THE STATE OF GENERAL AVIATION

(117–54)

REMOTE HEARING

BEFORE THE

SUBCOMMITTEE ON
AVIATION

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

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SUBMISSIONS FOR THE RECORD

Letter of July 27, 2022, to Hon. Rick Larsen, Chairman, and Hon. Garret Graves, Ranking Member, Subcommittee on Aviation, from Hon. Jennifer Homendy, Chair, National Transportation Safety Board 89

Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

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JULY 12, 2022

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Aviation
FROM: Staff, Subcommittee on Aviation
RE: Subcommittee Hearing on "The State of General Aviation"

PURPOSE

The Subcommittee on Aviation will meet on Wednesday, July 13, 2022, at 10 a.m. EDT in 2167 Rayburn House Office Building and virtually via Zoom for a hearing titled, "The State of General Aviation." The hearing will examine changes and current trends in the general aviation community, including airspace access and use, safety, sustainability efforts, and manufacturing. The subcommittee will hear testimony from witnesses representing the Aircraft Owners and Pilots Association (AOPA), the General Aviation Manufacturers Association (GAMA), the National Association of State Aviation Officials (NASAO), the National Business Aviation Association (NBAA), Helicopter Association International (HAI), the Association of American Airport Executives (AAAE), and the National Air Transportation Association (NATA).

BACKGROUND

I. Definition and Overview of General Aviation

According to the Federal Aviation Administration (FAA), "general aviation" describes a diverse range of aviation activities and includes all segments of the aviation industry except commercial air carriers and the military.[1] General aviation activities include training of new pilots and pilots interested in additional ratings or certification, aerial firefighting, air tourism, crop dusting, movement of large heavy loads by helicopter, flying for personal or business/corporate reasons, and emergency medical services.[2] General aviation aircraft range from one-seat single-engine piston aircraft to long-range corporate jets.[3] It also includes rotorcraft, gliders, and amateur-built aircraft.

A general aviation airport is a public-use airport that does not have scheduled service or has less than 2,500 annual passenger boardings.[4] According to the FAA, approximately 89 percent of airports included in the National Plan of Integrated Airport Systems (NPIAS) are classified as nonprimary airports and serve mainly

[1] FAA, *FAA Aerospace Forecasts FY 2003–2014*, at Ch. 5 (2014) *available at* https://www.faa.gov/data__research/aviation/aerospace__forecasts/2003-2014/.
[2] *Id.*
[3] *Id.*
[4] 49 U.S.C. § 47102(8).

general aviation activity.[5] For context, the latest edition of the NPIAS identified 3,304 existing public-use and six proposed airports, estimating approximately $43.6 billion in costs between 2021 and 2025 are eligible and justified under the Airport Improvement Program (AIP).[6]

The FAA analyzes general aviation activity on an annual basis through the "General Aviation Survey." According to the results of the 2020 survey, the latest available, the active general aviation fleet was estimated to be 204,140 aircraft in 2020 (a 3.2 percent decline from 2019), as increases in fixed wing turbine were more than offset by decreases in pistons, rotorcraft, lighter-than-air and light sport aircraft, and experimental aircraft.[7] Total hours flown were estimated to be 22.5 million in 2020, down 12 percent from 2019.[8] Decreases were across the board, with the highest decline in fixed wing piston hours (10.3 percent). The highest percentage decline occurred in lighter than air aircraft (44.6 percent) and glider activity (28.7 percent), followed by rotorcraft hours (19.6 percent).[9]

A. Future of the General Aviation Fleet and Operations

According to the "FAA Aerospace Forecast Fiscal Years 2022–2042," the overall general aviation sector was "not as severely affected by the [COVID–19] pandemic as the airlines."[10] For example, while business aviation experienced a steep decline in activity early in 2020, demand began to recover for this sector in the second half of the year, much faster than passenger airlines.[11] Specifically, domestic and international business jet operations in April 2020 were nearly 75 percent below 2019 levels, but by June 2020 had recovered to levels 24 percent below those in June 2019, and by December 2020 were only about 12 percent lower than the prior year's level of activity.[12] Such increases in business jet activity are reflected in the FAA's most recent general aviation aerospace forecast and are supported by statistics from GAMA showing that deliveries of U.S. manufactured "business jets increased by 14.7 percent and turboprop deliveries were up 18.6 percent [in 2021], amounting for a 16.6 percent increase in fixed wing turbine shipments."[13]

Against the findings of strong business jet and rotorcraft deliveries in 2021, the FAA expects the general aviation sector will recover "sooner to its 2019 levels by aircraft type than the other sectors," and in turn, remain stable in the long-term.[14] The active general aviation fleet, which showed a decline of 3.2 percent between 2019 and 2020, is projected to increase from its 2021 level of 204,405 aircraft to 208,905 by 2042, as the declines in the fixed-wing piston fleet were offset by increases in turbine, rotorcraft, experimental, and light sport fleets.[15]

Of note, the FAA predicts the largest segment of the general aviation fleet, fixed-wing piston aircraft, will "shrink by 22,055 aircraft between 2021 and 2042, an average annual rate of –0.8 percent."[16] The FAA cites pilot demographics, overall increasing cost of aircraft ownership, availability of much lower cost alternatives for recreational usage, coupled with new aircraft deliveries not keeping pace with retirements of the aging fleet, as primary drivers of the decline.[17]

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[5] FAA, *National Plan of Integrated Airport Systems (NPIAS) 2021–2025*, (Sep. 30, 2020), *available at* https://www.faa.gov/airports/planning__capacity/npias/current/media/NPIAS-2021-2025-Narrative.pdf.

[6] *Id.*

[7] FAA, *FAA Aerospace Forecast Fiscal Years 2022–2042* (June 28, 2022), *available at* https://www.faa.gov/sites/faa.gov/files/2022-06/FY2022__42__FAA__Aerospace__Forecast.pdf [hereinafter *Aerospace Forecast*].

[8] *Id.*

[9] *Id.*

[10] *Id.* at 27.

[11] General Accountability Office (GAO), *COVID–19 Pandemic—Observations on the Ongoing Recovery of the Aviation Industry*, GAO–22–104429 (Oct. 2021), *available at* https://www.gao.gov/assets/gao-22-104429.pdf.

[12] FAA, *Federal Aviation Administration, Business Jet Report*, (May 2019, July 2019, May 2020, July 2020, Jan. 2021), *available at* https://aspm.faa.gov/apmd/sys/bj-intro.asp.

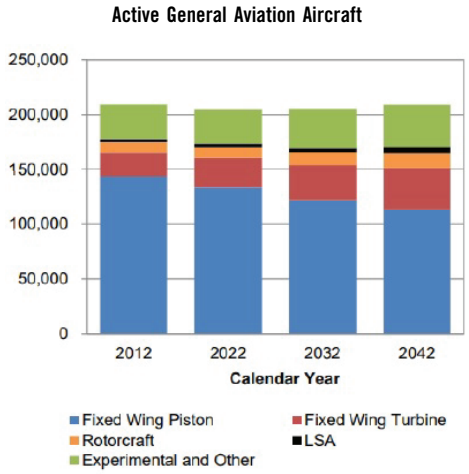
[13] *Aerospace Forecast, supra* note 7.

[14] *Id.* at 28.

[15] *Id.*

[16] *Id.*

[17] *Id.* at 29.



Source: FAA Aerospace Forecast Fiscal Years 2022–2042

In terms of operations, the FAA forecasts that general aviation operations will increase an average of 0.6 percent a year as increases in use of turbine powered aircraft offset declines in piston aircraft use.[18] Specifically, "general aviation operations accounted for 57 percent of operations in 2021 . . . and has been increasing since the pandemic, from 51 percent in 2019 to 56 percent in 2020, and 57 percent in 2021."[19]

B. General Aviation Airport Funding

Unlike commercial airports, general aviation airports do not have access to the passenger facility charge (PFC), which helps fund airport terminal and other capital projects.[20] However, general aviation airports included in the NPIAS are eligible for Airport Improvement Program (AIP) funds.[21] General aviation airports are able to receive funds through entitlements, or formula funds, that are apportioned by formula to airports and can be used for eligible airport development projects.[22] Generally, general aviation, reliever, and nonprimary commercial service airports are allocated 20 percent of AIP funds subject to apportionment.[23] From that share, those airports receive the lesser of either $150,000 or one-fifth of the estimated five-year costs for airport development for each airport as listed in the most recent NPIAS.[24] Any remaining funds are then distributed to each airport according to a state-based population and area formula.[25] General aviation airports that receive entitlements can also apply for discretionary funds, which are awarded on a competitive basis.[26]

Regarding recent revenue trends, even though most U.S. airports saw a decline in revenue during the pandemic, the Government Accountability Office (GAO) found that "about 60 percent of general aviation and reliever airports and about 40 percent of non-primary commercial service airports did not see [any] change in their non-aeronautical revenues."[27]

C. General Aviation Manufacturing

The aviation manufacturing sector was eligible for various federal pandemic relief programs, including the United States. Small Business Administration Payroll Protection Program and the Aviation Manufacturing Jobs Protection Program, and has remained relatively stable over the course of the pandemic with a steady increase

[18] *Id.* at 33.
[19] *Id.* at 35.
[20] 49 U.S.C. § 40117 (b).
[21] FAA, *Overview: What is AIP* (last updated: Nov. 2, 2021), *available at* https://www.faa.gov/airports/aip/overview/#eligible__airports.
[22] 49 U.S.C. §47114.
[23] Cong. Res. Serv. (CRS), *Financing Airport Improvements*, Rep. No. R43327 (2019), *available at* https://crsreports.congress.gov/product/pdf/R/R43327.
[24] *Id.*
[25] *Id.*
[26] *Id.*
[27] GAO, COVID–19 Pandemic—Observations, *supra* note 11.

in the last year. In 2020, airplane and helicopter shipment billings of U.S. manufactured aircraft modestly decreased to $20 billion for airplanes and $3.4 billion for helicopters, when compared to $23.5 billion and $3.8 billion, respectively, in 2019.[28] In 2021, all aircraft segments saw increases in aircraft shipments and preliminary deliveries were valued at $25.2 billion, an increase of 10.3 percent.[29] Airplane shipments in 2021, when compared to 2020, saw preliminary piston airplane deliveries increase 5.5 percent, with 1,393 units; turboprop airplane deliveries increased by 19 percent, with 527 units; and business jet deliveries increased by 10.2 percent, with 710 units.[30]

In its first quarter 2022 Aircraft Shipment and Billing Report, GAMA reported that turboprop airplane deliveries saw the largest percentage year-over-year increase at 31 percent with 110 units during the first quarter.[31] When compared to the first quarter of 2021, piston airplane shipments increased 13.9 percent, business jet shipments increased 4.4 percent, turbine helicopter deliveries increased 6.5 percent, and piston engine aircraft increased 8.3 percent.[32]

II. General Aviation Safety

Over the past four decades, general aviation has become significantly safer over the years with the number of fatal and nonfatal accidents declining since 2000.[33] Experts have argued that this has been a result of numerous factors, including advancements in aircraft equipment and technologies, improved pilot training, improved education programs, and advocacy efforts across the general aviation community.[34] However, general aviation has the highest aviation accident rates within civil aviation—in 2012, the NSTB found in a side-by-side comparison that general aviation accident rates were about six times higher than small commuter and air taxi operations and over 40 times higher than larger transport category operations.[35]

As required by section 308 of the FAA Reauthorization Act of 2018 (Pub. L. 115–254), the FAA, in coordination with the National Transportation Safety Board (NTSB) conducted a study of all general aviation accidents from 2000 through 2018.[36] The study showed there were 18,481 general aviation accidents that involved 18,613 aircraft over that period, resulting in 3,647 fatal accidents.[37] When taking all factors into consideration, the most common type of factors for general aviation accidents analyzed by the FAA and NTSB involved the pilot's control of the aircraft and actions or decisions—particularly those related to weather.[38] The NTSB's 2020 accident statistics report found that most aviation-related deaths in 2020 took place during general aviation operations, where 332 people were killed, compared to 414 people the year before.[39] The 2020 fatal accident rate in general aviation was 1.049 accidents per 100,000 flight hours, compared to the 2019 rate of 1.064.[40]

Subsequently, the FAA, the general aviation community, and Congress have made efforts to improve general aviation safety, including reforming the aircraft certifi-

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[28] Gen. Aviation Mfr. Assoc. (GAMA), *2020 Year-End General Aviation Aircraft Shipment Report* (May 2021) *available at* https://gama.aero/facts-and-statistics/quarterly-shipments-and-billings/.

[29] GAMA, *2021 Year-End General Aviation Aircraft Shipment Report* (Feb. 2022), *available at* https://gama.aero/news-and-events/press-releases/gama-releases-2021-aircraft-shipment-and-billings-report/.

[30] *Id.*

[31] *Id.*

[32] *Id.*

[33] Bureau of Transp. Stat., *U.S. General Aviation Safety Data* (last visited: July 12, 2022), *available at* https://www.bts.gov/content/us-general-aviationa-safety-data.

[34] *See* Safety and Gen. Aviation: Hearing Before the Subcomm. on Aviation & Operations of the Senate Comm. on Commerce, Sci. & Transp., 114th Cong. (Apr. 28, 2015) (statement of Margaret Gilligan, Assoc. Admin. For Aviation Safety, FAA); *see also* Zimmerman, *General Aviation Safety Trends: What Should We Worry About?*, Plane&Pilot Magazine (Dec. 13, 2021) *available at* https://www.planeandpilotmag.com/news/pilot-talk/2021/12/13/general-aviation-safety-trends-what-should-we-worry-about/; *see also General Aviation Safety Continues To Improve*, Plane&Pilot Magazine (Dec. 18, 2019) *available at* https://www.planeandpilotmag.com/article/general-aviation-safety-continue-improve/.

[35] NTSB, *NTSB Most Wanted List: Improve General Aviation* (2012), *available at*: https://www.ntsb.gov/Advocacy/mwl/Documents/ga_safety.pdf.

[36] FAA Reauthorization of Act of 2018, Pub. L. 115–254, Sec. 308 (Oct. 5, 2018).

[37] FAA, *Report to Congress, Federal Aviation Administration and National Transportation Safety Board Review of General Aviation Safety* (Jan. 13, 2021), *available at* https://www.faa.gov/about/plansreports/ntsb-review-general-aviation-safety.

[38] *Id.*

[39] NTSB, *U.S. Civil Aviation Fatalities and Flight Activity Decreased in 2020* (last updated: Nov. 2021), *available at* https://www.ntsb.gov/news/press-releases/Pages/NR20211117.aspx.

[40] *Id.*

cation process. Efforts have included revising the third-class medical certificate process used by recreational and private pilots (not for hire), and initiatives such as the Non-Required Safety Enhancing Equipment (NORSEE) policy, a joint collaboration between industry and government designed to decrease the barriers for general aviation operators to voluntarily install non-required safety equipment on their aircraft.[41]

Since 2000, the NTSB has issued 294 safety recommendations addressing issues related to non-commercial general aviation operations.[42] Of the 296 recommendations, 231 have been closed, while 63 recommendations remain open.[43] Most recently, the NTSB issued a safety recommendation to the FAA to require all enclosed-cabin aircraft with reciprocating engines be equipped with a carbon monoxide (CO) detector.[44] The NTSB also recommended that pilot groups inform their members about potential CO poisoning in flight and encourage their members to install CO detectors with active aural or visual alerting systems.[45] This recommendation stemmed from previous investigations and reports of aircraft accidents in which undetected CO poisoning led to pilot impairment and subsequent fatal or serious injuries due to crashes.[46]

III. Fuels, Power, and New Technologies

A. Leaded Aviation Fuels

Overview and Subsequent Health Concerns

The U.S. general aviation fleet largely consists of piston-engine aircraft, and have one or more piston-powered engines connected to a propeller to provide thrust to move the aircraft on the ground and through the air.[47] According to the National Academies of Sciences, Engineering, and Medicine, "nearly all the country's approximately 170,000 active piston-engine aircraft burn a grade of aviation gasoline (avgas), designated as '100LL,' that contains lead."[48]

Avgas remains one of the only transportation fuels in the United States to contain lead, with more than 222,600 registered piston-engine aircraft that can operate on leaded avgas.[49] This leaded fuel contains tetra-ethyl-lead, which is an additive used to prevent engine damage at higher power settings. Because 100LL can be used by all kinds of piston-engine aircraft, this single grade is the only type of fuel consistently available for general aviation operations and is the only FAA-certified fuel for use by these aircraft.[50] Although the FAA does not have direct regulatory responsibility for aviation fuels, it provides the initial certification approval of the aircraft with the fuel it operates on, and it oversees aircraft operators to ensure use of the correct fuel.[51]

The use of leaded aviation fuel has raised public health concerns in communities across the country, particularly its effects on children.[52] According to the Centers for Disease Control and Prevention, exposure to lead in children can lead to decreased cognitive performance, damaging the brain and nervous system, and potentially leading to long-term learning and behavioral problems.[53]

Unleaded Aviation Fuel Alternatives

There are numerous ongoing efforts to research and develop unleaded aviation fuel alternatives. However, additional testing to validate whether these fuels will

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[41] FAA, *General Aviation Safety* (last updated: July 30, 2018), *available at* https://www.faa.gov/newsroom/general-aviation-safety?newsId=21274.

[42] FAA Report to Congress, *supra* note 38.

[43] *Id.*

[44] NTSB, *Require Carbon Monoxide Detectors in Certain General Aviation Aircraft* (Dec. 2021), *available at* https://www.ntsb.gov/investigations/AccidentReports/Reports/AIR2201.pdf.

[45] *Id.*

[46] *Id.*

[47] Nat'l Acad. of Sci., *Options for Reducing Lead Emissions from Piston-Engine Aircraft*, Transp. Res. Board Spec. Rep. 336 (2021), *available at* https://nap.nationalacademies.org/read/26050/chapter/1#vii.

[48] *Id.*

[49] *Id.; see also* FAA, *Aviation Gasoline*, (last visited: July 12, 2022) *available at* https://www.faa.gov/about/initiatives/avgas#:~:text=Avgas%20remains%20the%20only%20transportation,Lead%2C%20also%20known%20as%20100LL.

[50] *Id.*

[51] *Aviation Gasoline, supra* note 50.

[52] Katie Lauer, *East San Jose community takes to the skies, rallying behind Reid-Hillview Airport*, The Mercury News (Jun. 2022), *available at* https://www.mercurynews.com/2022/06/18/east-san-jose-community-takes-to-the-skies-rallying-behind-reid-hillview-airport/.

[53] CDC, *Health Effects of Lead Exposure* (last updated: Mar. 9, 2022), *available at* https://www.cdc.gov/nceh/lead/prevention/health-effects.htm.

work properly and are compatible with a majority of piston-engine aircraft is still needed.[54] Last year, General Aviation Modifications, Inc. (GAMI) received two supplemental type certificates (STC) authorizing the use of its new G100UL high-octane unleaded avgas.[55] One STC covers a limited number of models of Lycoming engines and the second is for a limited number of Cessna airframes.[56] GAMI is working with Avfuel Corp. to distribute the fuel, but it will take time to scale up production and make the fuel available fleetwide.[57]

In February 2022, the FAA, the Environmental Protection Agency, fuel suppliers and distributors, airports, and engine and aircraft manufacturers joined together in announcing the Eliminate Aviation Gasoline Lead Emissions (EAGLE) Initiative—an initiative to permit both new and existing general aviation aircraft to operate lead-free, without compromising aviation safety and the economic and broader public benefits of general aviation.[58] Specifically, the initiative seeks to (1) establish the necessary infrastructure, efficient distribution channels, and widespread usage of unleaded fuels; (2) support research and testing of piston engine modifications and/or engine retrofits necessary for unleaded fuel operations; and (3) address fleet-wide authorization of unleaded aviation fuels of different octane levels.[59]

B. Sustainability in General Aviation

To further reduce aviation's carbon footprint and help achieve the FAA's goal of net zero greenhouse gas emissions by 2050, U.S. airports are collaborating with airlines and renewable fuel manufacturers to facilitate the storage and distribution of low and zero emission aviation technologies.[60] Many private jet companies and manufacturers, general aviation airports, and other general aviation stakeholders plan to utilize many of these technologies to help reduce their carbon footprint.

Electrification

One of these technologies includes the development of full or hybrid electric aircraft, which operate using battery-powered electricity for power, rather than standard liquid fuels.[61] Several airlines and advanced air mobility companies are seeking to use this technology for smaller aircraft operating shorter flights.[62] Existing small airports and airport infrastructure, such as general aviation airports or heliports, are being considered to be utilized by these new, technologically advanced aircraft once deployed.[63]

However, because battery-powered technologies are not as energy dense as liquid fuels, and thus require additional bulk and weight to achieve a comparable amount of energy, battery-powered aircraft face significant aerodynamic challenges.[64] Such design and operational challenges are likely to affect the range and speed of battery-powered aircraft.[65] Therefore, further technological developments are needed before electrification can be safely and economically adopted for medium and long-haul flights.[66]

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[54] FAA briefing for Committee Staff (June 2, 2022).

[55] AOPA, *GAMI receives unleaded AvGas STC* (July 2021), *available at* https://www.aopa.org/news-and-media/all-news/2021/july/27/gami-receives-unleaded-avgas-stc

[56] *Id.*

[57] *Id.*

[58] *Aviation Gasoline, supra* note 50 at Path to a Lead-Free Aviation System—the EAGLE Initiative; *see also* FAA, *FAA, Industry Chart Path to Eliminate Lead Emissions from General Aviation by the end of 2030* (Feb. 23, 2022), *available at* https://www.faa.gov/newsroom/faa-industry-chart-path-eliminate-lead-emissions-general-aviation-end-2030.

[59] *Id.*

[60] Airports Council Int'l (ACI), *Sustainability Strategy for Airports Worldwide*, (Nov. 2021), at 18, *available at* https://aci.aero/2021/11/16/aci-world-launches-inaugural-sustainability-strategy-report-for-airports-worldwide/#:~:text=In%20June%202021%2C%20ACI%20member,management%20certification%20standard%20for%20airports.

[61] Elissa Garay, *Electric Planes Are Coming Sooner Than You Think*, Afar Magazine (Mar. 2, 2022), *available at*: https://www.afar.com/magazine/electric-planes-are-coming-sooner-than-you-think.

[62] *Id.*

[63] Cmty. Air Mobility Initiative, *Airports and Advanced Air Mobility: Integrating the Third Dimension into Metropolitan Transportation Systems*, (September 3, 2020), *available at*: https://www.nctcog.org/nctcg/media/Transportation/Committees/ATAC/2020/Website-Presentations__9-3-20.pdf?ext=.pdf.

