

whether good cause exists. If the request is timely, an administrative law judge will reinstate the request for a hearing and offer you an opportunity for a hearing.

(e) *Effect of an attorney advisor's decision.* An attorney advisor's decision under this section is binding unless—

(1) You or another party to the hearing submits a timely request that an administrative law judge reinstate the request for a hearing under paragraph (d) of this section;

\* \* \* \* \*

(f) \* \* \*

(3) Make the decision of an attorney advisor under paragraph (d) of this section subject to review by the Appeals Council if the Appeals Council decides to review the decision of the attorney advisor anytime within 60 days after the date of the decision under § 416.1469.

\* \* \* \* \*

9. Amend § 416.1448 by revising the second sentence of paragraph (a), and paragraph (b)(1)(ii), to read as follows:

**§ 416.1448 Deciding a case without an oral hearing before an administrative law judge.**

(a) *Decision fully favorable.* \* \* \* The notice of the decision will state that you have the right to an oral hearing and to examine the evidence on which the ALJ based the decision.

(b) \* \* \*

(1) \* \* \*

(ii) You live outside the United States, you do not inform us that you wish to appear, and there are no other parties who wish to appear.

\* \* \* \* \*

10. Revise § 416.1460 to read as follows:

**§ 416.1460 Vacating a dismissal of a request for a hearing before an administrative law judge.**

(a) Except as provided in paragraph (b) of this section, an administrative law judge or the Appeals Council may vacate a dismissal of a request for a hearing if, within 60 days after the date you receive the dismissal notice, you request that we vacate the dismissal and show good cause why we should not have dismissed the request for a hearing. The Appeals Council may decide to vacate a dismissal on its own initiative within 60 days after we mail the notice of dismissal. The Appeals Council will inform you in writing if it vacates the dismissal.

(b) If an administrative law judge dismissed your request for a hearing because you received a fully favorable revised determination under the prehearing case review process in § 416.1441, but you still wish to proceed with the hearing, then you must follow

the procedure in § 416.1441(d) to request that an administrative law judge vacate his or her order dismissing your request for a hearing.

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## DEPARTMENT OF TRANSPORTATION

### Federal Highway Administration

#### 23 CFR Part 650

[FHWA Docket No. FHWA-2008-0038]

RIN 2125-AF24

#### National Tunnel Inspection Standards

**AGENCY:** Federal Highway Administration (FHWA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM); request for comments.

**SUMMARY:** The FHWA solicits comments concerning the establishment of National Tunnel Inspection Standards (NTIS). The NTIS would set minimum tunnel inspection standards that apply to all tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways. The agency proposes modeling the NTIS after the existing National Bridge Inspection Standards (NBIS) as applicable. The NTIS would include requirements for inspection procedures for structural elements and functional systems, including mechanical, electrical, hydraulic and ventilation systems; qualifications for inspectors; inspection frequencies; and a National Tunnel Inventory (NTI).

**DATES:** Comments must be received on or before September 20, 2010. Late-filed comments will be considered to the extent practicable.

**ADDRESSES:** Mail or hand deliver comments to: Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., Washington, DC 20590-0001, or submit electronically at <http://www.regulations.gov>, or fax comments to (202) 493-2251. All comments should include the docket number that appears in the heading of this document. All comments received will be available for examination and copying at the above address from 9 a.m. to 5 p.m., e.t., Monday through Friday, except Federal holidays. Those desiring notification of receipt of comments must include a self-addressed, stamped postcard or may print the acknowledgment page that appears after submitting comments electronically. Anyone is able to search

the electronic form of all comments in any one of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, or labor union). You may review the U.S. Department of Transportation's (DOT) complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70, Pages 19477-78), or you may visit <http://DocketsInfo.dot.gov>.

**FOR FURTHER INFORMATION CONTACT:** Mr. Jesus M. Rohena, P.E., Office of Bridge Technology, HIBT-10, (202) 366-4593, or Mr. Robert Black, Office of the Chief Counsel, HCC-30, (202) 366-1359, Federal Highway Administration, 1200 New Jersey Ave., SE., Washington, DC 20590-0001. Office hours are from 7:45 a.m. to 4:15 p.m., e.t., Monday through Friday, except Federal holidays.

#### SUPPLEMENTARY INFORMATION:

##### Electronic Access and Filing

You may submit or retrieve comments online through the Federal Docket Management System at <http://www.regulations.gov>. It is available 24 hours each day, 365 days each year. Electronic submission and retrieval help and guidelines are available under the help section of the Web site. An electronic copy of this document may also be downloaded by accessing the Office of the Federal Register's home page at <http://www.archives.gov> and the Government Printing Office's Web page at <http://www.gpoaccess.gov/nara>.

##### Background

The safety and security of our Nation's tunnels are of paramount importance to the FHWA. Recognizing that tunnel owners are not mandated to inspect tunnels routinely and that inspection methods vary among entities that inspect tunnels, the FHWA and the Federal Transit Administration developed guidelines for the inspection of tunnels in 2003. The guidelines, known as the "Highway and Rail Transit Tunnel Inspection Manual," (HRTTIM) were updated in 2005.<sup>1</sup> In addition, the FHWA developed Tunnel Management Software to help tunnel owners manage their tunnel inventory. However, tunnel owners have not adopted the software uniformly, and the FHWA recognizes the limitations of the software.

After investigating the fatal July 2006 suspended ceiling collapse in the Central Artery Tunnel in Boston,

<sup>1</sup> The Federal Highway Administration/Federal Transit Administration "Highway and Rail Transit Tunnel Inspection Manual," 2005 edition, is available in electronic format at: <http://www.fhwa.dot.gov/bridge/tunnel/management/>.

Massachusetts, the National Transportation Safety Board (NTSB) stated in its report that, “had the Massachusetts Turnpike Authority, at regular intervals between November 2003 and July 2006, inspected the area above the suspended ceilings in the D Street portal tunnels, the anchor creep that led to this accident would likely have been detected, and action could have been taken that would have prevented this accident.” Among its recommendations, the NTSB suggested that the FHWA seek legislative authority to establish a mandatory tunnel inspection program similar to the NBIS that would identify critical inspection elements and specify an appropriate inspection frequency. Additionally, the DOT Inspector General (IG), in testimony before Congress in October 2007, highlighted the need for a tunnel inspection and reporting system to ensure the safety of the Nation’s tunnels, stating that the FHWA “should develop and implement a system to ensure that States inspect and report on tunnel conditions.” Additionally, the IG stated that “FHWA should move aggressively on this rulemaking and establish rigorous inspection standards as soon as possible.”

The NTIS would implement these NTSB and IG recommendations. The FHWA proposes modeling the NTIS after the existing NBIS, located at 23 CFR 650, Subpart C. The agency proposes adding the NTIS under Subpart E of 23 CFR Part 650—Bridges, Structures, and Hydraulics.

The NTIS would require the proper safety inspection and evaluation of tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways. The NTIS are needed to ensure that all structural, mechanical, electrical, hydraulic and ventilation systems, and other major elements of our Nation’s tunnels are inspected and tested on a regular basis. The NTIS would also ensure safety for the surface transportation users of our Nation’s highway tunnels, and would make tunnel inspection standards consistent across the Nation. Additionally, tunnel inspections would help protect Federal investment in such key infrastructure.

Timely tunnel inspection is vital to uncovering safety problems and preventing failures. When corrosion or leakage occur, electrical or mechanical systems malfunction, or concrete cracking and spalling signs appear, they may be symptomatic of dire problems. The importance of tunnel inspection was demonstrated in the summer of 2007 in the I-70 Hanging Lake tunnel in Colorado when a ceiling and roof

inspection uncovered a crack in the roof that was compromising the structural integrity of the tunnel. This discovery prompted the closure of the tunnel for several months for needed repairs. The repairs included removal of more than 30 feet of soil fill material from the top of the tunnel roof, temporary support of the roof from the inside of the tunnel, removal of the suspended ceiling, and the design and construction of a new slab cast on top of the existing roof to reinforce and add extra structural capacity. To accomplish the repair, the eastbound tube under the cracked roof was closed to traffic, and the adjacent westbound tube was converted to a tube with bi-directional traffic. Even though the eastbound tunnel was closed for 7 months, and the repair cost approximately \$6 million, the repairs helped prevent a potential safety incident.

A preliminary tunnel survey conducted in 2003 suggests that there are approximately 350 highway tunnels in the Nation, although no comprehensive national inventory for tunnels currently exists. The FHWA additionally estimates that tunnels represent nearly 100 linear miles—approximately 517,000 linear feet—of Interstates, State routes, and local routes. Most of these tunnels range in age from 51 to 100 years, and some tunnels were constructed in the 1930s and 1940s. The FHWA anticipates that the NTIS would help create a national inventory of tunnels that would lead to a more accurate assessment of the number and condition of tunnels in the Nation.

Tunnels like the Central Artery tunnel in Massachusetts, the Lincoln Tunnel in New York, the Fort McHenry and the Baltimore Harbor tunnels in Maryland, just to mention a few, are a vital part of the national transportation infrastructure. These tunnels handle a huge volume of daily traffic. For example, according to the Port Authority of New York and New Jersey, the Lincoln Tunnel carries approximately 120,000 vehicles per day, making it the busiest vehicular tunnel in the world. The Fort McHenry Tunnel handles a daily traffic volume of more than 115,000 vehicles. Any disruption of traffic in these or other highly traveled tunnels would result in lost productivity. Because tunnels are vital to the local, regional, and national economies, and to our national defense, it is imperative that these facilities are properly maintained and inspected to ensure the safe passage of the traveling public and goods.

Currently, there is no uniformity with respect to how frequently tunnels are

inspected. The frequency of tunnel inspections varies from daily to every 10 years. Some inspectors in colder climates walk through air ducts on a daily basis to identify potential icing problems due to water leakage. Some inspectors examine mechanical and electrical equipment on a daily basis, while others perform such inspections on a monthly basis. Under the proposed NTIS, State departments of transportation (State DOTs) and Federal agencies owning tunnels would be responsible for ensuring compliance with the NTIS for tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways. The proposed NTIS would require that these tunnels are inspected routinely, that the findings of such inspections are reported to the FHWA, and that deficiencies are corrected in a timely manner.

#### **Summary of Comments Received to the Advance Notice of Proposed Rulemaking (ANPRM)**

The FHWA issued an ANPRM on November 18, 2008, at 73 FR 68365, to solicit public comments regarding 14 categories of information related to tunnel inspections to help FHWA develop the NTIS. The FHWA received comments on the docket from 20 commenters, including: 9 State DOTs (Alaska, California, Massachusetts, Oregon, Ohio, Pennsylvania, New Jersey, Florida, and Washington); 1 metropolitan transit authority (Triborough Bridge and Tunnel Authority/Metropolitan Transit Authority Bridges and Tunnels (TBTA/MTA)); 3 engineering consulting firms (United Technologies Corporation (UTC), Jacobs Associates, and PB Americas); 2 private citizens; and 4 organizations (American Society of Civil Engineers (ASCE), American Association of State Highway Transportation Officials (AASHTO), American Council of Engineering Companies (ACEC), and National Fire Protection Association (NFPA)). Additionally, in a letter to Secretary LaHood, Congressman Joseph Capuano of Massachusetts expressed support for the development of NTIS. Commenters overwhelmingly supported the development of NTIS and agree that FHWA should model the NTIS after the NBIS.

#### **Discussion of ANPRM Comments Concerning NTIS**

##### *Applicability*

In the ANPRM, the FHWA proposed that the NTIS apply to all Federal-aid

funded highway tunnels on public roads in the 50 States, District of Columbia, and Puerto Rico. In his letter to Secretary LaHood, Congressman Capuano asserted that the NTIS should apply to all highway tunnels, but recognized that current law may limit FHWA's authority to only Federal-aid highway tunnels.

