7 percent interest rate.

B. Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA. There are no information collection requirements directly associated with a proposed decision to revise or retain a NAAQS under section 109 of the CAA.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. Rather, this proposed rule establishes national standards for allowable concentrations of PM in ambient air as required by section 109 of the CAA. See also *American Trucking Associations* v. *EPA,* 175 F.3d 1027, 1044–45 (D.C. Cir. 1999) (NAAQS do not have significant impacts upon small entities because NAAQS themselves impose no regulations upon small entities), rev'd in part on other grounds, *Whitman* v. *American Trucking Associations,* 531 U.S. 457 (2001).

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in the Unfunded Mandates Reform Act (UMRA), 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. Furthermore, as indicated previously, in setting a NAAQS the EPA cannot consider the economic or technological feasibility of attaining ambient air quality standards, although such factors may be considered to a degree in the development of state plans to implement the standards. See also *American Trucking Associations* v. *EPA,* 175 F. 3d at 1043 (noting that because the EPA is precluded from considering costs of implementation in establishing NAAQS, preparation of the RIA pursuant to the Unfunded Mandates Reform Act would not furnish any information that the court could consider in reviewing the NAAQS).

The EPA acknowledges, however, that if corresponding revisions to associated SIP requirements and air quality surveillance requirements are proposed at a later time, those revisions might result in such effects. Any such effects would be addressed as appropriate if and when such revisions are proposed.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the National Government and the states, or on the distribution of power and responsibilities among the various levels of government. However, the EPA recognizes that states will have a substantial interest in this action and any future revisions to associated requirements.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have Tribal implications, as specified in Executive Order 13175. It does not have a substantial direct effect on one or more Indian Tribes as tribes are not obligated to adopt or implement any NAAQS. In addition, tribes are not obligated to conduct ambient monitoring for PM or to adopt the ambient monitoring requirements of 40 CFR part 58. Thus, Executive Order 13175 does not apply to this action. However, consistent with the *EPA Policy on Consultation and Coordination with Indian Tribes,* the EPA will offer government-to-government consultation with tribes as requested.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This action is subject to Executive Order 13045 because it is an economically significant regulatory action as defined by Executive Order 12866, and the EPA believes that the environmental health or safety risk addressed by this action may have a disproportionate effect on children. The Policy on Children's Health also applies to this action. Accordingly, we have evaluated the environmental health or safety effects of PM exposures on children. The protection offered by these standards may be especially important for children because childhood represents a lifestage associated with increased susceptibility to PM-related health effects. Because children have been identified as a susceptible population, we have carefully evaluated the environmental health effects of exposure to PM pollution among children. Children make up a substantial fraction of the U.S. population, and often have unique factors that contribute to their increased risk of experiencing a health effect due to exposures to ambient air pollutants because of their continuous growth and development. As described in the 2019 Integrated Science Assessment, children may be particularly at risk for health effects related to ambient air $PM_{2.5}$ exposures compared with adults because they have (1) a developing respiratory system, (2) increased ventilation rates relative to body mass compared with adults, and (3) an increased proportion of oral breathing, particularly in boys, relative to adults. More detailed information on the evaluation of the scientific evidence and policy considerations pertaining to children, including an explanation for why the Administrator judges the proposed standards to be requisite to protect public health, including the health of children, with an adequate margin of safety, are contained in sections II.B and II.D of this preamble. Copies of all documents have been placed in the public docket for this action.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use

This action is not a ''significant energy action'' because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The purpose of this action is to propose to revise the primary annual $PM_{2.5}$ NAAQS and to retain the primary 24-hour $PM_{2.5}$ NAAQS, primary PM_{10} NAAQS, and secondary PM NAAQS. The action does not prescribe specific pollution control strategies by which these ambient standards and monitoring revisions will be met. Such strategies will be developed by states on a case-by-case basis, and the EPA cannot predict whether the control options selected by states will include regulations on energy suppliers, distributors, or users. Thus, the EPA concludes that this proposal does not constitute a significant energy action as defined in Executive Order 13211.

I. National Technology Transfer and Advancement Act (NTTAA)

This action involves technical standards. The EPA proposes to use the current indicators for fine ($PM_{2.5}$) and coarse (PM_{10}) particles. The indicator for fine particles is measured using the Reference Method for the Determination of Fine Particulate Matter as $PM_{2.5}$ in the Atmosphere (appendix L to 40 CFR part 50), which is known as the $PM_{2.5}$ FRM, and the indicator for coarse particles is measured using the Reference Method for the Determination of Particulate Matter as PM_{10} in the Atmosphere (appendix J to 40 CFR part 50), which is known as the PM_{10} FRM.

To the extent feasible, the EPA employs a Performance-Based Measurement System (PBMS), which does not require the use of specific, prescribed analytic methods. The PBMS is defined as a set of processes wherein the data quality needs, mandates or limitations of a program or project are specified, and serve as criteria for selecting appropriate methods to meet those needs in a cost-effective manner. It is intended to be more flexible and cost effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. Though the FRM defines the particular specifications for ambient monitors, there is some variability with regard to how monitors measure PM, depending on the type and size of PM and environmental conditions. Therefore, it is not practically possible to fully define the FRM in performance terms to account for this variability. Nevertheless, our approach in the past has resulted in multiple brands of monitors being approved as FRM for PM, and we expect this to continue. Also, the FRMs described in 40 CFR part 50 and the equivalency criteria described in 40 CFR part 53, constitute a performance-based measurement system for PM, since methods that meet the field testing and performance criteria can be approved as FEMs. Since finalized in 2006 (71 FR 61236, October 17, 2006) the new field and performance criteria for approval of $PM_{2.5}$ continuous FEMs has resulted in the approval of 13 approved FEMs. In summary, for measurement of $PM_{2.5}$ and PM_{10}, the EPA relies on both FRMs and FEMs, with FEMs relying on a PBMS approach for their approval. The EPA is not precluding the use of any other method, whether it constitutes a voluntary consensus standard or not, as long as it meets the specified performance criteria.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes that this action does *not* have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). The documentation for this assessment is contained in sections II.B.2, II.C.1, II.C.3, II.D.2, and II.D. of this preamble and also in the 2019 Integrated Science Assessment, Supplement to the 2019 Integrated Science Assessment, and Policy Assessment. The EPA has carefully evaluated the potential impacts on minority populations and low SES populations as discussed in sections II.B.2, II.C.1, II.C.3, II.D.2, and II.D.3 of this preamble. The Integrated Science Assessment, Supplement to the Integrated Science Assessment, and Policy Assessment contain the evaluation of the scientific evidence, quantitative risk analyses and policy considerations that pertain to these populations. These documents are available as described in this **SUPPLEMENTARY INFORMATION** section and copies of all documents have been placed in the public docket for this action.

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List of Subjects

40 CFR Part 50

Environmental protection, Air pollution control, Carbon monoxide, Lead, Nitrogen dioxide, Ozone, Particulate matter, Sulfur oxides.

40 CFR Part 53

Environmental protection, Administrative practice and procedure, Air pollution control, Reporting and recordkeeping requirements.

40 CFR Part 58

Environmental protection, Administrative practice and procedure, Air pollution control, Intergovernmental relations, Reporting and recordkeeping requirements.

Michael S. Regan,

Administrator.

For the reasons set forth in the preamble, chapter I of title 40 of the Code of Federal Regulations is proposed to be amended as follows:

PART 50—NATIONAL PRIMARY AND SECONDARY AMBIENT AIR QUALITY STANDARDS

■ 1. The authority citation for part 50 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

■ 2. Add § 50.20 to read as follows:

§ 50.20 National primary ambient air quality standards for $PM_{2.5}$.

(a) The national primary ambient air quality standards for $PM_{2.5}$ are 9.0 to 10.0 micrograms per cubic meter (μg/m^3) annual arithmetic mean concentration and 35 μg/m^3 24-hour average concentration measured in the ambient air as $PM_{2.5}$ (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers) by either:

(1) A reference method based on appendix L to this part and designated in accordance with part 53 of this chapter; or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(b) The primary annual $PM_{2.5}$ standard is met when the annual arithmetic mean concentration, as determined in accordance with appendix N to this part, is less than or equal to 9.0 to 10.0 μg/m^3.

(c) The primary 24-hour $PM_{2.5}$ standard is met when the 98th percentile 24-hour concentration, as determined in accordance with appendix N to this part, is less than or equal to 35 μg/m^3.

■ 3. Amend appendix K to part 50 as follows:

■ a. In section 1.0 by revising paragraph (b);

■ b. In section 2.3 by adding paragraph (d); and

■ c. In section 3.0 by adding paragraphs (a) and (b).

The revision and additions read as follows:

Appendix K to Part 50—Interpretation of the National Ambient Air Quality Standards for Particulate Matter

1.0 General

* * * * *

(b) The terms used in this appendix are defined as follows:

Average refers to the arithmetic mean of the estimated number of exceedances per year, as per section 3.1 of this appendix.

Collocated monitors refer to two or more air measurement instruments for the same parameter (*e.g.,* PM_{10} mass) operated at the same site location, and whose placement is consistent with part 53 of this chapter. For purposes of considering a combined site record in this appendix, when two or more monitors are operated at the same site, one monitor is designated as the ''primary'' monitor with any additional monitors designated as ''collocated.'' It is implicit in these appendix procedures that the primary monitor and collocated monitor(s) are all reference or equivalent methods; however, it is not a requirement that the primary and collocated monitors utilize the same specific sampling and analysis method.

Combined site data record is the data set used for performing computations in this appendix and represents data for the primary monitors augmented with data from collocated monitors according to the procedure specified in section 3.0(a) of this appendix.

Daily value for PM_{10} refers to the 24-hour average concentration of PM_{10} calculated or measured from midnight to midnight (local time).

Exceedance means a daily value that is above the level of the 24-hour standard after rounding to the nearest 10 μg/m^3 (*i.e.,* values ending in 5 or greater are to be rounded up).

Expected annual value is the number approached when the annual values from an increasing number of years are averaged, in the absence of long-term trends in emissions or meteorological conditions.

Primary monitors are suitable monitors designated by a state or local agency in their annual network plan as the default data source for creating a combined site data record. If there is only one suitable monitor at a particular site location, then it is presumed to be a primary monitor.

Year refers to a calendar year.

* * * * *

2.3 Data Requirements

* * * * *

(d) 24-hour average concentrations will be computed from submitted hourly PM_{10}

concentration data for each corresponding day of the year and the result will be stored in the first, or start, hour (*i.e.,* midnight, hour '0') of the 24-hour period. A 24-hour average concentration shall be considered valid if at least 75 percent of the hourly averages (*i.e.,* 18 hourly values) for the 24-hour period are available. In the event that fewer than all 24 hourly average concentrations are available (*i.e.,* fewer than 24 but at least 18), the 24-hour average concentration shall be computed on the basis of the hours available using the number of available hours within the 24-hour period as the divisor (*e.g.,* the divisor is 19 if 19 hourly values are available). 24-hour periods with seven or more missing hours shall also be considered for computations in this appendix if, after substituting zero for all missing hourly concentrations, the resulting 24-hour average daily value exceeds the level of the 24-hour standard specified in § 50.6 after rounding to the nearest 10 $\mu g/m^3$.

* * * * *

3.0 Computational Equations for the 24-Hour Standards

(a) All computations shown in this appendix shall be implemented on a site-level basis. Site level concentration data shall be processed as follows:

(1) The default dataset for PM_{10} mass concentrations for a site shall consist of the measured concentrations recorded from the designated primary monitor(s). All daily values produced by the primary monitor are considered part of the site record.

(2) If a daily value is not produced by the primary monitor for a particular day, but a value is available from a single collocated monitor, then that collocated monitor value shall be considered part of the combined site data record. If daily value data is available from two or more collocated monitors, the average of those collocated values shall be used as the daily value. The data record resulting from this procedure is referred to as the ''combined site data record.''

(b) In certain circumstances, including but not limited to site closures or relocations, data from two nearby sites may be combined into a single site data record for the purpose of calculating a valid design value. The appropriate Regional Administrator may approve such combinations if the Regional Administrator determines that the measured concentrations do not differ substantially between the two sites, taking into consideration factors such as distance between sites, spatial and temporal patterns in air quality, local emissions and meteorology, jurisdictional boundaries, and terrain features.

* * * * *

■ 4. Amend appendix L to part 50 by revising section 7.3.4 and adding section 7.3.4.5 to read as follows:

Appendix L to Part 50—Reference Method for the Determination of Fine Particulate Matter as $PM_{2.5}$ in the Atmosphere

* * * * *

7.3.4 *Particle size separator.* The sampler shall be configured with one of the three alternative particle size separators described in this section. One separator is an impactor-type separator (WINS impactor) described in sections 7.3.4.1, 7.3.4.2, and 7.3.4.3 of this appendix. One alternative separator is a cyclone-type separator (VSCC™) described in section 7.3.4.4 of this appendix. The other alternative separator is also a cyclone-type separator (TE–$PM_{2.5}$C) described in section 7.3.4.5 of this appendix.

* * * * *

7.3.4.5 A second cyclone-type separator is identified as a Tisch TE–$PM_{2.5}$C Cyclone particle size separator specified as part of EPA-designated reference method RFPS–1014–219 and as manufactured by Tisch Environmental Incorporated, 145 S Miami Avenue, Village of Cleves, Ohio 45002.

* * * * *

■ 5. Amend appendix N to part 50 as follows:

■ a. In section 1.0 by revising paragraph (a); and

■ b. In section 3.0 by adding paragraph (d)(3); and

■ c. In section 4.1 by revising paragraph (a); and

■ d. In section 4.2 by revising paragraph (a).

The addition and revisions read as follows.

Appendix N to Part 50—Interpretation of the National Ambient Air Quality Standards for $PM_{2.5}$

1.0 General

(a) This appendix explains the data handling conventions and computations necessary for determining when the national ambient air quality standards (NAAQS) for $PM_{2.5}$ are met, specifically the primary and secondary annual and 24-hour $PM_{2.5}$ NAAQS specified in §§ 50.7, 50.13, 50.18, and 50.20. $PM_{2.5}$ is defined, in general terms, as particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers. $PM_{2.5}$ mass concentrations are measured in the ambient air by a Federal Reference Method (FRM) based on appendix L to this part, as applicable, and designated in accordance with part 53 of this chapter or by a Federal Equivalent Method (FEM) designated in accordance with part 53 of this chapter. Only those FRM and FEM measurements that are derived in accordance with part 58 of this chapter (*i.e.,* that are deemed ''suitable'') shall be used in comparisons with the $PM_{2.5}$ NAAQS. The data handling and computation procedures to be used to construct annual and 24-hour NAAQS metrics from reported $PM_{2.5}$ mass concentrations, and the associated instructions for comparing these calculated metrics to the levels of the $PM_{2.5}$ NAAQS, are specified in sections 2.0, 3.0, and 4.0 of this appendix.

* * * * *

3.0 Requirements for Data Use and Data Reporting for Comparisons With the NAAQS for $PM_{2.5}$

* * * * *

(d) * * *

(3) In certain circumstances, including but not limited to site closures or relocations, data from two nearby sites may be combined into a single site data record for the purpose of calculating a valid design value. The appropriate Regional Administrator may approve such site combinations if the Regional Administrator determines that the measured concentrations do not differ substantially between the two sites, taking into consideration factors such as distance between sites, spatial and temporal patterns in air quality, local emissions and meteorology, jurisdictional boundaries, and terrain features.

* * * * *

4.1 Annual $PM_{2.5}$ NAAQS

(a) Levels of the primary and secondary annual $PM_{2.5}$ National Ambient Air Quality Standards are specified in §§ 50.7, 50.13, 50.18, and 50.20 as applicable.

* * * * *

4.2 Twenty-Four-Hour $PM_{2.5}$ NAAQS

(a) Levels of the primary and secondary 24-hour $PM_{2.5}$ National Ambient Air Quality Standards are specified in §§ 50.7, 50.13, 50.18, and 50.20 as applicable.

* * * * *

PART 53—AMBIENT AIR MONITORING REFERENCE AND EQUIVALENT METHODS

■ 6. The authority citation for part 53 continues to read as follows:

Authority: Sec. 301(a) of the Clean Air Act (42 U.S.C. sec. 1857g(a)), as amended by sec. 15(c)(2) of Pub. L. 91–604, 84 Stat. 1713, unless otherwise noted.