[64] Garay, *supra* note 60.

[65] *Id.*

[66] *Id.*

The FAA is working to develop the regulatory framework for the certification and operation of electric vertical takeoff and landing (eVTOL) aircraft.[67] In May 2022, the agency determined it will transition away from using the certification pathway for small airplanes (under 14 Code of Federal Regulations (CFR) Part 23). Instead, the FAA will pursue the pathway for "powered-lift" aircraft with special conditions (under 14 CFR Part 21.17(b)).[68] During the subcommittee's May 17, 2022, hearing titled, "Preparing for Take-Off: Examining Efforts to Address Climate Change at U.S. Airports," GAMA expressed concerns about the FAA's ability to establish this framework within eVTOL aircraft manufacturers' anticipated certification timelines.[69]

Sustainable Aviation Fuels (SAF)

For turbojet aircraft, SAF, a type of jet fuel refined from biomass, waste streams, or gaseous carbon oxides, has emerged as a leading contender to reduce aviation emissions.[70] Depending on the type of feedstock, SAF offers a carbon lifecycle reduction of up to 80 percent when compared to conventional jet fuel.[71] Unlike other proposals to lower emissions, SAF is a drop-in fuel that works in existing aircraft and can utilize most of the fueling infrastructure already in place.[72]

While SAF holds tremendous potential to help reduce carbon emissions in the aviation industry, significant barriers to widespread adoption remain. For instance, SAF is significantly more expensive to produce and purchase than conventional jet fuel.[73] These high costs lead to SAF being produced in smaller quantities, resulting in limited availability.[74] Today, SAF is estimated to account for just .05 percent of jet fuel use.[75] Additionally, SAF must currently be blended with conventional jet fuel, although the low availability of SAF mitigates this issue in the short term.

WITNESSES

- Mark Baker, President and CEO, Aircraft Owners and Pilots Association
- Chris Rozansky, Executive Director, Naples Airport Authority, *on behalf of the* American Association of Airport Executives
- James "Jim" Viola, President and CEO, Helicopter Association International
- Pete Bunce, President and CEO, General Aviation Manufacturers Association
- Timothy Obitts, President and CEO, National Air Transportation Association
- Greg Pecoraro, President and CEO, National Association of State Aviation Officials
- Ed Bolen, President and CEO, National Business Aviation Association

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[67] Jon Ostrower and Elan Head, *FAA Changes Course on EVTOL Certification*, The Air Current (May 9, 2022), *available at*: https://theaircurrent.com/aircraft-development/faa-changes-course-on-evtol-certification/

[68] *Id.*

[69] Treena Hein, *How the FAA is proceeding with rules for eVTOL type certification and operation*, evtol.com (July 6, 2022), *available at* https://evtol.com/features/how-faa-proceeding-rules-evtol-type-certification-operation/.

[70] Nate Brown & Anna Oldani, *Sustainable Aviation Fuels (SAF)*, FAA (March 10, 2021), *available at*: https://www.faa.gov/about/office__org/headquarters__offices/ang/redac/media/environment/2021/march/envandenergy__mar2021__SAFUpdate.pdf.

[71] Int'l Air Transport Assoc. (IATA), *Developing Sustainable Aviation Fuel (SAF)* (last visited: July 7, 2022), *available at*: https://www.iata.org/en/programs/environment/sustainable-aviation-fuels/.

[72] IATA, *What is SAF* (last visited: July 7, 2022) at 1, *available at*: https://www.iata.org/contentassets/d13875e9ed784f75bac90f000760e998/saf-what-is-saf.pdf.

[73] Christina Brooks, *Sustainable Aviation Fuel Still in Short Supply Due to Cost*, HIS Markit (July 7, 2021), *available at*: https://cleanenergynews.ihsmarkit.com/research-analysis/sustainable-aviation-fuel-market-still-in-infancy-due-to-cost-.html#:~:text=SAF%20prices%20are%20currently%20about,issues%20even%20more%20prominent%20today.

[74] *Id.*

[75] Elan Head, *Understanding the Path to 100% SAF*, The Air Current (April 13, 2022), *available at*: https://theaircurrent.com/technology/path-to-100-saf-sustainable-aviation-fuel/.

THE STATE OF GENERAL AVIATION

WEDNESDAY, JULY 13, 2022

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON AVIATION,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:01 a.m. in room 2167 Rayburn House Office Building and via Zoom, Hon. Rick Larsen (Chairman of the subcommittee) presiding.

Members present in person: Mr. Larsen of Washington, Mr. DeFazio, Ms. Davids of Kansas, Mr. Lynch, Mr. Graves of Louisiana, Mr. Graves of Missouri, Mr. Massie, Mr. Perry, Mr. Burchett, Mr. Nehls, and Mr. Auchincloss.

Members present remotely: Mr. Johnson of Georgia, Ms. Titus, Mr. Payne, Mr. DeSaulnier, Mr. Stanton, Mr. Allred, Ms. Norton, Mr. Mast, Mr. Balderson, Dr. Van Drew, and Ms. Newman.

Mr. LARSEN OF WASHINGTON. Good morning. And welcome to today's Aviation Subcommittee hearing titled, "The State of General Aviation."

In my home State of Washington and across the U.S., general aviation means jobs that pay well, and is part of the key to long-term economic growth.

A recent study found that GA industries supported an estimated $247 billion in economic output and 1.2 million jobs in the U.S. in 2018.

However, the COVID–19 pandemic forced the industry to face several challenges, including workforce reduction, supply chain disruptions, and other issues. To help put GA back on the right track, Congress took several steps to ensure pandemic relief protects U.S. aviation jobs and keeps supply chains moving.

For instance, the Aviation Manufacturing Jobs Protection Program, which Representative Estes of Kansas and I introduced in August of 2020 and was included in the American Rescue Plan, protected or saved 3,100 highly skilled, good-paying jobs in aviation in my home State and more than 30,000 jobs nationwide.

However, Congress can and must do more to better prepare the GA sector for future disruptions.

Over the weekend, I was able to attend the Tarkio airshow with Ranking Member Sam Graves and Ranking Member Garret Graves, which provided some very helpful insights into the priorities of GA operators and companies.

And today's witnesses represent a cross-section of the GA industry, including aircraft owners and pilots, helicopters, manufacturers, State aviation agencies, small airports, and business aviation

interests. I look forward to hearing more about how Congress can support safety and innovation in this growing industry.

Now, while the U.S. economy is on the move, the GA sector, like many other industries, is facing workforce challenges to meet the growing demands of the flying public.

Congress has an opportunity to build on progress made in the 2018 FAA reauthorization law and invest in future general aviation operators, technicians, and manufacturers. The 2018 reauthorization law included several workforce development provisions to improve the recruitment of young people and women to careers in the aviation industry.

For example, in March, the FAA's Women in Aviation Advisory Board submitted its report entitled, "Breaking Barriers for Women in Aviation: Flight Plan for the Future," and I plan to use the report's recommendations and others from aviation stakeholders to build a framework for diversifying the aviation workforce.

The 2018 law also created the section 625 Aviation Workforce Development Grant programs to invest in, recruit, and inspire the future aviation workforce. And I am working to develop legislation to increase funding for this initiative and expand eligibility to include aviation manufacturing, to help build the U.S. aviation workforce to meet current and future demands.

One issue I heard from GA stakeholders at the Tarkio airshow is the mounting workforce issues as well at the FAA, which are creating backlogs in the rulemaking and regulatory processes. Stakeholders are also concerned about the agency's staffing shortages and the subsequent lack of institutional knowledge and how that might hinder U.S. leadership in global aviation.

So, I look forward to hearing from today's witnesses on how Congress can help improve that staffing and reduce any negative impacts on the agency's efforts to move forward on appropriate regulation and rulemaking.

And finally, I want to touch on emerging technologies. To support the future growth of the GA sector, Congress must create a regulatory framework that prioritizes safety, invests in the necessary infrastructure, and helps to make communities globally competitive well into the 2050s and beyond.

Over the last 2 years, this subcommittee has heard from several stakeholders about U.S. aviation innovation and how emerging airspace and technologies, such as advanced air mobility, or AAM, can offer potential societal, safety, and environmental benefits. Congress is taking concrete steps to help make those concepts a reality.

So, as we move into the 2023 FAA reauthorization, Congress must evaluate the role of AAM and what role we will play in the GA sector and what needs must be met to safely integrate those vehicles into the U.S. airspace.

The GA sector has also committed to addressing the industry's contributions to climate change. In recent years, the development of electric and hybrid-powered aircraft are among efforts to reduce carbon and noise emissions.

For example, in my hometown of Arlington, Washington, the Arlington Municipal Airport is located there and is home to Eviation, an aviation company which is developing the nine-seat, all-electric *Alice* aircraft with local people doing the work. The GA industry is

also working to adopt alternative fuel sources to reduce carbon emissions from air travel, such as development and distribution of sustainable aviation fuel. And there is also the looming issue for the GA sector related to the transition to lead-free aviation fuel.

So, I look forward to hearing from you more about how Congress can assist in ensuring a safe transition to lead-free fuels for GA.

So, while the economy is on the move and the future of aviation remains bright, GA still faces several issues that must be addressed, and today's witnesses will provide much needed insight on the GA industry's priorities and how Congress can be a better partner in these efforts.

Thank you. I look forward to tackling these issues in a collaborative manner.

[Mr. Larsen of Washington's prepared statement follows:]

Prepared Statement of Hon. Rick Larsen, a Representative in Congress from the State of Washington, and Chair, Subcommittee on Aviation

Good morning and welcome to today's Aviation Subcommittee hearing titled "The State of General Aviation."

In my home state of Washington and across the country, general aviation (GA) means well-paying jobs and is key to long-term economic growth.

A recent study found the GA industry supported an estimated $247 billion in economic output and 1.2 million jobs in the U.S. in 2018.[1]

However, the COVID–19 pandemic forced the industry to face several challenges, including workforce reductions, supply chain disruptions and other issues.

To help put GA back on the right track, Congress took several steps to ensure pandemic relief protects U.S. aviation jobs and keeps supply chains moving.

For instance, the Aviation Manufacturing Jobs Protection Program, which Rep. Estes and I introduced in August 2020 and was included in the American Rescue Plan, protected or saved 3,154 highly skilled, well-paying aviation manufacturing jobs in my state and more than 30,000 jobs nationwide.

However, Congress can and must do more to better prepare the GA sector for future disruptions.

Over the weekend, I attended the Tarkio Air Show with Ranking Member Sam Graves and Ranking Member Garret Graves, which provided some helpful insights into the priorities of GA operators and companies.

Today's witnesses represent a cross-section of the GA industry, including aircraft owners and pilots, helicopters, manufacturers, state aviation agencies, small airports and business aviation interests.

I look forward to hearing more about how Congress can support safety and innovation in this growing industry.

While the U.S. economy is on the move, the GA sector, like many other industries, is facing workforce challenges to meet the growing demands of the flying public.

Congress has an opportunity to build on progress made in the 2018 FAA reauthorization law and invest in future general aviation operators, technicians and manufacturers.

The 2018 reauthorization law included several workforce development provisions to improve the recruitment of young people and women to careers in the aviation industry.

In March, the FAA's Women in Aviation Advisory Board submitted its report entitled "Breaking Barriers: Flight Plan for the Future", and I plan to use the report's recommendations and others from aviation stakeholders to build a framework for diversifying the aviation workforce.

The 2018 law also created the Sec. 625 Aviation Workforce Development Grant programs to invest in, recruit and inspire the future aviation workforce.

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[1] General Aviation's Contributions to the U.S. Economy, 2018 Price Waterhouse Coopers Study, on behalf of Aircraft Electronics Association (AEA), Aircraft Owners and Pilots Association (AOPA), Experimental Aircraft Association (EAA), General Aviation Manufacturers Association (GAMA), Helicopter Association International

I am working to develop legislation to increase funding for this initiative and expand eligibility to include aviation manufacturing, to help build the U.S. aviation workforce to meet current and future demands.

One issue I heard from GA stakeholders at the Tarkio Air Show is the mounting workforce issues at the FAA, which are creating backlogs in the rulemaking and regulatory processes.

GA stakeholders are also concerned the agency's staffing shortages, and the subsequent lack of institutional knowledge, may hinder U.S. leadership in global aviation.

I look forward to hearing from today's witnesses on how Congress can help improve FAA staffing and reduce any negative impacts on the agency's regulatory and rulemaking processes.

To support the growth of the GA sector, Congress must create a regulatory framework that prioritizes safety, invests in the necessary infrastructure, and helps to make communities globally competitive well into the 2050s and beyond.

Over the last two years, this subcommittee heard from several stakeholders about U.S. aviation innovation and how emerging airspace entrants and technologies, such as advanced air mobility (AAM), can offer potential societal, safety and environmental benefits.

Congress has taken concrete steps to help make these concepts a reality.

As we move into the 2023 FAA reauthorization process, Congress must evaluate the role AAM will play in the GA sector and what needs must be met to safely integrate these vehicles into U.S. airspace.

The GA sector has also committed to addressing the industry's contributions to climate change.

In recent years, the development of electric and hybrid-powered aircraft are among efforts to reduce carbon and noise emissions.

For example, Arlington Municipal Airport in my hometown of Arlington, Washington, is home to Eviation, an aviation company which is developing the nine-seat, all-electric "Alice" aircraft.

The GA industry is also working to adopt alternative fuel sources to reduce carbon emissions from air travel, such as the development and distribution of sustainable aviation fuel (SAF).

There is also the looming issue for the GA sector related to the transition to lead-free aviation fuel.

I look forward to hearing more about how Congress can assist in ensuring a safe transition to lead-free fuels for GA.

While the U.S. economy is on the move and the future of aviation remains bright, GA still faces several issues that must be addressed.

Today's witnesses will provide much needed insight on the GA industry's priorities and how Congress can be a better partner in these efforts.

Thank you, and I look forward to tackling these issues in a collaborative manner.

Mr. LARSEN OF WASHINGTON. Now I will turn to Representative Graves of Louisiana for an opening statement.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Chairman. I want to thank you for having this hearing today, and I want to thank the witnesses for being here.

Before I jump in and talk about the topic of today's hearing, it's the Aviation Subcommittee, and I do want to make note the hundreds or perhaps even thousands of phone calls and emails and contacts we have received from folks expressing strong concern about their experience in aviation. And over the past few months, we have heard countless stories about folks experiencing horrific problems traveling. Trying to take a summer vacation, trying to help resume the economy by doing business travel and experiencing problems at the airport, experiencing problems going through security, experiencing problems with weather delays, air traffic control and, of course, the airlines.

This is something that is having an incredible impact—let me say it again—not just on folks trying to take their families on vacation and enjoy a relaxing summer vacation before school starts, but also those that are trying to help with resumption of economic ac-

tivity across the United States, and this is something that we must make sure that we tackle and get to the bottom of this issue.

Like Chairman Larsen, I had the chance to join many of you at Tarkio, and I think the panel today looks a lot like the one we had over the weekend, and I enjoyed it. I enjoyed the conversation, I enjoyed the panel, and I'm looking forward to today's discussion.

General aviation is a critical part of our Nation's economy, particularly in rural areas like Tarkio where I wasn't sure Tarkio was ever actually going to show up. I thought it was just going to keep being dozens of miles of farms, but it plays a critical role in the economy. What we are talking about today and many of us spoke about over the weekend is how we are going to incorporate new technology into the National Airspace System.

And as the chairman mentioned, right now, we are already seeing the FAA struggle from an organizational, struggle from an experience perspective, struggle from a regulatory perspective, dealing with their legacy mission, much less the complexity of bringing new technologies into our airspace.

And I am very concerned about what that does to commercial travel, what it does to general aviation and, of course, what it does to potentially thwart or impede the ability—an objective I know we all share—to incorporate drones and AAM—advanced air mobility—into our National Airspace System while maintaining—something that I think is really important to emphasize—this amazing record of safety that we have in the aviation industry, which, of course, is that air travel is the safest mode of transportation in the United States. We must continue to maintain that gold standard.

The United States has an incredibly robust network of general aviation airports and heliports that touch virtually every American, not just the airport in Tarkio. And I imagine that we would be hard-pressed to find a Member of Congress that doesn't have a desire to incorporate new technologies into the aviation system.

In fact, my home State of Louisiana in the district we represent, Houma-Terrebonne Airport, which is the base for much of the offshore energy operations, they also have been leaning forward, embraced new innovative technologies, and I know that they are excited to continue moving forward aggressively in AAM. And with advanced aviation systems and advanced air mobility operations on the horizon, we are trying to plan accordingly for these new entrants. But I think that some of the regulatory uncertainty has challenged even them.

We have got to continue to contemplate what this regulatory structure looks like for advanced air mobility, but we must also think about the infrastructure needs that are there. It is not just about the regulatory structure, particularly technologies like eVTOL, thinking about the infrastructure that is needed for those, how general aviation is going to be affected, and making sure that we have the proper infrastructure to facilitate all.

The brainstorming and problem solving is pivotal to the safe and successful operation of AAM and, of course, ensuring that the United States maintains its global leadership role. Thankfully, last month the House passed two critical bills on this, and we are hopeful that the Senate takes a similar path and gets these to the President's desk as soon as possible.

Future regulations must contemplate new entrants into the market, and I am looking forward to hearing you all's thoughts about the safe integration of those systems into our NAS.

Thinking briefly about drones in the ultimate full-scale integration into the NAS. I also want to hear your thoughts on issues that are either of interest or more likely of concern on how we can start bridging the gap between the general aviation industry and this growing drone and AAM industry.

So, Mr. Chairman, I want to thank you for holding this hearing today, and I look forward to hearing from our witnesses.

[Mr. Graves of Louisiana's prepared statement follows:]

Prepared Statement of Hon. Garret Graves, a Representative in Congress from the State of Louisiana, and Ranking Member, Subcommittee on Aviation

Thank you, Mr. Chairman. I want to thank you for having this hearing today, and I want to thank the witnesses for being here.

Like Chairman Larsen, I had the chance to join the general aviation community at the Tarkio, Missouri airshow over the weekend. I enjoyed that event and am looking forward to today's discussion.

General aviation is a critical part of our Nation's economy, particularly in rural areas like Tarkio. But GA faces many challenges, including preserving our existing capabilities while safely incorporating technology into the National Airspace System.

As the Chairman mentioned, we are already seeing the FAA struggle from an organizational perspective, experience perspective, and regulatory perspective. I am very concerned as to how these struggles will impact commercial travel, general aviation, and how these struggles may potentially thwart or impede the development and deployment of new aviation advancements in the United States.

An objective we all share is to incorporate drones and advanced air mobility into our National Airspace System while maintaining the amazing record of safety that we have in the aviation industry. Air travel continues to be the safest mode of transportation in the United States, and we must continue to maintain that gold standard.

The United States has an incredibly robust network of GA airports and heliports that touch virtually every American. We would be hard pressed to find a member in Congress that does not have a desire to incorporate new technologies into the aviation system. In fact, the Houma-Terrebonne Airport, which is in my district in Louisiana and is a base for much of the offshore energy development in the Gulf of Mexico, is aggressively moving forward to incorporate both AAM and UAS into their capabilities. And with Advanced Aviation Systems and Advanced Air Mobility operations on the horizon, we are trying to plan accordingly for these new entrants.

We must continue to contemplate what the regulatory structure looks like for Advanced Air Mobility, but we must also think about AAM's infrastructure needs and how general aviation is going to be impacted. Brainstorming and problem solving is pivotal to the safe and successful operation of AAM, and of course, to ensure that the United States maintains its global leadership role in aviation.

Thankfully, last month the House passed two critical bills in this area, the Advanced Air Mobility Coordination and Leadership Act, and the Advanced Aviation Infrastructure Modernization Act, and we are hopeful that the Senate takes a similar path and gets these to the President's desk as soon as possible.

Future regulations must contemplate new entrants into the market, and I am looking forward to hearing each of our witnesses' thoughts about the safe integration of those systems into the NAS.

Regarding AAM and drones, I also want to hear your thoughts on issues that are either of interest or concern to see how we can start bridging the gap between the general aviation industry and these growing industries.

Mr. Chairman, I want to thank you again for holding this hearing today and I look forward to hearing from our witnesses.

Mr. LARSEN OF WASHINGTON. Thank you, Representative.

Now, before I turn to Representative DeFazio for a statement, we have got just three items very quickly, administrative items. One is to read the speech I should have read at the beginning:

I ask unanimous consent the chair be authorized to declare a recess at any time during today's hearing. Without objection, so ordered.

I ask unanimous consent that Members not on the subcommittee be permitted to sit with the subcommittee at today's hearing and ask questions. Without objection, so ordered.

And as a reminder, please keep your microphones muted unless speaking. Should I hear any inadvertent or advertent background noise, I will request that the Member please mute their microphone.

And to insert a document into the record, please have your staff email it to DocumentsT&I@mail.house.gov. That is first.

Second administrative item, we are expecting votes sometime between 11 o'clock and 11:30 on probably a previous question and a rule, possibly a suspension after that, so, I would guess two to three votes. So, we are going to get through opening statements and see where we sit, but I don't expect the votes to take that long since right now it is just probably, again, a previous question and a rule vote.

So, we will continue after votes start on the floor, we will continue for a little bit before I make a decision about whether we are going to just roll through the vote on the floor or we are going to recess and go to the floor. We will figure that out later. That is second.

And there was a third item. Since this is a GA hearing and we have very few general aviation pilots in Congress, one of whom is the ranking member of the full committee, he is not here, but if he does get here and seeks to have an opening statement, I will suspend the current status of the hearing to turn to the ranking member for an opening statement, just to give a heads-up as a matter of courtesy as well.

So, with that, I will turn to the chair of the full committee, Representative DeFazio, for his opening statement.

Mr. DEFAZIO. Thank you, Mr. Chairman. Thanks for holding this hearing.

Most people don't know how important general aviation is to the economy and the people of the United States, and I am pleased to be able to highlight that here today, talk about the future of the industry, the potential growth into the future, the needs on the ground. Out of the IIJA, we allocated $2.5 billion to nonprimary commercial service in GA airports. I don't know that that is adequate. Probably not, but it is a start on dealing with that.

I had the privilege the end of last week to be up in the Columbia Gorge and see a very innovative instrument landing system at The Dalles, where the FAA had spent $9 million for an ILS that they can't use because it gets too much bounce—it is basically in a bowl. But this other system developed by a company called ANPC is used a lot by the military and they are trying to get updated certification from the FAA.