#### *Definition of a Tunnel*

In the ANPRM, FHWA asked several questions related to the definition of a "tunnel," including what requirements the FHWA should incorporate into the definition of a "tunnel," whether there should be a minimum length or other criteria required before a tunnel is subject to the NTIS, and whether the FHWA should adopt the AASHTO or NFPA tunnel definition. In general, most commenters expressed support for adoption of the AASHTO tunnel definition with modifications. Ohio DOT, PB Americas, TBTA/MTA, Jacobs Associates, ACEC, and ASCE commented that the tunnel definition should include a minimum length. PB Americas commented that the NTIS should adopt the AASHTO definition and add a length requirement of 800 feet. Jacobs Associates indicated that the agency should consider a minimum structure length-to-height ratio of three to define a tunnel. The ASCE expressed support for a minimum length of 20 feet. Ohio DOT and ACEC commented the NTIS should have a length requirement; however, they did not suggest a length. The NFPA commented that the definition of tunnel need not contain a minimum length; however, tunnels should be categorized by tunnel length. The AASHTO, New Jersey DOT, TBTA/MTA, Washington State DOT, and Pennsylvania DOT commented the NTIS should adopt the AASHTO definition of a tunnel. The ACEC asserted that the tunnel definition should include tunnels that have been created by a group of bridges, airtight structures, parking, or other facilities built close to each other.

#### *Inspection Procedures*

In the ANPRM, FHWA asked if the proposed NTIS should adopt the inspection techniques and standards described in the HRTTIM. Most commenters agreed that the NTIS should either adopt or utilize the HRTTIM with respect to inspections and ratings. The ACEC asserted that the HRTTIM should be adopted, but with modifications. California DOT (Caltrans) commented that the HRTTIM needed significant modifications and, in particular, noted that the HRTTIM lacked guidance relative to the

inspection of electrical and mechanical components and other functional systems. Accordingly, Caltrans proposed that the NTIS should consider States' existing inspection guidelines. Ohio DOT objected to the use of the HRTTIM, but offered no alternative suggestions.

The FHWA also asked whether additional sources of inspection standards should be considered. A number of commenters, including the ACEC, PB Americas, ASCE, AASHTO and others, recommended that the NTIS develop and require a more element-level-based rating system. Additionally, ASCE and Pennsylvania DOT recommended that the NTIS incorporate a tunnel sufficiency rating. The New Jersey DOT stated that for functional systems, owners should have the discretion to determine or establish the type of inspection and frequency. The AASHTO asserted that inspections should be routinely conducted at frequencies based on need, whereas in-depth inspections should be conducted as determined by the owner. Several commenters noted that risk-based inspection types and frequencies should be considered. The ASCE commented that a risk-based approach would address the inspection needs of geotechnical aspects of a tunnel. The Massachusetts Highway Department (MassHighways) and the ACEC noted that special inspections should be triggered based on findings from the routine inspection. MassHighways further noted that the actual type of inspection should be left to the owner's discretion, while the ACEC recommended yearly visual inspections and in-depth inspections on a 2-year cycle.

In the ANPRM, FHWA asked if tunnel inspections should include evaluation of emergency response and non-emergency operational procedures. Oregon DOT noted the importance of reviewing inspector safety issues such as confined space and traffic safety requirements. A number of commenters also indicated that some review or assessment of tunnel security and emergency response procedures or measures might be appropriate, although the New Jersey DOT asserted that actual tracking and evaluation of these security systems could be problematic.

Regarding whether there are any special inspection procedures for new tunnels that should be included in inspector manuals, some commenters recommended that FHWA review and incorporate into the NTIS inspection procedures or guidelines developed by other agencies or in other countries. In

particular, commenters pointed to the National Cooperative Highway Research Program (NCHRP) 20-07 Task 261 report and the AASHTO Movable Bridge Inspection, Evaluation and Maintenance Manual.

#### *Frequency and Type of Inspections*

In the ANPRM, the FHWA asked what tunnel elements and systems should be inspected routinely. Oregon DOT indicated that drainage systems should be inspected twice per year, and liner; portal slopes; geotechnical elements; and lighting, ventilation, electrical, and fire control systems should be inspected at a frequency determined by the owner based on risk factors. New Jersey DOT commented that drainage systems, tunnel structural supports (rock bolts, *etc.*), liner, portals, portal slopes, lighting system and shut-off, ventilation, fire suppression system, traffic visibility provisions, and bicycle and pedestrian facilities should be inspected. Ohio DOT recommended that structural items, mechanical, electrical, and emergency systems should be included in inspections. The TBTA/MTA suggested that roadways, suspended ceiling, ventilation system, drainage, geometrical alignment, signal, emergency telephone lines, and call boxes should be inspected. The AASHTO asserted that all tunnel systems should be part of an inspection program, including emergency response elements and operational procedures. The AASHTO also indicated that inspections should include structural, mechanical, electrical, emergency response, and fire protection systems; geotechnical elements; wall tiles, water pumps; emergency gates; evacuation tunnels; communication devices; traffic signals; and lighting. The AASHTO further suggested that inspectors should look for evidence of excessive seepage, settlement, or instability impacting the tunnel walls, roof, floor, portals, ceiling, or air shafts.

In the ANPRM, the FHWA asked what inspection frequency the NTIS should establish for tunnel elements and systems. In general, most commenters recommended that the NTIS should require inspections every 24 months. The AASHTO and Oregon DOT suggested that the NTIS should require tunnel owners to establish a frequency for inspection based on a list of risk factors because some tunnels may require more frequent inspections than others. Ohio DOT and New Jersey DOT recommended that emergency systems should be inspected more frequently depending on the tunnel. The TBTA/MTA commented that elements directly affecting public safety and traffic

continuity must be inspected on a routine basis. The AASHTO commented that frequency should be determined based on need. MassHighways asserted that inspection frequencies should be established for each component based on risk and vulnerability to the tunnel operating environment and mean time to failure. The ACEC commented that inspection frequency could be based on the function of the inspected item or system, the age of the structure, and the overall condition, and that certain, more fragile safety-related systems might require an inspection in close intervals, possibly on a monthly variable schedule, even in new facilities. Jacobs Associates suggested that tunnel inspections should be reviewed by an outside qualified reviewer every 5 years. The ASCE commented that the inspection frequencies may need to vary depending on the complexity of the systems, the age of the systems, and the operational characteristics of the tunnel facility. The ASCE further proposed that the FHWA should consider European practices identified in NCHRP 20–07 Task 261, the European Scan Tour, and other related sources. PB Americas advised that routine inspections should occur every 2 years, while inspections of critical elements must be performed after any emergency event. Caltrans stated that the NTIS should be flexible to allow States to establish their own inspection frequencies, with the exception of structural components, which could be inspected at intervals similar to inspection under the NBIS.

In the ANPRM, the FHWA asked whether a minimum frequency for tunnel inspection should be established. The majority of commenters stated that there should be a minimum frequency, and most commenters favoring a specific interval suggested a 2-year interval. Most commenters stated that more frequent inspections should be required in many cases to account for the wide variety of tunnel type and complexity, but that owners should determine inspection frequency. Jacobs Associates, ACEC, and PB Americas thought that the maximum interval of 12 months for visual inspections is appropriate for most tunnels, with a hands-on inspection completed at 2-year or longer intervals. The AASHTO, Oregon DOT, and ACEC stated that a longer interval of 4 to 6 years should be granted for new tunnels or tunnels with no advanced or unique structural elements and systems. The AASHTO indicated that intervals up to 6 years could be established for mechanical and electrical systems, but most commenters thought that these systems should be

inspected or tested more frequently than tunnel structures.

In the ANPRM, we asked whether the NTIS should identify various types of inspections, and if so, what types of inspections should be defined. The majority of commenters noted that routine or visual inspections should be conducted at a more frequent interval than in-depth inspections, and that functional systems should receive inspections at different frequencies depending on risk and the complexity and condition of the systems.

In the ANPRM, we asked whether the frequency of each type of inspection should vary according to the type of inspection. All commenters agreed that inspection frequency should vary by type of inspection and that owners should determine the frequencies of routine and special inspections based on tunnel condition, age, and risk factors. Commenters noted that systems that owners actively operate may not need to be inspected as frequently as mechanical and electrical systems that are operated only in an emergency mode. The majority of commenters further suggested that structural systems of a tunnel should be inspected with the same frequency as a bridge (at a minimum every 2 years). The ASCE asserted that for non-seismic zones, inspections of geotechnical related items initially should be established on a minimum schedule, but may be adjusted to a longer frequency if historic inspection data indicate low risk of problems. For seismic zones, the ASCE recommended inspections should occur immediately following an earthquake.

The FHWA asked in the ANPRM whether the NTIS should include a risk-based frequency to account for the complexity of each tunnel. All commenters agreed that the NTIS should include a risk-based approach to establish the inspection frequency. Caltrans recommended that risk-based inspection frequencies should only apply to structural components. PB Americas indicated that a risk-based frequency should be established based on tunnel age, condition, and maintenance. The ACEC recommended that a minimum visual inspection be conducted every year and more extensive, hands-on inspections be conducted every 2 years. The ACEC also suggested that the NTIS should include a default inspection frequency for use in the absence of a structured risk-based assessment.

In the ANPRM, we asked what factors (e.g., age, traffic, length, ventilation, urban or rural location) should be included in a risk-based frequency inspection system. Commenters

generally included the following as key risk factors to consider during inspections: Average Daily Traffic, Average Daily Truck Traffic, length, age, condition, detour length, presence of mechanical or ventilation systems, design and construction type, submerged (or above water level), presence of security systems, geotechnical environments through which the tunnel is built (such as faults, aggressive or corrosive soils), tunnel location importance, strategic values, seismic risk or vulnerability, and traffic accident frequency. The ASCE commented that not all factors should carry the same weight, and the weighting of individual factors could vary from one structure to another.

#### *Equipment and System Inspection*

In the ANPRM, the FHWA indicated the NTIS likely would include requirements for inspection procedures for structural, mechanical, electrical, hydraulic or ventilation systems, and other major tunnel elements. In general, all commenters agreed the NTIS should require inspection of all systems in a tunnel. Oregon DOT remarked that the NTIS should not contain arbitrary frequency or type of inspections, but general guidelines with a requirement that the owner establish an appropriate inspection process for each tunnel. The AASHTO recommended inspecting portals, drainage systems, roadway surfaces, and air shafts. The NFPA recommended that security systems should be installed, inspected, tested, and maintained in accordance with NFPA 731, Standard for the Installation of Electronic Premises Security Systems.

#### *Qualifications of Personnel*

The FHWA also asked in the ANPRM whether inspector qualification requirements should be the same as those established in the HRTTIM and what should be required in terms of tunnel inspector training, education, and experience. In general, the commenters observed that the HRTTIM provides for minimum inspector qualification requirements, but commented that the HRTTIM needs to be expanded to specifically include all pertinent disciplines, including electrical, mechanical, structural, geotechnical, geological, lighting, ventilation, and communications. Most commenters suggested that there should be a distinction between qualification requirements for Team Leaders and for other team members. Those commenters further proposed that Team Leaders should be professional engineers (PEs) licensed in the discipline specific to the tunnel inspection requirements and that

tunnel inspection team members qualifications should parallel NBIS qualification requirements. The ACEC advised that FHWA should also consider the AASHTO T-20 document in determining inspector requirements. The ASCE noted that tunnel inspectors should be familiar with tunnel design and construction. Ohio DOT asserted that the HRTTIM should not be adopted because a PE is not necessary for tunnel inspections. The AASHTO proposed that States should establish tunnel inspector qualifications based on the needs of the tunnels in each State's inventory. Washington State DOT contended that it is not necessary to require a tunnel inspection Team Leader to have tunnel design experience. Oregon DOT stated that tunnel inspection team members should be registered PEs.