Subpart A—General Provisions

■ 7. Amend § 53.4 as follows:

■ a. By revising paragraph (a);

■ b. By adding paragraph (b)(7); and

■ c. By revising paragraph (d).

The revisions and addition read as follows:

§ 53.4 Applications for reference or equivalent method determinations.

(a) Applications for FRM or FEM determinations and modification requests of existing designated instruments shall be submitted to: Director, Center for Environmental Measurement and Modeling, Reference and Equivalent Methods Designation Program (MD–205–03), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711 (commercial delivery address: 4930 Old Page Road, Durham, North Carolina 27703).

* * * * *

(b) * * *

(7) All written materials for new FRM and FEM applications and modification requests must be submitted in English in MS Word format. For any calibration certificates originally written in a non-English language, the original non-

English version of the certificate must be submitted to EPA along with a version of the certificate translated to English. All laboratory and field data associated with new FRM and FEM applications and modification requests must be submitted in MS Excel format. All worksheets in MS Excel must be unprotected to enable full inspection as part of the application review process.

* * * * *

(d) For candidate reference or equivalent methods or for designated instruments that are the subject of a modification request, the applicant, if requested by EPA, shall provide to EPA a representative sampler or analyzer for test purposes. The sampler or analyzer shall be shipped free on board (FOB) destination to Director, Center for Environmental Measurements and Modeling, Reference and Equivalent Methods Designation Program (MD D205–03), U.S. Environmental Protection Agency, 4930 Old Page Road, Durham, North Carolina 27703, scheduled to arrive concurrently with or within 30 days of the arrival of the other application materials. This sampler or analyzer may be subjected to various tests that EPA determines to be necessary or appropriate under § 53.5(f), and such tests may include special tests not described in this part. If the instrument submitted under this paragraph (d) malfunctions, becomes inoperative, or fails to perform as represented in the application before the necessary EPA testing is completed, the applicant shall be afforded the opportunity to repair or replace the device at no cost to the EPA. Upon completion of EPA testing, the sampler or analyzer submitted under this paragraph (d) shall be repacked by EPA for return shipment to the applicant, using the same packing materials used for shipping the instrument to EPA unless alternative packing is provided by the applicant. Arrangements for, and the cost of, return shipment shall be the responsibility of the applicant. The EPA does not warrant or assume any liability for the condition of the sampler or analyzer upon return to the applicant.

■ 8. Amend § 53.8 by revising paragraph (a) to read as follows:

§ 53.8 Designation of reference and equivalent methods.

(a) A candidate method determined by the Administrator to satisfy the applicable requirements of this part shall be designated as an FRM or FEM (as applicable) by and upon publication of a notice of the designation in the **Federal Register.** Applicants shall not publicly announce, market, or sell the candidate sampler and analyzer as an approved FRM or FEM (as applicable) until the **Federal Register** notice has been published.

* * * * *

■ 9. Amend § 53.14 by revising paragraphs (c)(4), (5), and (6) to read as follows:

§ 53.14 Modification of a reference or equivalent method.

* * * * *

(c) * * *

(4) Send notice to the applicant that additional information must be submitted before a determination can be made and specify the additional information that is needed (in such cases, the 90-day period shall commence upon receipt of the additional information).

(5) Send notice to the applicant that additional tests are necessary and specify which tests are necessary and how they shall be interpreted (in such cases, the 90-day period shall commence upon receipt of the additional test data).

(6) Send notice to the applicant that additional tests will be conducted by the Administrator and specify the reasons for and the nature of the additional tests (in such cases, the 90-day period shall commence 1 calendar day after the additional tests are completed).

* * * * *

■ 10. Revise table A–1 to subpart A of part 53 to read as follows:

TABLE A–1 TO SUBPART A OF PART 53—SUMMARY OF APPLICABLE REQUIREMENTS FOR REFERENCE AND EQUIVALENT METHODS FOR AIR MONITORING OF CRITERIA POLLUTANTS

Pollutant	Reference or equivalent	Manual or automated	Applicable appendix of part 50 of this chapter	Applicable subparts of this part					
				A	B	C	D	E	F
SO_2	Reference	Manual	A–2						
		Automated	A–1	✓	✓				
	Equivalent	Manual	A–1	✓		✓			
		Automated	A–1	✓	✓	✓			
CO	Reference	Automated	C	✓	✓				
	Equivalent	Manual	C	✓		✓			
		Automated	C	✓	✓	✓			
O_3	Reference	Automated	D	✓	✓				
	Equivalent	Manual	D	✓		✓			
		Automated	D	✓	✓	✓			
NO_2	Reference	Automated	F	✓	✓				
	Equivalent	Manual	F	✓		✓			
		Automated	F	✓	✓	✓			
Pb	Reference	Manual	G						
	Equivalent	Manual	G	✓		✓			
		Automated	G	✓		✓			
PM_{10}-Pb	Reference	Manual	Q						
	Equivalent	Manual	Q	✓		✓			
		Automated	Q	✓		✓			
PM_{10}	Reference	Manual	J	✓				✓	
	Equivalent	Manual	J	✓		✓		✓	
		Automated	J	✓		✓		✓	
$PM_{2.5}$	Reference	Manual	L	✓				✓	
	Equivalent Class I	Manual	L	✓		✓		✓	
	Equivalent Class II	Manual	L[1]	✓		✓[2]		✓	✓[1 2]
	Equivalent Class III	Automated	L[1]	✓		✓		✓	✓[1]
$PM_{10-2.5}$	Reference	Manual	L, O[2]	✓				✓	

TABLE A–1 TO SUBPART A OF PART 53—SUMMARY OF APPLICABLE REQUIREMENTS FOR REFERENCE AND EQUIVALENT METHODS FOR AIR MONITORING OF CRITERIA POLLUTANTS—Continued

Pollutant	Reference or equivalent	Manual or automated	Applicable appendix of part 50 of this chapter	Applicable subparts of this part					
				A	B	C	D	E	F
	Equivalent Class I	Manual	L, O[2]	✓		✓		✓	
	Equivalent Class II	Manual	L, O[2]	✓		✓[2]		✓	✓[1 2]
	Equivalent Class III	Automated	L,[1] O[1 2]	✓		✓		✓	✓[1]

[1] Some requirements may apply, based on the nature of each particular candidate method, as determined by the Administrator.
[2] Alternative Class III requirements may be substituted.

Subpart B—Procedures for Testing Performance Characteristics of Automated Methods for SO_2, CO, O_3, and NO_2

■ 11. Amend table B–1 to subpart B of part 53 by revising footnote 4 to read as follows:

Table B–1 to Subpart B of Part 53—Performance Limit Specifications for Automated Methods

* * * * *

[4] For nitric oxide interference for the SO_2 ultraviolet fluorescence (UVF) method, interference equivalent is ±0.003 ppm for the lower range.

* * * * *

■ 12. Revise table B–3 to subpart B of part 53 to read as follows:

TABLE B–3 TO SUBPART B OF PART 53—INTERFERENT TEST CONCENTRATION,[1] PARTS PER MILLION

Pollutant	Analyzer type[2]	Hydrochloric acid	Ammonia	Hydrogen sulfide	Sulfur dioxide	Nitrogen dioxide	Nitric oxide	Carbon dioxide	Ethylene	Ozone	M-xylene	Water vapor	Carbon monoxide	Methane	Ethane	Naphthalene
SO_2	Ultraviolet fluorescence			[5]0.1	[4]0.14	0.5	0.5			0.5	0.2	20,000				[6]0.05
SO_2	Flame photometric			0.01	[4]0.14			750				[3]20,000	50			
SO_2	Gas chromatography			0.1	[4]0.14			750				[3]20,000	50			
SO_2	Spectrophotometric-wet chemical (pararosanaline).	0.2	0.1	0.1	[4]0.14	0.5		750		0.5						
SO_2	Electrochemical	0.2	0.1	0.1	[4]0.14	0.5	0.5		0.2	0.5		[3]20,000				
SO_2	Conductivity	0.2	0.1		[4]0.14	0.5		750								
SO_2	Spectrophotometric-gas phase, including DOAS.				[4]0.14	0.5	0.5			0.5	0.2					
O_3	Ethylene Chemiluminescence.			[3]0.1				750		[4]0.08		[3]20,000				
O_3	NO- chemiluminescence			[3]0.1		0.5		750		[4]0.08		[3]20,000				
O_3	Electrochemical		[3]0.1		0.5	0.5				[4]0.08		[3]20,000				
O_3	Spectrophotometric-wet chemical (potassium iodide).		[3]0.1		0.5	0.5	[3]0.5			[4]0.08						
O_3	Spectrophotometric-gas phase, including ultraviolet absorption and DOAS.				0.5	0.5	[3]0.5			[4]0.08	0.02	20,000				
CO	Non-dispersive Infrared							750				20,000	[4]10			
CO	Gas chromatography with flame ionization detector.											20,000	[4]10		0.5	
CO	Electrochemical						0.5		0.2			20,000	[4]10			
CO	Catalytic combustion-thermal detection.		0.1					750	0.2			20,000	[4]10	5.0	0.5	
CO	IR fluorescence							750				20,000	[4]10		0.5	
CO	Mercury replacement-UV photometric.								0.2				[4]10		0.5	
NO_2	Chemiluminescent		[3]0.1		0.5	[4]0.1	0.5					20,000				
NO_2	Spectrophotometric-wet chemical (azo-dye reaction).				0.5	[4]0.1	0.5	750		0.5						
NO_2	Electrochemical	0.2	[3]0.1		0.5	[4]0.1	0.5	750		0.5		20,000	50			
NO_2	Spectrophotometric-gas phase.		[3]0.1		0.5	[4]0.1	0.5			0.5		20,000	50			

[1] Concentrations of interferent listed must be prepared and controlled to ±10 percent of the stated value.
[2] Analyzer types not listed will be considered by the Administrator as special cases.
[3] Do not mix interferent with the pollutant.
[4] Concentration of pollutant used for test. These pollutant concentrations must be prepared to ±10 percent of the stated value.
[5] If candidate method utilizes an elevated-temperature scrubber for removal of aromatic hydrocarbons, perform this interference test.
[6] If naphthalene test concentration cannot be accurately quantified, remove the scrubber, use a test concentration that causes a full-scale response, reattach the scrubber, and evaluate response for interference.

■ 13. Amend appendix A to subpart B of part 53 by revising figures B–3 and B–5 to read as follows:

Appendix A to Subpart B of Part 53—Optional Forms for Reporting Test Results

* * * * *

Figure B–3 to Appendix A to Subpart B of Part 53—Form for Test Data and Calculations for Lower Detectable Limit (LDL) and Interference Equivalent (IE) (see § 53.23(c) and (d))

BILLING CODE 6560–50–P

LDL and INTERFERENCE TEST DATA

Applicant_____ Date_____

Analyzer_____ Pollutant_____

TEST PARAMETER		READING or CALCULATION	TEST NUMBER														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LOWER DETECTABLE LIMIT		B_Z															
		B_L															
		$LDL = B_L - B_Z$															
INTER-FERENCE EQUIV-ALENT	1	R_1															
		R_{i1}															
		$IE = R_{i1} - R_1$															
	2	R_2															
		R_{i2}															
		$IE = R_{i2} - R_2$															
	3*	R_3															
		R_{i3}															
		$IE = R_{i3} - R_3$															
	4*	R_4															
		R_{i4}															
		$IE = R_{i4} - R_4$															
	5*	R_5															
		R_{i5}															
		$IE = R_{i5} - R_5$															
	TOTAL*	$\sum_{i=1}^{n} \lvert IE_i \rvert$															

*If required.

BILLING CODE 6560–50–C

* * * * *

Figure B–5 to Appendix A to Subpart B of Part 53—Form for Calculating Zero Drift, Span Drift and Precision (see § 53.23(e))

CALCULATION OF ZERO DRIFT, SPAN DRIFT, AND PRECISION

Applicant_____ Date_____

Analyzer_____ Pollutant_____

TEST PARAMETER		CALCULATION	TEST DAY (n)														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ZERO DRIFT	12 HOUR	$12ZD = C_{max} - C_{min}$															
	24 HOUR	$Z = (L_1 + L_2)/2$															
		$24ZD = Z_n - Z_{n-1}$															
		$24ZD = Z'_n - Z'_{n-1}$															
SPAN DRIFT	24 HOUR	$S_n = \frac{1}{6}\sum_{i=7}^{12} P_i$															
		$SD_n = \frac{S_n - S_{n-1}}{S_{n-1}} \times 100\%$															
		$SD_n = \frac{S_n - S'_{n-1}}{S'_{n-1}} \times 100\%$															
PRECISION	20% URL (P_{20})	P20 = % STANDARD DEVIATION of ($P_1 \ldots P_6$)															
	80% URL (P_{80})	P20 = % STANDARD DEVIATION of ($P_7 \ldots P_{12}$)															

* * * * *

Subpart C—Procedures for Determining Comparability Between Candidate Methods and Reference Methods

■ 14. Amend § 53.35 by revising paragraph (b)(1)(ii)(D) to read as follows:

§ 53.35 Test procedure for Class II and Class III methods for $PM_{2.5}$ and $PM_{10-2.5}$.

* * * * *

(b) * * *

(1) * * *

(ii) * * *

(D) Site D shall be in a large city east of the Mississippi River, having characteristically high humidity levels.

* * * * *

■ 15. Revise table C–4 to subpart C of part 53 to read as follows:

TABLE C–4 TO SUBPART C OF PART 53—TEST SPECIFICATIONS FOR PM_{10}, $PM_{2.5}$, AND $PM_{10-2.5}$ CANDIDATE EQUIVALENT METHODS

Specification	PM_{10}	$PM_{2.5}$			$PM_{10-2.5}$	
		Class I	Class II	Class III	Class II	Class III
Acceptable concentration range (R_j), µg/m³.	5–300	3–200	3–200	3–200	3–200	3–200.
Minimum number of test sites.	2	1	2	4	2	4.
Minimum number of candidate method samplers or analyzers per site.	3	3	[1]3	[1]3	[1]3	[1]3.
Number of reference method samplers per site.	3	3	[1]3	[1]3	[1]3	[1]3.
Minimum number of acceptable sample sets per site for PM_{10} methods:						
R_j <20 µg/m³	3.					
R_j >20 µg/m³	3.					
Total	10.					

TABLE C–4 TO SUBPART C OF PART 53—TEST SPECIFICATIONS FOR PM_{10}, $PM_{2.5}$, AND $PM_{10-2.5}$ CANDIDATE EQUIVALENT METHODS—Continued

Specification	PM_{10}	$PM_{2.5}$			$PM_{10-2.5}$	
		Class I	Class II	Class III	Class II	Class III
Minimum number of acceptable sample sets per site for $PM_{2.5}$ and $PM_{10-2.5}$ candidate equivalent methods:						
R_j <15 μg/m³ for 24-hr or R_j <8 μg/m³ for 48-hr samples.	.....	3	3	3	3	3.
Rj>15 μg/m³ for 24-hr or R_j >8 μg/m³ for 48-hr samples.	.....	3	3	3	3	3.
Each season	.....	10	23	23	23	23.
Total, each site ..	.....	10	23	23 (46 for two-season sites).	23	23 (46 for two-season sites).
Precision of replicate reference method measurements, P_{Rj} or RP_{Rj}, respectively; RP for Class II or III $PM_{2.5}$ or $PM_{10-2.5}$, maximum.	5 μg/m³ or 7%.	2 μg/m³ or 5%.	10%[2]	10%[2]	10%[2]	10%.[2]
Precision of $PM_{2.5}$ or $PM_{10-2.5}$ candidate method, CP, each site.	.....	.....	10%[2]	15%[2]	15%[2]	15%.[2]
Slope of regression relationship.	1 ±0.10	1 ±0.05	1 ±0.10	1 ±0.10	1 ±0.10	1 ±0.12.
Intercept of regression relationship, μg/m³.	0 ±5	0 ±1	Between: 13.55 − (15.05 × slope), but not less than − 1.5; and 16.56 − (15.05 × slope), but not more than +1.5.	Between: 15.05 − (17.32 × slope), but not less than − 2.0; and 15.05 − (13.20 × slope), but not more than +2.0.	Between: 62.05 − (70.5 × slope), but not less than − 3.5; and 78.95 − (70.5 × slope), but not more than +3.5.	Between: 70.50 − (82.93 × slope), but not less than − 7.0; and 70.50 − (61.16 × slope), but not more than +7.0.
Correlation of reference method and candidate method measurements.	≥0.97	≥0.97	≥0.93—for CCV ≤0.4; ≥0.85 + 0.2 × CCV—for 0.4 ≤ CCV ≤0.5; ≥0.95—for CCV ≥0.5.			