I went up in a small plane and I got to witness it on the ground. It is an extraordinary system which would help dramatically for GA and allow us to have a lot more airports that could have systems like that. I am not selling that particular one. There may be others like that, but I was very impressed. And it is much less expensive than your traditional ILS.

It took us over 3 years to get ILS into Roseburg, Oregon, because of terrain issues, having to buy some property from a landowner so he would take down some trees, and blah, blah, blah. And we still have very limited approach there.

So, I think there are ways, and I will be interested in any ideas people have that will help facilitate that kind of safety. Safety overall is better over the last 20 years, but we are not there yet. There are still too many accidents, and I am going to be interested in hearing ideas about how we can make GA safer, whether it has to do with training or equipage or the airports themselves, what are the issues that you all see.

I am going to be interested to hear about the EAGLE initiative. And coming from the ninth largest State in the Union, GA is very, very important to Oregon and most other Western States. Not to say it isn't important everywhere in America, but for us it is kind of a life line.

So, thanks for being here today. I look forward to the testimony.

[Mr. DeFazio's prepared statement follows:]

Prepared Statement of Hon. Peter A. DeFazio, a Representative in Congress from the State of Oregon, and Chair, Committee on Transportation and Infrastructure

Thank you, Chair Larsen, for holding this hearing today examining the different segments of the general aviation industry, including general aviation service, safety, sustainability efforts, and manufacturing.

According to the Aircraft Owners and Pilots Association, in 2019 more than 65 percent of flights were conducted for business and public services and more than 90 percent of the approximately 220,000 civil aircraft registered were for general aviation. As such, we must continue to invest in much needed infrastructure that will allow for this sector of the aviation industry to continue operating safely, sustainably, and responsibly, for those on board and those who live and work in general aviation communities.

To this effort, we included in the Bipartisan Infrastructure Bill over $20 billion for infrastructure grants at airports across the country, with $2.5 billion of those funds going to non-primary commercial service and general aviation airports. These robust investments will allow for a safer and more seamless experience for passengers at these airports. However, more could be done. The Bipartisan Infrastructure Bill—while a historic, once in a generation investment—is only a dent in what needs to be an ongoing investment in our nation's airports.

As for safety, according to the National Transportation Safety Board, general aviation has the highest aviation accident rates within civil aviation. Between 2000 and 2018, there were 3,647 fatal accidents, with a majority of those accidents occurring from pilot error. Over the course of my time in Congress, safety has been the cornerstone of my tenure. From ensuring the enforcement of pilot training requirements to improving and reforming certification rules, we have worked diligently to update and solidify safety standards. Thus, I am interested to hear from this panel on how the general aviation sector has improved its track record over the past few decades, and what improvements still need to be made, whether through the adoption of new equipment and technologies, updated training requirements, or policy recommendations.

Finally, we cannot ignore the impact that aviation has on the environment and our surrounding communities. The general aviation community—largely through piston-engine aircraft—is one of the last remaining sectors to still use leaded fuel—

a substance we know can cause harm to those exposed to it. So much so we phased it out of cars in 1996. Now while we can't compare apples to oranges, we must continue to commit ourselves to finding alternatives to leaded fuel, whether it be through new fuels themselves or new technologies. I look forward to hearing about the progress of the Eliminate Aviation Gasoline Lead Emissions—or EAGLE, Initiative—an initiative to permit both new and existing general aviation aircraft to operate lead-free, without compromising aviation safety and the economic and broader public benefits of general aviation.

Moreover, as we work towards reducing carbon emissions among major air carriers, we must also not overlook general aviation aircraft. Unfortunately, as mentioned before, not all types of aircraft run on the same engines and thus can't use the same fuel. As such, I'd like to hear today's witnesses discuss their ideas on how their members plan to utilize sustainable aviation fuels and other technologies to reduce carbon emissions in the general aviation community.

I look forward to hearing from the witnesses on these important issues. I yield back.

Mr. LARSEN OF WASHINGTON. Thank you, Mr. Chair.

I now want to welcome our witnesses. I will just do quick intros in order and then we will start. So, first will be Mark Baker, president and CEO of Aircraft Owners and Pilots Association; Chris Rozansky, executive director of the Naples Airport Authority, on behalf of the American Association of Airport Executives; James Viola, president and CEO of the Helicopter Association International; Pete Bunce, president and CEO of the General Aviation Manufacturers Association—I hope your plane's working; Timothy Obitts, president and CEO of the National Air Transportation Association; Greg Pecoraro, president and CEO of the National Association of State Aviation Officials; and Ed Bolen, president and CEO of the National Business Aviation Association.

Thank you for joining us today. I look forward to your testimony.

Without objection, the witnesses' full statements will be entered into the record. And since that is the case, the subcommittee requests you limit your oral testimony to 5 minutes.

And, with that, Mr. Baker, you may proceed. You are recognized for 5 minutes.

TESTIMONY OF MARK BAKER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AIRCRAFT OWNERS AND PILOTS ASSOCIATION; CHRIS ROZANSKY, C.M., EXECUTIVE DIRECTOR, NAPLES AIRPORT AUTHORITY, ON BEHALF OF THE AMERICAN ASSOCIATION OF AIRPORT EXECUTIVES; JAMES VIOLA, PRESIDENT AND CHIEF EXECUTIVE OFFICER, HELICOPTER ASSOCIATION INTERNATIONAL; PETER J. BUNCE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, GENERAL AVIATION MANUFACTURERS ASSOCIATION; TIMOTHY R. OBITTS, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL AIR TRANSPORTATION ASSOCIATION; GREGORY PECORARO, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS; AND ED BOLEN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL BUSINESS AVIATION ASSOCIATION

Mr. BAKER. Good morning. Chairman Larsen, Ranking Member Graves, and members of the subcommittee, on behalf of the Aircraft Owners and Pilots Association and our 300,000-plus members, I am pleased to be here to discuss the state of general aviation.

General aviation has been an important part of my life for four decades, and continues to be part of the fabric of this Nation. GA, as you said, does represent a $247 billion industry and supports more than 1.2 million jobs. Our communities serve more than 5,000 public-use airports across this country.

General aviation is currently in a good position and weathered the COVID pandemic fairly well. In fact, many found time during the pandemic to pursue flight training. It also became apparent that GA was a significant resource for moving medical supplies and physicians to the areas most needed.

Even with an increasing number of aircraft taking to the air, the skies have never been safer. According to the NTSB and our own AOPA Safety Institute, the past year has been our safest on record. And while we achieved impressive results, there is still much more that we can do. Safety is embedded in our culture at AOPA, and the Safety Institute works every day to educate pilots so that we can continue to ever improve this record.

As the committee is fully aware, our aviation system is facing a workforce shortage, including pilots, mechanics, technicians, and air traffic controllers. We very much appreciate the support of the committee in moving bipartisan and bicameral legislation H.R. 3482 this past April to help address this issue.

We also applaud the committee for including two Aviation Workforce Development Grant programs in the 2018 FAA reauthorization statute, commonly referred to as the section 625 program.

AOPA has made major investments in aviation's future through our rigorous 4-year high school STEM education curriculum. During the past year alone, our curriculum engaged more than 12,000 high school students in 44 States, sparking interest in aviation careers everywhere.

Yesterday, I was in Oklahoma where 57 high schools will now have a high school education program, the largest in the country.

We have also a nationwide shortage of aircraft hangars at GA airports, according to surveys we have undertaken. Some airports report waiting lists that stretch out several years. And hangar shortage is a top concern among pilots. We look forward to working with the committee as well on a number of other GA airport-related issues in next year's FAA reauthorization process.

I must make mention of the overwhelming success of the medical process reform for GA pilots known as BasicMed. More than 70,000 pilots have flown under these privileges since this committee and Congress sent legislation to the President's desk in 2016.

Finally, the most pressing matter facing GA today is moving lead from avgas. As cochair of the EAGLE initiative, which stands for Eliminate Aviation Gasoline Lead Emissions, I can tell the committee the entire GA industry, including my colleagues here today, are all working together to remove lead from avgas. We are setting a target date of no later than 2030, and I remain hopeful we can get there much sooner.

What we are concerned about is this terrible precedence that Santa Clara County in California has pursued by preventing the sale of 100 Low Lead at their two airports. This is an enormous safety issue, and if not addressed, could lead to a domino effect of other airports across the country, which could cause a real struggle

if we lost control of our ecosystem of these public-use airports supplying fuel while we work to get this transition done.

Thank you very much.

[Mr. Baker's prepared statement follows:]

Prepared Statement of Mark Baker, President and Chief Executive Officer, Aircraft Owners and Pilots Association

INTRODUCTION

Chairman Larsen, Ranking Member Graves, Members of the Subcommittee, thank you for the opportunity to provide the Aircraft Owners and Pilots Association's (or AOPA) perspective on the State of General Aviation.

AOPA is the world's largest aviation membership organization, representing the general aviation interests of more than 300,000 aircraft owners and pilots across the country. Our members collectively operate over 85% of all general aviation (GA) aircraft in the United States and represent two-thirds of all pilots, making AOPA the largest civil aviation organization in the world.

AOPA was founded in 1939, and for over eighty years, we have stayed true to our mission of protecting the freedom to fly. Safety remains AOPA's north star and helping to guide and protect this uniquely American experience so we can pass it along, better than we received it, to the next generation of aviators. Getting the next generations of Americans, especially young people from diverse backgrounds, interested and involved in aviation and aerospace is vital to our industry's future.

IMPACT OF GENERAL AVIATION:

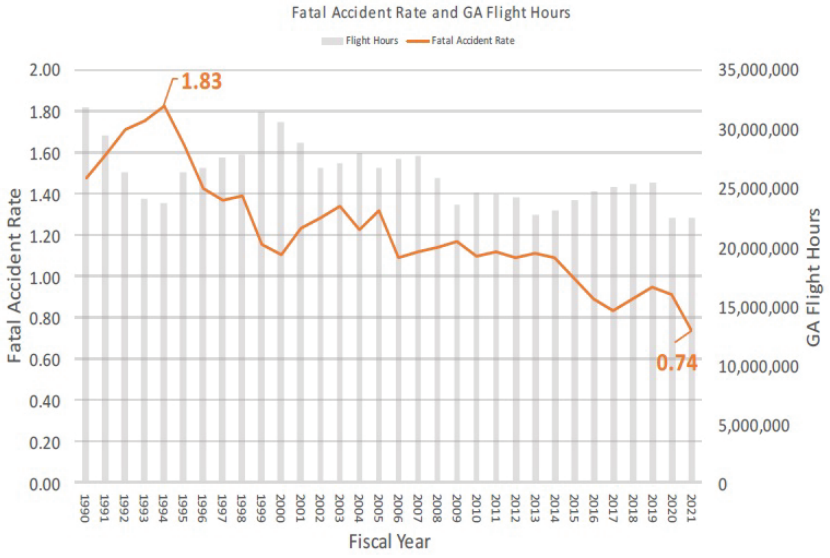
General aviation generates over $247 billion in total economic output, supports 1.1 million jobs, and includes a network of thousands of airports that help keep our communities across the nation connected, safe and protected.

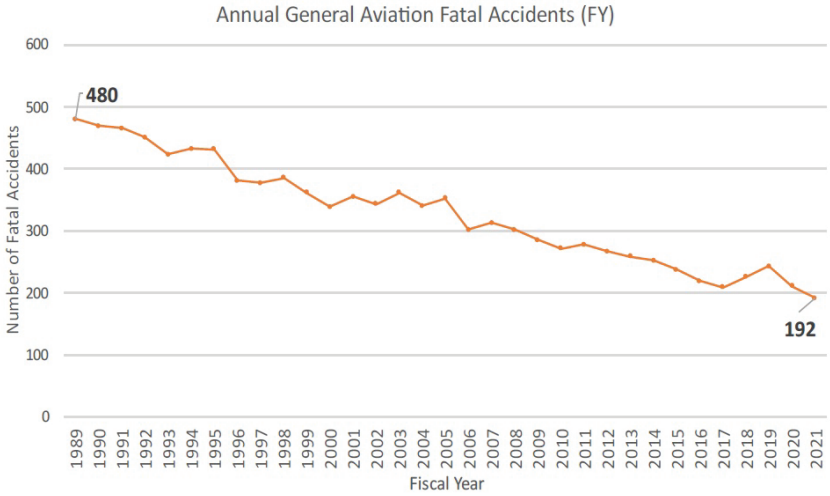
General aviation operates a fleet of over 211,000 aircraft into the more than 5,000 public-use airports and over 14,500 private airports in the U.S., providing vital transportation to communities that do not have commercial service. According to the May 2022 FAA ATO Fact Book, the number of pilot certificates in 2021 increased by 4.2 percent to 720,603, mainly due to an increase in student pilot certificates from 222,629 to 250,197.

IMPROVING GENERAL AVIATION SAFETY:

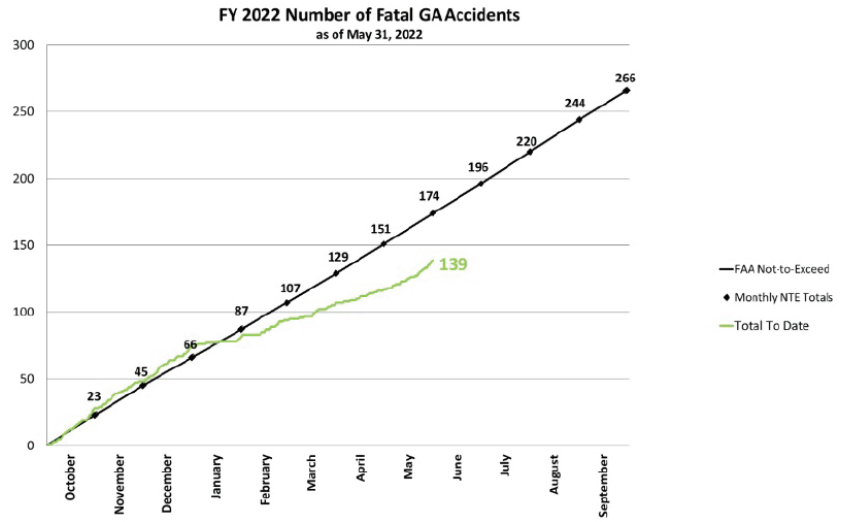
The United States operates the safest aviation system in the world, and we are achieving impressive results in general aviation safety. Every aircraft accident makes headline news; however, what does not make the news is the 25 million flight hours a year flown by hundreds of thousands of GA pilots, accessing some 5,000 airports, safely.

In fiscal year 2021, general aviation had the safest year ever with a fatal accident rate of 0.74 accidents per 100,000 flight hours. That followed a decades-long trend of historically low accident rates, which have declined by some 50% over the last 25 years.





The General Aviation Joint Safety Committee, co-chaired by leaders from AOPA's Aviation Safety Institute (ASI) and the FAA, analyzes mishap data to develop safety recommendations and drive implementation across the industry. This year, we are on track to again exceed the safety goal established by the GAJSC. A goal that will result in another ten percent reduction in fatal accidents over ten years.



These safety results are the product of strong industry collaboration to advance across all five elements of aviation safety: knowledge, training, proficiency, equipment, and culture. It is no coincidence that the FAA's compliance program—which substantially improved the relationship with pilots and the FAA—took root during this period of sharp advances in GA safety. An open, trusting culture where pilots can admit mistakes, ask questions, and seek correction is critical to safety. We are hopeful this compliance program will be accelerated, yet there are signs that we may be falling back to a more hardened "enforcement" culture, where the emphasis is on punishment over compliance.

We must accelerate our work to bring advanced equipment into GA cockpits. Modern technologies improve pilot situational awareness, help aid aircraft control in times of duress, and improve monitoring to identify critical components before they fail. Though we have seen improvements, our lag time and the bureaucratic process to approve installation of modern equipment is excessive. We must streamline the approval process and get more modern equipment into our GA fleet faster.

We have achieved impressive results and have come a long way in GA safety, but there is still so much more we can do. Safety is embedded in our culture and our highly respected Aviation Safety Institute works every day to educate and improve safety where we can.

Aviation Workforce and AOPA High School STEM Curriculum

Aviation—whether GA, commercial, or military—cannot exist without qualified professionals to fly, design, build, operate, and maintain our crewed and uncrewed aircraft. Today, we face a critical shortage of workers in all these fields. Boeing predicts the need for 612,000 new pilots, 626,000 new maintenance technicians and 886,000 new cabin crew members over the next 20 years.

We applaud this Committee for including two aviation workforce development grant programs (aircraft pilots and aviation maintenance technical workers) in the 2018 FAA Reauthorization law. This is an outstanding provision intended to introduce high school students and others to science, technology, engineering, math (STEM) aviation education and opportunities, as well as training in aviation and aerospace skills.

Most people that aspire to become aviators start in general aviation, so it is important that we collaborate on efforts to ensure that this pipeline remains open to all. The aircraft pilot grant program supports the creation and delivery of curriculum designed to provide high school students with meaningful science, technology, engineering, math and aviation education and encouraging our nation's youth to become the next generation of commercial, general aviation, drone or military pilots.

The aviation technical workforce grant program includes scholarships, apprenticeships, establishing new training programs, purchasing equipment for schools, and supporting career transition for members of the armed forces.

These two programs are each authorized at $5 million per year through fiscal year (FY) 2023, and Congress appropriated full funding for these programs in FY20, FY21 and FY22. The FY23 Departments of Transportation, Housing and Urban Development, and Related Agencies Appropriations Bill recently, approved by the House Appropriations Committee, recommends funding the aircraft pilots grant program at $5 million while increasing the aviation technical workforce grant program to $10 million in FY23.

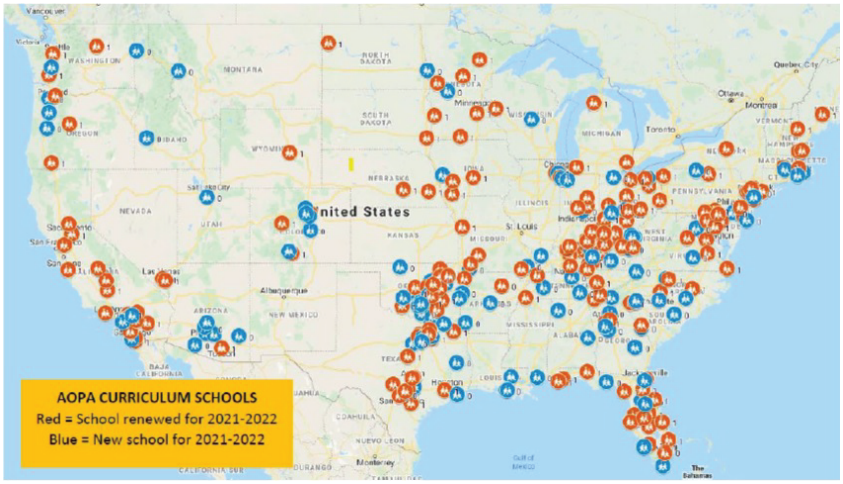
We appreciate the leadership of Chairman Peter DeFazio, Ranking Member Sam Graves, Aviation Subcommittee Chairman Rick Larsen, and Subcommittee Ranking Member Garret Graves, as well as the Members on the Committee, who have expressed their support for full funding of these aviation workforce grant programs.

In recent years, AOPA has also made major investments designed to fill the workforce pipeline, and that effort is paying dividends.

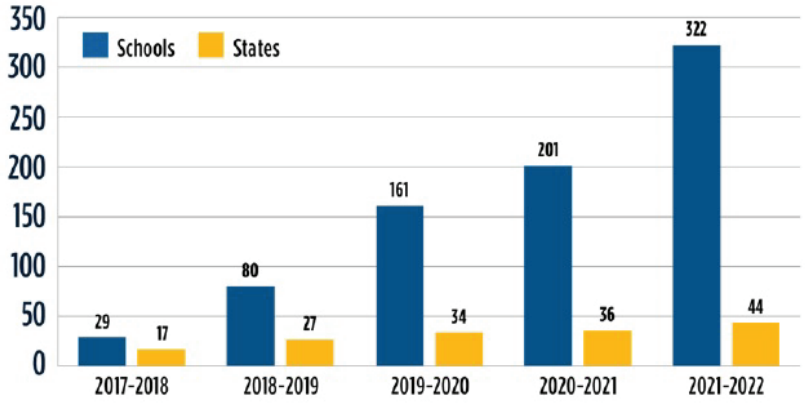
During the past school year alone, more than 12,000 high school students in 44 states used the rigorous four-year high school aviation STEM curriculum created by the AOPA Foundation to interest students in aviation careers and prepare them for success. These students studied in public, private, charter, and home-school settings in urban, suburban, and rural areas.

Fifty-four percent of these students attended Title I eligible schools, considered mid-to-high poverty by the Department of Education, while 21% were female and 41% were from minority backgrounds. This participation represents a significant increase in diversity when compared to the current aviation workforce.

HIGH SCHOOL AVIATION STEM CURRICULUM BY THE NUMBERS
2021–2022 SCHOOL YEAR

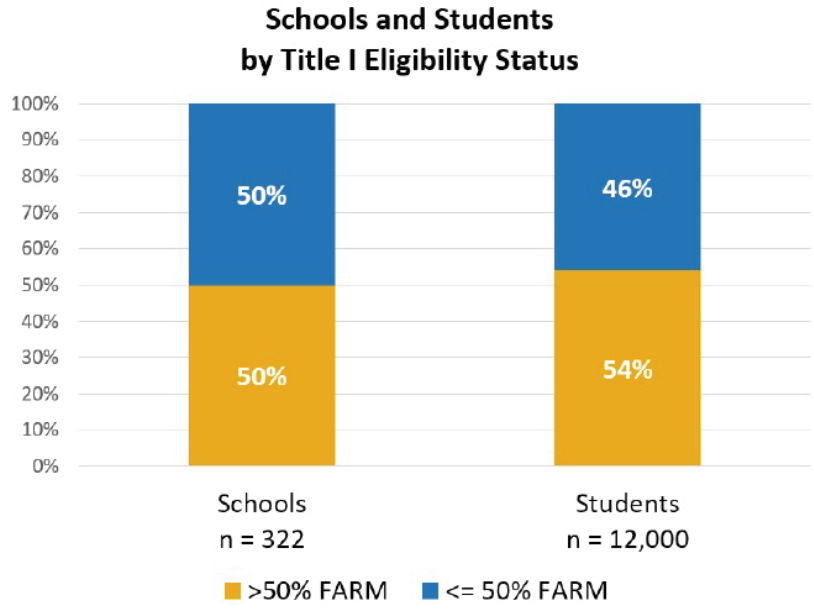


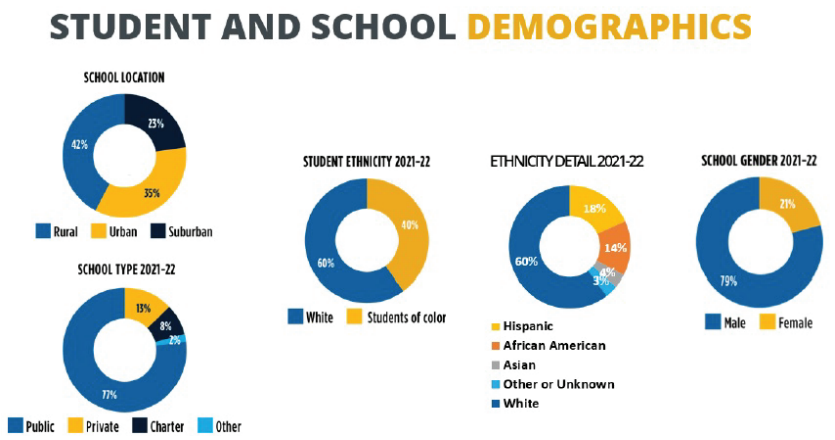
YEAR-OVER-YEAR GROWTH



- 62% increase in number of schools compared to previous year
- 22% increase in the number of states
- 12,000 students

2021-2022 POVERTY LEVEL DATA





Among the graduating seniors who participated in the AOPA curriculum in the past two years, 58% reported plans to pursue careers as pilots (23%), maintainers (11%), aerospace engineers (15%), and in other aerospace fields (9%). Fully 75% reported plans to attend college or trade school.