Most commenters recommended that the National Highway Institute (NHI) provide training in tunnel design and inspection, similar to what it provides for bridge inspectors (*i.e.*, comprehensive initial training with periodic refresher training), and that other discipline-specific inspection training should be required for team members performing certain aspects of tunnel inspections. Florida DOT maintained that comprehensive training should be required for the Team Leader with discipline specific training required for other specialists on the team. Many commenters advocated for tunnel inspector training under the NTIS that parallels bridge inspector training under the NBIS. The AASHTO stated that training should be required that would allow States to certify tunnel inspectors, while MassHighways commented that a nationally established training program would help foster consistency of tunnel inspections across the States. The ASCE suggested inspectors should complete refresher training every 3 to 5 years. The ACEC commented that training should include an inspector safety component. The commenters that addressed education requirements recommended that an inspection Team Leader should be a licensed PE with a 4-year degree and that other team members should have at least a high school diploma unless their specialty requires a college degree. Pennsylvania DOT suggested that inspection teams should be structured with qualified individuals certified through education and experience.

Most commenters recommended that the NTIS specify separate experience requirements for Team Leaders and team members, and discipline-specific experience requirements for inspectors. Many commenters asserted that tunnel

inspector experience requirements should parallel requirements under the NBIS. New Jersey DOT stated its concern that if the NTIS make specific training in tunnel design mandatory, the pool of potential inspectors with this particular expertise would result in higher costs than necessary. The TBTA/MTA suggested that any "rating" given for a tunnel component or overall tunnel, would be much more experience-based than ratings generated in a bridge inspection. The ACEC recommended that the Team Leader have a minimum of 5 years of experience. Jacobs Associates recommended that the Team Leader have a minimum of 15 years of experience. The ASCE commented that inspector experience requirements should be tied to the complexity of the tunnel and the level of inspection (*e.g.*, initial, in-depth, and periodic). Caltrans suggested that inspector experience requirements should be based on the feature(s) being inspected and the expertise required.

#### *Record Keeping*

The ANPRM also requested comments about who should be required to keep records of highway tunnel inspections performed within the State, whether the record keeping requirements contained in the HRTTIM are sufficient, and how long tunnel inspection records should be maintained.

In general, commenters stated that State DOTs should retain a centralized database for their tunnels and that other tunnel owners should retain these records themselves and also send the records to the State DOTs. Additionally, the commenters recommended that all records be reported to the FHWA similar to the requirements of the NBIS. Commenters further suggested that the record keeping requirements in the HRTTIM provide a good starting point, but consideration should be given to developing tunnel-specific core elements and condition codes (or ratings) for those elements that would lend themselves to an asset management system. Washington State DOT asserted that the HRTTIM should be modified to be less specific about repair priorities and more specific about inventory data retention. Many of the commenters recommended that the NTIS record keeping requirements mirror the NBIS. Oregon DOT commented that the tunnel condition assessment should be incorporated into the National Bridge Inventory (NBI) submittal. The AASHTO suggested that tunnel inspection records for local streets and roads should be separate and the responsibility of the owner. The ACEC

indicated that site-specific or other special conditions might be required for new tunnels and should be specified by the tunnel designer. The ASCE pointed out that the HRTTIM does not currently provide condition codes (or ratings) for individual elements in a tunnel and that a new system should be considered that would encompass the full spectrum of structural, mechanical and electrical components to be inspected. Pennsylvania DOT asserted that commonly recognized element-level recording should be followed to provide the basis for maintenance needs.

Most commenters recommended that tunnel inspection records be kept for the life of the structure similar to the NBIS. However, AASHTO suggested that inspection records should be kept for several years after the tunnel is replaced. The NFPA recommended records retention for four inspection cycles for at least 10 years. The ACEC asserted that tunnel inspection records should be retained for seven inspection cycles, and PB Americas suggested that tunnel inspection records should be retained for a period of at least 7 years.

The ACEC commented that the FHWA should consider homeland security concerns in establishing the NTIS. For example, ACEC noted that detailed tunnel records should not be released without proper authorization and identification. The ACEC also suggested that the FHWA should consult with other relevant Federal agencies on the security risks for the disclosure of potentially sensitive information.

#### *Rating*

In the ANPRM, the agency requested comments regarding whether a condition-based rating system should be used for rating tunnel elements. The Florida, Oregon and Ohio DOTs, along with the TBTA/MTA and Jacob Associates, agreed that a condition rating system similar to that in the NBIS should be used to rate tunnel elements. However, a number of commenters, including the ASCE, ACEC, Caltrans and others, commented that some sort of rating system should be used, but generally agreed that a system similar to that used in the NBIS is too subjective and that a more element-level rating system should be developed and incorporated in the NTIS. Some commenters also noted that a tunnel sufficiency rating similar to that used under the NBIS should be developed and incorporated into the NTIS.

The FHWA also asked if the ratings should be used for funding decisions. The New Jersey DOT suggested that a prioritization system tied to element ratings would be appropriate. However,

Caltrans indicated that the rating and prioritization of electrical and mechanical components would not be appropriate because repairs to these systems are needs-based. The ACEC and the Oregon DOT disagreed. The ACEC commented that a prioritization system could create the potential for owners to neglect maintenance of their tunnels.

MassHighways and AASHTO recommended that a rating matrix be developed wherein various elements would be rated and their condition tracked. The AASHTO recommended that such a matrix could include items such as costs, risk, consequence, and time to repair.

#### *National Tunnel Inventory Database*

In the ANPRM, the FHWA asked what tunnel data elements should be collected (name, age, length, width, height, number of lanes, *etc.*) and included in the tunnel inventory database. The ASCE suggested collecting data on geometric information, lane clearances, overburden characteristics and complete description of the mechanical systems, water and ground water, temporary ground support, type and number of geotechnical instrumentation, documentation of performance during an earthquake, and structural modifications. The ACEC commented that the data collected should be comprehensive and address as many main and subsystems as possible.

The AASHTO, Caltrans, MassHighways, and the Washington State, Oregon, and Florida DOTs commented that the data collected should be similar to data collected under the NBIS. The AASHTO also commented that inventory data should include special elements such as ventilation, lighting, type of ceilings, type of design, structural elements, and conditions and appraisal ratings. The AASHTO recommended that core elements should be developed and applied. New Jersey DOT recommended that the NTIS should use the NBI as a starting point and add information specific to tunnels.

The ANPRM included a question regarding how often data should be collected and reported. The ASCE suggested that there should be an initial inventory entered after the NTIS is implemented and then updated at each inspection. The ACEC recommended that the data be collected and reported at a minimum of 5 years and as changes occur to tunnel condition, repairs completed, system replaced or updated. The AASHTO, MassHighways, and the Washington State and Florida DOTs commented that the data should be

collected in conjunction with inspection cycles and reported annually. Ohio DOT advocated for reporting inspection data every 2 years, but reporting inventory data (*e.g.*, tunnel location, geometrics) only once unless information changes. PB Americas proposed that the data be reported to the FHWA every 2 years.

In the ANPRM, the FHWA requested comments about whether data should be collected and reported to FHWA. In general, all responders expressed general support for data collection and reporting. Additionally, most commenters believed that the data should be reported to FHWA. Caltrans recommended that the data should be reported to FHWA if the intent is to determine funding needs. New Jersey State DOT also suggested that the data should not be reported to FHWA unless a Federal-aid program (similar to the Highway Bridge Program) is created to fund improvement projects for identified needs.

In the ANPRM, the FHWA asked whether tunnel identification numbers should be used. Most commenters responded that a system should be used to identify the tunnel.

The FHWA also asked what criteria should be used to assign an identification number. The ACEC advocated for criteria similar to the NBIS criteria. Caltrans suggested that the identification number should be similar to the NBI to simplify creating a numbering system. Washington State DOT commented the system should not allow duplicated identifiers between bridge and tunnel identification numbers. AASHTO recommended a system similar to the bridge inventory numbering system would be adequate.

#### *Organization of Inspection Teams*

The ANPRM included questions about how inspection teams should be organized, whether inspection teams should be established with differing levels of responsibility, and whether one person on the team should have overall responsibility for the program. In general, commenters recommended that the NTIS should provide guidance regarding inspection team organization, training, and certification. MassHighways, the Oregon and California DOTs, and AASHTO stated that while guidance within the NTIS on this matter is appropriate, tunnel owners should determine the composition and organization of the inspection teams to best address various tunnel types, complexities, construction, and related systems. Conversely, the ASCE commented that rather than a tunnel owner determining inspection team organization, the NTIS

should provide guidelines on the organization and composition of inspection teams per category of tunnel.

Most commenters advocated for the formation of multidisciplinary inspection teams to encompass the various systems encountered in complex tunnels, incorporating areas of expertise in structural, geotechnical, geological, mechanical, electrical, ventilation, and operational systems. The ASCE noted that teams should be developed by category of tunnel and should be comprised of a Team Leader and inspection members specializing in the aforementioned tunnel systems. Conversely, the NFPA noted that while inspection teams should include all needed specialized expertise for thorough tunnel inspection, team members would not need to have a specialization in any one area. PB Americas commented that the team should be, at a minimum, comprised of two inspectors and a data recorder to provide for expedited inspections, limited lane shutdowns, and team safety. The ACEC recommended that inspection teams include two inspectors—an engineer and a recorder, but added that additional team members may be required to expedite inspections of complex tunnels and to improve team safety. The ACEC also noted that for mechanical and electrical system inspections, inspectors typically should not be responsible for the maintenance of these functions within the tunnel. The Florida and New Jersey DOTs commented that separate teams should be organized for each tunnel system (*e.g.*, electrical, mechanical, structural), and should operate independently instead of part of a larger multidisciplinary team, thereby providing for variable inspection cycles per system. For example, maintenance items may be inspected on a weekly basis, whereas the structure may be inspected on a less frequent annual basis. Caltrans, the New York and Washington State DOTs, and the TBTA/MTA commented that tunnel inspection teams should be organized similarly to the bridge inspection teams, as described by the NBIS. Jacobs Associates recommended organizing inspection teams per the guidelines in the HRTTIM.

Most commenters favored training and certification requirements for tunnel inspectors. In general, commenters asserted that the NTIS should provide guidance on minimum training, certification and licensing of inspectors, but States should determine final certification. The Pennsylvania and Ohio DOTs and the NFPA commented that teams should be

comprised of qualified individuals certified through both training and demonstrated experience. Oregon DOT additionally noted that all team members should be professionally licensed engineers. The AASHTO commented that certification level guidelines similar to those in the NBIS be followed for Team Leaders and support staff, and that PE licensing requirements be limited to those individuals responsible for reviewing team reports. PB Americas and the ACEC noted that training and certification should also encompass Occupational Safety and Health Administration standards for confined space inspections. The NFPA commented that the more experienced personnel on the teams could serve as training officers for on-the-job training and team audits.

In general, commenters recommended that the NTIS provide guidance on the levels of responsibility involved in conducting tunnel inspections, but States should determine the final distribution of responsibility among inspection teams and program administrators. The TBTA/MTA, Jacobs Associates, Caltrans, and the New Jersey DOT commented that teams should have differing levels of responsibility with regard to system inspection, Team Leadership, and reporting. Whether teams are organized as multidisciplinary units or by system specialty, as previously discussed, commenters generally agreed that Team Leadership should be responsible for initiating and reporting tunnel inspections. The New Jersey DOT added that a Program Manager should be tasked with overall inspection program responsibility. The ASCE indicated that a PE should lead multidisciplinary teams and be responsible for reporting from all disciplines. Conversely, the ACEC commented that each team member should be responsible for their respective disciplines, rather than a Program Manager.