[1] Some missing daily measurement values may be permitted; see test procedure.
[2] Calculated as the root mean square over all measurement sets.

Subpart D—Procedures for Testing Performance Characteristics of Methods for PM_{10}

■ 16. Amend § 53.43 by revising the formula in paragraph (a)(2)(xvi) and paragraph (c)(2)(iv) to read as follows:

§ 53.43 Test procedures.

(a) * * *

(2) * * *

(xvi) * * *

$$CV_E = \frac{\sqrt{\frac{\sum_{i=1}^{n} E^2(i) - \frac{1}{n}\left(\sum_{i=1}^{n} E(i)\right)^2}{n-1}}}{\bar{E}}$$

* * * * *

(c) * * *

(2) * * *

(iv) * * *

$$Pj = \sqrt{\frac{\sum_{i=1}^{3} C^2(i)(j) - \frac{1}{3}\left(\sum_{i=1}^{3} C\,(i)(j)\right)^2}{2}}$$

if $\bar{C}_j$ is below 80 μg/m^3, or

$$RP_j = \ 100\%\, x \left. \sqrt{\frac{\sum_{i=1}^{3} C^2(i)\,(j) - \frac{1}{3}\left(\sum_{i=1}^{3} C\,(i)(j)\right)^2}{2}} \right/ \overline{C}_{(j)}$$

if $\bar{C}_j$ is above 80 μg/m^3.

Subpart E—Procedures for Testing Physical (Design) and Performance Characteristics of Reference Methods and Class I and Class II Equivalent Methods for $PM_{2.5}$ or $PM_{10-2.5}$

■ 17. Amend § 53.51 by revising paragraph (d)(2) to read as follows:

§ 53.51 Demonstration of compliance with design specifications and manufacturing and test requirements.

* * * * *

(d) * * *

(2) *VSCC and TE–$PM_{2.5}$C separators.* For samplers and monitors utilizing the BGI VSCC or Tisch TE–$PM_{2.5}$C particle size separators specified in sections 7.3.4.4 and 7.3.4.5 of appendix L to part 50 of this chapter, respectively, the respective manufacturers shall identify the critical dimensions and manufacturing tolerances for the separator, devise appropriate test procedures to verify that the critical dimensions and tolerances are maintained during the manufacturing process, and carry out those procedures on each separator manufactured to verify conformance of the manufactured products. The manufacturer shall also maintain records of these tests and their test results and submit evidence that this procedure is incorporated into the manufacturing procedure, that the test is or will be routinely implemented, and that an appropriate procedure is in place for the disposition of units that fail this tolerance tests.

* * * * *

Subpart F—Procedures for Testing Performance Characteristics of Class II Equivalent Methods for $PM_{2.5}$

■ 18. Amend § 53.61 by revising the heading of paragraph (g) and paragraphs (g)(1) introductory text, (g)(1)(i) introductory text, and (g)(2)(i) and adding paragraph (g)(2)(iii) to read as follows:

§ 53.61 Test conditions.

* * * * *

(g) *Vibrating Orifice Aerosol Generator (VOAG) and Flow-Focusing Monodisperse Aerosol Generator (FMAG) conventions.* * * *

(1) *Particle aerodynamic diameter.* The VOAG and FMAG produce near-monodisperse droplets through the controlled breakup of a liquid jet. When the liquid solution consists of a non-volatile solute dissolved in a volatile solvent, the droplets dry to form particles of near-monodisperse size.

(i) The physical diameter of a generated spherical particle can be calculated from the operational parameters of the VOAG and FMAG as:

* * * * *

(2) * * *

(i) Solid particle tests performed in this subpart shall be conducted using particles composed of ammonium fluorescein. For use in the VOAG or FMAG, liquid solutions of known volumetric concentration can be prepared by diluting fluorescein powder ($C_2OH_{12}O_5$, FW = 332.31, CAS 2321–07–5) with aqueous ammonia. Guidelines for preparation of fluorescein solutions of the desired volume concentration (C_{vol}) are presented in Vanderpool and Rubow (1988) (Reference 2 in appendix A to this subpart). For purposes of converting particle physical diameter to aerodynamic diameter, an ammonium fluorescein particle density of 1.35 g/cm^3 shall be used.

* * * * *

(iii) Calculation of the physical diameter of the particles produced by the VOAG and FMAG requires knowledge of the liquid solution's volume concentration (C_{vol}). Because uranine is essentially insoluble in oleic acid, the total particle volume is the sum of the oleic acid volume and the uranine volume. The volume concentration of the liquid solution shall be calculated as:

Equation 5 to Paragraph (g)(2)(iii)

$$C_{vol} = \frac{V_u + V_{oleic}}{V_{sol}} = \frac{(M_u/P_u) + (M_{oleic}/P_{oleic})}{V_{sol}}$$

Where:

V_u = uranine volume, ml;
V_{oleic} = oleic acid volume, ml;
V_{sol} = total solution volume, ml;
M_u = uranine mass, g;
P_u = uranine density, g/cm^3;
M_{oleic} = oleic acid mass, g; and
P_{oleic} = oleic acid density, g/cm^3.

* * * * *

PART 58—AMBIENT AIR QUALITY SURVEILLANCE

■ 19. The authority citation for part 58 continues to read as follows:

Authority: 42 U.S.C. 7403, 7405, 7410, 7414, 7601, 7611, 7614, and 7619.

Subpart A—General Provisions

■ 20. Amend § 58.1 as follows:

■ a. By removing the definition for ''Approved regional method (ARM)''; and

■ b. By revising the definition for ''Traceable.''

The revision reads as follows:

§ 58.1 Definitions.

* * * * *

Traceable means a measurement result from a local standard whereby the result can be related to the International System of Units (SI) through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty. Traceable measurement results must be compared and certified, either directly or via not more than one intermediate standard, to a National Institute of Standards and Technology (NIST)-certified reference standard. Examples include but are not limited to NIST Standard Reference Material (SRM), NIST-traceable Reference Material (NTRM), or a NIST-certified Research Gas Mixture (RGM). Traceability to the SI through other National Metrology Institutes (NMIs) in addition to NIST is allowed if a Declaration of Equivalence (DoE) exists between NIST and that NMI.

* * * * *

Subpart B—Monitoring Network

■ 21. Amend § 58.10 as follows:
■ a. By revising paragraphs (a)(1) and (b)(10) and (13);
■ b. By adding paragraph (b)(14); and
■ c. By revising paragraph (d).

The revisions and addition read as follows:

§ 58.10 Annual monitoring network plan and periodic network assessment.

(a)(1) Beginning July 1, 2007, the state, or where applicable local, agency shall submit to the Regional Administrator an annual monitoring network plan which shall provide for the documentation of the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations that can include FRM and FEM monitors that are part of SLAMS, NCore, CSN, PAMS, and SPM stations. The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E to this part, where applicable. The Regional Administrator may require additional information in support of this statement. The annual monitoring network plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA and the submitted plan shall include and address, as appropriate, any received comments.

* * * * *

(b) * * *

(10) Any monitors for which a waiver has been requested or granted by the EPA Regional Administrator as allowed for under appendix D or appendix E to this part. For those monitors where a waiver has been approved, the annual monitoring network plan shall include the date the waiver was approved.

* * * * *

(13) The identification of any $PM_{2.5}$ FEMs used in the monitoring agency's network where the data are not of sufficient quality such that data are not to be compared to the national ambient air quality standards (NAAQS). For required SLAMS where the agency identifies that the $PM_{2.5}$ Class III FEM does not produce data of sufficient quality for comparison to the NAAQS, the monitoring agency must ensure that an operating FRM or filter-based FEM meeting the sample frequency requirements described in § 58.12 or other Class III $PM_{2.5}$ FEM with data of sufficient quality is operating and reporting data to meet the network design criteria described in appendix D to this part.

(14) The identification of any site(s) intended to address being sited in an at-risk community where there are anticipated effects from sources in the area as required in section 4.7.1(b)(3) of appendix D to this part. An initial approach to the question of whether any new or moved sites are needed and to identify the communities in which they intend to add monitoring for meeting the requirement in this paragraph (b)(14), if applicable, shall be submitted in accordance with the requirements of section 4.7.1(b)(3) of appendix D to this part which includes submission to the EPA Regional Administrator no later than July 1, 2024. Specifics on the resulting proposed new or moved sites for $PM_{2.5}$ network design to address at-risk communities, if applicable, would need to be detailed in annual monitoring network plans due to each applicable EPA Regional office no later than July 1, 2025. The plan shall provide for any required sites to be operational no later than 24 months from date of approval of a plan or January 1, 2027, whichever comes first.

* * * * *

(d) The state, or where applicable local, agency shall perform and submit to the EPA Regional Administrator an assessment of the air quality surveillance system every 5 years to determine, at a minimum, if the network meets the monitoring objectives defined in appendix D to this part, whether new sites are needed, whether existing sites are no longer needed and can be terminated, and whether new technologies are appropriate for incorporation into the ambient air monitoring network. The network assessment must consider the ability of existing and proposed sites to support air quality characterization for areas with relatively high populations of susceptible individuals (*e.g.,* children with asthma) and other at-risk populations, and, for any sites that are being proposed for discontinuance, the effect on data users other than the agency itself, such as nearby states and tribes or health effects studies. The state, or where applicable local, agency must submit a copy of this 5-year assessment, along with a revised annual network plan, to the Regional Administrator. The assessments are due every five years beginning July 1, 2010.

* * * * *

■ 22. Amend § 58.11 by revising paragraphs (a)(2) and (e) to read as follows:

§ 58.11 Network technical requirements.

(a) * * *

(2) Beginning January 1, 2009, state and local governments shall follow the quality assurance criteria contained in appendix A to this part that apply to SPM sites when operating any SPM site which uses an FRM or an FEM and meets the requirements of appendix E to this part, unless the Regional Administrator approves an alternative to the requirements of appendix A with respect to such SPM sites because meeting those requirements would be physically and/or financially impractical due to physical conditions at the monitoring site and the requirements are not essential to achieving the intended data objectives of the SPM site. Alternatives to the requirements of appendix A may be approved for an SPM site as part of the approval of the annual monitoring plan, or separately.

* * * * *

(e) State and local governments must assess data from Class III $PM_{2.5}$ FEM monitors operated within their network using the performance criteria described in table C–4 to subpart C of part 53 of this chapter, for cases where the data are identified as not of sufficient comparability to a collocated FRM, and the monitoring agency requests that the FEM data should not be used in comparison to the NAAQS. These assessments are required in the monitoring agency's annual monitoring network plan described in § 58.10(b) for cases where the FEM is identified as not of sufficient comparability to a collocated FRM. For these collocated $PM_{2.5}$ monitors, the performance criteria apply with the following additional provisions:

(1) The acceptable concentration range (Rj), $\mu g/m^3$ may include values down to 0 $\mu g/m^3$.

(2) The minimum number of test sites shall be at least one; however, the number of test sites will generally include all locations within an agency's network with collocated FRMs and FEMs.

(3) The minimum number of methods shall include at least one FRM and at least one FEM.

(4) Since multiple FRMs and FEMs may not be present at each site, the precision statistic requirement does not apply, even if precision data are available.

(5) All seasons must be covered with no more than 36 consecutive months of data in total aggregated together.

(6) The key statistical metric to include in an assessment is the bias (both additive and multiplicative) of the $PM_{2.5}$ continuous FEM(s) compared to a collocated FRM(s). Correlation is required to be reported in the assessment, but failure to meet the correlation criteria, by itself, is not cause to exclude data from a continuous FEM monitor.

■ 23. Amend § 58.12 by revising paragraphs (d)(1) and (3) to read as follows:

§ 58.12 Operating schedules.

* * * * *

(d) * * *

(1)(i) Manual $PM_{2.5}$ samplers at required SLAMS stations without a collocated continuously operating $PM_{2.5}$ monitor must operate on at least a 1-in-3 day schedule unless a waiver for an alternative schedule has been approved per paragraph (d)(1)(ii) of this section.

(ii) For SLAMS $PM_{2.5}$ sites with both manual and continuous $PM_{2.5}$ monitors operating, the monitoring agency may request approval for a reduction to 1-in-6 day $PM_{2.5}$ sampling or for seasonal sampling from the EPA Regional Administrator. Other requests for a reduction to 1-in-6 day $PM_{2.5}$ sampling or for seasonal sampling may be approved on a case-by-case basis. The EPA Regional Administrator may grant sampling frequency reductions after consideration of factors (including but not limited to the historical $PM_{2.5}$ data quality assessments, the location of current $PM_{2.5}$ design value sites, and their regulatory data needs) if the Regional Administrator determines that the reduction in sampling frequency will not compromise data needed for implementation of the NAAQS. Required SLAMS stations whose measurements determine the design value for their area and that are within plus or minus 10 percent of the annual NAAQS, and all required sites where one or more 24-hour values have exceeded the 24-hour NAAQS each year for a consecutive period of at least 3 years are required to maintain at least a 1-in-3 day sampling frequency until the design value no longer meets the criteria in this paragraph (d)(1)(ii) for 3 consecutive years. A continuously operating FEM $PM_{2.5}$ monitor satisfies the requirement in this paragraph (d)(1)(ii) unless it is identified in the monitoring agency's annual monitoring network plan as not appropriate for comparison to the NAAQS and the EPA Regional Administrator has approved that the data from that monitor may be excluded from comparison to the NAAQS.

(iii) Required SLAMS stations whose measurements determine the 24-hour design value for their area and whose data are within plus or minus 5 percent of the level of the 24-hour $PM_{2.5}$ NAAQS must have an FRM or FEM operate on a daily schedule if that area's design value for the annual NAAQS is less than the level of the annual $PM_{2.5}$ standard. A continuously operating FEM or $PM_{2.5}$ monitor satisfies the requirement in this paragraph (d)(1)(iii) unless it is identified in the monitoring agency's annual monitoring network plan as not appropriate for comparison to the NAAQS and the EPA Regional Administrator has approved that the data from that monitor may be excluded from comparison to the NAAQS. The daily schedule must be maintained until the referenced design values no longer meets the criteria in this paragraph (d)(1)(iii) for 3 consecutive years.

(iv) Changes in sampling frequency attributable to changes in design values shall be implemented no later than January 1 of the calendar year following the certification of such data as described in § 58.15.

* * * * *

■ 24. Revise § 58.15 to read as follows:

§ 58.15 Annual air monitoring data certification.

(a) The state, or where appropriate local, agency shall submit to the EPA Regional Administrator an annual air monitoring data certification letter to certify data collected by FRM and FEM monitors at SLAMS and SPM sites that meet criteria in appendix A to this part from January 1 to December 31 of the previous year. The head official in each monitoring agency, or his or her designee, shall certify that the previous year of ambient concentration and quality assurance data are completely submitted to AQS and that the ambient concentration data are accurate to the best of her or his knowledge, taking into consideration the quality assurance findings. The annual data certification letter is due by May 1 of each year.

(b) Along with each certification letter, the state shall submit to the Regional Administrator an annual summary report of all the ambient air quality data collected by FRM and FEM monitors at SLAMS and SPM sites. The annual report(s) shall be submitted for data collected from January 1 to December 31 of the previous year. The annual summary serves as the record of the specific data that is the object of the certification letter.

(c) Along with each certification letter, the state shall submit to the Regional Administrator a summary of the precision and accuracy data for all ambient air quality data collected by FRM and FEM monitors at SLAMS and SPM sites. The summary of precision and accuracy shall be submitted for data collected from January 1 to December 31 of the previous year.

Subpart C—Special Purpose Monitors

■ 25. Amend § 58.20 by revising paragraphs (b) through (e) to read as follows:

§ 58.20 Special purpose monitors (SPM).

* * * * *

(b) Any SPM data collected by an air monitoring agency using a Federal reference method (FRM) or Federal equivalent method (FEM) must meet the requirements of §§ 58.11 and 58.12 and appendix A to this part or an approved alternative to appendix A. Compliance with appendix E to this part is optional but encouraged except when the monitoring agency's data objectives are inconsistent with the requirements in appendix E. Data collected at an SPM using a FRM or FEM meeting the requirements of appendix A must be submitted to AQS according to the requirements of § 58.16. Data collected by other SPMs may be submitted. The monitoring agency must also submit to AQS an indication of whether each SPM reporting data to AQS monitor meets the requirements of appendices A and E.