To make this program accessible to students regardless of means, the AOPA Foundation provides it to schools completely free of charge. Comprehensive lesson plans, presentations, activities, assessments, and year-round teacher training and support are available to participating schools at no cost thanks to the generosity of donors.

While AOPA has made major investments to get high school students interested in aviation and Congress has provided support through the aviation workforce development grant programs, more needs to be done.

NATIONAL CENTER FOR THE ADVANCEMENT OF AVIATION ACT:

As the Committee is aware, in order to meet bold challenges, we need bold initiatives. Recognizing this, I am grateful that this Committee approved by voice vote the National Center for the Advancement of Aviation Act (NCAA). Mr. Chairman, the bipartisan and bicameral National Center for the Advancement of Aviation Act (H.R. 3482/S.1752), introduced in the House by you, Congressman André Carson (D-Ind.) and the late Congressman Don Young (R-Alaska), and in the Senate by Senators Inhofe (R-Okla.) and Duckworth (D-Ill.), is that bold initiative. Your bill has over 60 bipartisan cosponsors, many who serve on this Committee, and I encourage all Members to cosponsor this important bill.

A national aviation center would bring the industry together by fostering such things as programs that create a diverse and skilled aviation workforce, ensuring the deployment of STEM aviation educational opportunities for middle and high school students, and provide a forum to support collaboration and cooperation between governmental, non-governmental, and private aviation and aerospace sector stakeholders regarding the advancement of the U.S. aviation and aerospace workforce. A national aviation center would do more to grow, develop, and promote aviation and bring the needed and long overdue collaboration of our collective industry that is so vital to our nation's economy.

We strongly believe standing up such a center will facilitate cooperation, collaboration, and coordination across all sectors of aviation; civil, commercial, and military—and which is so desperately needed to address the workforce challenges facing the aviation industry.

In addition to the strong bipartisan support, more than 200 aviation organizations from general aviation, airlines, unions, and airports have expressed their support for the NCAA. Mr. Chairman, air travel delays and cancellations facing millions of Americans this summer are getting national attention and there are many factors involved including the shortage of pilots and other aviation workforce professionals. I strongly urge you, and this Committee to do everything possible to ensure the House passes this NCAA bill before the end of the year.

AIRPORT INFRASTRUCTURE AND TRANSPARENCY:

Our nation's public use airports are clearly a valuable and critical part of Americas infrastructure. We applaud the Committee's support to address our nation's airport infrastructure as part of the Infrastructure Investment and Jobs Act (IIJA). The legislation provides $25 billion over five years from the Treasury general fund, with $15 billion in grants for airport infrastructure including $500 million a year for non-primary and general aviation airports. This is in addition to annual Airport Improvement Program (AIP) funding, as well as the supplemental discretionary AIP funding Congress has appropriated over the past few years.

There are over 211,000 GA aircraft that operate from more than 5,000 public use airports in our national airspace system, of which only 500 airports provide commercial passenger service. However, almost 2,000 of the 5,000 airports listed in the National Plan of Integrated Airport Systems (NPIAS) are not eligible to receive federal funding. These 2,000 airports located in more rural areas still provide critical access to the communities they serve and should not be forgotten.

Need for Additional GA Hangars:

AOPA is also actively monitoring several areas of concern for pilots at airports across the country. We conducted a national survey of 800 airports and found that 71% of airport managers report a shortage of GA hangars. In fact, 55% of those surveyed said they have the land to develop additional hangars but do not have the financial resources to do so. Even if an airport is in the NPIAS, hangars are generally not approved for AIP funding.

Airport managers also report that hangars provide 45% of their gross revenue (the other 45% is from fuel sales) making hangars a critical source of financial self-sustainability for any GA airport. To address this concern, Congress should dedicate funding for GA hangar development that brings the cost within reach of the small cities and counties the desperately need hangars as a way to boost their long-term financial sustainability.

GA Airport Fees and Ramp Transparency:

Another issue of concern that we hear from our members and GA pilots across the country is the lack of transparency of ramp fees charged by the major fixed based operators (FBO), as well as the lack of published transient parking areas at federally funded public use airports.

Everywhere I travel I hear from AOPA members who believe there needs to be a requirement for major FBO companies to make their fees transparent and easily available to pilots like any other product or service today.

In addition, we believe there should be a requirement for airports with published diagrams to identify where public parking for GA aircraft exists at these airports. AOPA has reached out to 700 airports with published airport diagrams, and while over 100 airport managers have adopted standard parking labels which were created by the aviation industry, more needs to be done.

AOPA members and GA pilots across the country view transparent ramp fees and parking areas at taxpayer funded public use airports as a pilot's right.

While our members appreciate the strong support from Congress to fund our nation's public use airports, providing dedicated funding for GA hangar development and requiring transparent ramp fees and GA parking areas will help GA thrive.

Success of BasicMed:

BasicMed is a great example of AOPA working with the government in developing a program that has assisted many general aviation pilots. Since its inception in 2017, BasicMed has become widely popular and used by many in the aviation community.

Since BasicMed became available in 2017, over 73,000 pilots have taken advantage of this medical reform while maintaining an excellent safety record, according to FAA's Civil Aerospace Medical Institute and AOPA's Air Safety Institute. AOPA continues to support BasicMed and its potential to offer many current and aspiring pilots alternative and safe pathways to fly to the 5,000 public-use airports in the US. AOPA continues to work with Canada in accepting BasicMed for pilots entering Canada from the U.S. as The Bahamas and Mexico currently do.

There are several long-term issues on which AOPA, and on behalf of the general aviation community, continues to engage with the FAA to rectify.

FAA Staffing Shortage:

AOPA shares the concerns of our industry partners regarding the current low staffing levels across the FAA. From an aircraft ownership perspective, these low

staffing levels directly affect aircraft registration, surpassing six months to process on many occasions, whereas it used to take 4–6 weeks.

The shortage of air traffic controllers has been causing delays for an extended time, and AOPA appreciates the FAA's current efforts to increase controller staffing. However, AOPA urges the FAA to review and revise its delay protocols, especially in the Eastern United States, to help reduce extensive deviations general aviation aircraft operators encounter.

Another major concern to AOPA members is the shortage of aviation safety inspectors (ASI), causing extended processing time for required acceptance and approval of documentation for operators, pilots, and mechanics. The ASI shortage also negatively affects the designee system due to not having enough managing specialists to provide oversight of designees, such as Designated Pilot Examiners (DPEs).

Designated Pilot Examiners (DPEs):

For several years now, the pilot community has voiced consistent concerns about the lack of availability of examiners across the country. Although the FAA has implemented some programs that have provided limited relief, designee availability remains challenging. To emphasize the continued lack of DPE availability, according to a 2022 Middle Tennessee State University survey, 92% of flight school provider respondents believe there are currently too few DPEs nationwide to service the needs of pilot applicants.

To ensure the continued growth of the pilot population, especially amid increased demand for flight training and the current and projected increase in the pilot shortage, we believe the Aviation Rulemaking Advisory Committee's DPE Reform recommendations should be implemented as soon as possible to ensure an adequate number of designees are available.

As we continue to transform the aviation system to meet the needs of the future, we must ensure pilots have access to the services they need, whether for air traffic control, aircraft certification or for the host of other tasks required to keep the aviation sector operating.

Drone Integration:

AOPA fundamentally supports the safe enabling of drone operations into the U.S. National Airspace System (NAS), and we are working to ensure the future success of this segment of the aerospace community. However, the general aviation community has significant concerns that some of the proposed concepts to integrate Beyond Visual Line of Sight (BVLOS) drones will negatively impact the safety and efficiency of all NAS users.

For example, the BVLOS Aviation Rulemaking Committee recently recommended, over the objections of several members including AOPA, that BVLOS drones should have no responsibility to detect and avoid other aircraft that are not actively transmitting their location through Automatic Dependent Surveillance-Broadcast (ADS–B). Even after the 2020 ADS–B mandate, thousands of general aviation aircraft are either not required or are restricted from using ADS–B, such as ultralights and experimental aircraft. Allowing BVLOS drones to lessen their responsibility to detect and avoid manned aircraft operating routinely and safely at lower altitudes would introduce a serious safety hazard into the NAS.

AOPA urges the FAA to ensure BVLOS drone operations meet their responsibilities to see/detect and avoid all aircraft, just as current airspace users are obligated to do. Doing so will provide a more direct path to safely integrating uncrewed BVLOS aircraft into the entire NAS without further equipment requirements/mandates, unnecessary changes to the right-of-way rules, or airspace segregation.

Modernization of Special Airworthiness Certification (MOSAIC):

MOSAIC is long overdue and necessary to create changes to aircraft certification processes that will promote the installation of advanced and lower-cost technologies thereby enhancing safety and situational awareness. It will also increase personal flying opportunities and enjoyment.

AOPA urges the Committee to help ensure the FAA moves forward with MOSAIC in a timely manner and without further delay.

Real-time Special Use Airspace (SUA):

Dissemination of real-time special use airspace (SUA) information to pilots and flight planners is a critical priority for the aviation industry, including both the commercial and private sectors.

A MITRE Corporation study has suggested that implementing a system to provide this information could save $100 million annually in fuel burn, resulting not only in significant financial savings for airline, military, and general aviation operations,

but also in reduced travel times for passengers and a considerable reduction of carbon emissions.

While the National Defense Authorization Act of 2021 (P.L. 116–283) requires the implementation of a real-time system, AOPA is concerned as there appears to have been little measurable progress beyond some fact-finding activities.

This is unfortunate given the enormous benefits associated with implementing such a system. We believe FAA and DOD must redouble their efforts to implement a solution as quickly as possible and we appreciate the Committees support on this particular matter.

UNLEADED AVIATION FUEL AND EAGLE INITIATIVE:

There is no more pressing issue that general aviation faces today than the need to transition to 100 percent unleaded fuel—in a safe and smart way that works for the entire fleet of 200,000 aircraft.

This is a matter of safety.

I and my colleagues want lead out of our fuel, and have been diligently working on this important goal for several years. To bring this vision to reality, AOPA and the entire general aviation industry are collaborating with the federal government—and many other public and private stakeholders—in the EAGLE initiative (which stands for Eliminate Aviation Gasoline Lead Emissions).

While the EAGLE effort calls for the elimination of leaded fuel by 2030, I want—and expect—this to be done sooner. We have several candidate fuels currently in the program that are undergoing rigorous testing.

But let's be clear—this transition to unleaded needs to be safe and smart, as many of the 200,000 aircraft in the current GA fleet require higher octane fuel to fly safely. These include aircraft performing important missions of disaster relief, emergency operations, search and rescue, and law enforcement.

We are troubled by the actions taken by Santa Clara County in California in unilaterally preventing the sale of 100LL while the industry and the Biden Administration work together toward finding and deploying a fleetwide unleaded solution no later than 2030. With 100LL unavailable, there is also a higher risk of misfuelling, which can cause catastrophic engine failure, endangering those in the air and on the ground. Moreover, Santa Clara County has clearly violated AIP grant assurances with its actions and if left unchecked by the FAA, we are concerned about the terrible precedent and domino effect at other airports across the country, which would have a devastating impact on the general aviation community and local communities. We implore the Committee to ensure that this situation in Santa Clara County is addressed appropriately so that we can move forward with a safe and smart transition to an unleaded fuel solution.

CONCLUSION:

I would like to again thank the Subcommittee for this important hearing today and look forward to continuing to work with you on issues important to pilots and the general aviation community.

Mr. LARSEN OF WASHINGTON. Thank you, Mr. Baker.

I will now recognize—just a moment—Mr. Rozansky from Naples Airport Authority. You are recognized for 5 minutes.

Mr. ROZANSKY. Good morning. Thank you, Mr. Chair and members of the subcommittee. I appreciate the invitation and the chance to speak to you about the state of general aviation.

I am the executive director for the Naples Airport Authority, which is one of the top 10 busiest airports for private jet activity in the Nation, testifying today on behalf of the American Association of Airport Executives, where I serve as the association's General Aviation Airports Committee vice chair.

I want to begin by thanking you for your staunch support of GA airports which, as you know, play a key role in our aviation system and our local economies. In Florida alone, more than 100 GA airports generate an economic impact of nearly $18 billion annually and support more than 108,000 jobs.

GA airports deliver an array of vital services, including business aviation, flight training, law enforcement, firefighting, and medical transportation. We also help to reduce congestion in nearby commercial service airports.

While many commercial service airports are returning to 90 percent pre-pandemic enplanements, many GA airports have exceeded those 2019 activity levels. These positive trends are a result of various factors, from increased flight training, charter, and the proliferation of remote work.

We are very grateful for the support Congress provided airports throughout the pandemic and investing in airports' capital needs. But as you have already alluded to, there is more we can do.

At Naples, we intend to use funds from the bipartisan infrastructure bill to complete critical safety improvements such as navigational improvements that may not otherwise compete for discretionary funds.

The infrastructure bill represents a step in the right direction, but there is still an enormous gap. According to the FAA, airports have $8.7 billion in annual AIP eligible projects, with almost $3 billion of that going to nonprimary airports. The latter is almost as much as what commercial service and GA airports receive in total from AIP each year. And these estimates do not factor in non-eligible projects, dramatically increasing labor and construction costs, and continued supply chain constraints.

As we prepare for the next reauthorization bill, we urge Congress to increase traditional funding, consider proposals to both reform and bolster nonprimary entitlement funding, and provide funding for supplemental discretionary grants that help airports meet those infrastructure needs.

I would also like to thank subcommittee members for being strong supporters of the FAA Contract Tower Program, a successful public-private partnership enhancing aviation safety throughout the Nation. Naples is 1 of 260 airports in 46 States participating in that program.

While the pilot shortage has received a great deal of attention, we are facing a shortage of air traffic controllers as well. One way Congress can help is by passing the CONTRACT Act, which would provide an incentive for retired Federal controllers to continue working at Federal contract tower airports.

Federal contract towers also need greater access to technology, such as radar displays, next-gen type equipment to ensure the continued safe and efficient operation of the national airspace.

Naples is a noise-sensitive community with residential developments surrounding the airport. Federal noise policy established decades ago has helped tremendously, but we need a more collaborative, modernized approach between the FAA, airports, and their communities, whose concerns extend beyond traditional noise contours.

Airports are also doing their part to reduce pollution and promote sustainability. Through AAAE, GA airports are participating in the EAGLE initiative aimed at eliminating leaded aviation fuels by 2030; however, we must thoughtfully consider and prepare to execute a transition without putting the vital services GA provides at risk.

We are eager to better understand what types of infrastructure improvements are needed to support the adoption of these new fuels. Like members of the subcommittee, we too are excited about advanced air mobility and eVTOLs. It is imperative that airports are part of the discussion of the integration of these new entrants into the national airspace.

We also need to find ways to pay for the new infrastructure needed for these new entrants without compromising the funds available for traditional airport projects.

In closing, with greater demand, new technology, and continued support from Congress, the future of the Nation's GA airports has never been brighter. On behalf of AAAE and my colleagues serving general aviation around the country, we do look forward to working with this subcommittee on the upcoming FAA reauthorization bill.

Thank you.

[Mr. Rozansky's prepared statement follows:]

Prepared Statement of Chris Rozansky, C.M., Executive Director, Naples Airport Authority, on behalf of the American Association of Airport Executives

Chair DeFazio, Ranking Member Graves, Chair Larsen, Ranking Member Graves, and members of the subcommittee, thank you for the opportunity to appear before you today to highlight the perspective of a general aviation airport operator on the state of the general aviation industry. My name is Chris Rozansky, and I am the Executive Director of the Naples Airport Authority.

I am testifying today on behalf of the American Association of Airport Executives (AAAE), where I serve as a Vice Chair of the association's General Aviation Committee. AAAE is the world's largest professional organization representing individuals who manage and operate more than 850 public-use commercial and general aviation airports across the country.

The Naples Airport is a general aviation airport located in Southwest Florida, an increasingly popular destination known for its pristine beaches and quality of life. Originally built in 1943 in support of World War II, the airport is now one of the top ten busiest in the nation for private jet activity that drives an immense economic impact locally. As I will describe later in my testimony, the airport also serves a critical role in flight training; public safety and health with law enforcement; firefighting; and medical transportation.

THE IMPACT OF GENERAL AVIATION

Let me begin by thanking all of you for your steadfast support for general aviation airports and the broader GA industry. As you will hear from my colleagues today, GA is an integral part of our National Airspace System (NAS). In fact, the U.S. has the largest and most diverse system of GA airports in the world, supporting more than 1 million jobs and helping generate nearly $250 billion in economic impact annually. To illustrate the reach of GA airports, there are over 4,400 public-use GA airports in the United States.

General aviation airports function like Swiss Army knives, delivering an array of vital services that you won't find elsewhere in town. GA airports typically provide convenient and timely transportation with facilities close to passengers' final destinations. When traveling for business, GA airports can accommodate passengers' travel needs in multiple cities on the same day and potentially help them return home in time for dinner. When hurricanes strike, GA airports oftentimes act as staging areas to deliver critical relief and help get their communities back on their feet. For Naples, its airport was a lifeline following Hurricane Irma in 2017.

I can personally attest to the value of having life-saving medevac operators nearby when my own son needed urgent pediatric care a few years ago. He recovered and is just fine now, but admittedly, it's the best helicopter ride you never want to take. More recently, select GA airports began serving as testbeds for revolutionary technologies like electric vertical takeoff and landing or eVTOL's that are sure to change society as we know it. And this is just the tip of the iceberg—law

enforcement; firefighting; aerospace engineering and manufacturing; air cargo; agriculture; and recreation are just a few of the other functions at GA airports.

The state of Florida plays a leading role in the NAS, with 108 public GA airports that support more than 108,000 jobs and generate an economic impact of more than $18 billion annually according to the Florida Department of Transportation's Statewide Aviation Economic Impact Study in 2019. Furthermore, Florida is home to more student pilots, federal contract towers, and business jet operations than any other state in the nation.

Demand at most general aviation airports has never been greater. One analyst recently estimated there are nearly two million new passengers using general aviation since the onset of the COVID–19 pandemic. In a recent survey conducted by the Naples Airport Authority, 98 percent of passengers traveling through the airport indicated that they intend to continue flying privately rather than go back to the airlines. This shift in travel preferences coupled with overall growth trends has also led to a number of challenges such as community concerns over increased aircraft noise exposure and pollution. We are currently working closely with the FAA, airport stakeholders, and our neighbors to address those issues through a Part 150 Noise Study.

COVID–19 and Ongoing Recovery

The COVID–19 pandemic and the subsequent recovery have provided a clear illustration of the importance and flexibility that GA airports provide the NAS. We are grateful to this subcommittee and to the Congress for recognizing that the economic and operational struggles caused by the pandemic were not limited to commercial service airports and for ensuring that portions of the various pandemic relief packages included designated funding for GA facilities. Those resources were important for GA airports and the communities they serve.

While air traffic at commercial service airports is returning to over 90 percent of pre-pandemic enplanement levels, we have seen many GA airports, particularly in leisure markets, exceed their pre-pandemic levels. These positive trends are a result of various factors, from increased flight training and charter activity to the proliferation of remote work, which has allowed many Americans to relocate to more desirable areas. Private jet travel in the U.S. is above 2019 levels despite record fuel prices. I would note, though, that while the industry overall is thriving, not every airport has recovered fully. The old adage that if you've seen one airport, you've seen one airport, still applies.

Frequent flight disruptions and cancellations that have plagued the airlines this summer have exposed the crippling effect that workforce challenges continue to have on the aviation system. Flight schools at GA airports are playing a pivotal role in addressing the ongoing pilot shortage. Already, flight schools have seen upticks in their enrollments, particularly as airlines are ramping up recruiting and training programs and increasing financial incentives for new pilots. GA airports uniquely support the needs of these future airline and military pilots by allowing them to train in less congested airspace.

Finally, the COVID–19 pandemic has made clear that remote work for some is here to stay. With countless businesses continuing to promote work from home policies, many Americans are choosing to move outside major urban areas to smaller communities. As the airlines continue to reduce or eliminate commercial service, reaching smaller cities or more remote locations has become more difficult. Business aviation is providing another travel option in those places.

These trends are occurring nationwide, but particularly in leisure markets like Naples, which has seen unprecedented demand for private air travel. Initially, this was due to health concerns arising from the COVID–19 pandemic, but it has continued as a result of changing consumer patterns and the challenges airlines are facing to meet demand. In 2021, private jet activity in Naples increased by more than 40 percent despite setting new records in 2020; however, the rate of growth in 2022 finally began flattening earlier this summer. We are projecting a slight pullback in 2023 as customers settle into their post-pandemic norms and as we face continued inflation and fuel price volatility.

Rising Infrastructure Needs

As demand for travel continues to rise at GA and commercial service airports, there is a growing need for infrastructure investment. The Infrastructure Investment and Jobs Act (IIJA) provided airports with $20 billion over five years for infrastructure and terminal grants, with $2.5 billion of that total specifically allotted for nonprimary commercial service and GA airports. We are grateful for that invest-

ment, which will help airports of all sizes build critical infrastructure and prepare for the ongoing recovery and rising demand.