Although commenters overwhelmingly agreed that teams should include a person responsible for the inspection, comments varied as to what position this person should hold. The ASCE, Caltrans, and the Washington State DOT commented that a Chief Inspector or Program Manager, at a level higher than that of the inspection Team Leader, should have overall responsibility for the tunnel inspection. MassHighways and the Oregon and New Jersey DOTs noted that Program Manager responsibilities should be limited to program administration and oversight. The NFPA added that the person in charge of the

program should be superior to and separate from the inspectors to ensure independent program oversight and accountability. Several commenters asserted that Team Leaders, whether overseeing a multidisciplinary team or discipline-specific team, ultimately should be responsible for inspections. Jacobs Associates, MassHighways, and the Ohio and New Jersey DOTs indicated that the leader of each discipline, component, or system inspected should have responsibility for that aspect of the overall inspection. Ohio DOT added that members should sign off on their area of inspection. The AASHTO, ACEC, and the Florida DOT stated that the Team Leader should be a licensed PE, and the ACEC added that the Team Leader should have a minimum of 5 years experience and be certified by the State to perform and lead tunnel inspections.

#### Technical References

The FHWA also asked about what technical publications, if any, should be incorporated by reference into the NTIS. In response, commenters cited several publications for consideration as primary references for inclusion in the NTIS. Six State DOTs, and the ASCE and ACEC, recommended incorporating the HRTTIM. MassHighways, Oregon DOT, AASHTO, ASCE, and PB Americas recommended incorporating the "FHWA Road Tunnel Design Manual." Caltrans, AASHTO, ASCE, and NFPA recommended incorporating "NFPA 502—Standard for Road Tunnels, Bridges, and Other Limited Access Highways." Ohio and Pennsylvania DOTs, AASHTO, and ASCE recommended incorporating the AASHTO Manual for Condition Evaluation of Bridges.<sup>2</sup>

In addition to these publications, commenters representing several State DOTs, industry organizations, and commercial companies also cited the following references for possible incorporation within the NTIS:

- NCHRP Project 20–07, Task 261, Best Practices for Implementing Quality Control and Quality Assurance for Tunnel Inspection (currently under development);
- NHI Bridge Inspectors Reference Manual;
- 23 CFR 650, Subpart C, National Highway Bridge Inspection Standards;
- American National Standards Institute/American Welding Society (ANSI/AWS) D1.1 Structural Welding Code—Steel;

<sup>2</sup>The FHWA notes this manual has been superseded by the AASHTO Manual for Bridge Evaluation.

- ANSI/AWS D1.5 Bridge Welding Code;
- American Railway Engineering and Maintenance-of-Way Association (AREMA) Fatigue Standards;
- AREMA Manual for Railway Engineering, Chapter 9, Part 1, Subsections 1.2 and 1.5;
- 29 CFR, OSHA Standards;
- FHWA Inspection of Fracture Critical Bridge Members;
- FHWA Manual on Uniform Traffic Control Devices;
- AASHTO Movable Bridge Inspection, Evaluation and Maintenance Manual;
- AASHTO Manual for Condition Evaluation of Bridges; and
- NFPA 731 Standard for the Installation of Electronic Premises Systems.

The UTC recommended two publications from the International Symposium on Tunnel Safety and Security, Stockholm, Sweden, March 2008: (1) Full-Scale Fire Testing for Road Tunnel Applications—Evaluation of Acceptable Fire Protection Performance, Maarti Tuomisaari, Marioff Corporation Oy, Vantaa, Finland, and (2) Implementation of Water Mist Systems in Road Tunnels, Project Case Studies, Markku Vuorisalo, Marioff Corporation Oy, Vantaa, Finland. One individual also recommended contacting the New York Port Authority for information regarding tunnel inspection guidelines developed in the 1980s.

#### Quality Control/Quality Assurance (QC/QA)

Most commenters did not suggest any particular QC/QA procedures. Of those commenting on the issue, eight agreed with QC/QA requirements similar to the NBIS, while six stated that such requirements should be general and not arbitrary.

#### Cost of Inspections

In the ANPRM, the FHWA asked for information related to tunnel inspection costs. Several commenters had no comment or indicated no data was available. Of those commenting on cost of inspections, several suggested a cost per lane foot as opposed to linear foot of tunnel length as the most accurate way to itemize the actual inspection costs.

The TBTA/MTA commented that its recent inspection of the Queens-Midtown Tunnel cost \$631,500, which translates to approximately \$24.89 per linear foot of each roadway lane. Because this cost could change depending on the number of traffic lanes and tunnel tubes, TBTA/MTA



suggested that a unit such as cost per lane-foot would more accurately predict tunnel inspection costs. Washington State DOT reported a cost of \$5 per linear foot for civil and structural component inspections. PB Americas suggested that tunnel inspection costs for structural, mechanical electrical lighting, and traffic controls range between \$65 and \$75 per lane foot. PB Americas suggested that these costs can be 20 to 40 percent higher if the work window is less than 4 hours per shift. Additionally, PB Americas noted that costs associated with traffic diversions and single lane closures range from \$100 to \$150 per linear foot of tunnel per day or shift.

The FHWA requests that commenters provide additional information regarding estimated or actual costs associated with tunnel inspections, particularly the typical inspection costs per linear foot of tunnel. In addition, the FHWA asks for comments regarding the anticipated increased costs the proposed NTIS would impose on tunnel owners.

#### *Research*

In the ANPRM, the FHWA provided summary information on completed and ongoing research related to tunnel design, construction, rehabilitation, and inspection. The FHWA solicited feedback on other existing or completed tunnel research, and any ideas for additional needed research.

Numerous commenters indicated the need for additional tunnel-related research. The AASHTO and the Oregon and Florida DOTs listed as a research priority identifying hidden deficiencies with structural elements such as tunnel liners and portals, including non-destructive methods. Several commenters recommended as research priorities the needs identified in the research roadmap by the AASHTO Bridge Subcommittee's T-20 Technical Committee. The ACEC and PB Americas recommended FHWA develop a new, more detailed tunnel inspection manual addressing ventilation testing and mechanical and electrical inspection. They also recommended updates to the tunnel asset management database. PB Americas further suggested research to test the performance in fires of various materials used, or proposed for use in tunnels. The AASHTO commented that tunnel safety during construction, rehabilitation, inspection, and maintenance needs to be addressed through research. The AASHTO also requested research to develop guidance on improving vertical clearance in bored tunnels. Further, AASHTO indicated urban and rural highway tunnels have different issues of concern. One

consultant recommended that the FHWA continue to work with European and Asian highway and rail management agencies. One consultant commented that newer research is available from European associations like the World Road Association and the European Thematic Network on Fire in Tunnels on tunnel fire protection and fixed fire suppression. The NFPA provided a summary of the "International Road Tunnel Fire Detection" research project published by the Fire Protection Research Foundation.

#### **Section-by-Section Discussion of the Proposals**

The proposed NTIS are based, in part, on comments received in response to the ANPRM published on November 18, 2008. Giving due consideration to the comments received and summarized in the preceding section, this section presents the basis for the FHWA's proposed rulemaking. The FHWA proposes to amend 23 CFR Part 650 (Bridges, Structures, and Hydraulics), by adding Subpart E—National Tunnel Inspection Standards. The proposed NTIS would apply to all tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways. The NTIS would establish a tunnel definition, frequency of inspections, technical references, inventory database, and QC/QA requirements. The proposed rule also discusses procedures for follow-up on critical findings. Lastly, this action proposes to establish inventory and reporting requirements, including timeframes for submission of data by both the State and Federal agencies.

#### *Proposed Section 650.501 Purpose*

The majority of commenters on the ANPRM supported the establishment of NTIS. Section 650.501 would identify the NTIS purpose to establish the proper safety inspection and evaluation for tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways.

#### *Proposed Section 650.503 Applicability*

The FHWA proposes that the NTIS would apply to tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways.

The proposed NTIS would apply to inspection of life safety systems installed on a highway tunnel-like-structure space made by a group of bridges, or airtight structures. The NTIS

would not apply to culverts or other types of non-highway tunnels. The FHWA would encourage owners of tunnels not subject to the NTIS to inspect their tunnels according to the NTIS. However, FHWA does not have jurisdiction to require inspection of tunnels that are not linked to title 23 Federal funds.

#### *Proposed Section 650.505 Definitions*

Proposed section 650.505 would include several definitions related to tunnel inspection.

Because the NTIS would be modeled after the NBIS and in order to ensure consistency in definitions, the agency proposes that the terms "American Association of State Highway and Transportation Officials (AASHTO) Manual," "bridge inspection experience," "critical finding," "damage inspection," "hands-on inspection," and "operating rating" would have the same meaning as in 23 CFR 650.305.

The FHWA proposes to define a "complex tunnel" as one characterized by advanced or unique structural elements and functional systems because the inspection of these tunnels requires a multidisciplinary inspection team approach. For example, a tunnel with a suspended ceiling would be considered a complex tunnel requiring a multidisciplinary inspection, as suspended ceilings are structural elements that contribute to a functional system (ventilation plenum).

The FHWA proposes that the NTIS would include a number of definitions largely modeled after definitions used in the NBIS. For example, the proposed definitions of "professional engineer" and "routine permit load" would be substantially similar to the definitions for those terms in the NBIS. The FHWA also proposes to use the same definition for "tunnel inspection experience" as the NBIS definition for "bridge inspection experience," replacing the word "bridge" with the word "tunnel" as applicable. Similarly, the FHWA proposes that the terms "legal load," "quality assurance," "quality control," "routine inspection," "special inspection," and "team leader" would be modeled after the definitions in the NBIS, except that the word "tunnel" would replace the word "bridge" in each definition. The definitions of "in-depth inspection," "initial inspection," and "load rating" would largely mirror the definitions found in the NBIS, with changes made to account for the differences between bridges and tunnels. The FHWA notes that under the proposed definition of "load rating," for roadways carried within a tunnel, any internal structural support systems,



even multilevel, would be evaluated according to AASHTO load rating procedures. For roadways crossing over the tunnel, the tunnel's ability to support the route's vehicular live loads would also be calculated. Both of these capacities would be evaluated for tunnels, which is different from bridges where load carrying capacities are only calculated for vehicles carried on the roadway deck.

In order to maintain consistency with established terms, the FHWA proposes that a number of terms in the NTIS would have the same meaning as terms that appear in title 23 of the United States Code. For example, the term "Federal-aid highway" would have the same meaning as in 23 U.S.C. 101(a)(5), and the term "highway" would have the same meaning as in 23 U.S.C. 101(a)(11). The term "public road" would have the same meaning as in 23 U.S.C. 101(a)(27). The term "State transportation department" would have the same meaning as in 23 U.S.C. 101(a)(34).

The FHWA proposes a definition of "functional systems" that would include non-structural systems, such as electrical, mechanical, fire suppression, ventilation, lighting, communications, monitoring, drainage, traffic signals, emergency egress, refuge room spacing, carbon monoxide, or traffic safety components. The agency believes this definition would be broad enough to encompass any functional systems that might be present in tunnels.

The FHWA proposes that the NTIS would include a definition of "portal" to refer to the entrance and exit of a tunnel exposed to the environment, including bare rock, constructed tunnel entrance structures, and buildings. This definition would convey that portals exist on all tunnels, but may vary in structure and complexity.

The proposed definition of "Program Manager" would refer to the individual in charge of the program who has been assigned or delegated the duties and responsibilities for tunnel inspection, reporting, and inventory. Under this definition, the Program Manager would provide overall leadership and guidance to inspection Team Leaders. The agency believes that a Program Manager should not only have a strong background in the technical nature of tunnels, but a thorough understanding of the NTIS program requirements.

Regarding the definition of "tunnel," FHWA agrees with most of the commenters that the AASHTO tunnel definition, with some modification, should be used in the NTIS. Accordingly, the proposed definition of tunnel is a modified AASHTO

definition without establishing a minimum length under the proposed NTIS. In order to ensure that tunnels and bridges are only inspected under either the NTIS or the NBIS, the proposed definition modifies the AASHTO definition to clarify that a tunnel does not include a bridge which is inspected under the NBIS. The agency recognizes many structures exist where the distinction between tunnel or bridge could be difficult to determine. In cases where a tunnel or bridge may overlap, FHWA recommends that States determine whether the NTIS or NBIS is most appropriate for a particular structure. When a tunnel is comprised of several abutted, dissimilar structures, the NTIS would apply to the entire tunnel. Additionally, the proposed definition of "tunnel" specifies that a tunnel is a structure that requires special design considerations that may include lighting, ventilation, fire protection systems, and emergency egress capacity based on the owner's determination.