(c) All data from an SPM using an FRM or FEM which has operated for more than 24 months are eligible for comparison to the relevant NAAQS, subject to the conditions of §§ 58.11(e) and 58.30, unless the air monitoring agency demonstrates that the data came from a particular period during which the requirements of appendix A, appendix C, or appendix E to this part were not met, subject to review and EPA Regional Office approval as part of the annual monitoring network plan described in § 58.10.

(d) If an SPM using an FRM or FEM is discontinued within 24 months of start-up, the Administrator will not base

a NAAQS violation determination for the $PM_{2.5}$ or ozone NAAQS solely on data from the SPM.

(e) If an SPM using an FRM or FEM is discontinued within 24 months of start-up, the Administrator will not designate an area as nonattainment for the CO, SO_2, NO_2, or 24-hour PM_{10} NAAQS solely on the basis of data from the SPM. Such data are eligible for use in determinations of whether a nonattainment area has attained one of these NAAQS.

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■ 26. Amend appendix A to part 58 as follows:

■ a. By revising section 2.6.1 and adding sections 2.6.1.1 and 2.6.1.2;

■ b. By removing section 3.1.2.2 and redesignating sections 3.1.2.3, 3.1.2.4, 3.1.2.5, and 3.1.2.6 as sections 3.1.2.2, 3.1.2.3, 3.1.2.4, and 3.1.2.5, respectively;

■ c. By revising sections 3.1.3.3, 3.2.4, 4.2.1, and 4.2.5; and

■ d. In section 6 by revising References (1), (4), (6), (7), (9), (10), and (11) and table A–1.

The revisions and additions read as follows:

Appendix A to Part 58—Quality Assurance Requirements for Monitors Used in Evaluations of National Ambient Air Quality Standards

* * * * *

2.6.1 Gaseous pollutant concentration standards (permeation devices or cylinders of compressed gas) used to obtain test concentrations for CO, SO_2, NO, and NO_2 must be EPA Protocol Gases certified in accordance with one of the procedures given in Reference 4 of this appendix.

2.6.1.1 The concentrations of EPA Protocol Gas standards used for ambient air monitoring must be certified with a 95-percent confidence interval to have an analytical uncertainty of no more than ±2.0 percent (inclusive) of the certified concentration (tag value) of the gas mixture. The uncertainty must be calculated in accordance with the statistical procedures defined in Reference 4 of this appendix.

2.6.1.2 Specialty gas producers advertising certification with the procedures provided in Reference 4 of this appendix and distributing gases as ''EPA Protocol Gas'' for ambient air monitoring purposes must adhere to the regulatory requirements specified in 40 CFR 75.21(g) or not use ''EPA'' in any form of advertising. Monitoring organizations must provide information to the EPA on the specialty gas producers they use on an annual basis. PQAOs, when requested by the EPA, must participate in the EPA Ambient Air Protocol Gas Verification Program at least once every 5 years by sending a new unused standard to a designated verification laboratory.

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3.1.3.3 Using audit gases that are verified against the NIST standard reference methods or special review procedures and validated per the certification periods specified in Reference 4 of this appendix (EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards) for CO, SO_2, and NO_2 and using O_3 analyzers that are verified quarterly against a standard reference photometer.

* * * * *

3.2.4 *$PM_{2.5}$ Performance Evaluation Program (PEP) Procedures.* The PEP is an independent assessment used to estimate total measurement system bias. These evaluations will be performed under the national performance evaluation program (NPEP) as described in section 2.4 of this appendix or a comparable program. A prescribed number of Performance evaluation sampling events will be performed annually within each PQAO. For PQAOs with less than or equal to five monitoring sites, five valid performance evaluation audits must be collected and reported each year. For PQAOs with greater than five monitoring sites, eight valid performance evaluation audits must be collected and reported each year. A valid performance evaluation audit means that both the primary monitor and PEP audit concentrations are valid and equal to or greater than 2 µg/m3. Siting of the PEP monitor must be consistent with section 3.2.3.4(c) of this appendix. However, any horizontal distance greater than 4 meters and any vertical distance greater than one meter must be reported to the EPA regional PEP coordinator. Additionally for every monitor designated as a primary monitor, a primary quality assurance organization must:

* * * * *

4.2.1 *Collocated Quality Control Sampler Precision Estimate for PM_{10}, $PM_{2.5}$, and Pb.* Precision is estimated via duplicate measurements from collocated samplers. It is recommended that the precision be aggregated at the PQAO level quarterly, annually, and at the 3-year level. The data pair would only be considered valid if both concentrations are greater than or equal to the minimum values specified in section 4(c) of this appendix. For each collocated data pair, calculate t_i, using equation 6 to this appendix:

Equation 6 to Appendix A to Part 58

$$t_i = \frac{X_i - Y_i}{\sqrt{(X_i + Y_i)/2}} \times 100$$

Where X_i is the concentration from the primary sampler and Y_i is the concentration value from the audit sampler. The coefficient of variation upper bound is calculated using equation 7 to this appendix:

Equation 7 to Appendix A to Part 58

$$CV90_{NAAQS} = 100 * \sqrt{\frac{k \times \sum_{i=1}^{k} t_i^2 - \left(\sum_{i=1}^{k} t_i\right)^2}{2k(k-1)}} \times \sqrt{\frac{k-1}{NAAQS\ Concentration * X^2_{0.1,k-1}}}$$

Where k is the number of valid data pairs being aggregated, and $X^2_{0.1,k-1}$ is the 10th percentile of a chi-squared distribution with k-1 degrees of freedom. The factor of 2 in the denominator adjusts for the fact that each t_i is calculated from two values with error.

* * * * *

4.2.5 *Performance Evaluation Programs Bias Estimate for $PM_{2.5}$.* The bias estimate is calculated using the PEP audits described in section 3.2.4. of this appendix. The bias estimator is based on, s_i, the absolute difference in concentrations divided by the square root of the PEP concentration.

Equation 8 to Appendix A to Part 58

$$100 * \frac{\sum_{i=1}^{n} s_i}{n\sqrt{NAAQS\ concentration}} \quad \text{where} \quad s_i = \frac{meas - audit}{\sqrt{audit}} \times 100$$

* * * * *

6. References

(1) American National Standard Institute—Quality Management Systems For Environmental Information And Technology Programs—Requirements With Guidance For Use. ASQ/ANSI E4–2014. February 2014. Available from ANSI Webstore *https://webstore.ansi.org/.*

* * * * *

(4) EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards. EPA–600/R–12/531. May, 2012. Available from U.S. Environmental Protection Agency, National Risk Management Research Laboratory, Research

Triangle Park, NC 27711. *https://www.epa.gov/nscep.*

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(6) List of Designated Reference and Equivalent Methods. Available from U.S. Environmental Protection Agency, Center for Environmental Measurements and Modeling, Air Methods and Characterization Division, MD–D205–03, Research Triangle Park, NC 27711. *https://www.epa.gov/amtic/air-monitoring-methods-criteria-pollutants.*

(7) Transfer Standards for the Calibration of Ambient Air Monitoring Analyzers for Ozone. EPA–454/B–13–004 U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, October, 2013. *https://www.epa.gov/sites/default/files/2020-09/documents/ozonetransferstandardguidance.pdf.*

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(9) Quality Assurance Handbook for Air Pollution Measurement Systems, Volume 1—A Field Guide to Environmental Quality Assurance. EPA–600/R–94/038a. April 1994. Available from U.S. Environmental Protection Agency, ORD Publications Office, Center for Environmental Research Information (CERI), 26 W. Martin Luther King Drive, Cincinnati, OH 45268. *https://www.epa.gov/amtic/ambient-air-monitoring-quality-assurance#documents.*

(10) Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program Quality System Development. EPA–454/B–13–003. *https://www.epa.gov/amtic/ambient-air-monitoring-quality-assurance#documents.*

(11) National Performance Evaluation Program Standard Operating Procedures. *https://www.epa.gov/amtic/ambient-air-monitoring-quality-assurance#npep.*

TABLE A–1 TO APPENDIX A TO PART 58—MINIMUM DATA ASSESSMENT REQUIREMENTS FOR NAAQS RELATED CRITERIA POLLUTANT MONITORS

Method	Assessment method	Coverage	Minimum frequency	Parameters reported	AQS assessment type
Gaseous Methods (CO, NO_2, SO_2, O_3):					
One-Point QC for SO_2, NO_2, O3, CO.	Response check at concentration 0.005–0.08 ppm SO_2, NO_2, O3, and 0.5 and 5 ppm CO.	Each analyzer	Once per 2 weeks[5]	Audit concentration[1] and measured concentration[2].	One-Point QC.
Annual performance evaluation for SO_2, NO_2, O3, CO.	See section 3.1.2 of this appendix.	Each analyzer	Once per year	Audit concentration[1] and measured concentration[2] for each level.	Annual PE.
NPAP for SO_2, NO_2, O3, CO.	Independent Audit	20% of sites each year	Once per year	Audit concentration[1] and measured concentration[2] for each level.	NPAP.
Particulate Methods:					
Continuous[4] method—collocated quality control sampling $PM_{2.5}$.	Collocated samplers	15%	1-in-12 days	Primary sampler concentration and duplicate sampler concentration[3].	No Transaction reported as raw data.
Manual method—collocated quality control sampling PM_{10}, $PM_{2.5}$, Pb-TSP, Pb-PM_{10}.	Collocated samplers	15%	1-in-12 days	Primary sampler concentration and duplicate sampler concentration[3].	No Transaction reported as raw data.
Flow rate verification PM_{10} (low Vol) $PM_{2.5}$, Pb-PM_{10}.	Check of sampler flow rate.	Each sampler	Once every month[5]	Audit flow rate and measured flow rate indicated by the sampler.	Flow Rate Verification.
Flow rate verification PM_{10} (High-Vol), Pb-TSP.	Check of sampler flow rate.	Each sampler	Once every quarter[5]	Audit flow rate and measured flow rate indicated by the sampler.	Flow Rate Verification.
Semi-annual flow rate audit PM_{10}, TSP, PM_{10}-2.5, $PM_{2.5}$, Pb-TSP, Pb-PM_{10}.	Check of sampler flow rate using independent standard.	Each sampler	Once every 6 months[5]	Audit flow rate and measured flow rate indicated by the sampler.	Semi Annual Flow Rate Audit.
Pb analysis audits Pb-TSP, Pb-PM_{10}.	Check of analytical system with Pb audit strips/filters.	Analytical	Once each quarter[5]	Measured value and audit value (ug Pb/filter) using AQS unit code 077.	Pb Analysis Audits.
Performance Evaluation Program $PM_{2.5}$.	Collocated samplers	(1) 5 valid audits for primary QA orgs, with ≤5 sites. (2) 8 valid audits for primary QA orgs, with >5 sites. (3) All samplers in 6 years.	Distributed over all 4 quarters[5].	Primary sampler concentration and performance evaluation sampler concentration.	PEP.
Performance Evaluation Program Pb-TSP, Pb-PM_{10}.	Collocated samplers	(1) 1 valid audit and 4 collocated samples for primary QA orgs, with ≤5 sites. (2) 2 valid audits and 6 collocated samples for primary QA orgs with >5 sites.	Distributed over all 4 quarters[5].	Primary sampler concentration and performance evaluation sampler concentration. Primary sampler concentration and duplicate sampler concentration.	PEP.

[1] Effective concentration for open path analyzers.
[2] Corrected concentration, if applicable for open path analyzers.
[3] Both primary and collocated sampler values are reported as raw data.
[4] $PM_{2.5}$ is the only particulate criteria pollutant requiring collocation of continuous and manual primary monitors.
[5] EPA's recommended maximum number of days that should exist between checks to ensure that the checks are routinely conducted over time and to limit data impacts resulting from a failed check.

* * * * *

■ 27. Amend appendix B to part 58 as follows:

■ a. By revising section 2.6.1 and adding sections 2.6.1.1 and 2.6.1.2;

■ b. By removing and reserving section 3.1.2.2;
■ c. By revising sections 3.1.3.3 and 3.2.4;
■ d. By adding sections 3.2.4.1 through 3.2.4.3;
■ e. By revising sections 4.2.1, and 4.2.5; and
■ f. In section 6 by revising References (1), (4), (6), (7), (9), (10), and (11) and table B–1.

The revisions and additions read as follows:

Appendix B to Part 58—Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring

* * * * *

2.6.1 Gaseous pollutant concentration standards (permeation devices or cylinders of compressed gas) used to obtain test concentrations for CO, SO_2, NO, and NO_2 must be EPA Protocol Gases certified in accordance with one of the procedures given in Reference 4 of this appendix.

2.6.1.1 The concentrations of EPA Protocol Gas standards used for ambient air monitoring must be certified with a 95-percent confidence interval to have an analytical uncertainty of no more than ±2.0 percent (inclusive) of the certified concentration (tag value) of the gas mixture. The uncertainty must be calculated in accordance with the statistical procedures defined in Reference 4 of this appendix.

2.6.1.2 Specialty gas producers advertising certification with the procedures provided in Reference 4 of this appendix and distributing gases as ''EPA Protocol Gas'' for ambient air monitoring purposes must adhere to the regulatory requirements specified in 40 CFR 75.21(g) or not use ''EPA'' in any form of advertising. The PSD PQAOs must provide information to the PSD reviewing authority on the specialty gas producers they use (or will use) for the duration of the PSD monitoring project. This information can be provided in the QAPP or monitoring plan, but must be updated if there is a change in the specialty gas producers used.

* * * * *

3.1.3.3 Using audit gases that are verified against the NIST standard reference methods or special review procedures and validated per the certification periods specified in Reference 4 of this appendix (EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards) for CO, SO_2, and NO_2 and using O_3 analyzers that are verified quarterly against a standard reference photometer.

* * * * *

3.2.4 *$PM_{2.5}$ Performance Evaluation Program (PEP) Procedures.* The PEP is an independent assessment used to estimate total measurement system bias. These evaluations will be performed under the NPEP as described in section 2.4 of this appendix or a comparable program. Performance evaluations will be performed annually within each PQAO. For PQAOs with less than or equal to five monitoring sites, five valid performance evaluation audits must be collected and reported each year. For PQAOs with greater than five monitoring sites, eight valid performance evaluation audits must be collected and reported each year. A valid performance evaluation audit means that both the primary monitor and PEP audit concentrations are valid and equal to or greater than 2 µg/m3. Siting of the PEP monitor must be consistent with section 3.2.3.4(c) of this appendix. However, any horizontal distance greater than 4 meters and any vertical distance greater than one meter must be reported to the EPA regional PEP coordinator.

Additionally for every monitor designated as a primary monitor, a primary quality assurance organization must:

3.2.4.1 Have each method designation evaluated each year; and,

3.2.4.2 Have all FRM, FEM, or ARM samplers subject to a PEP audit at least once every 6 years, which equates to approximately 15 percent of the monitoring sites audited each year.

3.2.4.3 Additional information concerning the PEP is contained in Reference 10 of this appendix. The calculations for evaluating bias between the primary monitor and the performance evaluation monitor for $PM_{2.5}$ are described in section 4.2.5 of this appendix.

* * * * *

4.2.1 *Collocated Quality Control Sampler Precision Estimate for PM_{10}, $PM_{2.5}$, and Pb.* Precision is estimated via duplicate measurements from collocated samplers. It is recommended that the precision be aggregated at the PQAO level quarterly, annually, and at the 3-year level. The data pair would only be considered valid if both concentrations are greater than or equal to the minimum values specified in section 4(c) of this appendix. For each collocated data pair, calculate t_i, using equation 6 to this appendix:

Equation 6 to Appendix B to Part 58

$$t_i = \frac{X_i - Y_i}{\sqrt{(X_i + Y_i)/2}} \times 100$$

Where X_i is the concentration from the primary sampler and Y_i is the concentration value from the audit sampler. The coefficient of variation upper bound is calculated using equation 7 to this appendix:

Equation 7 to Appendix B to Part 58

$$CV90_{NAAQS} = 100 * \sqrt{\frac{k \times \sum_{i=1}^{k} t_i^2 - \left(\sum_{i=1}^{k} t_i\right)^2}{2k(k-1)}} \times \sqrt{\frac{k-1}{NAAQS\ Concentration * X^2_{0.1,k-1}}}$$

Where k is the number of valid data pairs being aggregated, and $X^2_{0.1,k-1}$ is the 10th percentile of a chi-squared distribution with $k-1$ degrees of freedom. The factor of 2 in the denominator adjusts for the fact that each t_i is calculated from two values with error.