We particularly appreciate how the IIJA will help improve the Naples Airport and enhance aviation safety. We plan to use infrastructure funds for navigational aid improvements, LED airfield lighting conversion, and electrical vault improvements. These funds will help us to complete much-needed safety improvements that don't compete as well for AIP discretionary funds like those projects involving runway and taxiway improvements.

While IIJA funding will serve as an important down payment to help bridge the enormous funding gap for airport infrastructure nationwide, the need for additional federal investment remains. According to the FAA's National Plan of Integrated Airport Systems (NPIAS) for 2021–2025, airports have $43.6 billion in Airport Improvement Program-eligible projects—or $8.7 billion annually. And that figure does not include other necessary infrastructure projects, which increases total airport capital needs to more than $20 billion annually, according to ACI–NA.

The AIP-eligible infrastructure needs for GA airports identified in the NPIAS total over $14.5 billion. But that estimate does not factor in rising inflation; increasing labor and construction costs; and supply chain constraints. We are seeing the impacts of inflation firsthand in Naples. We recently updated our capital improvement program budget after seeing several bids come in well above our 2022 budget. We now project costs to increase nearly 50 percent from 2019 projections. These price increases bring our 5-year capital needs to $105 million.

As members of this subcommittee know, GA and smaller commercial service airports disproportionately rely on AIP funding to meet their infrastructure needs; however, the authorization for traditional AIP funding hasn't increased since 2012. As Congress prepares for the next FAA reauthorization bill, AAAE is urging Congress to increase traditional AIP funding and continue to authorize funds for supplemental discretionary grants to help GA and commercial service airports meet their ongoing infrastructure needs.

In conjunction with increasing AIP funding, we ask Congress to reexamine the AIP entitlement for all nonprimary airports, including GA airports, since it has remained the same amount for every airport for more than 20 years despite inflation and the dramatic differences in aircraft activity, operations, and economic impact at the wide array of GA airports. The NPIAS categorizes nonprimary airports based on their activity level as either national, regional, local, or basic. National airports, like Naples, have "very high levels of activity" and are in metropolitan areas. The Naples Airport has nearly 400 based aircraft, 105,000 annual operations and a $440 million annual economic impact.

Regional airports have "high levels of activity" and are also in metropolitan areas. A regional airport near Naples has 33 based aircraft, 58,000 annual operations and a $32 million annual economic impact. Local airports have "moderate levels of activity" and often accommodate flight training and emergency services. Basic airports have "moderate to low levels of activity" and provide facilities for private GA pilots.

Considering rising inflation over the past 20 years and the wide diversity of GA airports, I believe that Congress should work with the airport community to consider proposals that would refine the AIP nonprimary entitlement to address increased costs and to align with each of the nonprimary categories versus the current one-size-fits-all policy.

FAA Contract Tower Program

I would like to thank the leadership and members of this subcommittee for being strong supporters of the FAA Contract Tower (FCT) Program—a successful public private partnership that enhances aviation safety at GA and commercial service airports around the country. Naples is one of 260 airports from 46 states, including 26 in Florida, that currently participate in the FCT program, which manages 28 percent of the nation's air traffic control operations at towered airports. The program has been audited numerous times by the Department of Transportation Office of Inspector General, which has consistently validated that contract towers are cost effective and maintain safety records comparable to FAA-staffed towers.

The IIJA included at least $300 million over five years to repair or replace aging air traffic control towers at FCT airports—$100 million for sponsor-owned facilities and $200 million for FAA-owned facilities. Considering that many air traffic control towers are 50 years of age or older, this funding is a welcome step in the right direction. But we urge Congress to provide additional resources to replace outdated towers, and to make NextGen equipment and radar displays available for installation at contract towers. These actions would ensure contract towers can continue to operate safely and efficiently.

The pilot shortage has understandably received a great deal of attention in recent weeks. But we're facing an increasing shortage of air traffic controllers, too. The companies that operate contract towers are experiencing intensifying staffing pressures brought upon by COVID–19, prior vaccine mandates, the rising cost of living, and frequent vacancies created when younger controllers leave their positions at FCT airports to serve at FAA-staffed towers.

The Naples Tower has only a manager and seven controllers to fill a 16-hour daily schedule with up to four controllers working simultaneously during peak periods of activity. Additionally, I only recall two brief periods in my six-year tenure where the Naples Tower was fully staffed. With a small staff, even one vacancy can have a big impact.

We urge Congress to ask the FAA to refine its staffing methodology and to work with contractors to minimize the adverse impact when the FAA hires controllers from contract towers to work at FAA-staffed facilities, especially with short or no notice. We encourage the FAA to work with the companies that operate contract towers to allow innovative hiring and training processes to increase the stream of applicants to be qualified controllers. We also recommend that the FAA collaborate with their colleagues at the Department of Labor to address the rising cost of living for controllers by updating the Service Contract Wage Act. Further, we urge the FAA to carefully consider how any proposed realignment of service areas could impact the successful FCT program.

Finally, I would like to thank Representatives Julia Brownley (D–CA) and Rodney Davis (R–IL) for introducing H.R. 1283, the Continuity for Operators with Necessary Training Required for ATC Towers (CONTRACT) Act and everyone on this subcommittee who cosponsored it. This bipartisan legislation, which currently has 75 cosponsors, would provide an incentive for retired federal air traffic controllers to continue working as controllers at contract tower airports and help reduce staffing challenges those airports are facing. The CONTRACT Act would help reduce some of those intense staffing strains, and I urge Congress to pass the legislation as soon as possible.

AIRCRAFT NOISE

Like many other communities, Naples is extremely noise sensitive with residential development surrounding the airport. Downtown Naples is less than a mile from the end of our primary runway. Naples has long been known as an industry leader in noise abatement as the only airport to successfully complete a Part 161 Study known as a Notice and Approval of Airport Noise and Access Restriction that resulted in the ban of Stage II noise emission jets 15 years ahead of their nationwide phase out in 2015. The airport is once again working to develop noise abatement strategies in response to the rapid growth in jet activity over the past few years through its fourth Part 150 Noise Study.

During a hearing before this subcommittee in May, the FAA indicated that, "Since the mid-1970s, the number of people living in areas exposed to significant levels of aircraft noise in the United States has declined from roughly 7 million to about 440,000 in 2019." However, the FAA's recent Neighborhood Environmental Survey, released in January 2021, indicates that community annoyance associated with aircraft noise is considerably greater than in the past. Despite significant advancements in aircraft engine technology coupled with the Naples Airport Authority's long history of noise abatement and public engagement efforts, we have found that members of the community are still substantially affected by aircraft noise. It's clear that federal noise policy established decades ago has proven to be extremely beneficial, but it's time we reevaluate how to best respond to the current environment.

The viability of many GA airports may be at risk by maintaining the status quo. On behalf of the Naples Airport Authority and our community, I believe a fundamental update of federal noise policy is needed along with a more collaborative approach between the FAA, airports, and local communities. One example may be to permit common sense measures like seasonal contours for communities like Naples (where two thirds of jet activity occur in a five-month period) that would better help to address unique dynamics rather than the one-size-fits-all policy we have today. Changes to philosophy in airspace design that give greater consideration to community noise exposure would help to build greater trust between the FAA, airports, and the communities they serve. Additional research towards further reductions in aircraft engine and airframe noise should also be considered.

LEADED AVGAS

Like our counterparts at commercial service airports, GA airports are doing our part to reduce greenhouse gas emissions and to promote sustainability. For decades,

the GA industry has also been focused on a smart and safe transition toward an unleaded high-octane fuel that meets the needs of the entire GA fleet. So far, only low-compression engines can burn the unleaded fuels that are currently available. However, 75 percent of the total GA aviation gas (avgas) consumption is by aircraft requiring 100-octane fuel, which presently can only be achieved with a lead-based additive.

Through AAAE, GA airports are participating in the Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative, a public-private partnership between the federal government and industry stakeholders to transition to lead-free avgas for piston-engine aircraft by the end of 2030. Like the proposed blender's tax credit for sustainable aviation fuels, we believe similar incentives to scale up production and distribution of these new GA fuels will be critical to a successful transition.

GA airports are eager to be part of the solution to transition away from leaded avgas and better understand what types of infrastructure improvements are needed to support widespread use of the new fuel. Updated AIP eligibility criteria for new storage and distribution systems at GA airports is likely needed. Nevertheless, I believe the premature ban of leaded avgas before a viable replacement is approved would threaten the economic viability of most GA airports and should be rejected.

PFAS

Since the 1970s, FAA has required Part 139 commercial service airports to provide aircraft rescue and firefighting (ARFF) services using aqueous film forming foams (AFFF) that meet specific standards for firefighting. These approved foams contain PFAS. Many GA airports have relied upon and followed FAA guidance in using AFFF to ensure aviation safety. Like Part 139 airports, GA airports are anxiously awaiting the FAA to approve a fluorine-free foam.

On May 31, the U.S. Navy provided industry with an opportunity to comment on a draft MIL–SPEC for a fluorine-free foam, signaling that the Department of Defense (DOD) and FAA are making significant progress in finding a suitable replacement foam to AFFF and are on track to meet the January 2023 deadline set in the FY20 National Defense Authorization Act. However, without a proactive transition plan from FAA in collaboration with other relevant federal stakeholders, the transition from AFFF to fluorine-free foam for airports of all sizes that have either used AFFF by regulation or in accordance with FAA guidance will likely face numerous hurdles.

I encourage this committee to press the FAA, in coordination with the Environmental Protection Agency and DOD, to provide timely guidance for all airports to prepare for such a transition. That guidance should include: acceptable standards and practices for the decontamination of existing ARFF vehicles and other equipment; timelines to procure fluorine-free foam; cost-effective options for the disposal of existing foam; and how airports can properly train firefighters to use new fluorine-free foam.

Resiliency Planning

Much of the U.S. population and air transportation infrastructure is located at relatively low coastal elevations. Rising sea levels combined with more frequent, greater intensity storms are increasingly placing many airports at risk. The Federal Emergency Management Agency's updated Flood Insurance Rate Maps reflect the growing vulnerability of coastal areas, and the changes in Base Flood Elevation are increasingly inhibiting airport growth and redevelopment.

In Southwest Florida, both the Army Corps of Engineers and National Oceanic and Atmospheric Administration have recently undertaken separate efforts to study and plan for the adaptation of coastal urban and natural ecosystems. However, in my experience, the FAA has not been aligned with those initiatives. For example, it was critical for us to include a resilience planning component to Naples' recent Master Plan update given the low elevation of our airfield facilities at only five to seven feet above sea level. Disappointingly, though, the FAA deemed that element ineligible for AIP funding.

In the past, the FAA has successfully partnered with other federal agencies on important environmental issues such as wildlife hazards at airports. We urge Congress to explore opportunities for the FAA to better collaborate with airports, their communities, and other federal agencies to help plan for and fund resiliency efforts.

Advanced Air Mobility

The future of Advanced Air Mobility (AAM) is quickly becoming the present for the aviation industry, with several companies currently developing eVTOL aircraft.

These aircraft, which will range in size from single-passenger aircraft to large shuttles, will bring accessibility to cities, underserved communities, and geographically distant regions, while also offering immense environmental advantages. Existing infrastructure, and in particular, GA airports, will likely play a major role in this new, AAM ecosystem.

As federal stakeholders develop various regulations and standards to help advance the maturation of AAM aircraft operations and vertiport design, it is imperative that GA airports play an integral part in that process. The House-passed Advanced Air Mobility Coordination and Leadership Act, which was introduced by Representative Sharice Davids (D–KS) and Ranking Member Graves, would do just that by ensuring that airport operators have a seat at the table as federal and industry stakeholders coordinate efforts to safely integrate these new technologies into the NAS.

Concurrently, Congress should provide additional funding for AAM vertiport infrastructure at GA airports without jeopardizing funding for traditional airport infrastructure projects. The House-passed AAIM Act, introduced by Chairman Larsen and Ranking Member Graves, would accomplish this by making airport sponsors eligible for planning grants to develop and deploy vertiport infrastructure required for AAM operations. I would like to thank the members of this subcommittee for your continued leadership on this important issue and for supporting these two pieces of legislation, which will help bring us one step closer into making AAM a reality.

CONCLUSION

In closing, GA airports like Naples are complex aviation centers, acting as national assets that play an indispensable role in meeting the specific needs of the communities they serve. The COVID–19 pandemic has showcased just how critical GA airports are to the NAS, and with continued support from Congress, the future for GA airports is brighter than ever.

I am grateful for the opportunity to provide these views of the general aviation airport community on how we can maintain and grow GA operations across the country. On behalf of AAAE and all my colleagues at GA and commercial services airports around the country, we look forward to working with this subcommittee as you gear up for the next FAA reauthorization bill. Thank you for your consideration and the opportunity to testify.

Mr. LARSEN OF WASHINGTON. Thank you very much. I appreciate it very much.

I now turn to Jim Viola from the Helicopter Association International. You are recognized for 5 minutes.

Is that microphone turned on, please?

Mr. VIOLA. Thank you. Chairman Larsen——

Mr. LARSEN OF WASHINGTON [interrupting]. And then if you could pull the microphone right—there you go.

Mr. VIOLA. Closer?

Mr. LARSEN OF WASHINGTON. There you go.

Mr. VIOLA. Chairman Larsen, Chairman DeFazio, Senior Member Graves, and members of the subcommittee, thank you for your leadership and for holding this hearing today. I appreciate the opportunity to provide testimony today.

Every day, vertical flight serves the public good. The unique capabilities of vertical flight mean we can accomplish missions that no other aircraft can. Our members perform various services, including air medical, law enforcement, firefighting, heavy construction, urban air mobility, and more.

For example, helicopter air ambulance operators transport roughly 1,000 injured or critically ill patients every day. Ensuring the safety of those who fly is always HAI's top priority. Air safety management system, or SMS, is vital to reducing accidents and ensuring that every person understands they are responsible for safety.

HAI's SMS program allows all operators and maintenance providers to elevate their safety. HAI supports requiring SMS programs for all operations carrying passengers for hire and strongly recommends that all aviation operations implement an SMS program.

One of the most significant safety projects we have undertaken is co-leading the Vertical Aviation Safety Team, or VAST. It is an expansion of the International Helicopter Safety Team, and I am honored to serve as a co-adviser with Miguel Marin, who represents the International Civil Aviation Organization. And VAST is a public-private initiative designed to enhance safety in the vertical flight industry worldwide.

Our programs for safety are designed also for future aircraft. HAI has been an early supporter of AAM and UAS technology. Our members have been operating in vertical mode for 75 years. It makes complete sense for our members to embrace and use this new technology. We strongly support the development, certification, and safe integration of AAM and UAS aircraft into the National Airspace System.

The FAA must have an effective yet flexible certification system that enhances flight safety and enables the swift recognition and adoption of new technologies, while facilitating a user-friendly process that is economically viable. Investment in AAM infrastructure, along with the improvements in the certification process, will ensure that the United States remains as a world leader in aviation.

Today, helicopters are performing many urban air mobility missions that future AAM aircraft will do. To remedy future roadblocks for AAM, we must solve current pinch points for the vertical flight.

Airspace congestion resulting in reduced access to low-level IFR routes is of serious concern for current helicopter operations. So too is the access to the ground infrastructure. We must increase vertical flights' ground and air access points or face a detrimental impact on the future success of AAM.

We must always consider community compatibility. HAI's Fly Neighborly program is a voluntary initiative for employing noise mitigation technology and increasing effective community communication.

On June 24, HAI partnered with the Eastern Region Helicopter Council, introducing a helicopter noise complaint system for the Washington, DC, metro area. Using available flight tracking data, the systems will accurately identify likely aircraft generating the concerns.

Just flying safely and in compliance with the regulations is not enough. We must also fly neighborly. It is in the best interest of everyone.

HAI is dedicated to reducing greenhouse gas emissions from aircraft and developing and using sustainable aviation fuel. Incentivizing SAF and investing in sustainable aviation initiatives are essential steps Congress should take.

Another important environmental issue is the transition to lead-free aviation fuel. The Eliminate Aviation Gasoline Lead Emissions, the EAGLE initiative, as mentioned earlier, lays out a plan

to transition to lead-free aviation fuels by the end of 2030. HAI is committed to this partnership.

Due to the pandemic-related economic disruptions, many seasoned pilots and technicians retired early. Congress, the FAA, and industry stayed focused and recognized that developing the next generation of pilots and mechanics requires a long-term commitment. We appreciate Congress' creation and funding of the Aviation Workforce Development Grant program in the 2018 FAA Reauthorization Act, and HAI strongly encourages continued support of the grants program.

HAI also encourages congressional support for the innovative State programs that enable outreach and education to students to get started in the aviation industry.

Management of the Federal spectrum policy remains an issue also of high concern for general aviation.

In coordination, we look for a long-term solution and replacements of the safety-critical equipment.

I thank the committee again for the opportunity to provide the perspective of the vertical flight industry, and I look forward to our work together on these important issues. My full comments are offered for the record, and I welcome any questions.

[Mr. Viola's prepared statement follows:]

Prepared Statement of James Viola, President and Chief Executive Officer, Helicopter Association International

Chairman Larsen, Ranking Member Graves, and Members of the Subcommittee, I want to thank you for holding this hearing on the state of general aviation. I appreciate the opportunity to provide testimony today on the vertical flight industry.

I have been involved in aviation for more than 35 years and have flown more than 70 types of aircraft, both helicopter and fixed-wing, military and civilian. I began my aviation career in the US Army, with the majority of my flying done as a special operations helicopter pilot. I later joined the Federal Aviation Administration (FAA), where I most recently served as director of general aviation safety assurance.

I now serve as president and CEO of Helicopter Association International (HAI). As the professional trade association for the international vertical flight industry, HAI represents more than 1,100 companies and over 16,000 industry professionals in more than 65 countries. Each year, HAI members safely operate more than 3,700 helicopters and remotely piloted aircraft approximately 2.9 million hours. HAI is dedicated to the promotion of vertical flight as a safe, effective method of commerce and to the advancement of the international vertical flight community.

Throughout my career, I have been dedicated to safety and the continued development and refinement of safe aviation operations.

SERVING THE PUBLIC GOOD

The unique capabilities of vertical flight—the ability to land and take off from practically anywhere, the maneuverability, and the ability to hover or fly at very low speeds—mean we can accomplish missions that no other aircraft can. Another way we differ from fixed-wing aircraft is that our operations are conducted at lower altitudes and at slower speeds.

Every day, vertical flight serves the public good. Our members perform services including air medical, law enforcement, firefighting, heavy construction, utility patrol and maintenance, urban air mobility, and more. And our industry is expanding, bringing onto the flight deck exciting technology such as advanced air mobility (AAM) and electric vertical takeoff and landing (eVTOL) aircraft.

All over the country, from densely populated cities to oil rigs 200 miles offshore, helicopters are used to save lives, serve and protect American citizens, and support critical industries in demanding environments—and many of those missions are conducted from start to finish without the use of airports.

As just one example of how vertical flight serves the public good, consider air medicine. Helicopter air ambulance (HAA) operators transport roughly 1,000 injured or critically ill patients every day. Up to 50,000 of the more than 300,000 people transported by HAA operators during 2021 were transported from off-airport or unimproved areas.

COMMITMENT TO SAFETY

Ensuring the safety of those who fly—whether pilots, crews, or passengers—is always HAI's top priority. HAI has worked with safety advocates worldwide to address continued safety improvements for the vertical flight industry. We worked with the US Helicopter Safety Team to produce the award-winning "56 Seconds to Live" education program, and we have a long history with our own Land & LIVE program, which encourages pilots to make precautionary landings when flight conditions deteriorate. HAI's Safety Management System (SMS) Program allows operators and maintenance providers to elevate their safety—effectively and affordably.

A safety management system (SMS) is a formal approach to managing safety and risk, including organizational structures, accountabilities, policies, and procedures to identify and control risk. The four components of an SMS—safety policy, safety risk management, safety assurance, and safety promotion—work together in providing a safety culture. An SMS is vital to reducing the number of accidents in our industry, ensuring that every person in an organization, agency, or business understands that they are responsible for safety.

HAI's SMS Program services allow users to verify their compliance with current and future international and domestic regulations. While not all civil aviation authorities currently require SMS programs for all operators and maintenance providers, HAI and the National Transportation Safety Board (NTSB) have recommended the development and adoption of safety reporting systems that allow for data to be collected and analyzed and corrective action taken where necessary.

HAI has partnered with providers to offer scalable SMS solutions to member businesses. Additionally, the association supports requiring SMS programs for all operations carrying passengers for hire. HAI strongly recommends that all aviation operations, not just those carrying paying passengers, implement an SMS program. HAI is pleased to have just recently expanded the scope of its SMS Program by partnering with the Aircraft Electronics Association (AEA) to provide the latter's SMS for aircraft maintenance at no additional cost to HAI members.

Last fall, HAI announced a partnership with the Air Charter Safety Foundation to make the foundation's aviation safety action program (ASAP) available to HAI members. An ASAP helps flight operators identify and reduce possible flight safety concerns and mitigate risks. It's an easy, open, self-reporting initiative offering third-party facilitation, tracking, and recommendations for corrective action so operators can enhance their overall safety culture.

In March, HAI announced a partnership with Swiss company NGFT Solutions to offer an all-new flight risk assessment tool (FRAT) module to HAI members. This safety tool's simple question-and-answer format is designed to help operators objectively and truthfully evaluate the potential risks of an upcoming flight and any aerial work sites. Once the possible risks are identified, mitigation prompts help operators think through strategies to reduce the risk and make flying safer.

Since introducing its scalable SMS Program for helicopter operators to members last year, HAI has expanded its tool chest of safety products to include the ASAP, FRAT, and now, the Maintenance SMS Program for aviation.

One of the most significant safety projects we've undertaken is co-leading the Vertical Aviation Safety Team (VAST). I'm honored to serve as a co-advisor for this group with Miguel Marin, representing the International Civil Aviation Organization (ICAO). VAST is a public-private initiative to enhance worldwide flight-operations safety in all segments of the vertical flight industry. Team members comprise international regional safety teams; safety authorities, including civil aviation authorities (CAAs); and other industry stakeholders that work to improve global vertical flight safety. VAST's vision is a global vertical flight community with zero fatal accidents achieved through cooperation and collaboration.

In the past, international aviation safety information has tended to stay within separate organizational and national silos. VAST intends to break down these silos so that aviation safety information can flow freely globally. To achieve this end, VAST is engaging its regional safety teams to receive, integrate, harmonize, and distribute aviation safety data, programs, and recommendations worldwide. Additionally, VAST serves as an arbiter between the regional safety teams to ensure collaboration on and coordination of these initiatives, as well as the sharing of final output.