#### *Proposed Section 650.507 Tunnel Inspection Organization*

Section 650.507 would specify which tunnels must be inspected under the NTIS, inspection program responsibilities, organizational requirements and general deliverables of an inspection program, and program delegation requirements.

In general, ANPRM commenters suggested that tunnel owners should determine the organization and composition of tunnel inspection programs to best address various tunnel types, complexities, structures, and related systems. The ANPRM commenters also indicated that the NTIS should provide guidance on the levels and delegation of responsibility involved in conducting tunnel inspections, reporting findings, ensuring quality assurance, and maintaining tunnel inventories, but that States should determine the final distribution of responsibility among program administrators and inspection teams. The FHWA agrees that the NTIS should provide general guidance on the organization and composition of tunnel inspection programs, leaving the specifics of program administration and delegation to the States and Federal agencies involved.

In section 650.507(a), the FHWA proposes requiring that each State inspect or cause to be inspected all tunnels constructed or renovated with title 23 Federal funds located on public roads that are within the State's boundaries, except for tunnels owned by Federal agencies. Therefore, State

inspection responsibilities would be limited to tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways. The FHWA also proposes to exclude States from inspection responsibilities for tunnels owned by Federal agencies.

Proposed section 650.507(b) describes the tunnel inspection responsibilities of Federal agencies that own tunnels. The proposed rule would require Federal agencies to ensure inspection of all highway tunnels within their respective jurisdiction.

Under section 650.507(c), the FHWA proposes that where a tunnel is jointly owned, all bordering States and Federal agencies with ownership interests should determine through a joint agreement the inspection responsibilities of each State and Federal agency.

Proposed section 650.507(d) describes basic tunnel inspection program organization requirements. The proposed rule would require State transportation departments and Federal agencies to be organized with a unit or units that are responsible for setting statewide or Federal agency-wide tunnel inspection program policies and procedures, assuring regularly scheduled quality inspections are performed throughout the State or agency, and maintaining the State or Federal tunnel inventory. In order to ensure tunnel inspection program consistency and uniformity, the FHWA proposes to require that all of these activities be performed at a statewide or Federal agency-wide organizational level of the State DOT or the Federal agency. This section would not preclude, however, the specific tunnel inspection activities, as noted in section 650.507(d)(2), from being assigned to a qualified authority or consulting engineering firm.

The FHWA recognizes the broad range of tunnel structure complexity that exists along State and Federal highways, and therefore, proposes under section 650.507(d)(1) that, in addition to the development of general program policies and procedures, State and Federal agencies would prepare tunnel-specific policies and procedures guiding tunnel inspections.

Proposed section 650.507(d)(2) refers to a requirement for a State or Federal agency tunnel owner to establish load ratings for the tunnel. As presented, "load ratings" refers to allowable vehicular live loads on suspended or spanning roadways within the tunnel or roadways above the tunnel. Load ratings may be directly related to the structural capacity of the tunnel lining and

support system in cases where tunnels or overlying roadways bear on the tunnel structural elements. The tunnel structural system condition would be assessed during inspection which, in turn, may lead to an in-depth structural capacity appraisal of the lining and support system if conditions warrant.

Proposed section 650.507(e) would allow State and Federal agencies to delegate certain tunnel inspection functions, as generally described or referred to in sections 650.507(d)(1) and (d)(2), to qualified individuals; however, the overall program responsibility could not be delegated. This section is intended to ensure that State and Federal agencies choosing to delegate tunnel inspection activities do so under formal written agreement that clearly states the roles and responsibilities of all agencies and entities involved. As with other State-administered Federal-aid programs under title 23, United States Code, delegation of tunnel inspections, reports, load ratings and other requirements of the NTIS must be accompanied by appropriate State transportation department oversight.

Proposed section 650.507(f) would require that each State or Federal agency owning a tunnel requiring inspection under the NTIS have a tunnel inspection organization that includes a Program Manager meeting the qualifications proposed in 650.509(a). This requirement would also apply to organizational units that have been delegated program management functions by the overall agency Program Manager, such as local public agencies or qualified consulting engineering firms.

#### *Proposed Section 650.509 Qualifications of Personnel*

This section would outline the minimum qualifications for tunnel inspection team members, including qualification requirements for Program Managers, Team Leaders, and individuals responsible for load rating of tunnels in terms of professional registration, certification, experience, and education. Under the proposed rule, minimum qualifications for team members other than the Program Manager and the Team Leader would be established by each Program Manager in accordance with the nature and complexity of the tunnels in their inventory. Team members may include individuals with specialized professional registration, certification, experience, and education in areas such as structural, mechanical, electrical, geotechnical, ventilation, lighting, operations, or communications, as required depending on the nature and

complexity of the tunnel being inspected.

Commenters responding to the ANPRM generally expressed that the personnel responsible for the management, planning, and execution of tunnel inspections should be registered PEs with a minimum amount of applicable experience of 5 to 15 years. The FHWA believes that, for the tunnel inspection Program Manager, experience with inspection of transportation structures is as valuable as professional registration. Therefore, the proposed rule would require a tunnel inspection Program Manager to be either a registered PE, or have at least 10 years of tunnel inspection experience.

Three commenters to the ANPRM believed that a Team Leader should be a registered PE, and several commenters pointed to the FHWA tunnel inspection manual which recommends that the Team Leader be a PE. The FHWA agrees that a Team Leader should be a registered PE due to the range of systems complexity existing within the current inventory of tunnels.

Proposed section 650.509(c) would require that a person with overall responsibility for load rating tunnels be a registered PE. The agency notes that there are two situations under which load rating of tunnels could be necessary: (1) When a structure supporting traffic lanes within the tunnel is not directly supported by the ground and spans some unsupported distance, and (2) when traffic loads above the tunnel impose a live load on the tunnel lining. In either case, the individual charged with the overall responsibility for load rating the tunnels must be a registered PE because assessment of the adequacy of the tunnel lanes or lining to carry live traffic loads requires engineering calculations.

Commenters generally suggested that tunnel inspectors should attend a comprehensive training course with periodic refresher training, similar to what is required by the NBIS. The FHWA agrees the NTIS should require that tunnel inspection Program Managers and Team Leaders successfully complete a comprehensive tunnel inspection training course and tunnel inspection refresher training courses at regular intervals. The FHWA plans to develop such training courses consistent with industry recommendations and may incorporate training requirements into the NTIS in the future.

The ANPRM did not address the subject of tunnel inspector certification, and commenters responding to the ANPRM did not offer any suggestions

concerning inspector certification. The FHWA believes that for tunnel inspector certification, States and Federal agencies should have discretion whether and how to implement such a program. The FHWA may consider incorporating training requirements into the NTIS in the future. The training requirements could serve as an integral part of a State or Federal agency certification process. If tunnel owners follow the tunnel inspection qualification requirements proposed in this NPRM, the FHWA believes further certification would not be required.

#### *Proposed Section 650.511 Inspection Frequency*

In order to ensure that all tunnels are inspected soon after publication of the final rule, the FHWA proposes under section 650.511(a) that within 12 months of the effective date of the rule, tunnel owners must inspect each tunnel according to the inspection guidance provided in the HRTTIM.

This section also considers tunnel inspection frequencies for routine inspections, and for in-depth, damage, and special inspections. For routine inspections, most commenters thought that a maximum interval should be established, and preferred an interval of 24 months or less, with a lesser interval (greater frequency) to be determined by the tunnel owner based on risk and other factors. The FHWA concurs with this approach. Based on experience with existing tunnel inspection programs, the FHWA believes that intervals greater than 24 months would introduce too much risk, even for tunnels with no advanced or unique structural elements and systems in good condition, as there is significant likelihood that tunnel conditions can change during an interval greater than 24 months.

The FHWA believes there is considerable data and experience with tunnel inspections by many States and other agencies to support inspection frequency decisions unique to individual tunnels. Based on this experience, and considering the limited number of tunnels in the Nation's inventory and the wide variety of type and complexity of those tunnels, the agency proposes under section 650.511(b) to establish a maximum interval of 24 months for routine inspections, with more frequent inspections for certain tunnels and many functional systems. The FHWA agrees that these increased frequencies for certain structural elements and functional systems should be determined by the Program Manager because unique characteristics are best understood by the Program Manager and

tunnel owners and should be documented in the inspection procedures for each individual tunnel.

Recognizing that individual tunnel types and conditions vary widely, and that the contributing factors (*i.e.*, structural, geotechnical, geologic, hydraulic, mechanical, electrical) for each tunnel are best understood by the Program Manager and owner, FHWA proposes that the Program Manager would have discretion to establish criteria for more frequent inspection intervals. In establishing criteria for more frequent inspections, the rule proposes that the Program Manager conduct a risk analysis and consider factors such as age, traffic characteristics, geotechnical conditions, and known deficiencies. The Program Manager should consider conditions or factors that could jeopardize the safety of the tunnel. Certain structural elements or functional systems should be inspected and tested more frequently than a 24-month interval, even for systems in good condition. If a tunnel has suffered damage or has known deficiencies, more frequent inspections may also be necessary.

Regarding inspection frequencies for damage, in-depth, and special inspections, section 650.511(c) of the proposed rule would require that Program Managers establish criteria to determine the level and frequency of these inspections. Damage, in-depth, and special inspections could include non-destructive testing or other methods not used during routine inspections at an interval established by the Program Manager. In-depth inspections would be required for complex tunnels and for certain structural elements and functional systems when necessary to ascertain fully the condition of the element or system.

#### *Proposed Section 650.513 Tunnel Inspection Procedures*

Most State DOTs commenting on the ANPRM agreed that the HRTTIM should be used as the basis for inspection and rating of tunnel structural elements and functional systems. The FHWA agrees and proposes in section 650.513(a) that tunnel owners inspect tunnel structural elements and functional systems in accordance with the inspection guidance provided in the HRTTIM, which would be incorporated by reference into the NTIS. Caltrans noted that the HRTTIM lacked guidance relative to the inspection and rating of functional systems, including electrical, and mechanical components. The FHWA recognizes that some modifications and updating of the HRTTIM, such as developing

specifications for a rating system, will be necessary. The FHWA currently is working on revising the manual to incorporate many of the suggestions of the commenters to the ANPRM. The agency hopes to complete the revised manual prior to publication of the final rule for the NTIS. The FHWA solicits comments on needed revisions to the HRTTIM. Until the new manual is completed, the existing HRTTIM would provide general guidance for inspection requirements under the NTIS. In the event of any discrepancies between the HRTTIM and the final rule, the inspection requirements and procedures in the final rule would apply.

The FHWA proposes in section 650.513(b) that tunnel owners should provide at least one Team Leader, who meets the minimum qualifications stated in section 650.509, at the tunnel at all times during each initial, routine, and in-depth inspection.

Additionally, functional systems testing for inspection and reporting purposes should be distinguished from inspections for maintenance purposes. To that end, and to specify the levels of inspection required for various components, we propose in section 650.513(c) that Program Managers prepare and document tunnel-specific inspection procedures for each tunnel inspected and inventoried commensurate with tunnel complexity and identify tunnel structural elements and functional systems to be inspected and tested. The Program Manager also could stipulate unique inspector qualifications, specialties, certifications, and frequencies and equipment necessary in these written procedures.

A number of commenters agreed that functional systems, including electrical and mechanical components, should be inspected and rated as part of the requirements of the NTIS. The FHWA agrees and proposes in section 650.513(d) that Program Managers establish functional system testing requirements, including spot testing where appropriate, requirements for direct observation of critical system checks, and testing documentation.