* * * * *

4.2.5 *Performance Evaluation Programs Bias Estimate for $PM_{2.5}$.* The bias estimate is calculated using the PEP audits described in section 3.2.4. of this appendix. The bias estimator is based on, s_i, the absolute difference in concentrations divided by the square root of the PEP concentration.

Equation 8 to Appendix B to Part 58

$$100 * \frac{\sum_{i=1}^{n} s_i}{n\sqrt{NAAQS\ concentration}} \quad \text{where} \quad s_i = \frac{meas - audit}{\sqrt{audit}} \times 100$$

* * * * *

6. References

(1) American National Standard Institute—Quality Management Systems For Environmental Information And Technology Programs—Requirements With Guidance For Use. ASQ/ANSI E4–2014. February 2014. Available from ANSI Webstore *https://webstore.ansi.org/*.

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(4) EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards. EPA–600/R–12/531. May, 2012. Available from U.S. Environmental Protection Agency, National Risk Management Research Laboratory, Research Triangle Park, NC 27711. *https://www.epa.gov/nscep.*

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(6) List of Designated Reference and Equivalent Methods. Available from U.S. Environmental Protection Agency, Center for Environmental Measurements and Modeling, Air Methods and Characterization Division, MD–D205–03,

Research Triangle Park, NC 27711. *https://www.epa.gov/amtic/air-monitoring-methods-criteria-pollutants.*

(7) Transfer Standards for the Calibration of Ambient Air Monitoring Analyzers for Ozone. EPA–454/B–13–004 U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, October, 2013. *https://www.epa.gov/sites/default/files/2020–09/documents/ozonetransferstandardguidance.pdf.*

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(9) Quality Assurance Handbook for Air Pollution Measurement Systems, Volume 1—A Field Guide to Environmental Quality Assurance. EPA–600/R–94/038a. April 1994. Available from U.S. Environmental Protection Agency, ORD Publications Office, Center for Environmental Research Information (CERI), 26 W Martin Luther King Drive, Cincinnati, OH 45268. *https://www.epa.gov/amtic/ambient-air-monitoring-quality-assurance#documents.*

(10) Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program Quality System Development. EPA–454/B–13–003. *https://www.epa.gov/amtic/ambient-air-monitoring-quality-assurance#documents.*

(11) National Performance Evaluation Program Standard Operating Procedures. *https://www.epa.gov/amtic/ambient-air-monitoring-quality-assurance#npep.*

TABLE B–1 TO APPENDIX B TO PART 58—MINIMUM DATA ASSESSMENT REQUIREMENTS FOR NAAQS RELATED CRITERIA POLLUTANT PSD MONITORS

Method	Assessment method	Coverage	Minimum frequency	Parameters reported	AQS assessment type
Gaseous Methods (CO, NO_2, SO_2, O_3):					
One-Point QC for SO_2, NO_2, O_3, CO.	Response check at concentration 0.005–0.08 ppm SO_2, NO_2, O_3, & 0.5 and 5 ppm CO.	Each analyzer	Once per 2 weeks[5]	Audit concentration[1] and measured concentration[2].	One-Point QC.
Quarterly performance evaluation for SO_2, NO_2, O_3, CO.	See section 3.1.2 of this appendix.	Each analyzer	Once per quarter[5]	Audit concentration[1] and measured concentration[2] for each level.	Annual PE.
NPAP for SO_2, NO_2, O_3, CO[3].	Independent Audit	Each primary monitor	Once per year	Audit concentration[1] and measured concentration[2] for each level.	NPAP.
Particulate Methods:					
Collocated sampling PM_{10}, $PM_{2.5}$, Pb.	Collocated samplers	1 per PSD Network per pollutant.	Every 6 days or every 3 days if daily monitoring required.	Primary sampler concentration and duplicate sampler concentration[4].	No Transaction reported as raw data.
Flow rate verification PM_{10}, $PM_{2.5}$, Pb.	Check of sampler flow rate.	Each sampler	Once every month[5]	Audit flow rate and measured flow rate indicated by the sampler.	Flow Rate Verification.
Semi-annual flow rate audit PM_{10}, $PM_{2.5}$, Pb.	Check of sampler flow rate using independent standard.	Each sampler	Once every 6 months or beginning, middle and end of monitoring[5].	Audit flow rate and measured flow rate indicated by the sampler.	Semi Annual Flow Rate Audit.
Pb analysis audits Pb-TSP, Pb-PM_{10}.	Check of analytical system with Pb audit strips/filters.	Analytical	Each quarter[5]	Measured value and audit value (μg Pb/filter) using AQS unit code 077 for parameters: 14129—Pb (TSP) LC FRM/FEM 85129—Pb (TSP) LC Non-FRM/FEM.	Pb Analysis Audits.
Performance Evaluation Program $PM_{2.5}$[3].	Collocated samplers	(1) 5 valid audits for PQAOs with <5 sites. (2) 8 valid audits for PQAOs with >5 sites. (3) All samplers in 6 years.	Over all 4 quarters[5]	Primary sampler concentration and performance evaluation sampler concentration.	PEP.
Performance Evaluation Program Pb[3].	Collocated samplers	(1) 1 valid audit and 4 collocated samples for PQAOs, with <5 sites. (2) 2 valid audits and 6 collocated samples for PQAOs with >5 sites.	Over all 4 quarters[5]	Primary sampler concentration and performance evaluation sampler concentration. Primary sampler concentration and duplicate sampler concentration.	PEP.

[1] Effective concentration for open path analyzers.
[2] Corrected concentration, if applicable for open path analyzers.
[3] NPAP, $PM_{2.5}$, PEP, and Pb-PEP must be implemented if data is used for NAAQS decisions otherwise implementation is at PSD reviewing authority discretion.
[4] Both primary and collocated sampler values are reported as raw data.
[5] A maximum number of days should be between these checks to ensure the checks are routinely conducted over time and to limit data impacts resulting from a failed check.

■ 28. Amend appendix C to part 58 as follows:

■ a. By adding sections 2.2 and 2.2.1 through 2.2.19; and

■ b. By removing and reserving sections 2.4, 2.4.1, and 2.4.1.1 through 2.4.1.7.

The additions reads as follows:

Appendix C to Part 58—Ambient Air Quality Monitoring Methodology

* * * * *

2.2 PM_{10}, $PM_{2.5}$, or $PM_{10–2.5}$ continuous FEMs with existing valid designations may be calibrated using network data from collocated FRM and continuous FEM data under the following provisions:

2.2.1 Data to demonstrate a calibration may include valid data from State, local, or Tribal air agencies or data collected by instrument manufacturers in accordance with 40 CFR 53.35 or other data approved by the Administrator.

2.2.2 A request to update a designated methods calibration may be initiated by the

instrument manufacturer of record or the EPA Administrator.

2.2.3 Requests for approval of an updated PM_{10}, $PM_{2.5}$, or $PM_{10-2.5}$ continuous FEM calibration must meet the general submittal requirements of section 2.7 of this appendix.

2.2.4 Data included in the request should represent a subset of representative locations where the method is operational. For cases with a small number of collocated FRMs and continuous FEMs sites, an updated candidate calibration may be limited to the sites where both methods are in use.

2.2.5 Data included in a candidate method updated calibration may include a subset of sites where there is a large grouping of sites in one part of the country such that the updated calibration would be representative of the country as a whole.

2.2.6 Improvements should be national in scope and ideally implemented through a firmware change.

2.2.7 The goal of a change to a methods calibration is to increase the number of sites meeting measurements quality objectives of the method as identified in section 2.3.1.1 of appendix A to this part.

2.2.8 For meeting measurement quality objectives (MQOs), the primary objective is to meet the bias goal as this statistic will likely have the most influence on improving the resultant data collected.

2.2.9 Precision data are to be included, but so long as precision data are at least as good as existing network data or meet the MQO referenced in section 2.2.8 of this appendix, no further work is necessary with precision.

2.2.10 Data available to use may include routine primary and collocated data.

2.2.11 Audit data may be useful to confirm the performance of a candidate updated calibration but should not be used as the basis of the calibration to keep the independence of the audit data.

2.2.12 Data utilized as the basis of the updated calibration may be obtained by accessing EPA's AQS database.

2.2.13 Years of data to use in a candidate method calibration should include two recent years where we are past the certification period for the previous year's data, which is May 1st of each year.

2.2.14 Data from additional years is to be used to test an updated calibration such that the calibration is independent of the test years of interest. Data from these additional years need to minimally demonstrate that a larger number of sites are expected to meet bias MQO especially at sites near the level of the NAAQS for the PM indicator of interest

2.2.15 Outliers may be excluded using routine outlier tests.

2.2.16 The range of data used in a calibration may include all data available or alternatively use data in the range from the lowest measured data available up to 125% of the 24-hour NAAQS for the PM indicator of interest.

2.2.17 Other improvements to a PM continuous method may be included as part of a recommended update so long as appropriate testing is conducted with input from EPA's Office of Research and Development (ORD) Reference and Equivalent (R&E) Methods Designation program.

2.2.18 EPA encourages early communication by instrument manufacturers considering an update to a PM method. Instrument companies should initiate such dialogue by contacting EPA's ORD R&E Methods Designation program. The contact information for this can be found at 40 CFR 53.4.

2.2.19 Manufacturers interested in improving instrument's performance through an updated factory calibration must submit a written modification request to EPA with supporting rationale. Because the testing requirements and acceptance criteria of any field and/or lab tests can depend upon the nature and extent of the intended modification, applicants should contact EPA's R&E Methods Designation program for guidance prior to development of the modification request.

* * * * *

■ 29. Amend appendix D to part 58 by revising sections 1 and 1.1(b), the introductory text before the table in section 4.7.1(a), and sections 4.7.1(b)(3) and 4.7.2 to read as follows:

Appendix D to Part 58—Network Design Criteria for Ambient Air Quality Monitoring

* * * * *

1. Monitoring Objectives and Spatial Scales

The purpose of this appendix is to describe monitoring objectives and general criteria to be applied in establishing the required SLAMS ambient air quality monitoring stations and for choosing general locations for additional monitoring sites. This appendix also describes specific requirements for the number and location of FRM and FEM sites for specific pollutants, NCore multipollutant sites, PM_{10} mass sites, $PM_{2.5}$ mass sites, chemically-speciated $PM_{2.5}$ sites, and O_3 precursor measurements sites (PAMS). These criteria will be used by EPA in evaluating the adequacy of the air pollutant monitoring networks.

1.1 * * *

(b) Support compliance with ambient air quality standards and emissions strategy development. Data from FRM and FEM monitors for NAAQS pollutants will be used for comparing an area's air pollution levels against the NAAQS. Data from monitors of various types can be used in the development of attainment and maintenance plans. SLAMS, and especially NCore station data, will be used to evaluate the regional air quality models used in developing emission strategies, and to track trends in air pollution abatement control measures' impact on improving air quality. In monitoring locations near major air pollution sources, source-oriented monitoring data can provide insight into how well industrial sources are controlling their pollutant emissions.

* * * * *

4.7.1 * * *

(a) State, and where applicable local, agencies must operate the minimum number of required $PM_{2.5}$ SLAMS sites listed in table D–5 to this appendix. The NCore sites are expected to complement the $PM_{2.5}$ data collection that takes place at non-NCore SLAMS sites, and both types of sites can be used to meet the minimum $PM_{2.5}$ network requirements. The total number of $PM_{2.5}$ sites needed to support the basic monitoring objectives of providing air pollution data to the general public in a timely manner, support compliance with ambient air quality standards and emission strategy development, and support for air pollution research studies will include more sites than the minimum numbers required in table D–5 to this appendix. Deviations from these $PM_{2.5}$ monitoring requirements must be approved by the EPA Regional Administrator.

* * * * *

(b) * * *

(3) For areas with additional required SLAMS, a monitoring station is to be sited in an at-risk community, particularly where there are anticipated effects from sources in the area (*e.g.,* a major port, rail yard, airport, industrial area, or major transportation corridor).

* * * * *

4.7.2 Requirement for Continuous $PM_{2.5}$ Monitoring. The state, or where appropriate, local agencies must operate continuous $PM_{2.5}$ analyzers equal to at least one-half (round up) the minimum required sites listed in table D–5 to this appendix. At least one required continuous analyzer in each MSA must be collocated with one of the required FRM/FEM monitors, unless at least one of the required FRM/FEM monitors is itself a continuous FEM monitor in which case no collocation requirement applies. State and local air monitoring agencies must use methodologies and quality assurance/quality control (QA/QC) procedures approved by the EPA Regional Administrator for these required continuous analyzers.

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■ 30. Revise appendix E to part 58 to read as follows:

Appendix E to Part 58—Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring

1. Introduction

1.1 Applicability

(a) This appendix contains specific location criteria applicable to ambient air quality monitoring probes, inlets, and optical paths of SLAMS, NCore, PAMS, and other monitor types whose data are intended to be used to determine compliance with the NAAQS. These specific location criteria are relevant after the general location has been selected based on the monitoring objectives and spatial scale of representation discussed in appendix D to this part. Monitor probe material and sample residence time requirements are also included in this appendix. Adherence to these siting criteria is necessary to ensure the uniform collection of compatible and comparable air quality data.

(b) The probe and monitoring path siting criteria discussed in this appendix must be followed to the maximum extent possible. It is recognized that there may be situations where some deviation from the siting criteria may be necessary. In any such case, the reasons must be thoroughly documented in a written request for a waiver that describes how and why the proposed siting deviates from the criteria. This documentation should help to avoid later questions about the validity of the resulting monitoring data. Conditions under which the EPA would consider an application for waiver from these siting criteria are discussed in section 4 of this appendix.

(c) The pollutant-specific probe and monitoring path siting criteria generally apply to all spatial scales except where noted otherwise. Specific siting criteria that are phrased with a ''must'' are defined as requirements and exceptions must be approved through the waiver provisions. However, siting criteria that are phrased with a ''should'' are defined as goals to meet for consistency but are not requirements.

2. Monitors and Samplers With Probe Inlets

2.1 Horizontal and Vertical Placement

The probe must be located greater than or equal to 2.0 and less than or equal to 15. meters above ground level for all O_3 and SO_2 monitoring, and for neighborhood or larger spatial scale Pb, PM_{10}, $PM_{10-2.5}$, $PM_{2.5}$, NO_2, and CO sites. Middle scale CO and NO_2 monitors must also have sampler inlets greater than or equal to 2.0 and less than or equal to 15 meters above ground level. Middle scale $PM_{10-2.5}$ sites are required to have sampler inlets greater than or equal to 2.0 and less than or equal to 7.0 meters above ground level. Microscale Pb, PM_{10}, $PM_{10-2.5}$, and $PM_{2.5}$ sites are required to have sampler inlets greater than or equal to 2.0 and less than or equal to 7.0 meters above ground level. Microscale near-road NO_2 monitoring sites are required to have sampler inlets greater than or equal to 2.0 and less than or equal to 7.0 meters above ground level. The probe inlets for microscale carbon monoxide monitors that are being used to measure concentrations near roadways must be greater than or equal to 2.0 and less than or equal to 7.0 meters above ground level. Those probe inlets for microscale carbon monoxide monitors measuring concentrations near roadways in downtown areas or urban street canyons must be greater than or equal to 2.5 and less than or equal to 3.5 meters above ground level. The probe must be at least 1.0 meter vertically or horizontally away from any supporting structure, walls, parapets, penthouses, *etc.,* and away from dusty or dirty areas. If the probe is located near the side of a building or wall, then it should be located on the windward side of the building relative to the prevailing wind direction during the season of highest concentration potential for the pollutant being measured.

2.2 Spacing From Minor Sources

(a) It is important to understand the monitoring objective for a particular location in order to interpret this particular requirement. Local minor sources of a primary pollutant, such as SO_2, lead, or particles, can cause high concentrations of that particular pollutant at a monitoring site. If the objective for that monitoring site is to investigate these local primary pollutant emissions, then the site is likely to be properly located nearby. This type of monitoring site would in all likelihood be a microscale type of monitoring site. If a monitoring site is to be used to determine air quality over a much larger area, such as a neighborhood or city, a monitoring agency should avoid placing a monitor probe inlet near local, minor sources. The plume from the local minor sources should not be allowed to inappropriately impact the air quality data collected at a site. Particulate matter sites should not be located in an unpaved area unless there is vegetative ground cover year-round, so that the impact of windblown dusts will be kept to a minimum.