International regional safety teams, which consist of national and industry stakeholders, are formed to improve the safety of civil vertical takeoff and landing (VTOL) operations in their respective national airspace systems.

In addition to national civil aviation authorities such as the US FAA and the CAAs of the United Kingdom, Sudan, and Colombia, aviation safety authorities include jurisdictional agencies, such as ICAO and the European Union Aviation Safety Agency (EASA), and nationally recognized safety organizations such as the NTSB in the United States, the Transportation Safety Board of Canada, and the Transport Accident Investigation Commission in New Zealand.

Other industry stakeholders include original equipment manufacturers (OEMs), training providers, aircraft operators, service providers, and vertical flight industry associations such as HAI, the European Helicopter Association, and the Association for Uncrewed Vehicle Systems International.

VAST has five chief goals:

1. Establish the organization as the world's most trusted source for vertical flight safety information and resources
2. Establish working groups to represent key segments and issues relevant to the global VTOL industry
3. Formalize leadership positions, working groups, and advisory roles for participating organizations and individuals
4. Identify, collect, harmonize, and deliver centralized access to safety information and resources from participating stakeholder entities
5. Provide and coordinate a forum where regional safety teams, safety authorities, and other industry stakeholders can work together on vertical flight safety issues.

Safety is at the heart of everything we do at HAI. Not only are our safety programs meant for our members operating helicopters today; our programs are designed for future aircraft, as well.

TECHNOLOGY

The vertical flight industry offers an invaluable societal benefit that AAM aircraft will only amplify once the necessary regulatory framework is implemented. HAI is excited to see the work our manufacturers are doing to develop the aircraft of tomorrow while they're building the helicopters that are conducting those futuristic missions today. Engine OEMs are working to develop powerplants for these aircraft, and there are a variety of companies looking at alternative fuel sources, from batteries to hydrogen.

HAI has been an early supporter of AAM and UAS (uncrewed aircraft system) technology and sees them as a new business opportunity for the helicopter industry. Our members have been and will remain heavily engaged in these operations in the coming years. Many have already established UAS business lines within their organizations.

Our members have been operating vertical flight missions for nearly 75 years. AAM is a new vertical lift mode of transportation, and it makes complete sense for our members to embrace and use this new technology. We strongly support the development, certification, and safe integration of AAM aircraft into the National Airspace System (NAS).

AAM can expand the unique capabilities of vertical flight and benefit many people. The FAA must have an effective yet flexible certification system that not only ensures flight safety but also enables the swift recognition and adoption of new technologies while facilitating a user-friendly process that is economically viable. Investment in AAM infrastructure today along with improvements in the certification process will ensure that the United States is prepared to meet the transportation needs of tomorrow as well as remain a world leader in aviation.

AIRSPACE

Today, helicopters are performing many urban air mobility (UAM) missions that future AAM aircraft will do. To evaluate future roadblocks for AAM, we must investigate current pinch points for vertical flight in terms of access to airspace and ground infrastructure. Airspace congestion resulting in reduced access to low-level instrument flight rules (IFR) routes is of serious concern for current helicopter operators. So, too, is access to heliports.

Multimodal transportation access points are vital for the future success of AAM. Using various forms of transportation, passengers must be able to easily access heliports or vertiports to, in turn, ferry them to the larger hubs of the airlines. Reducing

access points either on the ground or in the air will have a detrimental effect on the success of AAM.

Additionally, not only AAM technology but all new aviation devices must be safely integrated into the NAS. Helicopter pilots use instruments, radios, and their eyes to avoid other aircraft, and remotely piloted aircraft or completely autonomous aircraft must have the capacity to detect aircraft operating around them. Our members' flight profiles and the missions they fly place them all over the nation in varied environments at various altitudes. From corporate helicopters flying out of high-density urban metroplexes to remote heli-logging operations, utility repair work, or firefighting missions, helicopters perform operations in a variety of situations and locations.

UASs must be able to avoid other aircraft, both crewed and uncrewed, while facilitating the ability of those aircraft to see, sense, and avoid the UASs. Additionally, all aircraft in the NAS need to conform with the fundamental principles of "right of way" and not deflect all responsibility and liability to crewed operators. Altering the right-of-way hierarchy is not, and never should be, a mitigation for an uncrewed system's inability to detect other aircraft in the airspace.

COMMUNITY COMPATIBILITY

Whether it is the helicopter of today or tomorrow's AAM, vertical flight operations should always consider our responsibility for community compatibility. HAI's Fly Neighborly initiative is a voluntary noise reduction program that seeks to create better relationships between communities and helicopter operators by establishing noise mitigation techniques and increasing effective communication. Just flying safely and in compliance with regulations is not enough. We must also Fly Neighborly; it is in the best interest of everyone.

As part of HAI's work on Fly Neighborly, we also work with other stakeholders to help mitigate helicopter noise. On Jun. 24, HAI, partnering with the Eastern Region Helicopter Council (ERHC), introduced a new helicopter noise initiative for the Washington, D.C., metro area. We established a helicopter noise complaint system for individuals in and around the region to share their concerns. HAI and ERHC aim to work with the D.C. community to review and process noise complaints and use this data to help mitigate helicopter noise. We understand that affected residents desire immediate answers to their noise questions and complaints. Using available flight tracking data, the system will accurately identify likely aircraft generating concerns and all associated data. The new initiative focuses on airport and aircraft noise complaint-management solutions, noise abatement-procedure compliance monitoring, and related government and community affairs.

SUSTAINABILITY AND ENVIRONMENT

HAI is dedicated to reducing greenhouse gas (GHG) emissions from aircraft, and the development and use of sustainable aviation fuel (SAF) offers a promising opportunity to reduce the aviation sector's environmental footprint. SAF remains a more expensive option than conventional jet fuel and is not yet commercially viable at scale in the current market. Government incentives are needed to boost the commercial viability of SAF and establish the United States as a global leader in aviation sustainability. Imposing a long-term performance based SAF tax credit will accelerate production and use of SAF across the general aviation industry. Incentivizing greener alternatives to conventional jet fuel and investing in sustainable aviation initiatives are essential steps in building the aviation industry of tomorrow.

Another important environmental issue is the transition to lead-free aviation fuel. In February, HAI joined leaders of aviation and petroleum groups in committing to an initiative laying out a clear plan to transition piston-engine aircraft to lead-free aviation fuels by the end of 2030. The Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative calls for an industry and government partnership to expand and accelerate the actions and policies necessary for a viable high-octane unleaded replacement for the current 100 octane low-lead aviation gasoline (100LL), without compromising the existing US transportation infrastructure system, aviation safety, and the economic and broader public benefits of general aviation.

This initiative is the right thing to do for the environment and the economic health of our industry. HAI is committed to this partnership and applauds the broad public-private partnership that has come together enabling industry and government to accelerate a solution. The vertical flight industry is eager to work with all stakeholders to advance the EAGLE initiative.

NATIONAL PARKS OVERFLIGHTS ADVISORY GROUP (NPOAG)

HAI has grave concern with how the FAA and the National Park Service (NPS) is handling the implementation of the air tour management plans (ATMPs) for the 23 eligible national parks. Our concerns relate specifically to the transparency of the completion process, operational safety, and economic considerations of the plan.

On May 1, 2020, the US Court of Appeals for the DC Circuit ordered the FAA and the NPS to file a proposed plan within 120 days for bringing all 23 eligible parks into compliance with the National Parks Air Tour Management Act of 2000 (NPATMA) within two years and submit quarterly updates on the two agencies' progress.

On Aug. 31, 2020, the FAA and the NPS submitted the proposed plan to the Court. The plan outlines the approach and steps the agencies will take to meet the Court order and comply with the NPATMA. Throughout the plan, the actions reflect coordination of government-to-government Tribal consultation and other interagency coordination but excludes the National Parks Overflights Advisory Group (NPOAG).

The plan makes no mention of the NPOAG's role. The NPOAG was established in the NPATMA to provide advice and counsel with respect to commercial air tour operations over and near national parks. The FAA's proposed schedule to accomplish the plan, with its heavy focus on interagency coordination while omitting the NPOAG, creates a concern regarding the transparency of the overall process.

Excluding critical stakeholders like the NPOAG in this process resulted in plans for the initial parks that contain clear safety concerns. The plans for the first parks lack consideration of very basic aeronautical safety factors. If this flawed process produces such results for parks with less traffic, we have significant concerns regarding the plans yet to be released for the other parks with more complex airspace activity.

While it is the Court that imposed the two-year deadline on the FAA, the agency cannot sacrifice its first priority of maintaining safety in the NAS. Rushing to complete the project, without the NPOAG's input on safety considerations, has already produce shortcomings that will compromise the NAS. While the proposed plan allows for notice and comment, not involving the NPOAG to help develop the best framework possible for the plan is extraordinarily problematic.

The draft plan severely curtails the economic viability of the air tour industry by limiting flight allocations. To our knowledge, there have been no economic studies undertaken to determine the impact on the industry and broader aviation community. Air tours offer a low-impact approach to experiencing the beauty of our nation's national parks. Additionally, air tours provide those with disabilities an opportunity to interact with the parks in ways they could not otherwise. Cutting air tours without regard to economic considerations will cripple a fragile industry trying to recover from the pandemic.

Congress established its vision and intent for air tours over the nation's parks by enacting the NPATMA. This legislation was a product of the consensus work performed and recommendations made by the National Parks Overflights Working Group. Congress and stakeholders, working together, created the road map for the development of the ATMPs, which is now being ignored in the rush to complete all the plans within two years.

It is clear from the plans already introduced that the overall strategy is to cut back flights to such a degree that it is no longer economically feasible for air tour companies to stay in business. This shortsighted process ignores the opportunities that exciting new technologies that promise quieter flights, such as electrical aircraft, can deliver. By removing airspace access for today's aircraft, the FAA and NPS are removing airspace access for future generations using quieter technologies.

This process has shut out the voice of safety experts and excluded important economic considerations. I strongly urge the FAA and the NPS to immediately engage with the NPOAG on the development of these plans. The industry is willing to work with other stakeholders, the FAA, and the NPS to develop a plan that benefits all involved.

WORKFORCE DEVELOPMENT

Due to pandemic-related economic disruptions, many seasoned pilots and technicians retired early over the past year. This has only exacerbated the shortage of the skilled personnel the industry needs to operate safely and efficiently. Congress, the FAA, and industry must stay focused and recognize that developing the next generation of pilots and maintenance technicians requires a long-term commitment.

We appreciate Congress setting up the Aviation Workforce Development Grants programs in the 2018 Reauthorization Act and likewise express gratitude for the funds made available for the programs. The grants have encouraged collaboration

between schools, aviation companies, unions, and government to find new solutions to overcome the existing skills gap and help more Americans pursue aviation careers. That, in turn, will contribute to the long-term efficiency of the nation's aviation system, the industry's global competitiveness, and the nation's overall economic health. HAI strongly encourages continued support of the grants programs.

HAI also encourages congressional support for innovative state programs that enable outreach and education to students to get started in the aviation industry. The Utah Rotor Pathway Program (URPP) serves as a first-in-the-nation model for education and training programs preparing high school students for STEM careers in rotary-wing aviation. We provide students with an avenue to earn college credits and learn skills specific to rotary-wing aviation while participating in technical classes and hands-on learning experiences at the secondary-school level.

The URPP connects rotorcraft industry professionals with high schools, flight schools, and universities to offer benefits such as mentoring, internships, and job interviews upon students' completion of their rotary-wing aviation programs. The URPP also connects the next generation of helicopter pilots and mechanics with the exciting world of vertical flight. HAI is working to expand this program into other states.

5G

On June 17, the FAA identified a path forward for part 121 aircraft operating in the current 5G environment. Airlines, manufacturers, and suppliers have been urged to retrofit radio altimeters on the current US fleet by July of 2023. As part of the arrangement, Verizon and AT&T have agreed to extend some of the voluntary mitigations that have been in place since 5G was deployed in January of this year. These mitigations will expire in July of 2023, as new wireless providers enter the 5G market. Part 121 aircraft without the necessary filter retrofits or radio altimeters replacements will lose access at airports around the country.

As mentioned in the House Transportation and Infrastructure Subcommittee's hearing on "5G Deployment and Aviation Safety" earlier this year, FAA has placed primary focus on developing near-term solutions for the airlines because of the generally higher level of criticality on certain part 121 operations. Shortly after 5G was deployed, FAA partially granted HAI's petition for exemption which allow air ambulance operators to use safety-enhancing night vision goggles in areas where the aircraft's radio altimeter could be unreliable due to 5G C-band interference as identified by NOTAMs. Operators must comply with specific conditions and limitations. Similar to aircraft operating under part 121, helicopters can perform day and night operations that do not require the use of a radio altimeter. The FAA has also made progress on alternative means of compliance (AMOCs) for rotorcraft, but much work remains to be done to ensure all rotorcraft operations can safely continue unimpeded by 5G-related restrictions.

HAI is pleased to participate in the FAA's regularly occurring 5G Roundtable discussions, which bring together aviation and telecommunications stakeholders with the intended purpose of identifying and implementing solutions that lead to a safe coexistence. HAI also appreciates the ability to participate in weekly, FAA-hosted meetings that are focused exclusively on solutions for rotorcraft.

It is HAI's understanding that the FAA has received a low number of verified 5G incident reports from helicopter operators. Nevertheless, we understand that new towers will go live each month and that new entrants will also add to the complexity of an already difficult situation. We remain committed to working with this committee, FAA, FCC, as well as other aviation and telecommunications stakeholders to identify workable solutions that maintain safety and minimize disruptions to the national airspace system. Respectfully, we request the members of this esteemed committee consider reforms to spectrum management policy that provide enhanced transparency, efficiency, and interagency coordination on long-term solutions that do not require multiple costly retrofits or replacements.

While the US rotorcraft fleet has not been tasked with meeting the FAA's ambitious retrofit schedule for part 121 aircraft, new minimum operational performance standards (MOPS) for radio altimeters are being considered that could have significant implications for helicopters. HAI firmly believes it is imperative for FAA to consider performance-based solutions that account for the broad range of rotorcraft mission and safety profiles. As FAA continues to develop near- and long-term solutions and requirements to mitigate the safety concerns related to 5G interference with radio altimeters, there must be complete transparency, ample timing for industry adoption, and sufficient resources for implementation.

CONCLUSION

I thank the committee, again, for the opportunity to provide the perspective of the vertical flight industry and look forward to continuing our work together on these important issues. I welcome any questions.

Mr. LARSEN OF WASHINGTON. Thank you.

I now turn to Pete Bunce, president and CEO of General Aviation Manufacturers Association.

You are recognized for 5 minutes.

Mr. BUNCE. Thank you, Chair Larsen.

And to Ranking Member Garret Graves and to Chair DeFazio and Ranking Member Sam Graves, thanks for holding this hearing.

And, Chair DeFazio, thank you for your lifelong commitment and career-long commitment to aviation. We are all going to be proud to have you looking down on us with your portrait and making sure we continue on and working across the aisle, because this committee has truly been one that has been bipartisan in nature, and that has been so important to our industry and allowing us to be able to thrive as we have.

But I am here to tell you that, today, I have never seen a time where the manufacturers and maintenance organizations are under such tough times. And you mentioned a few of those in opening remarks.

If we look at our workforce, had you and this committee not passed the Aviation Manufacturing Jobs Protection Act during the pandemic, we would have lost a lot of our skilled workforce. And even with that, we are down 20 percent in virtually every one of our factories in both maintenance technicians, manufacturing technicians, and also engineers.

In addition to that, we need some help in the next reauthorization. The section 625 grants that you passed in the last reauthorization were focused toward pilots and maintenance professionals. We need that expanded to manufacturing professionals. Workforce is absolutely critical to us.

We have also talked about supply chain. And the impact of supply chain on our industry is a little different than other industries, because the FAA is so immersed in that process. So, it is very difficult to switch out things.

Mr. DeFazio, a company in your State, all they did is switch out an LED landing light from one to a new manufacturer. It took them 8 months to get a response from the FAA to be able just to switch out one light bulb for another, and then the FAA told them they were going to have to recertify the system.

Fortunately, they changed their mind on that one, but that is what industry is facing right now when we try to go and deal with the supply chain shortage. And also, a lot of our companies are having to spend a lot of their engineering time just trying to source things, like chips and that, from throughout the industry.

But probably the most debilitating thing that I have seen right now, and it is a perfect storm, is really what I am seeing with the FAA. In my 17½ years of doing this, I have never seen us have the bureaucracy grind the industry to almost a halt. And what has happened now is, it is that perfect storm.

You have a lot of the engineers and technical experts at the FAA are brandnew to their jobs. Forty percent have less than 3 years of regulating. Then they are working at home. Now, when they are working at home, they can't collaborate together, they can't talk to one another, so, they are sending written notices to each other that just slows down the process.

But worse than anything else is the funnel all goes now to FAA legal, and that funnel is clogged. And a lot of it is self-inflicted wounds. So, policy and guidance has virtually stopped coming out of the agency, and we have to have policy and guidance to be able to provide the innovative, technical solutions that start to reduce pilot error, and that equates directly to safety.

If you want to improve general aviation safety, you have got to let technology advance, and we can't be having these self-inflicted wounds of everything having to go through the funnel, including very technical standards that legal review doesn't do anything but change "glad" to "happy," add a few commas in there, and put it in legalese language the technical experts don't have a chance to really understand. So, it is a true problem that we have out there.

Issue resolution is also something very important. You called for that in the last reauthorization. It started to happen before the pandemic. It has virtually died right now. We have to have a process. As I mentioned to this committee before, if you get five engineers in the room, you get seven different opinions because they will argue with themselves, and we have to have a process where we have a review that moves up the chain, somebody can make a decision.

Now, we have very good people that have been put in very responsible positions within the FAA, but we have got to allow them to make those decisions, and feel confidence that they can do that.

Finally, in the last reauthorization, you talked about the SOCAC and the importance of having industry specialists to advise the FAA on policy that they are doing. The SOCAC virtually has not been active, it hasn't produced anything, it hasn't been tasked with anything. We have got to reenergize that process.

We are talking about advanced air mobility. We will have a chance to talk about that a little more. That technology is dependent upon us being able to get through the system expeditiously, and one of the problems is, right now, with traditional aviation manufacturing being halted by a lot of the process in the FAA, how are we ever going to have global leadership as we move into this new world?

So, I look forward to your questions. Thank you.

[Mr. Bunce's prepared statement follows:]

Prepared Statement of Peter J. Bunce, President and Chief Executive Officer, General Aviation Manufacturers Association

Chair Rick Larsen and Ranking Member Garret Graves, on behalf of the General Aviation Manufacturers Association (GAMA) and its member companies, thank you for convening today's hearing which focuses on the opportunities and challenges facing general aviation. For general aviation manufacturers and the industry overall, this is a transformative time, and it is very exciting to be with you as we work together to plot and navigate the industry's future path.

We want to state the deep appreciation we have for this Committee and the United States Congress for their support of the general aviation industry. We look forward to working with you, House Transportation and Infrastructure Chair Peter DeFazio and Ranking Member Sam Graves, members of the House Aviation Subcommittee, and the membership of the full committee on issues of critical importance to the future strength of the United States (U.S.) general aviation segment and the broader aviation ecosystem. I also want to take this opportunity to thank Chair DeFazio for his leadership and dedication on aviation issues during his service on this committee and in Congress.

GAMA represents more than 140 of the world's leading manufacturers of general aviation airplanes, rotorcraft, engines, avionics, components, and related services and technologies. GAMA members are also providers of maintenance and repair services, fixed-based operations, pilot and maintenance training, and aircraft management. Additionally, GAMA represents companies in the emerging sector of advanced air mobility, which includes the development of vertical take-off and landing aircraft as well as electric propulsion, hydrogen-powered aircraft and autonomous systems for civil purposes. GAMA companies have facilities in 47 U.S. states and 15 countries. A recent economic impact study determined that the general aviation industry supports $247 billion in economic output and 1.2 million jobs in the U.S.[1]

State of General Aviation Manufacturing

The general and business aviation industry has endured a great deal since the outset of the COVID–19 pandemic. We have faced numerous challenges and our resiliency was tested, but our manufacturers actively managed their way through with a focus on the safety of our employees, the growth of our businesses, and relations with customers. As we begin to come out of the pandemic, we are seeing that our industry is alive with new aircraft, avionics, engine, and electric motor developments with a keen eye on the future.

On behalf of the general aviation manufacturing industry, I want to thank you for the U.S. Small Business Administration Payroll Protection Program (PPP) and the Aviation Manufacturing Jobs Protection (AMJP) Program which assisted manufacturers and maintenance providers, especially small and mid-size businesses, impacted by the pandemic. In particular, the AMJP payroll assistance program, a fifty-fifty cost share program between employers and the federal government, focused on protecting workers and strengthening a fragile supply chain and we deeply appreciate the leadership role of Chair Larsen and Rep. Ron Estes (R–KS) in these efforts. Funding from this program assisted employees in 43 states and Puerto Rico, illustrating the breadth and scope of U.S. aviation manufacturing.

GAMA's latest General Aviation Aircraft Shipments and Billings Report, which was released in late February, showed that our industry began to recover in 2021. While not back to pre-pandemic numbers, overall, when compared to 2020, all aircraft segments—airplanes and helicopters—saw increases in aircraft deliveries for a total value at $26.7 billion, an increase of 9.8 percent. Currently, total aircraft shipments are converging on figures that were seen before the outset of the pandemic with one exception: piston airplane training airplanes which are seeing delivery rates exceeding numbers we have not seen since the first half of the last decade.

During the pandemic, GAMA conducted a member company survey and 70 percent of the survey respondents reported supply chain issues and our members continue to face challenges in this area. Our industry's supply chain constraints mirror those of the broader economy, including logistics of sourced parts such as computer chips, higher than usual churn in employee turnover, and de-risking each supplier through active engagement by our member companies. We also see operators flying at higher levels, for some segments exceeding operations seen in 2019, which places further demand on supporting operators with parts to support the overhaul and regular maintenance of the fleet as hours are being added.

We applaud the leadership of this committee for the recent introduction and Committee passage of the "Aerospace Supply Chain Resiliency Task Force", which would identify and assess risks as well as detail best practices and mitigations to help protect the U.S. aerospace supply chain against future disruptions.