The FHWA believes it is important to distinguish between different types of tunnels and define and highlight the unique needs of complex tunnels. This view is consistent with comments received. Therefore, for complex tunnels, section 650.513(e) proposes that tunnel owners identify specialized inspection procedures, and additional inspector training and experience required to inspect complex tunnels. The rule further proposes that tunnel owners inspect complex tunnels according to those procedures.

Additionally, AASHTO, Florida DOT, and the TBTA/MTA suggested that discipline-specific inspectors should be utilized to inspect components commensurate with the inspector training and experience. The FHWA agrees and proposes in section 650.513(f) that the NTIS require tunnel owners to conduct tunnel inspections with qualified staff not associated with the operation or maintenance of the tunnel structure or functional systems. The FHWA believes it is important that critical tunnel components receive independent inspections.

A tunnel may contain certain structural components that when subjected to deterioration could impact the structural capacity of those components, including structural framing systems for tunnels carrying two levels of vehicular traffic or carrying vehicular traffic on top of the tunnel. In consideration of this, the proposed NTIS would require under section 650.513(g) that tunnel owners rate each tunnel as to its safe vehicular load-carrying capacity in accordance with the AASHTO Manual for Bridge Evaluation. Additionally, tunnel owners would be required to post or restrict the highways in or over a tunnel in accordance with this AASHTO manual, unless otherwise specified in State law, when the maximum unrestricted legal loads or State routine permit loads exceed that allowed under the operating rating or equivalent rating factor.

As with the NBIS, the FHWA proposes in section 650.513(h) that the NTIS would require tunnel owners to prepare tunnel documentation (consistent with the HRTTIM) and maintain written reports on the results of tunnel inspections together with notations of any action taken to address the findings of such inspections. The proposed NTIS would require that tunnel owners maintain relevant maintenance and inspection data to allow assessment of current tunnel condition and record the findings and results of tunnel inspections. At a minimum, FHWA proposes that tunnel owners would maintain files and reports with data regarding basic tunnel information (*e.g.*, tunnel location, speed, inspections, repair and rehabilitation), tunnel and roadway geometrics, interior tunnel structural features, portal structure features, and tunnel systems information. The agency also proposes that tunnel data collected would include diagrams, photos, condition of each structural and functional system component, and notations of any action taken to address the findings of such inspections. The FHWA invites comments regarding what the tunnel

files and reports should include and what information tunnel owners should submit to the FHWA.

The FHWA plans to use a standard reporting form for submitting tunnel data to the agency and solicits public comments on the standard form posted in the docket. The FHWA also plans to develop a database for a national inventory of tunnels similar to the NBI. The standard reporting form would serve as the basis for the tunnel inventory, with the information collected on the form entered into the database. The FHWA expects to ask in the standard reporting form for an assessment of tunnel conditions.

Section 650.513(i) would require systematic QC/QA oversight of the inspection program, following procedures that maintain a high degree of accuracy and consistency in the inspection program. The QC/QA program would also include periodic field review of inspection teams and independent review of inspection reports and computations. The FHWA will consider including in the NTIS a requirement for periodic refresher training in the future.

Additionally, proposed section 650.513(j) would require tunnel owners to follow-up on critical findings according to established statewide or Federal agency-wide procedures. Critical findings should be addressed in a timely manner, with FHWA notified of any critical finding within 30 days and the actions taken to resolve or monitor the critical finding.

The FHWA plans to establish procedures for conducting reviews of State and Federal agency compliance with the NTIS. Accordingly, proposed section 650.513(k) would specify that States and Federal agencies provide information as required in cooperation with any FHWA review of State and Federal agency compliance with the NTIS.

#### *Proposed Section 650.515 Inventory*

The majority of commenters expressed support for the establishment of a national tunnel inventory database with data reported to the FHWA. The FHWA agrees that a NTI is necessary to ensure accurate records are kept on the condition of the national inventory of highway tunnels. Because tunnels could be more complex than bridges, and could have many other systems not included on bridges, the FHWA also proposes to create the tunnel inventory separate from the NBI.

For the purposes of establishing an initial inventory, section 650.515(a) would require States and Federal agencies with tunnels subject to the

NTIS to report basic information about each tunnel within 30 days of the effective date of the rule. The information requested in subsection (a) should not require an inspection but is intended to be gleaned from existing inspection records for each tunnel. States and Federal agencies would assign unique tunnel numbers following the approach currently used in the NBIS coding guide.

Section 650.515(b) would require States and Federal agencies with tunnels to make a preliminary assessment of tunnel condition and rate the structural and functional systems in each tunnel on a 0 to 9 scale and send the information to FHWA within 90 days of the effective date of this rule. The scale is described in the HRTTIM at page 4–12. The rating of the systems of each tunnel would be based upon the files of the most recent inspection of the tunnel. The FHWA needs this data for the national inventory so that there is an initial appraisal of the condition of the Nation's highway tunnels. If a system in a tunnel were rated 3 or less, the State or Federal agency would be required to file with the FHWA within 30 days of identification of the critical finding a plan to address the critical finding.

Proposed section 650.515(c) would require that upon performing an initial inspection as proposed under section 650.511(a), States and Federal agencies notify the FHWA of any updates to the information provided under sections 650.515(a) and (b).

After this initial effort to obtain data on the tunnels subject to the NTIS, the FHWA proposes in section 650.515(d) that each State or Federal agency owning a tunnel would prepare, maintain, and make available to FHWA upon request an inventory of all its tunnels subject to the NTIS reflecting the findings of the tunnel inspections.

Under proposed section 650.515(e), for all inspections, tunnel owners would enter the tunnel data into the State or Federal agency inventory within 90 days of the date of inspection. For modifications to existing tunnels that alter previously recorded data and for new tunnels, proposed section 650.515(f) would require tunnel owners to enter the data into the State or Federal agency inventory within 90 days after the completion of the work. For changes in traffic load restriction or closure status, proposed section 650.515(g) would require tunnel owners to enter the data into the State or Federal agency inventory within 90 days after the change in status of the structure.

#### *Proposed Section 650.517 Reference Manuals*

Commenters cited several tunnel resources. Those references included the HRTTIM; NFPA 502 Standard for Road Tunnels, Bridges, and other limited Access Highways; FHWA Technical Highway Tunnel Design Manual (the portion dealing with inspection); AASHTO Manual for Condition Evaluation of Bridges; and AASHTO Movable Bridge Inspection, Evaluation, and Maintenance Manual. The FHWA recognizes value can be gained from portions of these references for those involved in the inspection of tunnels. In addition, the FHWA recognizes the value to the tunnel inspection community of other references, including the Study of 70MW Fires in Representative Highway Tunnel Models. However, only one, the HRTTIM, is solely focused on the inspection of tunnels. The FHWA proposes that section 650.517 would incorporate the HRTTIM by reference.

#### **Rulemaking Analyses and Notices**

All comments received before the close of business on the comment closing date indicated above will be considered and will be available for examination in the docket at the above address. Comments received after the comment closing date will be filed in the docket and will be considered to the extent practicable. In addition to late comments, the FHWA will continue to file relevant information in the docket as it becomes available after the comment period closing date, and interested persons should continue to examine the docket for new material. A final rule may be published at any time after close of the comment period.

#### **Executive Order 12866 (Regulatory Planning and Review) and DOT Regulatory Policies and Procedures**

The FHWA has determined that this proposed rule would constitute a significant regulatory action within the meaning of Executive Order 12866 and would be significant within the meaning of the U.S. Department of Transportation regulatory policies and procedures. This action would be considered significant because of widespread public interest in the safety of highway tunnels. It is also anticipated that the economic impact of this rulemaking could be substantial, although not economically significant within the meaning of Executive Order 12866.

Tunnel inspection costs can vary greatly from tunnel to tunnel. However, comments suggest that inspection costs

range from \$5 to \$75 per linear foot depending on the complexity of the tunnel. Although no comprehensive national inventory for tunnels currently exists, a preliminary tunnel survey conducted in 2003 suggests that there are approximately 350 highway tunnels in the Nation, comprising about 517,000 linear feet. Therefore, if each highway tunnel included four lanes, the FHWA estimates that the total cost associated with current tunnel inspections could range between \$10,340,000 and \$155,100,000 (or an average of between \$29,542 and \$443,142 per tunnel) every 24 months. Accordingly, the FHWA estimates the total annual inspection cost for tunnel owners could range between \$5,170,000 and \$77,550,000 (or an average of between \$14,771 and \$221,571 per tunnel). Most tunnels currently are inspected to some degree, and the estimates above do not account for current tunnel inspection expenditures. Therefore, the FHWA anticipates that the additional costs associated with implementing the requirements in this proposed rule would be much less than the upper range estimate of \$77.5 million. The FHWA solicits comments regarding current and anticipated inspection costs under this proposed rule, and whether such costs anticipated to be incurred are of a reasonable nature. The FHWA also requests comments on the number of tunnels in each State that are constructed or renovated with title 23 Federal funds and are located on public roads and tunnels on Federal-aid highways. Additionally, the FHWA requests comments regarding the estimated linear feet of each tunnel.

Although the NTIS could impose additional costs on tunnel owners, the FHWA anticipates that the potential benefits associated with this rulemaking would outweigh the resulting costs. Timely tunnel inspection is vital to uncovering safety problems and preventing catastrophic collapses like that occurring in the Central Artery Tunnel. The FHWA does not have data that would permit precise quantification of the benefits of the proposed rule, and seeks comments on what the benefits are from requiring national tunnel inspection standards. The agency is taking this action because it believes that any repairs or changes that take place because of problems identified in the inspections could lead to substantial economic savings. These benefits might not be a direct result of inspection standards, but indirect benefits from changes made to tunnels because of inspections. We seek public comment

on any other types of direct or indirect benefits of this rule.

Ensuring timely inspections of highway tunnels not only would enhance the safe passage of the traveling public, it would also contribute to the efficient movement of goods and people and to millions of dollars in fuel savings. For example, the Eisenhower/Johnson Memorial Tunnels, located west of Denver on I-70, facilitate the movement of people and goods from the eastern slope of the Rocky Mountains to the western slope. The Colorado Department of Transportation estimates that traveling through these tunnels, the public saves 9.1 miles by not having to travel over U.S. Highway 6, Loveland Pass. In the year 2000, approximately 28,000 vehicles traveled through the tunnels per day, which equates to 10.3 million vehicles for the year.<sup>3</sup> Accordingly, we estimate that by traveling through the Eisenhower/Johnson Memorial Tunnels, the public saved approximately 90.7 million miles of travel in the year 2000 and millions of dollars in associated fuel costs. Traveling through these tunnels, goods and people reached their destinations more quickly, prevented congestion along the alternative route, and achieved savings in dollars and fuel along the way. If these tunnels were closed unnecessarily due to a collapse or other safety hazard, the economic effects would be considerable. Because many highway tunnels are located in mountainous areas without short or simple alternative routes, the FHWA expects similar indirect benefits to timely tunnel inspections would accrue throughout the Nation.

Additionally, the NTIS would protect investments in key infrastructure, as early detection of problems in tunnels could increase the longevity of these assets and create savings in maintenance and repair costs over time. Because tunnels are vital to the local, regional, and national economies, and to our national defense, it is imperative that these facilities are properly maintained and inspected.

The FHWA understands that the proposed NTIS regulations could increase present tunnel inspection costs to account for more frequent inspection of special elements and systems and for collection and reporting requirements. The FHWA solicits comments regarding the anticipated additional tunnel inspection costs that would be imposed by the proposed rule.

<sup>3</sup> See <http://www.coloradodot.info/travel/eisenhower-tunnel/eisenhower-tunnel-interesting-facts.html>.