(b) Similarly, local sources of nitric oxide (NO) and ozone-reactive hydrocarbons can have a scavenging effect causing unrepresentatively low concentrations of O_3 in the vicinity of probes for O_3. To minimize these potential interferences the probe inlet should be away from furnace or incineration flues or other minor sources of SO_2 or NO. The separation distance should take into account the heights of the flues, type of waste or fuel burned, and the sulfur content of the fuel.

2.3 Spacing From Obstructions

(a) Buildings and other obstacles may possibly scavenge SO_2, O_3, or NO_2, and can act to restrict airflow for any pollutant. To avoid this interference, the probe inlet must have unrestricted airflow pursuant to paragraph (b) of this section and should be located away from obstacles. The horizontal distance from the obstacle to the probe inlet must be at least twice the height that the obstacle protrudes above the probe inlet. An obstacle that does not meet the minimum distance requirement is considered an obstruction that restricts airflow to the probe inlet.

(b) A probe inlet located near or along a vertical wall is undesirable because air moving along the wall may be subject to possible removal mechanisms. A probe inlet must have unrestricted airflow with no obstructions (as defined in paragraph (a) of this section) in a continuous arc of at least 270 degrees. An unobstructed continuous arc of 180 degrees is allowable when network design criteria regulations specified in appendix D to this part require monitoring in street canyons and the probe is located on the side of a building. This arc must include the predominant wind direction for the season of greatest pollutant concentration potential. For particle sampling, a minimum of 2.0 meters of horizontal separation from walls, parapets, and structures is required for rooftop site placement.

(c) A sampling station having a probe inlet located closer to an obstacle than this criterion allows should be classified as middle scale or microscale rather than neighborhood or urban scale, since the measurements from such a station would more closely represent these smaller scales.

(d) For near-road monitoring stations, the monitor probe shall have an unobstructed air flow, where no obstacles exist at or above the height of the monitor probe, between the monitor probe and the outside nearest edge of the traffic lanes of the target road segment.

2.4 Spacing From Trees

(a) Trees can provide surfaces for SO_2, O_3, or NO_2 adsorption or reactions, and surfaces for particle deposition. Trees can also act as obstructions in cases where they are located between the air pollutant sources or source areas and the monitoring site, and where the trees are of a sufficient height and leaf canopy density to interfere with the normal airflow around the probe inlet. To reduce this possible interference/obstruction, the probe inlet should be 20 meters or more from the drip line of trees and must be at least 10 meters from the drip line of trees. If a tree or trees is an obstacle, the probe inlet must meet the distance requirements of section 2.3 of this appendix.

(b) The scavenging effect of trees is greater for O_3 than for other criteria pollutants. Monitoring agencies must take steps to consider the impact of trees on ozone monitoring sites and take steps to avoid this problem.

(c) Beginning January 1, 2024, microscale sites of any air pollutant, shall have no trees or shrubs located at or above the line-of-sight fetch between the probe and the source under investigation, such as a roadway or a stationary source.

2.5 Spacing From Roadways

TABLE E–1 TO APPENDIX E TO PART 58—MINIMUM SEPARATION DISTANCE BETWEEN ROADWAYS AND PROBES FOR MONITORING NEIGHBORHOOD AND URBAN SCALE OZONE (O_3) AND OXIDES OF NITROGEN (NO, NO_2, NO_X, NO_y)

Roadway average daily traffic, vehicles per day	Minimum distance [1] [3] (meters)	Minimum distance [1] [2] [3] (meters)
≤1,000	10	10
10,000	10	20
15,000	20	30
20,000	30	40
40,000	50	60
70,000	100	100
≥110,000 ...	250	250

[1] Distance from the edge of the nearest traffic lane. The distance for intermediate traffic counts should be interpolated from the table values based on the actual traffic count.

[2] Applicable for ozone monitors whose placement has not already been approved as of December 18, 2006.

[3] All distances listed are expressed as having 2 significant figures. When rounding is performed to assess compliance with these siting requirements, the distance measurements will be rounded such as to retain at least two significant figures.

2.5.1 Spacing for Ozone Probes

In siting an O_3 monitor, it is important to minimize destructive interferences from sources of NO, since NO readily reacts with

O_3. Table E–1 to this appendix provides the required minimum separation distances between a roadway and a probe inlet for various ranges of daily roadway traffic. A sampling site having a monitor probe located closer to a roadway than allowed by the table E–1 requirements should be classified as middle scale or microscale, rather than neighborhood or urban scale, since the measurements from such a site would more closely represent these smaller scales.

2.5.2 Spacing for Carbon Monoxide Probes

(a) Near-road microscale CO monitoring sites, including those located in downtown areas, urban street canyons, and other near-road locations such as those adjacent to highly trafficked roads, are intended to provide a measurement of the influence of the immediate source on the pollution exposure on the adjacent area.

(b) Microscale CO monitor probe inlets in downtown areas or urban street canyon locations shall be located a minimum distance of 2.0 meters and a maximum distance of 10 meters from the edge of the nearest traffic lane.

(c) Microscale CO monitor probe inlets in downtown areas or urban street canyon locations shall be located at least 10 meters from an intersection and preferably at a midblock location. Midblock locations are preferable to intersection locations because intersections represent a much smaller portion of downtown space than do the streets between them. Pedestrian exposure is probably also greater in street canyon/corridors than at intersections.

TABLE E–2 TO APPENDIX E TO PART 58—MINIMUM SEPARATION DISTANCE BETWEEN ROADWAYS AND PROBES FOR MONITORING NEIGHBORHOOD SCALE CARBON MONOXIDE

Roadway average daily traffic, vehicles per day	Minimum distance [1] [2] (meters)
≤10,000	10
15,000	25
20,000	45
30,000	80
40,000	115
50,000	135
≥60,000	150

[1] Distance from the edge of the nearest traffic lane. The distance for intermediate traffic counts should be interpolated from the table values based on the actual traffic count.

[2] All distances listed are expressed as having 2 significant figures. When rounding is performed to assess compliance with these siting requirements, the distance measurements will be rounded such as to retain at least two significant figures.

2.5.3 Spacing for Particulate Matter ($PM_{2.5}$, $PM_{2.5–10}$, PM_{10}, Pb) Inlets

(a) Since emissions associated with the operation of motor vehicles contribute to urban area particulate matter ambient levels, spacing from roadway criteria are necessary for ensuring national consistency in PM sampler siting.

(b) The intent is to locate localized hot-spot sites in areas of highest concentrations whether it be from mobile or multiple stationary sources. If the area is primarily affected by mobile sources and the maximum concentration area(s) is judged to be a traffic corridor or street canyon location, then the monitors should be located near roadways with the highest traffic volume and at separation distances most likely to produce the highest concentrations. For the microscale traffic corridor site, the location must be greater than or equal 5.0 and less than or equal to 15 meters from the major roadway. For the microscale street canyon site, the location must be greater than or equal 2.0 and less than or equal to 10 meters from the roadway. For the middle scale site, a range of acceptable distances from the roadway is shown in figure E–1 to this appendix. Figure E–1 also includes separation distances between a roadway and neighborhood or larger scale sites by default. Any PM probe inlet at a site, 2.0 to 15 meters high, and further back than the middle scale requirements will generally be neighborhood, urban or regional scale. For example, according to figure E–1, if a PM sampler is primarily influenced by roadway emissions and that sampler is set back 10 meters from a 30,000 ADT (average daily traffic) road, the site should be classified as microscale, if the sampler's inlet height is between 2.0 and 7.0 meters. If the sampler's inlet height is between 7.0 and 15 meters, the site should be classified as middle scale. If the sampler is 20 meters from the same road, it will be classified as middle scale; if 40 meters, neighborhood scale; and if 110 meters, an urban scale.

2.5.4 Spacing for Nitrogen Dioxide (NO_2) Probes

(a) In siting near-road NO_2 monitors as required in section 4.3.2 of appendix D to this part, the monitor probe shall be as near as practicable to the outside nearest edge of the traffic lanes of the target road segment; but shall not be located at a distance greater than 50 meters, in the horizontal, from the outside nearest edge of the traffic lanes of the target road segment. Where possible, the near-road NO_2 monitor probe should be within 20 meters of the target road segment.

(b) In siting NO_2 monitors for neighborhood and larger scale monitoring, it is important to minimize near-road influences. Table E–1 to this appendix provides the required minimum separation distances between a roadway and a probe inlet for various ranges of daily roadway traffic. A sampling site having a monitor probe located closer to a roadway than allowed by the table E–1 requirements should be classified as microscale or middle scale rather than neighborhood or urban scale.

Figure E–1 to Appendix E to Part 58

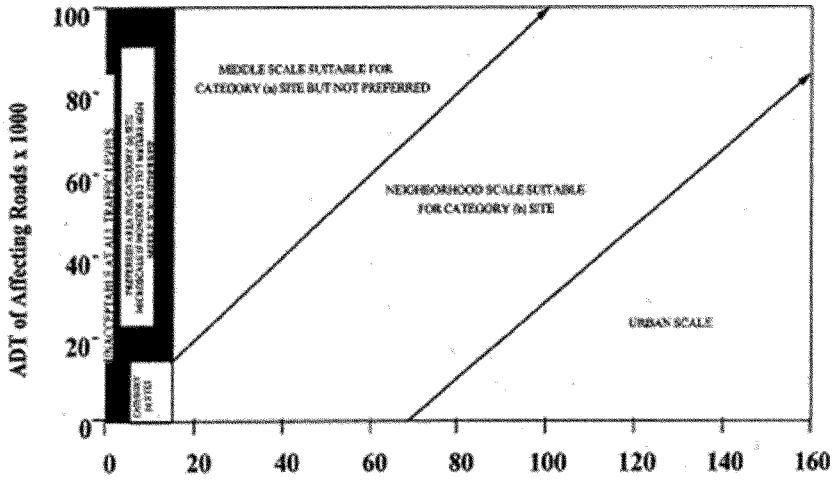

Figure E-1. Distance of PM samplers to nearest traffic lane (meters)

2.6 Probe Material and Pollutant Sampler Residence Time

(a) For the reactive gases (SO_2, NO_2, and O_3), special probe material must be used for monitors. Studies have been conducted to determine the suitability of materials such as polypropylene, polyethylene, polyvinyl chloride, Tygon®, aluminum, brass, stainless steel, copper, borosilicate glass, polyvinylidene fluoride (PVDF), polytetrafluoroethylene (PTFE), perfluoroalkoxy (PFA), and fluorinated ethylene propylene (FEP) for use as intake sampling lines. Of the materials in the preceding sentence, only borosilicate glass, PVDF, PTFE, PFA, and FEP have been found to be acceptable for use as intake sampling lines for all the reactive gaseous pollutants. Furthermore, the EPA has specified borosilicate glass or FEP Teflon® as the only acceptable probe materials for delivering test atmospheres in the determination of reference or equivalent methods. Therefore, borosilicate glass, PVDF, PTFE, PFA, FEP, or their equivalent must be the only material in the sampling train (from probe inlet to the back of the monitor) that can be in contact with the ambient air sample for reactive gas monitors. Nafion™ is composed primarily of PTFE and can be considered equivalent to PTFE. It has been shown in tests to exhibit virtually no loss of ozone at 20 second residence times.

(b) For volatile organic compound (VOC) monitoring at PAMS, FEP Teflon® is unacceptable as the probe material because of VOC adsorption and desorption reactions on the FEP Teflon®. Borosilicate glass, stainless steel, or its equivalent are the acceptable probe materials for VOC and carbonyl sampling. Care must be taken to ensure that the sample residence time is kept to 20 seconds or less.

(c) No matter how nonreactive the sampling probe material is initially, after a period of use reactive particulate matter is deposited on the probe walls. Therefore, the time it takes the gas to transfer from the probe inlet to the sampling device is also critical. Ozone in the presence of nitrogen oxide (NO) will show significant losses even in the most inert probe material when the residence time exceeds 20 seconds. Other studies indicate that a 10 second or less residence time is easily achievable. Therefore, sampling probes for reactive gas monitors (*i.e.,* SO_2, NO_2, and O_3) must have a sample residence time less than 20 seconds.

2.7 Summary

Table E–3 to this appendix presents a summary of the general requirements for probe siting criteria with respect to distances and heights. It is apparent from table E–3 that different elevation distances above the ground are shown for the various pollutants. The discussion in this appendix for each of the pollutants describes reasons for elevating the monitor or probe inlet. The differences in the specified range of heights are based on the vertical concentration gradients. For source oriented and near-road monitors, the gradients in the vertical direction are very large for the microscale, so a small range of heights are used. The upper limit of 15 meters is specified for the consistency between pollutants and to allow the use of a single manifold for monitoring more than one pollutant.

TABLE E–3 TO APPENDIX E TO PART 58—SUMMARY OF PROBE SITING CRITERIA

Pollutant	Scale	Height from ground to probe[8] (meters)	Horizontal or vertical distance from supporting structures[2 8] to probe inlet (meters)	Distance from drip line of trees to probe[8] (meters)	Distance from roadways to probe[8] (meters)
SO_2[2 3 4 5]	Middle (300 m) Neighborhood Urban, and Regional (1 km).	2.0–15	≥1.0	≥10	N/A.
CO[3 4 6]	Micro [downtown or street canyon sites], micro [near-road sites], middle (300 m) and Neighborhood (1 km).	2.5–3.5; 2.0–7.0; 2.0–15	≥1.0	≥10	2.0–10 for downtown areas or street canyon microscale; ≤50 for near-road microscale; see Table E–2 to this appendix for middle and neighborhood scales.
O_3[2 3 4]	Middle (300 m) Neighborhood, Urban, and Regional (1 km).	2.0–15	≥1.0	≥10	*See* Table E–1 to this appendix for all scales.
NO_2[2 3 4]	Micro (Near-road [50–300 m])	2.0–7.0 (micro)	≥1.0	≥10	≤50 for near-road micro-scale.
	Middle (300 m)	2.0–15	≥1.0	≥10.	
	Neighborhood, Urban, and Regional (1 km).	2.0–15 (all other scales)	≥1.0	≥10	*See* Table E–1 to this appendix for all other scales.
Ozone precursors (for PAMS)[2 3 4].	Neighborhood and Urban (1 km).	2.0–15	≥1.0	≥10	*See* Table E–1 to this appendix for all scales.

TABLE E–3 TO APPENDIX E TO PART 58—SUMMARY OF PROBE SITING CRITERIA—Continued

Pollutant	Scale	Height from ground to probe[8] (meters)	Horizontal or vertical distance from supporting structures[2 8] to probe inlet (meters)	Distance from drip line of trees to probe[8] (meters)	Distance from roadways to probe[8] (meters)
PM, Pb[2 3 4 7]	Micro, Middle, Neighborhood, Urban and Regional.	2.0–7.0 (micro); 2.0–7.0 (middle $PM_{10-2.5}$); 2.0–7.0 for near-road; 2.0–15 (all other scales).	≥2.0 (all scales, horizontal distance only).	≥10 (all scales)	2.0–10 (micro); *see* Figure E–1 to this appendix for all other scales. ≤50 for near-road.

N/A—Not applicable.
[1] When probe is located on a rooftop, this separation distance is in reference to walls, parapets, or penthouses located on roof.
[2] Should be greater than 20 meters from the dripline of tree(s) and must be 10 meters from the dripline.
[3] Distance from sampler or probe inlet to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the sampler or probe inlet. Sites not meeting this criterion may be classified as microscale or middle scale (*see* text).
[4] Must have unrestricted airflow in a continuous arc of at least 270 degrees around the probe or sampler; 180 degrees if the probe is on the side of a building or a wall for street canyon monitoring.
[5] The probe or sampler should be away from minor sources, such as furnace or incineration flues. The separation distance is dependent on the height of the minor source's emission point (such as a flue), the type of fuel or waste burned, and the quality of the fuel (sulfur, ash, or lead content). This criterion is designed to avoid undue influences from minor sources.
[6] For microscale CO monitoring sites, the probe must be ≥10 meters from a street intersection and preferably at a midblock location.
[7] Collocated monitor inlets must be within 4.0 meters of each other and at least 2.0 meters apart for flow rates greater than 200 liters/min or at least 1.0 meter apart for samplers having flow rates less than 200 liters/min to preclude airflow interference, unless a waiver is in place as approved by the Regional Administrator pursuant to section 3 of appendix A to this part. For $PM_{2.5}$, collocated monitor inlet heights should be within 1 meter of each other vertically.
[8] All distances listed are expressed as having 2 significant figures. When rounding is performed to assess compliance with these siting requirements, the distance measurements will be rounded such as to retain at least two significant figures.