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[1] General Aviation's Contributions to the U.S. Economy, 2018 Price Waterhouse Coopers Study on behalf of Aircraft Electronics Association (AEA), Aircraft Owners and Pilots Association (AOPA), Experimental Aircraft Association (EAA), General Aviation Manufacturers Association (GAMA), Helicopter Association International

ADDRESSING CERTIFICATION, VALIDATION AND REGULATORY ISSUES

GAMA also recognizes the congressional engagement and work that culminated in the passage of the Aircraft Certification, Safety, and Accountability Act (ACSAA). An effective, reliable certification process is critical for safety and the industry's ability to deliver new aircraft and technologies to the U.S. and global market. We want to work with the Committee as you evaluate the implementation of ACSAA especially given FAA delays, as an example, in promulgating a safety management system rule for manufacturers. We suggest the following areas of focus:

- Forty percent of the employees in the FAA Certification Office have less than three years of direct certification experience, which underscores the workforce challenges being faced. Given this, GAMA believes emphasis must be placed at the project level to ensure FAA has an adequate level of staff resources, including appropriate training. This emphasis will be particularly needed to improve safety oversight and ensure timely consideration of projects.
- FAA should more effectively utilize the Safety Oversight and Certification Advisory Committee (SOCAC) to help facilitate implementation as well as to look at other improvements for the certification process.
- Getting product to the international marketplace has also faced impediments. FAA recently stood up an International Validation Branch, but it lacks resources and staffing to engage with other foreign authorities and fully develop tools, such as metrics and validation workplans, to facilitate both incoming and outgoing validation projects. These investments and improvement activities are critical to ensuring the effectiveness of bilateral agreements and validation of product into the global marketplace.
- A contributing factor to the slow certification of product has been significant delays in the promulgation of rulemaking, policies, and guidance. There is currently a large backlog of technical standards, policy memos, orders, and advisory circulars. These delays are impacting all facets of aviation and frustrate industry and policymakers alike. There is a lack of transparency and accountability in this process, and it is hindering safety, security, and U.S. advancements and competitiveness. A congressionally directed study may be warranted to look at process improvements including consideration of best practices from other regulatory authorities.
- Additionally, FAA must develop a more effective issue resolution process so that projects are not held up unnecessarily and the right group of technical experts are brought together to resolve any differences or technical questions.

ADVANCING WORKFORCE DEVELOPMENT—FAA AND INDUSTRY

Tied closely to certification improvements, collectively both the FAA and industry need a strong workforce to meet the safety expectations of the flying public and industry growth. The FAA has recognized the ongoing challenge to identify and attract talent into key safety positions and has maintained an Aviation Workforce Plan in their attempt to address these needs. However, the agency needs to continue to explore training opportunities and financial incentives as well as partnering with industry to better develop a strong workforce for both industry and FAA. Finding highly qualified individuals in evolving technology is difficult, but especially those in technical fields that are rapidly advancing in discovery and application, such as modeling, flight crew interface (human factors), system safety, software, artificial intelligence, and computer science. Industry would be interested in working with FAA and Congress on initiatives to help attract these integral, technical skills or other knowledge-sharing opportunities that could be of benefit to both FAA and industry personnel and advance safety oversight and technical understanding.

The FAA also addresses their workforce needs by utilizing designees. These individuals and organizations in the aviation industry are authorized to conduct examinations, perform tests, and issue approvals and certificates on behalf of the FAA. Regardless of whether these tasks are performed by FAA employees or designees, we suggest the FAA be directed to establish minimum standards or credentials applicable to all individuals that are making these examinations, performing tests, and/or issuing approvals on behalf of the FAA.

An important complement to workforce efforts at FAA is attracting and retaining a competent and capable workforce for the aviation industry and at our member companies. This is particularly troublesome as our industry is currently struggling to fill technically skilled jobs to operate, maintain, and manufacture aircraft. This workforce challenge will become even more acute as aviation evolves through innovation, which will require a workforce that is more diverse and with broader competencies or new skill sets.

The 2018 FAA Reauthorization provided the Department of Transportation with the authority to provide up to $10 million in grants to facilitate workforce development of pilots and maintenance providers (Section 625).[2] Our membership believes the scope and funding for these programs needs to be significantly expanded, particularly given our understanding that demand for this funding has been significant. We also believe the program should specifically include manufacturing workers as an area of focus. In addition, Section 625 should be modified to measure results and provide feedback from participants, engage school counselors more directly in aviation workforce efforts, and facilitate training to teachers on how to start and conduct a successful aviation education program. Attention should also be paid to track how a program applicant will connect students with either jobs or the next step in the education process (for example, from high school to college or a technical school) to sustain a pipeline of talent to the industry long-term and emphasize activities that engage, educate, and equip participants to directly feed into the aviation sector.

Finally, we would like to highlight that this is the ten-year anniversary of GAMA's Aviation Design Challenge. The challenge has had over 600 teams participate, representing over 400 high schools from 48 states and has inspired many students to get involved in general aviation and/or pursue a college degree or career path related to the sector. In August, the winning team from upstate New York will travel to CubCrafters based in Washington State to participate in a week-long aviation manufacturing experience, which includes hands-on exposure to the production of aircraft. Our second-place team from Washington State will participate in a two-day STEM lab camp which creates a fun, engaging learning environment through the hands-on training of a flight simulator and fosters interests in STEM outside the classroom.

Addressing Piston Fleet Fuel

The FAA has joined with aviation and petroleum industry stakeholders to work toward transitioning to lead-free aviation fuels for piston-engine aircraft by the end of 2030. The Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative will expand and accelerate government and industry actions and investments as well as establish the necessary policies and activities to permit both new and existing general aviation aircraft to operate lead-free, without compromising aviation safety and the economic and broader public benefits of general aviation.

We recognize that this is very ambitious, and each of the organizations involved are fully committed to EAGLE's success with work well underway. A key component of the EAGLE initiative will include an assessment of airport infrastructure needed to foster distribution of any certified and commercially viable replacement unleaded fuel or fuels.

The importance of this initiative to general aviation and U.S. general aviation infrastructure cannot be overstated. There are more than 13,000 different airports which service the roughly 170,000 piston engine general aviation fleet. While we have been working to find a safe high-octane unleaded avgas for some time, we expect the Environmental Protection Agency to move forward with an endangerment finding this year which will trigger regulatory activity to ban leaded avgas. The clock is ticking, and we need to move quickly so that manufacturers have time to design, develop, certify, and build products that can operate safely on whichever unleaded fuel or fuels reach the market. In the interim, the safety and viability of general aviation will be dependent on continuing the provision of 100 low lead avgas at airports until an unleaded solution is identified and widely available.

The EAGLE initiative launched in February of this year. In March, all interested stakeholders participated in a kick-off meeting to discuss and guide EAGLE's efforts. We had a second stakeholder meeting last month to review progress and solicit engagement from all interested parties, and a third stakeholder meeting is being planned for mid-November. Working groups will meet throughout the year, and we expect to have at least three large stakeholder meetings each year to review progress and solicit additional input. In addition, at this year's EAA AirVenture show in Oshkosh, Wisconsin, governmental and industry leaders will participate in a panel discussion to give an overview of the initiative to all interested attendees and media. This type of outreach is critical given the breadth and scope of this initiative and its importance.

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[2] FAA Reauthorization Act of 2018 (P.L. 115–254)

PROGRESSING AVIATION SUSTAINABILITY

GAMA's membership is also committed to sustainability efforts. In 2009, GAMA and the International Business Aviation Council (IBAC) jointly announced the Business Aviation Commitment on Climate Change (BACCC)[3], a program to address the industry's carbon emissions, through three main objectives:

- Reducing CO2 emissions 50 percent by 2050 relative to 2005;
- Improving fuel efficiency 2 percent per year on average from 2010 until 2020; and
- Achieving carbon-neutral growth from 2020.

The industry achieved a 1.9 percent annual improvement in fuel efficiency on average since 2010, in line with our goal of a 2 percent improvement. At the time the BACCC was released, business aviation had already seen a 40 percent improvement in the fuel efficiency of our aircraft over the past 40 years.[4] The industry recently evaluated progress on meeting these goals and found that mainly through technology improvements and alternative fuels we are on track to meet the long-term goal of reducing CO2 emissions by 50 percent in 2050 relative to 2005 levels.

After reviewing our progress toward meeting these objectives, the business aviation community committed itself to more aggressive goals. In October 2021, a renewed effort to address climate change was announced with an updated goal of net-zero carbon emissions by 2050.[5] The three primary objectives were also refreshed and include:

- Achieve net-zero carbon emissions by 2050.
- Continue to improve fuel efficiency 2 percent per year on average from 2020 to 2030.
- Commit to carbon-neutral growth beyond 2020.

We are also strong proponents of current FAA programs such as the Continuous Lower Energy, Emissions, and Noise (CLEEN) Program as well as the Aviation Sustainability Center (ASCENT). By way of background, CLEEN is a cost-sharing effort with industry which aims to accelerate technology maturation that will reduce noise, emissions, and fuel burn and enable the aviation industry to expedite integration of these technologies into current and future aircraft. ASCENT is a coalition of 16 leading U.S. research universities and more than 60 private sector stakeholders conducting research to reduce aviation's environmental impact. These two partnerships have made significant contributions to address climate change within aviation and we look forward to leveraging their work further.

GAMA is also supportive of efforts to accelerate the uptake, distribution, and use of sustainable aviation fuels (SAF) through a blenders tax credit as well as a grant program to facilitate the production, transportation, or storage of SAF. We are also encouraged by work on legislation that proposes a grant program, with 30 percent of grants going to entities focused on developing, demonstrating, or applying low-emission aviation technology, and 70 percent of the funding dedicated to producing, transporting, or storing SAF.

In addition, we believe policymakers should build and expand upon existing airport programs to address future aircraft development and allow more communities to benefit from low emission technologies. Specifically, a focus on issues like airport infrastructure needs, operations, maintenance, ground support, and emergency preparedness to facilitate these technologies will be critical and merit consideration. Clarifying existing Airport Improvement Program (AIP) eligibility and/or expanding the Voluntary Airport Low Emissions (VALE) program's eligibility as well as possible funding needs should be evaluated as we move to the airport of the future that will help facilitate further economic and environmental benefit of new propulsion and other technologies.

FACILITATING ADVANCED AIR MOBILITY

It is very encouraging to see Congress placing a priority on the growth of advanced air mobility (AAM). We are on the cusp of transforming the future of human flight with the introduction of electric and hybrid powered aircraft into the national airspace system. The support of Congress will be instrumental in the emergence of AAM and its facilitation of additional transportation options, job creation, economic

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[3] https://gama.aero/wp-content/uploads/GAMA-IBAC-Joint-Position-on-Business-Aviation-Tackling-Climate-Change-1.pdf

[4] https://gama.aero/wp-content/uploads/GAMA-IBAC-Joint-Position-on-Business-Aviation-Tackling-Climate-Change-1.pdf

[5] https://ibac.org/app/ibac/files-module/local/documents/Declaration%20on%20NZE%202050%20210922%20Final.pdf

growth, further environmental sustainability, and advancement in aerospace technology. Through proper planning and infrastructure preparation, and close cooperation with the FAA on enabling rulemaking, we can lead the way in this promising new sector.

GAMA continues to support enactment of the "Advanced Air Mobility Coordination and Leadership Act" and value the leadership of Vice-Chair Sharice Davids (D–KS) and Ranking Member Garret Graves (R–LA) in moving this forward. Passage this year of the legislation will allow for valuable work and input to be undertaken in the coming months that could help inform the FAA reauthorization legislation next year and develop critical policies to uplift the future of AAM.

We also support "The Advanced Aviation Infrastructure Modernization (AAIM) Act" sponsored by Chair Rick Larsen (D–WA) and Ranking Member Garret Graves (R–LA). As these vehicles move through the certification process, concurrent planning for their infrastructure needs should be contemplated to facilitate the needed local planning and infrastructure to prepare for future operations, and the AAIM Act is intended to encourage this collaboration. This is also increasingly relevant as regulators and industry work to define consensus standards on vertiports which would serve as an additional infrastructure capability that is envisioned for use by AAM aircraft.

Recently, the FAA shared with AAM applicants a shift in the certification process pathway for AAM aircraft. GAMA and its member companies have expressed concerns about what this decision might mean for type certification and operational approvals, and we continue to engage with the FAA to understand and mitigate the implications of this decision. One significant area, given the new FAA pathway, is the development and publication of a Special Federal Airworthiness Regulation (SFAR), which is critical to enabling civil AAM operations and pilot licensing. The FAA has committed to completing the SFAR by the end of 2024 and it is important that they deliver on this timeline. To accomplish this, FAA must work in close collaboration with industry stakeholders as well as other government agencies involved in the rulemaking process. It is our hope that Congress will conduct oversight and hold the FAA accountable for meeting its stated timelines.

Finally, GAMA is concerned about delays in naming advanced air mobility representatives to the FAA's Advanced Aviation Advisory Committee (AAAC). This past year, the FAA made the decision to evolve the charter and activities of the former Drone Advisory Committee into the AAAC and incorporate AAM into their deliberations. Critical to this change was the FAA commitment to approaching equal representation from the advanced air mobility sector to the AAAC since AAAC overall is currently lacking in such representation. We would appreciate any oversight the Subcommittee can provide in this area.

Managing and Coordinating Spectrum Use

Our membership utilizes spectrum and supports efforts to ensure its availability to meet aviation demands and satisfy operational and safety needs. The clear lack of coordination amongst industry and government stakeholders to consider all impacts of spectrum use and facilitate desired outcomes negatively impacts aviation and broader stakeholders, including those in the telecommunications sector seeking to deploy and utilize spectrum. Our belief is there is merit in stronger intergovernmental coordination and consultation to ensure that the full views of the Department of Transportation and FAA, are considered and addressed moving forward. This, coupled with increased dialogue with the aviation sector is essential to ensure safety and operations during the deployment of new spectrum.

Conclusion

In closing, on behalf of GAMA and our membership, I want to thank Chair Larsen and Ranking Member Graves for convening this hearing. It is an exciting and transformative time for general aviation which holds the promise of safety, jobs, innovation, sustainability, and competitiveness benefits. GAMA looks forward to working with you to help ensure this progress especially as we look towards FAA reauthorization in 2023.

Mr. Larsen of Washington. Thank you very much.

I will now turn to Tim Obitts of the National Air Transportation Association. You are recognized for 5 minutes.

Mr. OBITTS. Thank you for the opportunity to speak.

And, Chair DeFazio, thanks for being a friend to general aviation businesses. You will be missed, but I am sure you are going to be around.

And thank you, Chair Larsen and Ranking Member Graves and the other Ranking Graves, for having this opportunity to speak.

National Air Transportation Association members are aviation businesses that serve the general aviation communities as FBOs, part 135 91K air carriers, MROs, fuel suppliers, flight schools, and fixed-wing aeromedical. The vast majority of these members are small businesses, middle-class Americans who have a passion for aviation and want to serve their communities by providing essential services.

These businesses serve as a gateway to their communities, providing vital, once again, essential services to the public. NATA members have, by and large, weathered the storm of COVID, and business has increased over pre-COVID levels due to their passion and can-do attitude.

I would like to thank you, this committee, for your tireless efforts in helping many aviation businesses along this uncertain journey through the CARES Act. However, there are warning indicators now that we need to address proactively if we want general aviation to continue to thrive. I will address these.

To be certain, NATA is committed to working with you and your staff as we look forward to the upcoming FAA reauthorization. So, the state of general aviation business is simply this: In short, business is up. During COVID, interest in general aviation grew, with an increase of new entrants taking flying lessons and more passengers recognizing GA as a means of safe, reliable, secure, and without delay travel.

Communities started to recognize the many services GA provides through medical, fire, rescue, emergency, mercy missions, cargo, and passenger travel, as many were cut off from the outside world. General aviation airports and aviation businesses serving them became an important life line to the community.

Even with the uptick, we have not seen a full return of corporate travel. And over the last couple of months, we have seen a flat line to a slight dip in some parts of the country in fuel sales.

What are these indicators that are problematic? The cost of insurance for aviation business and pilots has significantly increased, if not doubled. We have a workforce shortage and increase in wages. The selection pool has grown smaller, maybe in part due to the fear of applicants failing drug tests. Costs for training as a pilot or A&P mechanic has increased and the feeder system by our Armed Forces has slowed.

You have heard about the logistics supply chain problems. Difficulty in getting through the redtape to build hangars and making improvement in airports is a real problem. In fact, the cost for improvements to airport and building hangars and other improvements has increased nearly 50 percent. Delay in receiving parts for maintenance. Antiquated rules and regulations and delays in certification with over 500 applications currently pending at the FAA as part of their backlog.

Workforce shortage and lack of allocated resources at the FAA of the 4,825 members and employees that serve there, with many of the talented and knowledgeable leaving, with more at risk. So, we have a risk of brain drain at the FAA.

We have an attack on airports related to environmental issues: PFAS, 100 Low Lead, carbon emission, and noise. Efforts by special interest groups to privatize the ATC and make it not readily accessible for all loom on the horizon.

Illegal charter competes with legitimate part 135 and part 91 air carriers, creating a real safety issue. New technologies like AAM will put demand on a limited space at urban GA airports. We have to figure out how to integrate.

And finally, an aging population of small aviation business owners with limited entrants with the same experience and passion.

The upcoming authorization offers an opportunity for us to modernize FAA and innovate, and create efficient programs and wise investments so that general aviation will continue to thrive. I know my friends here on the panel will address ways to modernize as well, and we have already heard some, and we are willing to work with your staff to think with you.

We need to foster private enterprise investment to airport infrastructure through hangars and other improvements. We need to invest in the FAA and recruit a capable workforce. We need to enforce the laws you have authorized FAA to implement and get rid of the antiquated rules and regulations that no longer makes sense and cause a quagmire. We need Congress to invest in sustainability, provide greater support for programs like the FAA ASCENT, and speed up the ASCM process as technology and new pathways are discovered.

Finally, we need to fund apprenticeship programs for mechanics and line service workers as we try to grow our workforce.

I look forward to answering any of your questions. Thank you.

[Mr. Obitts' prepared statement follows:]

Prepared Statement of Timothy R. Obitts, President and Chief Executive Officer, National Air Transportation Association

Chairman DeFazio, Ranking Member Graves, Chairman Larsen, Ranking Member Graves, and distinguished Subcommittee Members:

The National Air Transportation Association (NATA) has been the voice of aviation businesses for 82 years. In 1940, general aviation in the U.S. was at risk. With the looming threat of war, the U.S. Army sought to ban all flights by privately owned aircraft in the national airspace. That year, 83 charter members representing all types of general aviation businesses unified as a singular voice to successfully tell Congress and the Administration to keep the airspace open to this important industry.

Today, NATA represents nearly 3,700 aviation businesses across a broad cross section of the industry, including fixed base operators, Part 135 air carriers and fractional ownership companies, air medical operators, flight schools, maintenance repair stations, aviation fuel suppliers, and airport sponsors at general aviation airports.

FIXED BASE OPERATORS

Fixed base operators (FBOs) are the primary service and fuel providers to general aviation aircraft operators, as well as to many public essential services such as law enforcement, EMS, and fire management. Some FBOs also provide maintenance, flight instruction, and aircraft management, rental, charter, and sales. FBOs at

many Part 139 commercial airports perform line maintenance, cabin cleaning, and baggage handling for Part 121 commercial, passenger, and cargo airline customers.

General Aviation Fuel Suppliers

NATA represent all of the nation's major general aviation fuel suppliers who provide aviation businesses with Jet A and Avgas, refueler trucks, financing for fuel infrastructure, contract fuel, sustainability programs, and other logistical services.

Airports

One of NATA's fastest-growing membership categories is general aviation airports. Our nation's 4500 general aviation airports are vital economic engines, serving as arrival and departure points for economic developers and components for local manufacturing; supporting agricultural, law enforcement, and fire-fighting missions; and providing access to critical medical care, especially in remote communities. By contrast, scheduled air carriers fly only to those places where the economics of operation justify service, approximately 500 airports nationally.

Maintenance/Repair Stations

The term "repair station" refers to a maintenance facility that has a certificate issued by the Federal Aviation Administration (FAA) under 14 CFR Part 145 and is engaged in the maintenance, preventive maintenance, inspection, and alteration of aircraft and aircraft products. Another more general term used throughout the industry is MRO, referring to repair stations as maintenance, repair, and overhaul facilities.

Flight Training

Across the country, accredited universities and colleges integrate flight training curriculums under 14 CFR 141 into the academic requirements for a degree in aviation science, educating the next generation of aircraft captains. In addition, many FBOs and independent flight instructors provide flight training under 14 CFR Part 61.

Part 135 On-Demand Air Charter

One of the most important contributions of general aviation is providing on-demand transportation for freight and passengers, especially to airports that have no scheduled commercial air carrier service. Most operators using general aviation aircraft in a for-hire passenger and/or cargo capacity are certificated to operate under 14 CFR Part 135 and conduct numerous types of missions, including medical flights.

Fractional Ownership Companies

For those who do not need the use of an airplane full time, fractional ownership plans offer the benefits of private aviation, including on-demand transportation, high service levels, and an excellent safety record.

As the term fractional implies, participants are brought together to buy into a specific airplane, with each holding a fractional share entitling them to usage of that airplane on a predetermined hourly basis, normally over a 12-month period. The day-to-day operational management of the aircraft involved in a fractional plan is carried out by the plan's operator who is responsible for the acquisition and management of the aircraft on behalf of the shareholders. This operator also provides flight crews and takes charge of maintenance and scheduling.

Aeromedical Services

Approximately 250 organizations in the U.S. are currently engaged in the transport of seriously ill or injured people to hospitals for emergency care. Air medical transport saves lives by bringing more medical capabilities to the patient than are normally provided by ground emergency medical services, along with faster transit times to the appropriate specialty care location—services not typically provided by commercial air carriers.

Since its founding, NATA has represented the interests of these general aviation businesses before Congress and the federal agencies by advocating for sound legislative policies and a consistent regulatory framework that collectively maximizes safety and success. The Association's advocacy is driven by its policy committees, which convene thought-provoking industry leaders to examine contemporary issues and

pursue solutions to prioritize safety and economic viability. To that end, the Association's ongoing major policy initiatives include a campaign to end illegal air charter activities; efforts to reform outdated fire protection standards and remove PFAS chemicals from aircraft hangars; the approval of a safe, drop-in unleaded fuel for piston aircraft; and the advancement of innovations to reduce the industry's environmental impact, such as sustainable aviation fuel and advanced air mobility.