The proposed rule would not adversely affect, in a material way, any sector of the economy. In addition, the proposed rule would not interfere with any action taken or planned by another agency and would not materially alter the budgetary impact of any entitlements, grants, user fees, or loan programs.

#### **Regulatory Flexibility Act**

In compliance with the Regulatory Flexibility Act (Pub. L. 96-354, 5 U.S.C. 601-612) the FHWA has evaluated the effects of this proposed rule on small entities and anticipates that this action would not have a significant economic impact on a substantial number of small entities. Because the proposed regulations are primarily intended for States and Federal agencies, the FHWA has determined that the proposed action would not have a significant economic impact on a substantial number of small entities. States and Federal agencies are not included in the definition of small entity set forth in 5 U.S.C. 601. Therefore, the Regulatory Flexibility Act does not apply, and the FHWA certifies that the proposed action would not have a significant economic impact on a substantial number of small entities.

#### **Unfunded Mandates Reform Act of 1995**

The FHWA has preliminarily determined that this proposed rule would not impose unfunded mandates as defined by the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4, March 22, 1995, 109 Stat. 48). The NTIS are needed to ensure safety for the users of our Nation's tunnels and to help protect Federal infrastructure investment. As discussed above, the FHWA finds that this regulatory action would not result in the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector, of \$141,300,000 or more in any one year (2 U.S.C. 1532). Further, in compliance with the Unfunded Mandates Reform Act of 1995, FHWA will evaluate any regulatory action that might be proposed in subsequent stages of the proceeding to assess the effects on State, local, and Tribal governments and the private sector. Additionally, the definition of "Federal mandate" in the Unfunded Mandates Reform Act excludes financial assistance of the type in which State, local, or Tribal governments have authority to adjust their participation in the program in accordance with changes made in the program by the Federal Government. The Federal-aid highway program permits this type of flexibility.

**Executive Order 13132 (Federalism Assessment)**

The FHWA has analyzed this proposed action in accordance with the principles and criteria contained in Executive Order 13132. The FHWA has determined that this proposed action would not have sufficient federalism implications to warrant the preparation of a federalism assessment. The FHWA has also determined that this proposed action would not preempt any State law or State regulation or affect the States' ability to discharge traditional State governmental functions.

**Executive Order 12372 (Intergovernmental Review)**

Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities would apply to this program.

**Paperwork Reduction Act**

Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501, *et seq.*), Federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information they conduct, sponsor, or require through regulations. Any action that might be contemplated in subsequent phases of this proceeding will be analyzed for the purpose of the Paperwork Reduction Act for its impact to this current information collection. The FHWA will submit the proposed collections of information to OMB for review and approval at the time the NPRM is issued and, accordingly, seeks public comments.

The FHWA invites comment on any aspect of this information collection, including: (1) Whether the proposed collection is necessary for the FHWA's performance; (2) the accuracy of the estimated burdens; (3) ways for the FHWA to enhance the quality, usefulness, and clarity of the collected information; and (4) ways that the burden could be minimized, including the use of electronic technology, without reducing the quality of the collected information. The agency will summarize and/or include your comments in the request for OMB's clearance of this information collection.

The FHWA plans to collect data for the NTI related to basic tunnel information, tunnel and roadway geometrics, interior tunnel structural features, portal structural features, and preliminary assessment of tunnel condition on the form included in the

docket. The anticipated respondents include the 50 States, the District of Columbia, and Puerto Rico. The FHWA expects the frequency of collection would be the first year after the NTIS are established and every twenty-four months thereafter. The FHWA estimates that the estimated average burden per response would be approximately 54 hours per participant every twenty-four months. The estimated total annual burden hours would be 2,800 hours every twenty-four months.

**National Environmental Policy Act**

The agency has analyzed this proposed action for the purpose of the National Environmental Policy Act of 1969 (42 U.S.C. 4321) and has determined that this proposed action would not have an effect on the quality of the environment.

**Executive Order 12630 (Taking of Private Property)**

This proposal would not affect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference With Constitutionally Protected Property Rights.

**Executive Order 12988 (Civil Justice Reform)**

This proposed action meets applicable standards in section 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

**Executive Order 13045 (Protection of Children)**

The FHWA has analyzed this proposal under Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks. This proposed rule does not concern an environmental risk to health or safety that may disproportionately affect children.

**Executive Order 13175 (Tribal Consultation)**

The FHWA has analyzed this proposal under Executive Order 13175, dated November 6, 2000. The FHWA believes that this proposal would not have substantial direct effects on one or more Indian Tribes; would not impose substantial direct compliance costs on Indian Tribal governments; and would not preempt Tribal law. Therefore, a Tribal summary impact statement is not required.

**Executive Order 13211 (Energy Effects)**

The FHWA has analyzed this proposed rule under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. We have determined that the proposed rule would not constitute a significant energy action under that order because, although it is considered a significant regulatory action under Executive Order 12866, it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

**Regulation Identification Number**

A regulation identification number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN contained in the heading of this document can be used to cross reference this action with the Unified Agenda.

**List of Subjects in 23 CFR Part 650**

Bridges, Grant programs—transportation, Highways and roads, Reporting and recordkeeping requirements.

Issued on: July 14, 2010.

**Victor M. Mendez,**  
*Administrator.*

In consideration of the foregoing, the FHWA proposes to amend title 23, Code of Federal Regulations, part 650, by adding Subpart E, as set forth below:

**PART 650—BRIDGES, STRUCTURES, AND HYDRAULICS****Subpart E—National Tunnel Inspection Standards**

Sec.	
650.501	Purpose.
650.503	Applicability.
650.505	Definitions.
650.507	Tunnel Inspection Organization.
650.509	Qualifications of personnel.
650.511	Inspection frequency.
650.513	Inspection procedures.
650.515	Inventory.
650.517	Reference Manual.

**Authority:** Title 23, United States Code, Section 315; 23 CFR 1.27; 49 CFR 1.48(b).

**Subpart E—National Tunnel Inspection Standards****§ 650.501 Purpose.**

This subpart sets the national standards for the proper safety inspection and evaluation for tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways.

**§ 650.503 Applicability.**

The National Tunnel Inspection Standards (NTIS) in this subpart apply to all tunnels constructed or renovated with title 23 Federal funds that are located on public roads and tunnels on Federal-aid highways.

**§ 650.505 Definitions.**

The following terms used in this subpart are defined as follows:

*American Association of State Highway and Transportation Officials (AASHTO) Manual for Bridge Evaluation.* The term “AASHTO Manual for Bridge Evaluation” has the same meaning as in 23 CFR 650.305.

*Bridge inspection experience.* The term “bridge inspection experience” has the same meaning as in 23 CFR 650.305.

*Complex tunnel.* A tunnel characterized by advanced or unique structural elements or functional systems.

*Critical finding.* The term “critical finding” has the same meaning as in 23 CFR 650.305.

*Damage inspection.* The term “damage inspection” has the same meaning as in 23 CFR 650.305.

*Federal-aid highway.* The term “Federal-aid highway” has the same meaning as in 23 U.S.C. 101(a)(5).

*Functional systems.* Non-structural systems, such as electrical, mechanical, fire suppression, ventilation, lighting, communications, monitoring, drainage, traffic signals, emergency response (including egress, refuge room spacing, or carbon monoxide detection), or traffic safety components.

*Hands-on inspection.* The term “hands-on inspection” has the same meaning as in 23 CFR 650.305.

*Highway.* The term “highway” has the same meaning as in 23 U.S.C. 101(a)(11).

*Highway and Rail Transit Tunnel Inspection Manual.* The “Highway and Rail Transit Tunnel Inspection Manual,” 2005 edition, published by the Federal Highway Administration and the Federal Transit Administration.

*In-depth inspection.* A close-up inspection of one, several, or all tunnel structural elements or functional systems to identify any deficiencies not readily detectable using routine inspection procedures; hands-on inspection may be necessary at some locations. In-depth inspections may occur more or less frequently than routine inspections, as outlined in the tunnel-specific inspection procedures.

*Initial inspection.* The first inspection of a tunnel to provide all inventory and appraisal data and to determine the condition baseline of the structural elements and functional systems.

*Legal load.* The maximum legal load for each vehicle configuration permitted by law for the State in which the tunnel is located.

*Load rating.* The determination of the vehicular live load carrying capacity within or above the tunnel using structural plans and supplemented by information gathered from a field inspection.

*Operating rating.* The term “operating rating” has the same meaning as in 23 CFR 650.305.

*Portal.* The entrance and exit of the tunnel exposed to the environment; portals may include bare rock, constructed tunnel entrance structures, or buildings.

*Professional engineer (PE).* An individual, who has fulfilled education and experience requirements and passed rigorous exams that, under State licensure laws, permits them to offer engineering services directly to the public. Engineering licensure laws vary from State to State. In general, to become a PE, an individual must be a graduate of an engineering program accredited by the Accreditation Board for Engineering and Technology, pass the Fundamentals of Engineering exam, gain 4 years of experience working under a PE, and pass the Principles of Practice of Engineering exam.

*Program manager.* The individual in charge of the inspection program who has been assigned or delegated the duties and responsibilities for tunnel inspection, reporting, and inventory. The Program Manager provides overall leadership and guidance to inspection Team Leaders.

*Public road.* The term “public road” has the same meaning as in 23 U.S.C. 101(a)(27).

*Quality assurance.* The use of sampling and other measures to assure the adequacy of quality control procedures in order to verify or measure the quality level of the entire tunnel inspection and load rating program.

*Quality control.* Procedures that are intended to maintain the quality of a tunnel inspection and load rating at or above a specified level.

*Routine inspection.* A regularly scheduled comprehensive inspection encompassing all tunnel structural elements and functional systems and consisting of observations and measurements needed to determine the physical and functional condition of the tunnel, to identify any changes from initial or previously recorded conditions, and to ensure that tunnel components continue to satisfy present service requirements.

*Routine permit load.* A vehicular load that has a gross weight, axle weight, or

distance between axles not conforming with State laws for legally configured vehicles authorized for unlimited trips over an extended period of time to move alongside other heavy vehicles on a regular basis.

*Special inspection.* An inspection, scheduled at the discretion of the tunnel owner, used to monitor a particular known or suspected deficiency.

*State transportation department.* The term “State transportation department” has the same meaning as in 23 U.S.C. 101(a)(34).

*Team leader.* The on-site individual in charge of an inspection team responsible for planning, preparing, performing, and reporting on tunnel inspections.

*Tunnel.* An enclosed roadway for motor vehicle traffic with vehicle access limited to portals regardless of type of structure or method of construction. Tunnels do not include bridges or culverts inspected under the NBIS (23 CFR 650 Subpart C—National Bridge Inspection Standards). Tunnels are structures that require special design considerations that may include lighting, ventilation, fire protection systems, and emergency egress capacity based on the owner’s determination.

*Tunnel inspection experience.* Active participation in the performance of tunnel inspections in accordance with the National Tunnel Inspection Standards, in either a field inspection, supervisory, or management role. A combination of tunnel design, tunnel maintenance, tunnel construction, and tunnel inspection experience, with the predominant amount in tunnel inspection, is acceptable.

**§ 650.507 Tunnel Inspection Organization.**

(a) Each State transportation department must inspect, or cause to be inspected, all tunnels constructed or renovated with title 23 Federal funds located on public roads and tunnels on Federal-aid highways that are fully or partially located within the State’s boundaries, except for tunnels that are owned by Federal agencies.

(b) Each Federal agency must inspect, or cause to be inspected, all highway tunnels constructed or renovated with title 23 Federal funds located on public roads that are fully or partially located within the respective agency’s responsibility or jurisdiction.

(c) Where a tunnel is jointly-owned, all bordering States and Federal agencies with ownership interests should determine through a joint formal written agreement the inspection responsibilities of each State and Federal agency.