3. Open Path Analyzers

3.1 Horizontal and Vertical Placement

At least 80 percent of the monitoring path, must be located greater than or equal 2.0 and less than or equal to 15 meters above ground level for all O_3 and SO_2 monitoring sites, and for neighborhood or larger spatial scale NO_2, and CO sites. Middle scale CO and NO_2 sites must also have monitoring paths greater than or equal 2.0 and less than or equal to 15 meters above ground level. Microscale near-road monitoring sites are required to have monitoring paths greater than or equal 2.0 and less than or equal to 7.0 meters above ground level. The monitoring path for microscale carbon monoxide monitors that are being used to measure concentrations near roadways must be greater than or equal 2.0 and less than or equal to 7.0 meters above ground level. Those monitoring paths for microscale carbon monoxide monitors measuring concentrations near roadways in downtown areas or urban street canyons must be greater than or equal 2.5 and less than or equal to 3.5 meters above ground level. At least 90 percent of the monitoring path must be at least 1.0 meter vertically or horizontally away from any supporting structure, walls, parapets, penthouses, *etc.,* and away from dusty or dirty areas. If a significant portion of the monitoring path is located near the side of a building or wall, then it should be located on the windward side of the building relative to the prevailing wind direction during the season of highest concentration potential for the pollutant being measured.

3.2 Spacing From Minor Sources

(a) It is important to understand the monitoring objective for a particular location in order to interpret this particular requirement. Local minor sources of a primary pollutant, such as SO_2 can cause high concentrations of that particular pollutant at a monitoring site. If the objective for that monitoring site is to investigate these local primary pollutant emissions, then the site is likely to be properly located nearby. This type of monitoring site would in all likelihood be a microscale type of monitoring site. If a monitoring site is to be used to determine air quality over a much larger area, such as a neighborhood or city, a monitoring agency should avoid placing a monitoring path near local, minor sources. The plume from the local minor sources should not be allowed to inappropriately impact the air quality data collected at a site.

(b) Similarly, local sources of nitric oxide (NO) and ozone-reactive hydrocarbons can have a scavenging effect causing unrepresentatively low concentrations of O_3 in the vicinity of monitoring paths for O_3. To minimize these potential interferences, at least 90 percent of the monitoring path must be away from furnace or incineration flues or other minor sources of SO_2 or NO. The separation distance should take into account the heights of the flues, type of waste or fuel burned, and the sulfur content of the fuel.

3.3 Spacing From Obstructions

(a) Buildings and other obstacles may possibly scavenge SO_2, O_3, or NO_2, and can act to restrict airflow for any pollutant. To avoid this interference, at least 90 percent of the monitoring path must have unrestricted airflow and should be located away from obstacles. The horizontal distance from the obstacle to the monitoring path must be at least twice the height that the obstacle protrudes above the monitoring path. An obstacle that does not meet the minimum distance requirement is considered an obstruction that restricts airflow to the monitoring path.

(b) A monitoring path located near or along a vertical wall is undesirable because air moving along the wall may be subject to possible removal mechanisms. At least 90 percent of the monitoring path for open path analyzers must have unrestricted airflow with no obstructions (as defined in paragraph (a) of this section) in a continuous arc of at least 270 degrees. An unobstructed continuous arc of 180 degrees is allowable when network design criteria regulations specified in appendix D to this part require monitoring in street canyons and the monitoring path is located on the side of a building. This arc must include the predominant wind direction for the season of greatest pollutant concentration potential.

(c) Special consideration must be given to the use of open path analyzers due to their inherent potential sensitivity to certain types of interferences, or optical obstructions. A monitoring path must be clear of all trees, brush, buildings, plumes, dust, or other optical obstructions, including potential obstructions that may move due to wind, human activity, growth of vegetation, etc. Temporary optical obstructions, such as rain, particles, fog, or snow, should be considered when siting an open path analyzer. Any of these temporary obstructions that are of sufficient density to obscure the light beam will affect the ability of the open path analyzer to continuously measure pollutant concentrations. Transient, but significant obscuration of especially longer measurement paths could occur as a result of certain meteorological conditions (*e.g.,* heavy fog, rain, snow) and/or aerosol levels that are of a sufficient density to prevent the open path analyzer's light transmission. If certain compensating measures are not otherwise implemented at the onset of monitoring (*e.g.,* shorter path lengths, higher light source intensity), data recovery during periods of greatest primary pollutant potential could be compromised. For instance, if heavy fog or high particulate levels are coincident with periods of projected NAAQS-threatening pollutant potential, the representativeness of the resulting data record in reflecting maximum pollutant concentrations may be substantially impaired despite the fact that the site may otherwise exhibit an acceptable, even exceedingly high overall valid data capture rate.

(d) A sampling station having a monitoring path located closer to an obstacle than this criterion allows should be classified as middle scale or microscale rather than neighborhood or urban scale, since the measurements from such a station would more closely represent these smaller scales.

(e) For near-road monitoring stations, the monitoring path shall have an unobstructed air flow, where no obstacles exist at or above the height of the monitoring path, between the monitoring path and the outside nearest edge of the traffic lanes of the target road segment.

3.4 Spacing From Trees

(a) Trees can provide surfaces for SO_2, O_3, or NO_2 adsorption or reactions. Trees can also act as obstructions in cases where they are located between the air pollutant sources or source areas and the monitoring site, and where the trees are of a sufficient height and leaf canopy density to interfere with the normal airflow around the monitoring path. To reduce this possible interference/obstruction, at least 90 percent of the monitoring path should be 20 meters or more from the drip line of trees and must be at least 10 meters from the drip line of trees. If a tree or trees could be considered an obstacle, the monitoring path must meet the distance requirements of section 3.3 of this appendix.

(b) The scavenging effect of trees is greater for O_3 than for other criteria pollutants. Monitoring agencies must take steps to consider the impact of trees on ozone monitoring sites and take steps to avoid this problem.

(c) Beginning January 1, 2024, microscale sites of any air pollutant shall have no trees or shrubs located at or above the line-of-sight fetch between the monitoring path and the source under investigation, such as a roadway or a stationary source.

3.5 Spacing From Roadways

TABLE E–4 TO APPENDIX E TO PART 58—MINIMUM SEPARATION DISTANCE BETWEEN ROADWAYS AND MONITORING PATHS FOR MONITORING NEIGHBORHOOD AND URBAN SCALE OZONE (O_3) AND OXIDES OF NITROGEN (NO, NO_2, NO_X, NO_y)

Roadway average daily traffic, vehicles per day	Minimum distance [1] [3] (meters)	Minimum distance [1] [2] [3] (meters)
≤1,000	10	10
10,000	10	20
15,000	20	30
20,000	30	40
40,000	50	60
70,000	100	100
≥110,000	250	250

[1] Distance from the edge of the nearest traffic lane. The distance for intermediate traffic counts should be interpolated from the table values based on the actual traffic count.
[2] Applicable for ozone open path monitors whose placement has not already been approved as of December 18, 2006.
[3] All distances listed are expressed as having 2 significant figures. When rounding is performed to assess compliance with these siting requirements, the distance measurements will be rounded such as to retain at least two significant figures.

3.5.1 Spacing for Ozone Monitoring Paths

In siting an O_3 open path analyzer, it is important to minimize destructive interferences form sources of NO, since NO readily reacts with O_3. Table E–4 to this appendix provides the required minimum separation distances between a roadway and at least 90 percent of a monitoring path for various ranges of daily roadway traffic. A monitoring site having a monitoring path located closer to a roadway than allowed by the table E–4 requirements should be classified as microscale or middle scale, rather than neighborhood or urban scale, since the measurements from such a site would more closely represent these smaller scales. The monitoring path(s) must not cross over a roadway with an average daily traffic count of 10,000 vehicles per day or more. For those situations where a monitoring path crosses a roadway with fewer than 10,000 vehicles per day, monitoring agencies must consider the entire segment of the monitoring path in the area of potential atmospheric interference from automobile emissions. Therefore, this calculation must include the length of the monitoring path over the roadway plus any segments of the monitoring path that lie in the area between the roadway and minimum separation distance, as determined from table E–4. The sum of these distances must not be greater than 10 percent of the total monitoring path length.

3.5.2 Spacing for Carbon Monoxide Monitoring Paths

(a) Near-road microscale CO monitoring sites, including those located in downtown areas, urban street canyons, and other near-road locations such as those adjacent to highly trafficked roads, are intended to provide a measurement of the influence of the immediate source on the pollution exposure on the adjacent area.

(b) Microscale CO monitoring paths in downtown areas or urban street canyon locations shall be located a minimum distance of 2.0 meters and a maximum distance of 10 meters from the edge of the nearest traffic lane.

(c) Microscale CO monitoring paths in downtown areas or urban street canyon locations shall be located at least 10 meters from an intersection and preferably at a midblock location. Midblock locations are preferable to intersection locations because intersections represent a much smaller portion of downtown space than do the streets between them. Pedestrian exposure is probably also greater in street canyon/corridors than at intersections.

TABLE E–5 TO APPENDIX E TO PART 58—MINIMUM SEPARATION DISTANCE BETWEEN ROADWAYS AND MONITORING PATHS FOR MONITORING NEIGHBORHOOD SCALE CARBON MONOXIDE

Roadway average daily traffic, vehicles per day	Minimum distance [1] [2] (meters)
≤10,000	10
15,000	25
20,000	45
30,000	80
40,000	115
50,000	135
≥60,000	150

[1] Distance from the edge of the nearest traffic lane. The distance for intermediate traffic counts should be interpolated from the table values based on the actual traffic count.

[2] All distances listed are expressed as having 2 significant figures. When rounding is performed to assess compliance with these siting requirements, the distance measurements will be rounded such as to retain at least two significant figures.

3.5.3 Spacing for Nitrogen Dioxide (NO_2) Monitoring Paths

(a) In siting near-road NO_2 monitors as required in section 4.3.2 of appendix D to this part, the monitoring path shall be as near as practicable to the outside nearest edge of the traffic lanes of the target road segment; but shall not be located at a distance greater than 50 meters, in the horizontal, from the outside nearest edge of the traffic lanes of the target road segment.

(b) In siting NO_2 open path monitors for neighborhood and larger scale monitoring, it is important to minimize near-road influences. Table E–5 to this appendix provides the required minimum separation distances between a roadway and at least 90 percent of a monitoring path for various ranges of daily roadway traffic. An open path analyzer having a monitoring path located closer to a roadway than allowed by the requirements in table E–4 to this appendix should be classified as microscale or middle scale rather than neighborhood or urban scale. The monitoring path(s) must not cross over a roadway with an average daily traffic count of 10,000 vehicles per day or more. For those situations where a monitoring path crosses a roadway with fewer than 10,000 vehicles per day, monitoring agencies must consider the entire segment of the monitoring path in the area of potential atmospheric interference form automobile emissions. Therefore, this calculation must include the length of the monitoring path over the roadway plus any segments of the monitoring path that lie in the area between the roadway and minimum separation distance, as determined form table E–5. The sum of these distances must not be greater than 10 percent of the total monitoring path length.

3.6 Cumulative Interferences on a Monitoring Path

The cumulative length or portion of a monitoring path that is affected by minor sources, trees, or roadways must not exceed 10 percent of the total monitoring path length.

3.7 Maximum Monitoring Path Length

The monitoring path length must not exceed 1 kilometer for open path analyzers in neighborhood, urban, or regional scale. For middle scale monitoring sites, the monitoring path length must not exceed 300 meters. In areas subject to frequent periods of dust, fog, rain, or snow, consideration should be given to a shortened monitoring path length to minimize loss of monitoring data due to these temporary optical obstructions. For certain ambient air monitoring scenarios using open path analyzers, shorter path lengths may be needed in order to ensure that the monitoring site meets the objectives and spatial scales defined in appendix D to this part. The Regional Administrator may require shorter path lengths, as needed on an individual basis, to ensure that the SLAMS sites meet the appendix D requirements. Likewise, the Administrator may specify the maximum path length used at NCore monitoring sites.

3.8 Summary

Table E–6 to this appendix presents a summary of the general requirements for monitoring path siting criteria with respect to distances and heights. It is apparent from table E–6 that different elevation distances above the ground are shown for the various pollutants. The discussion in this appendix for each of the pollutants describes reasons for elevating the monitoring path. The differences in the specified range of heights are based on the vertical concentration gradients. For source oriented and near-road monitors, the gradients in the vertical direction are very large for the microscale, so a small range of heights are used. The upper limit of 15 meters is specified for the consistency between pollutants and to allow the use of a monitoring path for monitoring more than one pollutant.

TABLE E–6 TO APPENDIX E TO PART 58—SUMMARY OF MONITORING PATH SITING CRITERIA

Pollutant	Maximum monitoring path length	Height from ground to 80% of monitoring path[1 8] (meters)	Horizontal or vertical distance from supporting structures[2] to 90% of monitoring path[1 8] (meters)	Distance from trees to 90% of monitoring path[1 8] (meters)	Distance from roadways to monitoring path[1 8] (meters)
SO_2[3 4 5 6]	Middle (300 m) Neighborhood Urban, and Regional (1 km).	2.0–15	≥1.0	≥10	N/A.
CO[4 5 7]	Micro [downtown or street canyon sites], micro [near-road sites], middle (300. m) and Neighborhood (1.0 km).	2.5–3.5; 2.0–7.0; 2.0–15.	≥1.0	≥10	2.0–10 for downtown areas or street canyon microscale; ≤50. for near-road microscale; see Table E–5 to this appendix for middle and neighborhood scales.
O_3[3 4 5]	Middle (300. m) Neighborhood, Urban, and Regional (1.0 km).	2.0–15	≥1.0	≥10	*See* Table E–4 to this appendix for all scales.
NO_2[3 4 5]	Micro (Near-road [50–300 m])	2.0–7.0 (micro); ..	≥1.0	≥10	≤50. for near-road micro-scale.
	Middle (300 m)	2.0–15	≥1.0	≥10	
	Neighborhood, Urban, and Regional (1 km).	2.0–15 (all other scales).	≥1.0	≥10	*See* Table E–4 to this appendix for all other scales.
Ozone precursors (for PAMS)[3 4 5].	Neighborhood and Urban (1 km) ...	2.0–15	≥1.0	≥10	*See* Table E–4 to this appendix for all scales.

N/A—Not applicable.

[1] Monitoring path for open path analyzers is applicable only to middle or neighborhood scale CO monitoring, middle, neighborhood, urban, and regional scale NO_2 monitoring, and all applicable scales for monitoring SO_2, O_3, and O_3 precursors.

[2] When the monitoring path is located on a rooftop, this separation distance is in reference to walls, parapets, or penthouses located on roof.

[3] At least 90 percent of the monitoring path should be greater than 20 meters from the dripline of tree(s) and must be 10 meters from the dripline when the tree(s).

[4] Distance from 90 percent of monitoring path to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the monitoring path. Sites not meeting this criterion may be classified as microscale or middle scale (*see* text).

[5] Must have unrestricted airflow 270 degrees around at least 90 percent of the monitoring path; 180 degrees if the monitoring path is adjacent to the side of a building or a wall for street canyon monitoring.

[6] The monitoring path should be away from minor sources, such as furnace or incineration flues. The separation distance is dependent on the height of the minor source's emission point (such as a flue), the type of fuel or waste burned, and the quality of the fuel (sulfur, ash, or lead content). This criterion is designed to avoid undue influences from minor sources.

[7] For microscale CO monitoring sites, the monitoring path must be ≥10. meters from a street intersection and preferably at a midblock location.

[8] All distances listed are expressed as having 2 significant figures. When rounding is performed to assess compliance with these siting requirements, the distance measurements will be rounded such as to retain at least two significant figures.

4. Waiver Provisions

Most sampling probes or monitors can be located so that they meet the requirements of this appendix. New sites with rare exceptions, can be located within the limits of this appendix. However, some existing sites may not meet these requirements and still produce useful data for some purposes. The EPA will consider a written request from

the State, or where applicable local, agency to waive one or more siting criteria for some monitoring sites providing that the State or their designee can adequately demonstrate the need (purpose) for monitoring or establishing a monitoring site at that location.