(d) Each State transportation department in a State that contains one or more tunnels subject to these regulations, or Federal agency with a tunnel under its jurisdiction, must include a tunnel inspection organization that is responsible for the following:

(1) Statewide or Federal agency-wide tunnel inspection policies and procedures (both general and tunnel-specific), quality control and quality assurance procedures, and preparation and maintenance of a tunnel inventory.

(2) Tunnel inspections, reports, load ratings, and other requirements of these standards.

(e) Functions identified in paragraphs (d)(1) and (d)(2) of this section may be delegated through a formal written agreement, but such delegation does not relieve the State transportation department or Federal agency of any of its responsibilities under this subpart.

(f) The State transportation department or Federal agency tunnel inspection organization must have a Program Manager with the qualifications listed in § 650.509(a), who has been delegated responsibility for paragraphs (d)(1) and (d)(2) of this section.

#### § 650.509 Qualifications of personnel.

(a) A Program Manager must, at a minimum, be a registered PE, or have 10 years tunnel inspection experience.

(b) A Team Leader must, at a minimum, be a registered PE.

(c) The individual charged with the overall responsibility for load rating tunnels must be a registered PE.

#### § 650.511 Inspection frequency.

Each State transportation department or Federal agency tunnel inspection organization must conduct or cause the following to be conducted for each tunnel under its responsibility or jurisdiction:

(a) *Initial inspection.* Within 12 months of the effective date of this rule, inspect each tunnel according to the inspection guidance provided in the Highway and Rail Transit Tunnel Inspection Manual (incorporated by reference, *see* § 650.517).

(b) *Routine inspections.* (1) Inspect each tunnel at regular intervals not to exceed twenty-four months to ensure tunnel structural elements and functional systems are performing as designed.

(2) For tunnels needing inspection more frequently than at twenty-four-month intervals, establish criteria to determine the level and frequency to which these tunnels are inspected based on a risk analysis approach that considers such factors as tunnel age,

traffic characteristics, geotechnical conditions, and known deficiencies.

(c) *Damage, in-depth, and special inspections.* The Program Manager shall establish criteria to determine the level and frequency of these inspections. Damage, in-depth, and special inspections may use non-destructive testing or other methods not used during routine inspections at an interval established by the Program Manager. In-depth inspections should be scheduled for complex tunnels and for certain structural elements and functional systems when necessary to fully ascertain the condition of the element or system.

#### § 650.513 Inspection procedures.

Each State transportation department or Federal agency tunnel inspection organization, to carry out its inspection responsibilities, must perform or cause to be performed the following:

(a) Inspect tunnel structural elements and functional systems in accordance with the inspection guidance provided in the Highway and Rail Transit Tunnel Inspection Manual (incorporated by reference, *see* § 650.517).

(b) Provide at least one Team Leader, who meets the minimum qualifications stated in § 650.509, at the tunnel at all times during each initial, routine, and in-depth inspection.

(c) Prepare and document tunnel-specific inspection procedures for each tunnel inspected and inventoried, commensurate with tunnel complexity, identifying tunnel structural elements and functional systems to be inspected.

(d) Establish functional system testing requirements, requirements for direct observation of critical system checks, and testing documentation.

(e) For complex tunnels, identify specialized inspection procedures, and additional inspector training and experience required to inspect complex tunnels. Inspect complex tunnels according to the specialized inspection procedures.

(f) Conduct tunnel inspections with qualified staff not associated with the operation or maintenance of the tunnel structure or functional systems.

(g) Rate each tunnel as to its safe vehicular load-carrying capacity in accordance with the AASHTO Manual for Bridge Evaluation. Post or restrict the highways in or over the tunnel in accordance with this same manual unless otherwise specified in State law, when the maximum unrestricted legal loads or State routine permit loads exceed that allowed under the operating rating or equivalent rating factor.

(h) Prepare tunnel inspection documentation as described in the

Highway and Rail Transit Tunnel Inspection Manual (incorporated by reference, *see* § 650.517), and maintain written reports on the results of tunnel inspections together with notations of any action taken to address the findings of such inspections. Maintain relevant maintenance and inspection data to allow assessment of current tunnel condition. At a minimum, information collected must include data regarding basic tunnel information (*e.g.*, tunnel location, speed, inspections, repair, and rehabilitation), tunnel and roadway geometrics, interior tunnel structural features, portal structure features, and tunnel systems information. Tunnel data collected must also include diagrams, photos, condition of each structural and functional system component, and notations of any action taken to address the findings of such inspections.

(i) Assure systematic quality control and quality assurance procedures are used to maintain a high degree of accuracy and consistency in the inspection program. Include periodic field review of inspection teams and independent review of inspection reports and computations.

(j) Establish a statewide or Federal agency-wide procedure to assure that critical findings are addressed in a timely manner. Notify the FHWA within 30 days of any critical finding and the actions taken to resolve or monitor the critical finding.

(k) Provide information annually, or as required in cooperation with any FHWA review of State and Federal agency compliance with the NTIS.

#### § 650.515 Inventory.

(a) *Preliminary inventory.* Each State or Federal agency must collect and submit the following inventory data information for all tunnels subject to the NTIS within 30 days of the effective date of this rule:

(1) *Basic tunnel information.* Tunnel name; tunnel number (based on the National Bridge Inspection Standards coding guide); owner; operator; tunnel location, including State, county, or political subdivision, route designation, Strategic Highway Network designation, portals milepost, portals latitude and longitude; year tunnel construction completed; traffic data, including posted speed, design speed, current average daily traffic, and percentage of truck traffic; and date of last inspection.

(2) *Tunnel and roadway geometrics.* Number of bores; total number of lanes; direction of traffic (*e.g.*, uni-directional, bi-directional, variable); portal-to-portal tunnel length; maximum open tunnel height within travelway; minimum

posted vertical clearance; minimum cross-sectional width; lane width(s); shoulder width(s); and pavement type.

(3) *Interior tunnel structural features.* Tunnel shape (e.g., circular, rectangular, horseshoe, oval); ground conditions (e.g., soft ground, soft rock, hard rock, mixed face); ceiling type (e.g., structural lining, integral box, suspended panel); finish lining type (e.g., tiles, metal panels, precast panels, masonry block, shotcrete or gunite, coating or paint); and primary tunnel support lining.

(4) *Portal structural features.* Portal types (e.g., cast-in place or precast concrete, stone masonry, bare rock); and portal shapes (e.g., circular, rectangular, horseshoe, oval).

(b) *Preliminary assessment of tunnel condition.* (1) Using data from the most recent inspection, each State or Federal agency must rate the structural and functional systems in its tunnels, where applicable, from 0 to 9 in accordance with the chart on page 4–12 of the Highway and Rail Transit Tunnel Inspection Manual and submit the data to FHWA within 90 days of the effective date of this rule.

(2) A system rated 3 or below is considered a critical finding. The State or Federal agency must file a follow-up plan with the FHWA within 30 days of identification of a critical finding and the actions taken to address all critical findings.

(c) *Updates to preliminary findings.* Upon performing an initial inspection of a tunnel under § 650.511(a), each State or Federal agency shall notify the FHWA of any updates to the information provided under subsections (a) and (b) of this section.

(d) *Tunnel inventory.* Each State or Federal agency must prepare, maintain, and make available to the FHWA upon request, an inventory of all tunnels subject to the NTIS reflecting the findings of the tunnel inspections.

(e) *Data entry for inspections.* For all inspections, enter the tunnel data into the State or Federal agency inventory within 90 days of the date of inspection.

(f) *Data entry for tunnel modifications and new tunnels.* For modifications to existing tunnels that alter previously recorded data and for new tunnels, enter the data into the State or Federal agency inventory within 90 days after the completion of the work.

(g) *Data entry for tunnel load restriction and closure changes.* For changes in traffic load restriction or closure status, enter the data into the State or Federal agency inventory within 90 days after the change in status of the tunnel.

#### § 650.517 Reference Manual.

“The Federal Highway Administration and Federal Transit Administration Highway and Rail Transit Tunnel Inspection Manual,” 2005 edition, available in electronic format at <http://www.fhwa.dot.gov/bridge/tunnel/management/>, is incorporated by reference herein.

[FR Doc. 2010–17787 Filed 7–21–10; 8:45 am]

BILLING CODE 4910–22–P

## DEPARTMENT OF THE TREASURY

### Alcohol and Tobacco Tax and Trade Bureau

#### 27 CFR Parts 40, 41, 44, 45, and 46

[Docket No. TTB–2010–0004; Notice No. 106]

RIN 1513–AB78

#### Standards for Pipe Tobacco and Roll-Your-Own Tobacco; Request for Public Comment

**AGENCY:** Alcohol and Tobacco Tax and Trade Bureau, Treasury.

**ACTION:** Advance notice of proposed rulemaking; solicitation of comments.

**SUMMARY:** The Alcohol and Tobacco Tax and Trade Bureau requests public comments on standards that have been proposed to distinguish between pipe tobacco and roll-your-own tobacco for Federal excise tax purposes based upon certain physical characteristics of the two products. We also request comments on any other physical characteristics that may be used for such purposes.

**DATES:** We must receive written comments on or before September 20, 2010.

**ADDRESSES:** You may send comments on this advance notice to one of the following addresses:

- <http://www.regulations.gov> (via the online comment form for this advance notice as posted within Docket No. TTB–TTB–2010–0004 at “Regulations.gov,” the Federal e-rulemaking portal);
- *Mail:* Director, Regulations and Rulings Division, Alcohol and Tobacco Tax and Trade Bureau, P.O. Box 14412, Washington, DC 20044–4412; or
- *Hand Delivery/Courier in Lieu of Mail:* Alcohol and Tobacco Tax and Trade Bureau, 1310 G Street, NW., Suite 200–E, Washington, DC 20005.

See the Public Participation section of this advance notice for specific instructions and requirements for submitting comments, and for

information on how to request a public hearing.

You may view copies of this advance notice, selected supporting materials, and any comments we receive about this proposal at <http://www.regulations.gov> within Docket No. TTB–2010–0004. A direct link to this docket is posted on the TTB Web site at <http://www.ttb.gov/tobacco/tobacco-rulemaking.shtml> under Notice No. 106. You also may view copies of this advance notice, any supporting materials, and any comments we receive about this proposal by appointment at the TTB Information Resource Center, 1310 G Street, NW., Washington, DC 20220. Please call 202–453–2270 to make an appointment.

#### FOR FURTHER INFORMATION CONTACT:

Amy R. Greenberg, Regulations and Rulings Division, Alcohol and Tobacco Tax and Trade Bureau (202–453–2099).

#### SUPPLEMENTARY INFORMATION:

##### Background

##### *TTB Authority*

Chapter 52 of the Internal Revenue Code of 1986 (IRC) sets forth the Federal excise tax and related provisions that apply to tobacco products and processed tobacco manufactured in, or imported into, the United States. Section 5702(c) of the IRC (26 U.S.C. 5702(c)) defines the term “tobacco products” as “cigars, cigarettes, smokeless tobacco, pipe tobacco, and roll-your-own tobacco.” Each of these terms is also separately defined in section 5702.

Regulations implementing the provisions of chapter 52 of the IRC are contained in 27 CFR parts 40 (Manufacture of tobacco products, cigarette papers and tubes, and processed tobacco), 41 (Importation of tobacco products, cigarette papers and tubes, and processed tobacco), 44 (Exportation of tobacco products and cigarette papers and tubes, without payment of tax, or with drawback of tax), 45 (Removal of tobacco products and cigarette papers and tubes, without payment of tax, for use of the United States), and 46 (Miscellaneous regulations relating to tobacco products and cigarette papers and tubes). These regulations are administered by the Alcohol and Tobacco Tax and Trade Bureau (TTB).

##### *Children’s Health Insurance Program Reauthorization Act of 2009*

On February 4, 2009, the President signed into law the Children’s Health Insurance Program Reauthorization Act of 2009, Public Law 111–3, 123 Stat. 8 (“the Act”).