4.1 For establishing a new site, a waiver may be granted only if both of the following criteria are met:

4.1.1 The site can be demonstrated to be as representative of the monitoring area as it would be if the siting criteria were being met.

4.1.2 The monitor or probe cannot reasonably be located so as to meet the siting criteria because of physical constraints (*e.g.,* inability to locate the required type of site the necessary distance from roadways or obstructions).

4.2 However, for an existing site, a waiver may be granted if either of the criteria in sections 4.1.1 and 4.1.2 of this appendix are met.

4.3 Cost benefits, historical trends, and other factors may be used to add support to the criteria in sections 4.1.1 and 4.1.2 of this appendix, however, they in themselves, will not be acceptable reasons for granting a waiver. Written requests for waivers must be submitted to the Regional Administrator. Approved waivers must be renewed minimally every 5 years and ideally as part of the annual monitoring network plan accompanying the network assessment as defined in § 58.10(d). The approval date of the waiver must be documented in the annual monitoring network plan to support the requirements of § 58.10(a)(1) and (b)(10).

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■ 31. Revise appendix G to part 58 to read as follows:

Appendix G to Part 58—Uniform Air Quality Index (AQI) and Daily Reporting

1. General Information

1.1 *AQI Overview.* The AQI is a tool that simplifies reporting air quality to the general public in a nationally uniform and easy to understand manner. The AQI converts concentrations of pollutants for which the EPA has established national ambient air quality standard (NAAQS), into a uniform scale from 0–500. These pollutants are ozone (O_3), particulate matter ($PM_{2.5}$, PM_{10}), carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2). The scale of the index is divided into general categories that are associated with health messages.

2. Reporting Requirements

2.1 *Applicability.* The AQI must be reported daily for a metropolitan statistical area (MSA) with a population over 350,000. When it is useful and possible, it is recommended, but not required for an area to report a sub-daily AQI as well.

2.2 *Contents of AQI Report.*

2.2.1 *Content of AQI Report Requirements.* An AQI report must contain the following:

a. The reporting area(s) (the MSA or subdivision of the MSA).

b. The reporting period (the day for which the AQI is reported).

c. The main pollutant (the pollutant with the highest index value).

d. The AQI (the highest index value).

e. The category descriptor and index value associated with the AQI and, if choosing to report in a color format, the associated color. Use only the following descriptors and colors for the six AQI categories:

TABLE 1 TO APPENDIX G TO PART 58—AQI CATEGORIES

For this AQI	Use this descriptor	And this color [1]
0 to 50	"Good"	Green.
51 to 100	"Moderate"	Yellow.
101 to 150	"Unhealthy for Sensitive Groups"	Orange.
151 to 200	"Unhealthy"	Red.
201 to 300	"Very Unhealthy"	Purple.
301 and above	"Hazardous"	Maroon.[1]

[1] Specific color definitions can be found in the most recent reporting guidance (Technical Assistance Document for the Reporting of Daily Air Quality), which can be found at *https://www.airnow.gov/publications/air-quality-index/technical-assistance-document-for-reporting-the-daily-aqi/*.

f. The pollutant specific sensitive groups for any reported index value greater than 100. The sensitive groups for each pollutant are identified as part of the periodic review of the air quality criteria and the NAAQS. For convenience, EPA lists the relevant groups for each pollutant in the most recent reporting guidance (Technical Assistance Document for the Reporting of Daily Air Quality), which can be found at *https://www.airnow.gov/publications/air-quality-index/technical-assistance-document-for-reporting-the-daily-aqi/*.

2.2.2 *Contents of AQI Report When Applicable.* When appropriate, the AQI report may also contain the following, but such information is not required:

a. Appropriate health and cautionary statements.

b. The name and index value for other pollutants, particularly those with an index value greater than 100.

c. The index values for sub-areas of your MSA.

d. Causes for unusually high AQI values.

e. Pollutant concentrations.

f. Generally, the AQI report applies to an area's MSA only. However, if a significant air quality problem exists (AQI greater than 100) in areas significantly impacted by the MSA but not in it (for example, O_3 concentrations are often highest downwind and outside an urban area), the report should identify these areas and report the AQI for these areas as well.

2.3 *Communication, Timing, and Frequency of AQI Report.* The daily AQI must be reported 7 days per week and made available via website or other means of public access. The daily AQI report represents the air quality for the previous day. Exceptions to this requirement are in section 2.4 of this appendix.

Reporting the AQI sub-daily is recommended, but not required, to provide more timely air quality information to the public for making health-protective decisions.

Submitting hourly data in real-time to the EPA's AirNow (or future analogous) system is recommended, but not required, and assists the EPA in providing timely air quality information to the public for making health-protective decisions.

Submitting hourly data for appropriate monitors (referenced in section 3.2 of this appendix) satisfies the daily AQI reporting requirement because the AirNow system makes daily and sub-daily AQI reports widely available through its website and other communication tools.

Forecasting the daily AQI provides timely air quality information to the public and is recommended but not required. Sub-daily forecasts are also recommended, especially when air quality is expected to vary substantially throughout the day, like during wildfires. Long-term (multi-day) forecasts can also be made available when useful.

2.4 *Exceptions to Reporting Requirements.*

i. If the index value for a particular pollutant remains below 50 for a season or year, then it may be excluded from the calculation of the AQI in section 3 of this appendix.

ii. If all index values remain below 50 for a year, then the AQI may be reported at the discretion of the reporting agency. In subsequent years, if pollutant levels rise to where the AQI would be above 50, then the AQI must be reported as required in section 2 of this appendix.

iii. As previously mentioned in section 2.3 of this appendix, submitting hourly data in real-time from appropriate monitors (referenced in section 3.2 of this appendix) to the EPA's AirNow (or future analogous) system satisfies the daily AQI reporting requirement.

3. Data Handling

3.1 *Relationship of AQI and pollutant concentrations.* For each pollutant, the AQI transforms ambient concentrations to a scale from 0 to 500. As appropriate, the AQI is associated with the NAAQS for each pollutant. In most cases, the index value of 100 is associated with the numerical level of the short-term standard (*i.e.,* averaging time of 24-hours or less) for each pollutant. The index value of 50 is associated with the numerical level of the annual standard for a pollutant, if there is one, at one-half the level of the short-term standard for the pollutant, or at the level at which it is appropriate to begin to provide guidance on cautionary language. Higher categories of the index are based on the potential for increasingly serious health effects to occur following exposure and increasing proportions of the population that are likely to be affected. The reported AQI corresponds to the pollutant with the highest calculated AQI. For the purposes of reporting the AQI, the sub-indexes for PM_{10} and $PM_{2.5}$ are to be considered separately. The pollutant responsible for the highest index value (the reported AQI) is called the ''main'' pollutant for that day.

3.2 *Monitors Used for AQI Reporting.* Concentration data from State/Local Air Monitoring Station (SLAMS) or parts of the SLAMS required by 40 CFR 58.10 must be used for each pollutant except PM. For PM, calculate and report the AQI on days for which air quality data has been measured (*e.g.,* from continuous $PM_{2.5}$ monitors required in appendix D to this part). PM measurements may be used from monitors that are not reference or equivalent methods (for example, continuous PM_{10} or $PM_{2.5}$ monitors). Detailed guidance for relating non-approved measurements to approved methods by statistical linear regression is referenced here:

Reference for relating non-approved PM measurements to approved methods (Eberly, S., T. Fitz-Simons, T. Hanley, L. Weinstock., T. Tamanini, G. Denniston, B. Lambeth, E. Michel, S. Bortnick. Data Quality Objectives (DQOs) For Relating Federal Reference Method (FRM) and Continuous $PM_{2.5}$ Measurements to Report an Air Quality Index (AQI). U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA–454/B–02–002, November 2002).

3.3 *AQI Forecast.* The AQI can be forecasted at least 24-hours in advance using the most accurate and reasonable procedures considering meteorology, topography, availability of data, and forecasting expertise. The guidance document, ''Guidelines for Developing an Air Quality (Ozone and $PM_{2.5}$) Forecasting Program,'' can be found at *https://www.airnow.gov/publications/weathercasters/guidelines-developing-air-quality-forecasting-program/.*

3.4 *Calculation and Equations.*

i. The AQI is the highest value calculated for each pollutant as follows:

a. Identify the highest concentration among all of the monitors within each reporting area and truncate as follows:

(1) Ozone—truncate to 3 decimal places
$PM_{2.5}$—truncate to 1 decimal place
PM_{10}—truncate to integer
CO—truncate to 1 decimal place
SO_2—truncate to integer
NO_2—truncate to integer

(2) [Reserved]

b. Using table 2 to this appendix, find the two breakpoints that contain the concentration.

c. Using equation 1 to this appendix, calculate the index.

d. Round the index to the nearest integer.

TABLE 2 TO APPENDIX G TO PART 58—BREAKPOINTS FOR THE AQI

These breakpoints							Equal these AQI's	
O_3 (ppm) 8-hour	O_3 (ppm) 1-hour [1]	$PM_{2.5}$ (µg/m³) 24-hour	PM_{10} (µg/m³) 24-hour	CO (ppm) 8-hour	SO_2 (ppb) 1-hour	NO_2 (ppb) 1-hour	AQI	Category
0.000–0.054	.....	0.0–(9.0–10.0)	0–54	0.0–4.4	0–35	0–53	0–50	Good.
0.055–0.070	.....	(9.1–10.1)–35.4	55–154	4.5–9.4	36–75	54–100	51–100	Moderate.
0.071–0.085	0.125–0.164	35.5–55.4	155–254	9.5–12.4	76–185	101–360	101–150	Unhealthy for Sensitive Groups.
0.086–0.105	0.165–0.204	55.5–125.4	255–354	12.5–15.4	[3] 186–304	361–649	151–200	Unhealthy.
0.106–0.200	0.205–0.404	125.5–225.4	355–424	15.5–30.4	[3] 305–604	650–1249	201–300	Very Unhealthy.
0.201–([2])	0.405+	225.5+	425+	30.5+	[3] 605+	1250+	301+	Hazardous.[4]

[1] Areas are generally required to report the AQI based on 8-hour ozone values. However, there are a small number of areas where an AQI based on 1-hour ozone values would be more precautionary. In these cases, in addition to calculating the 8-hour ozone index value, the 1-hour ozone index value may be calculated, and the maximum of the two values reported.

[2] 8-hour O_3 concentrations do not define higher AQI values (>301). AQI values >301 are calculated with 1-hour O_3 concentrations.

[3] 1-hr SO_2 concentrations do not define higher AQI values (≥200). AQI values of 200 or greater are calculated with 24-hour SO_2 concentration.

[4] AQI values between breakpoints are calculated using equation 1 to this appendix. For AQI values in the hazardous category, AQI values greater than 500 should be calculated using equation 1 and the concentration specified for the AQI value of 500. The AQI value of 500 are as follows: O_3 1-hour—0.604 ppm; $PM_{2.5}$ 24-hour—325.4 µg/m³; PM_{10} 24-hour—604 µg/m³; CO ppm—50.4 ppm; SO_2 1-hour—1004 ppb; and NO_2 1-hour—2049 ppb.

ii. If the concentration is equal to a breakpoint, then the index is equal to the corresponding index value in table 2 to this appendix. However, equation 1 to this appendix can still be used. The results will be equal. If the concentration is between two breakpoints, then calculate the index of that pollutant with equation 1. It should also be noted that in some areas, the AQI based on 1-hour O_3 will be more precautionary than using 8-hour values (see footnote 1 to table 2). In these cases, the 1-hour values as well as 8-hour values may be used to calculate index values and then use the maximum index value as the AQI for O_3.

Equation 1 to Appendix G to Part 58

$$I_p = \frac{I_{Hi} - I_{Lo}}{BP_{Hi} - BP_{Lo}}\left(C_p - BP_{Lo}\right) + I_{Lo}$$

Where:

I_p = the index value for pollutant$_p$.
C_p = the truncated concentration of pollutant$_p$.
BP_{Hi} = the breakpoint that is greater than or equal to C_p.
BP_{Lo} = the breakpoint that is less than or equal to C_p.
I_{Hi} = the AQI value corresponding to BP_{Hi}.
I_{lo} = the AQI value corresponding to BP_{Lo}.

iii. If the concentration is larger than the highest breakpoint in table 2 to this appendix then the last two breakpoints in table 2 may be used when equation 1 to this appendix is applied.

Example

iv. Using table 2 and equation 1 to this appendix, calculate the index value for each of the pollutants measured and select the one that produces the highest index value for the AQI. For example, if a PM_{10} value of 210 µg/m³ is observed, a 1-hour O_3 value of 0.156 ppm, and an 8-hour O_3 value of 0.130 ppm, then do this:

a. Find the breakpoints for PM_{10} at 210 µg/m³ as 155 µg/m³ and 254 µg/m³, corresponding to index values 101 and 150;

b. Find the breakpoints for 1-hour O_3 at 0.156 ppm as 0.125 ppm and 0.164 ppm, corresponding to index values 101 and 150;

c. Find the breakpoints for 8-hour O_3 at 0.130 ppm as 0.116 ppm and 0.374 ppm, corresponding to index values 201 and 300;

d. Apply equation 1 to this appendix for 210 µg/m³, PM_{10}:

$$\frac{150-101}{254-155}(210-155)+101=128$$

e. Apply equation 1 to this appendix for 0.156 ppm, 1-hour O_3:

$$\frac{150-101}{0.164-0.125}(0.156-0.125)+101=140$$

f. Apply equation 1 to this appendix for 0.130 ppm, 8-hour O_3:

$$\frac{300-201}{0.374-0.116}(0.130-0.116)+201=206$$

g. Find the maximum, 206. This is the AQI. A minimal AQI report could read: ''Today, the AQI for my city is 206, which is Very Unhealthy, due to ozone.'' It would then reference the associated sensitive groups.

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FEDERAL REGISTER PAGES AND DATE, JANUARY

1–288	3
289–738	4
739–948	5
949–1132	6
1133–1322	9
1323–1496	10
1497–1972	11
1973–2174	12
2175–2500	13
2501–2794	17
2795–3282	18
2795–3282	18
3283–3628	19
3629–3910	20
3911–4078	23
4079–4718	24
4719–4890	25
4891–5244	26
5245–5720	27

CFR PARTS AFFECTED DURING JANUARY

At the end of each month the Office of the Federal Register publishes separately a List of CFR Sections Affected (LSA), which lists parts and sections affected by documents published since the revision date of each title.

2 CFR

Proposed Rules:

3474	2395

3 CFR

Proclamations:

10510	739
10511	741
10512	743
10513	3283
10514	3285
10515	4719
10516	4893

Administrative Orders:

Memorandoms:	
Memorandom of January 6, 2023	2795
Memorandum of January 17, 2023	3909
Memorandum of January 19, 2023	4891
Memorandum of January 22, 2023	4895

5 CFR

185	5245
532	1133
1201	4079
2634	1139
2636	1139

6 CFR

5	2797
27	2175

Proposed Rules:

19	2395

7 CFR

9	1862
205	3548
701	1862
760	1862
1400	1862
1416	1862
1437	1862
1450	1862

Proposed Rules:

16	2395
905	2862
920	16
985	18
3555	5275
3560	1149

8 CFR

270	2175
274a	2175
280	2175

Proposed Rules:

103	402, 1172
106	402, 1172
204	402, 1172
212	402, 1172
214	402, 1172
240	402, 1172
244	402, 1172
245	402, 1172
245a	402, 1172
264	402, 1172
274a	402, 1172

9 CFR

352	2798
354	2798
362	2798
412	2798

Proposed Rules:

1	1151
2	1151
3	1151
71	3320
77	3320
78	3320
86	3320

10 CFR

2	2187, 2188
13	2188
52	3287
72	949
207	2190
218	2190
429	2190, 3234
430	3234
431	2190
490	2190
501	2190
601	2190
810	1973
820	2190
824	2190
851	2190
1013	2190
1017	2190
1050	2190

Proposed Rules:

30	25
40	25
50	25
70	25
72	25, 1010
429	4091
430	790, 1638, 4091
431	1722
1021	2029

12 CFR

19	289
109	289
201	2194
204	2195
253	5204
263	1497
622	2197
747	1323

LIST OF PUBLIC LAWS

Note: No public bills which have become law were received by the Office of the Federal Register for inclusion in today's **List of Public Laws**.

Last List January 10, 2023

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