The Association is not only focused on advocacy, but also on elevating the safety and professionalism of the industry. NATA's Safety 1st program is the industry standard for training general aviation support personnel with over 10,000 users at 761 locations. Safety 1st empowers organizations and training administrators with flexible tools to customize learning pathways that meet the requirements of their unique operating environments and the specific learning needs of their team members. The Safety 1st Training Center's unique approach to learning blends online content and assessment with locally provided on-the-job training and practical skills assessment. Since 2008, Safety 1st has trained over 40,000 individuals on topics such as misfuelling avoidance, aircraft movement and ramp safety, regulated hazmat handling, and flight coordinator training.

NATA also is represented on numerous working groups with U.S. Customs and Border Patrol and the Transportation Security Administration on issues pertaining to general aviation security.

My testimony today will focus on the current state of general aviation as we emerge from the COVID–19 pandemic, recognizing challenges facing our industry as well as opportunities to ensure we maintain a healthy, thriving aviation ecosystem—one that meets today's needs and is prepared to embrace tomorrow's innovation.

Throughout the COVID–19 pandemic, general aviation proved its national value by continuing to deliver vital essential services when commercial aviation shut down. Part 135 air carriers and general aviation airports provided critical medical transport, supported essential law enforcement and firefighting services, transported testing and vaccine supplies, facilitated business travel to maintain economic growth, and kept remote communities safely connected.

After a devastating dip in private air travel during the first months of the pandemic, Part 135 business jet operators matched 2019 activity by early summer of 2020 and eventually surpassed the previous year's pace—a trend that continued throughout 2021 as the pandemic persisted. Private flying activity continues to exceed expectations in the post-pandemic economy, with a 20 percent increase in North American business jet travel in the first quarter of this year. There are signs of a slight slowdown in growth, however: recently released numbers for June show just 7 percent growth.[1]

ILLEGAL CHARTER ACTIVITY

This increased flight activity presents great opportunity for general aviation and aviation businesses. But its combination with a significant number of new entrants into the 135 market, an economic downturn, and substantial workforce challenges across the industry has led to a dangerous uptick in illegal charter activity. Since 2018, NATA has led the charge against illegal charter operations, which pose a safety risk to the flying public and distort the market for legitimate Part 135 air carriers. NATA's Illegal Charter Task Force has an active partnership with FAA to raise public awareness, educate operators on regulatory compliance, and develop reporting tools for suspected illegal activity. NATA is also proud of its work to facilitate industry and agency discussions, assist in developing stakeholder resources, and empower enforcement by advocating for increased actionable data.

In 2021, illegal charter activity reported to the "Avoid Illegal Charter" hotline and website increased by 54 percent compared to the previous year, confirmation of the pervasive nature of this threat despite our efforts to raise awareness. NATA also has concerns about inconsistent investigation and enforcement by Flight Standards District Offices, as well as the backlog of appeals to the National Transportation Safety Board (NTSB). The lack of data on outcomes of reported suspicion of illegal charter activity make it difficult to gauge the scope of these issues; therefore, we believe the release of annual data breaking down reports by source and aggregating outcomes would assist both the FAA and industry in combatting this problem. In addition, FAA needs increased resources to consistently investigate and expand enforcement, while NTSB needs resources to adjudicate the backlog of appeals once charges have been made.

[1] "Weekly Bulletin on Global Business Aviation Activity," WINGX ADVANCE, July 7, 2022, https://wingx-advance.com/wingx-bizav-weekly-bulletin/.

CERTIFICATION BACKLOG

Just as FAA lacks sufficient workforce to consistently investigate reports of illegal charter activity, the Agency's workforce also struggles to process air carrier, aircraft, and airmen certifications in a timely manner. Currently, FAA's certification queue numbers over 500 applications—in recent years, that number has risen above 1000. As a result, it can take up to two years for a prospective operator to obtain a 135 certificate, deterring legitimate new entrants to the industry and increasing the risk of regulatory noncompliance.

Today, you'll hear of challenges created by deficiencies in the aviation industry workforce—concerns that NATA shares wholeheartedly as our member businesses struggle to hire and retain pilots, maintenance technicians, fuelers, ground handlers, and other skilled workers. While the tempo of business aviation activity continues to trend upward, the lack of skilled labor and meager supplies of aircraft parts, coupled with the FAA's struggles to process a backlog of certification applications, is causing severe operational challenges.

As a safety sensitive workforce, FAA's aviation safety inspector numbers are controlled by Congress and the Agency must report year end workforce numbers to Congress annually. At first blush, the current report of 1,825 aviation safety inspectors appears to be insufficient for the Agency to adequately perform its safety duties. NATA believes it is important that FAA emphasizes prioritizing its certification, accident investigation, and safety oversight resources. NATA strongly recommends the FAA also partner with industry to conduct a thorough assessment of the current certification process and average length of time from application to certification. Analysis of such data will allow the Agency to more effectively allocate resources and streamline the certification process without compromising safety.

The increase in general aviation traffic across the nation has also attracted increased attention from industry critics. As news articles amplifying concerns about PFAS contamination, lead emissions, and noise appear with increasing regularity, both industry and government must be proactive about identifying and implementing common sense policies that reduce general aviation's environmental impact without sacrificing safety, essential services, or economic viability.

PFAS CHEMICALS

With the Environmental Protection Agency (EPA) in the process of designating PFAS chemicals as hazardous substances, there is much discussion about how to end the use of such "forever chemicals" at airports and how to protect Part 139 airports from litigation—but the conversation needs to include general aviation airports and their tenants, as well. Until recently, the *National Fire Protection Association (NFPA) 409: Standard on Aircraft Hangars*—which is the primary standard for hangar fire protection and is referenced by the international building code (IBC), the international fire code (IFC), and state and local statutes, ordinances, and regulations—required most modern general aviation hangars to have automatic foam fire suppression systems installed.

Yet a 2019 study performed by NATA and the University of Maryland's Department of Fire Protection Engineering Studies found costly risks to the environment, human health, and operational budgets associated with accidental foam discharges. Combining the frequency of incidents and the damage per incident over the 16-year study period, the cost of accidental foam discharges annually is on average $6.4 million, while the cost for foam discharges in response to fire is $1.7 million.[2] NATA successfully advocated for revisions to the 2022 edition to exempt Group II hangars from the foam requirement and has created resources to help aviation businesses avoid foam, but the process and cost of PFAS remediation in existing hangars is prohibitive for many small businesses, with estimates frequently topping a million dollars.

There is no easy solution to the problem of PFAS on airport properties, but it is in the interest of all parties—airports, associated businesses, and the public—to streamline the process of removing unnecessary foam fire suppression systems in aircraft storage hangars and to work toward FAA approval of a fluorine free alternative in cases where foam is necessary. AIP funds or a separate grant program should be administered by FAA to help remediate PFAS-containing foam from the property of federally obligated airports, allowing airport sponsors to partner with private tenants to accomplish this. In addition, any federal exemption for litigation

[2] Mike Milke, "Review of Foam Fire Suppression System Discharges in Aircraft Hangars," (National Air Transportation Association), accessed July 9, 2022, https://www.nata.aero/assets/Site__18/files/NFPA%20409/UMD%20Report%2011-12.pdf.

should be expanded to include not only Part 139 certified airports, but also airport sponsors, hangar owners, landlords and lessees at public use airports who were required to install and maintain foam fire suppression systems by local authorities.

EMISSIONS

Equally threatening to the future of general aviation is the environmental impact of 100 Low Lead (100LL) fuel. NATA and other leading general aviation organizations are partnering with FAA on the EAGLE initiative to find an unleaded fuel solution for the entire piston aircraft fleet by 2030. Adequate resources must be directed toward this effort. We must also ensure the availability of leaded Avgas until an alternative is widely available, for both safety reasons and to maintain the piston aircraft used to train the next generation of pilots.

NATA is committed first and foremost to safety, so we are in the process of developing training to avoid misfuelling, as well as publishing a white paper on safe fueling with alternative fuels. As the primary advocate for the FBOs that sell aviation fuel and provide fueling services, NATA also seeks funding to help businesses procure the temporary infrastructure necessary to offer both 100LL and an alternative unleaded fuel (which serves only a portion of the piston aircraft fleet and represent approximately a quarter of Avgas fuel sales) until a single, fleet-wide, drop-in unleaded replacement fuel is identified. Most businesses will not see a return on the $500,000 investment required to secure an alternative fuel tank and refueler truck; therefore, we believe public/private partnership is warranted. Our combined efforts on these fronts will help minimize general aviation's environmental impact, prove to the public our commitment to sustainability, and enable us to maintain the existing general aviation fleet.

SUSTAINABLE AVIATION FUEL

Equally vital to our industry's sustainability goals is the proliferation and adoption of sustainable aviation fuel (SAF), which offers a lifecycle greenhouse gas (GHG) emissions reduction of up to 80 percent compared to conventional, petroleum-based jet fuel. NATA is a founding member of the Business Aviation Coalition for Sustainable Aviation Fuel, where I serve as chairman of the steering committee. Together, NATA and our fellow Coalition members have successfully educated stakeholders and created a demand within our industry for SAF; now we are pursuing legislative and regulatory policies to help scale up SAF production to meet that demand. All sectors of aviation have coalesced behind legislation to create a blender's tax credit for SAF, which would help level the playing field with more established biofuels. Equally important is the removal of regulatory roadblocks that prevent the inclusion of proven SAF technologies and feedstocks in the EPA's renewable fuel standard (RFS). We must ensure that outdated government policies and guidelines do not hinder technologically viable, commercially scalable SAF pathways and prevent the use of readily available raw feedstock that utilizes existing infrastructure, or we risk losing those technologies to other countries and forfeiting our nation's leadership in this emerging industry.

For example, under EPA's current interpretation of the statute underlying the RFS, producers effectively cannot utilize feedstock derived from wildfire prevention management activity on federal lands. The aviation community and SAF producers have been urging EPA to work in partnership with the U.S. Forest Service to correct the current regulatory disconnects, expanding a readily available SAF feedstock for inclusion in the RFS while contributing to wildfire risk reduction and sustainable forest management. This is just one example of the need to align federal policy to support SAF—a clean, domestic energy source with proven efficacy to reduce our industry's emissions while utilizing existing infrastructure.

ADVANCED AIR MOBILITY

Not all aviation innovations will be implemented with existing infrastructure, however. Rapidly evolving technological advances in the development of electric aircraft promises that the next generation of flight will be viable more rapidly than expected. AAM has the potential to reduce noise and emissions, to speed up cargo and medical transport in rural areas, to facilitate urban mobility without added congestion. But is our aviation infrastructure prepared to support advanced air mobility? NATA believes both urban and rural general aviation airports offer logical space for newly designed vertiports to host eVTOL aircraft, and that our FBO members are poised to provide services to this emerging market with the proper preparation.

With the Advanced Air Mobility Coordination and Leadership Act and the Advanced Aviation Infrastructure Modernization Act, this Subcommittee has taken

small but critical steps toward preparing our national air space for eVTOL innovation. We believe more aggressive steps are necessary to help aviation businesses plan for AAM implementation, as well. NATA's members will be supporting, maintaining, fueling, and operating this next generation of aircraft, but many are seeking guidance on the infrastructure necessary to do so safely and successfully. We look forward to partnering with industry, Congress, and the FAA to move this technology forward and help stakeholders prepare for its adoption.

GENERAL AVIATION AIRPORTS

At the center of almost every issue raised today is our nation's system of general aviation airports, which supply an essential lifeline to rural America. NATA's member businesses operate at nearly 4,500 airports located in thousands of communities, many of which are not served by commercial aviation. The aviation activity in these cities and towns creates good paying jobs, economic activity, and connectedness. General aviation airports and associated businesses also support EMS, agriculture flights, police work, Border Patrol, executive transport, cargo transport, flight schools, vocational schools, research, powerline patrol, pipeline patrol, conservation efforts, firefighting, construction, seismic work, sightseeing, organ transport, non-emergency medical transport, and the list goes on. It is critical that the next FAA Reauthorization recognize the value of maintaining and modernizing the infrastructure that supports these essential services. Therefore, NATA asks Congress to expand the Contract Tower Program and adjust AIP entitlements to equip general aviation airports to grow in line with industry demand.

AIR TRAFFIC CONTROL SYSTEM

The United States maintains the safest and most successful air system in the world, and NATA looks forward to working with this Subcommittee to ensure that excellence continues with the next FAA Reauthorization. To the end, we oppose any efforts by special interest groups to gain control of the air traffic control system so that it remains available to all users.

NATA is optimistic that general aviation will continue to grow and flourish across the country as industry and government partner together. Thank you for convening today's hearing and for your thoughtful consideration of the issues raised.

Mr. LARSEN OF WASHINGTON. Thank you very much.

I will now turn to Greg Pecoraro, president and CEO of the National Association of State Aviation Officials. You are recognized for 5 minutes.

Mr. PECORARO. Chairman Larsen, Chairman DeFazio, Ranking Member——

Mr. LARSEN OF WASHINGTON [interrupting]. Try to get that microphone closer to you, if you can.

Is the microphone on? The light is on. Grab the table, pull the table toward you.

Mr. PECORARO. Chairman Larsen, Chairman DeFazio, Ranking Member Graves, and members of the subcommittee, my name is Greg Pecoraro, and I represent the National Association of State Aviation Officials, the men and women in State government aviation agencies in all 50 States, Guam, and Puerto Rico.

I am glad to offer a few thoughts on the issues that concern these State aviation professionals as you look towards reauthorization. We appreciate your recognition of the importance of general aviation and its network of 3,000 federally funded airports.

Through the Airport Improvement Program, Americans in every part of the Nation have an access point to aviation. GA airports are vital to business and personal transportation, public safety and emergency response, agriculture, and just-in-time delivery of important materials, critical parts, and medical supplies.

NASAO is grateful for all Congress has done recently to keep the Nation's aviation industry alive and to begin rebuilding and im-

prove our aviation infrastructure, but we are here to show you the need for more.

Additional funding for AIP is needed to clear the $14 billion backlog of priority AIP-eligible projects needed through 2025 for GA and other nonprimary airports. GA airports need these funds for the critical construction and repair of runways, taxiways, and other AIP-eligible projects.

Looking forward, GA airports must transform into greener, more sustainable, and more resilient facilities, and improve their multimodal connections. Better connections to an improved national electric grid are also vital as airports facilitate electric vehicle charging, ground support equipment, and on-airport clean power generation in LEED certified facilities.

To sustain the existing system and meet future needs, NASAO urges Congress to increase AIP investment by $250 million each year over the next 5 years to a new authorization of $4 billion.

GA airports depend on the nonprimary entitlement program for minimal level of capital funding, because many often don't receive discretionary funding. Unfortunately, the NPE program hasn't changed since its inception in 2001, so, it only provides $150,000 a year. This by itself doesn't cover the cost of nearly any capital projects and has to be accumulated over a period of years to cover the costs of a real pavement project, which today starts around at $1 million.

In fact, many airports are unable to access these funds because they can't come up with the matching funds, and the unused money goes back to the FAA, where it is often reallocated to commercial airports, contrary to the purpose of the program. If the NPE program is to provide airports real help in making improvements, the program must be updated.

NASAO encourages Congress to increase the minimum NPE grant to $250,000 per year and correspondingly increase State apportionment to ensure that an increase in NPE does not further reduce State apportionment funds. Unspent funds should also remain in the State for reallocation to other GA airports.

As we prepare for a new era of aviation, GA airports will be the first staging grounds for these emerging technologies. Connecting urban, suburban, and rural areas in a new way that is cleaner, quieter, and more efficient is exciting, and can revolutionize how many people will access and use the aviation system, but only if these opportunities are made broadly available across the Nation.

Before this new era can launch, many questions need to be answered. It is vital that Congress support integration of these new technologies by tasking the FAA with establishing a national standard to address AAM airspace coordination and control. Established standards will enable the system to expand more rapidly as AAM aircraft become certified, while maintaining the appropriate level of safety. Federal expectations and rules for this new technology must be developed and shared with all stakeholders soon. And it's critical for State and local governments to be part of the conversation in integrating these technologies into the larger transportation system.

Now that you have begun in a serious way to rebuild America's airports, we encourage you to finish the job. Fix the airports we

have and begin developing the airports of the future. Increase AIP funding and reform the NPE program. Invest in the future by facilitating the development of aviation infrastructure ready to capitalize on emerging technologies.

NASAO appreciates the opportunity to share our views, and we look forward to working with you. I am happy to answer any questions you may have.

Thank you.

[Mr. Pecoraro's prepared statement follows:]

Prepared Statement of Gregory Pecoraro, President and Chief Executive Officer, National Association of State Aviation Officials

Chair Larsen, Ranking Member Graves, and members of the Subcommittee on Aviation, thank you for holding today's hearing on the "State of General Aviation". My name is Greg Pecoraro, and I have the privilege of representing the National Association of State Aviation Officials, or NASAO. For more than 90 years, NASAO has represented the men and women in the state government aviation agencies serving the public interest in all 50 states, Guam and Puerto Rico. Like you, in your roles on this committee, we serve the public interest. The views I share with you today are those of state aviation professionals who are public servants across the nation.

THE ROLE OF STATE AVIATION AGENCIES

State aviation agencies continue to play an important role in managing the National Aviation System (NAS). Within that network, the role of states in managing and promoting aviation as a vital access point to the entire transportation network is not as widely known as that of the Federal Aviation Administration (FAA). State aviation agencies, through NASAO, participate in several memorandums of understanding with the FAA and other federal agencies to create cooperative efforts to manage the NAS. Ten states administer block grants for FAA Airport Improvement Program (AIP) grants to general aviation airports, many others act as channeling states [1] for the FAA, and most states provide funds to help meet the matching requirements for FAA AIP grants.

Many state aviation agencies assume inspection authority for general aviation airports. Many states operate runway inspection and other aviation safety programs. A few states own and operate airports, both in and outside the National Plan of Integrated Airport Systems (NPIAS). Unlike the FAA, which is solely focused on safety, state aviation agencies are also engaged in supporting an aviation system that is both the safest in the world *and* a vital contributor to strong and vibrant local economies. Looking to the future of aviation, many states are already actively engaged in managing uncrewed aircraft systems (UAS) and advanced air mobility (AAM) initiatives.

State aviation agencies work closely with the general aviation airports in their states. General aviation airports often lack the staffing and expertise available to larger airports and rely on their state aviation agencies for a wide range of technical support and guidance, as well as for assistance in interacting with the FAA. State aviation agencies are also important resources for state pilot communities and many aeronautical businesses.

[1] State channeling of federal airport grants occurs in various forms within numerous states. Normally, when an airport is in a channeling act state, the sponsor submits payment request information to the state, who then submits the request to the FAA. In this case, the FAA makes payments to the state, and the state then distributes the payment to the sponsor. In some cases the state may also provide technical oversight and review, which may include state submittal of grant applications and/or closeout requests. This is based on state enabling legislation, rather than federal law. In many cases, the state also signs the grant agreements. Channeling agreements based on state enabling legislation do not need approval from the FAA Airport District Office (ADO). AIP Handbook, Chapter 2, https://www.faa.gov/airports/aip/aip_handbook/?Chapter=2

FEDERAL SUPPORT FOR ROBUST AVIATION FUNDING

NASAO deeply appreciates the funding Congress provided during the pandemic to support all airports, in particular general aviation airports, to keep vital goods and services flowing throughout the country. NASAO is also grateful for the Infrastructure Investment and Jobs Act (IIJA), which provided much needed funding for airports and associated infrastructure, however additional investment at the federal level is needed to clear the over $40 billion backlog of priority AIP-eligible projects needed between 2021 and 2025 [2], invest in planning and infrastructure for emerging aeronautical technologies, and support a greener more environmentally sustainable aviation system. Of the $40 billion, the FAA indicates that $14 billion are for planned AIP-eligible projects at general aviation, reliever, and nonprimary commercial service airports.

While overall AIP levels have not changed in nearly ten years, costs certainly have. Recent inflationary pressure has aggravated the situation even more.

Currently, the nation's general aviation airports have unmet needs for construction, repair, and maintenance of runway, taxiways, and other AIP eligible projects. Hangars and maintenance facilities are all in need of renovation and repair. Looking to the future, general aviation airports must transform into greener, more sustainable facilities, as well as increase their connection to a multi-modal transportation system. Better connections to an improved national electric grid are vital as airports need to facilitate electric vehicle (EV) charging, electrification of ground support equipment, on airport clean power generation, and LEED certified facilities. Maintaining the existing system and transformation to meet these future needs will require significant federal support.

To sustain the existing aviation system and meet future system needs, NASAO urges Congress to provide robust aviation funding by:

- *Increasing AIP investment by $250 million each year over the next five years to a new authorization of $4 billion*.
- *Raising and indexing the $4.50 Passenger Facility Charge (PFC) Cap*. If the PFC cap were raised, commercial airports would be able to collect and use PFC revenue for airport infrastructure and forgo their AIP entitlements. This would result in a greater share of AIP entitlement funds to general aviation airports, who have fewer options to raise airport revenue.

Nonprimary Entitlement Program Reform

We also suggest that Congress look at how to reform the Nonprimary Entitlement (NPE) program to better meet the needs and realities of nonprimary airports. The NPE program provides up to $150,000 annually from AIP to general aviation, reliever, and nonprimary commercial service airports for critical projects that would otherwise go unfunded. However, in today's environment, these annual NPE grants are so small that they must be carried over for a period of years to accumulate up to $600,000 to go toward an airport project. More meaningful paving projects start at $1 million *today*. If the NPE program is to provide most airports with a meaningful opportunity to make improvements, the program must be reformed to ensure that these airport projects are moving forward.

NASAO encourages Congress to consider increasing funding for general aviation airports by *increasing the maximum amount an airport may receive from NPE from $150,000 to $250,000 per year and correspondingly increase State Apportionment to ensure that an increase in NPE does not further reduce State Apportionment funds*.

Enhancing the State Block Grant Program

Block Grant States (BGS) play a critical role in the development and maintenance of airport infrastructure on behalf of the FAA for eligible general aviation airports within their states. The BGS have been instrumental in administering annual AIP grants and COVID relief funds and will continue to be instrumental as they prepare to administer the Infrastructure Investment and Jobs Act funds. The BGS have taken on these responsibilities to meet the needs of general aviation airports in their states. However, with more tasks and responsibilities being shifted to BGS, this has exhausted BGS staff and has been done without any additional funds and resources. *NASAO encourages Congress to provide these states with administrative relief as they execute federal airport grants on behalf of the FAA*, like other federal transportation block grant programs. More broadly, NASAO believes it is critical for the FAA to work more collaboratively with the states in addressing current and future program needs.

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[2] Federal Aviation Administration, National Plan for Integrated Airport Systems (2021–2025), p. 28, https://www.faa.gov/airports/planning__capacity/npias/current/media/NPIAS-2021-2025-Narrative.pdf

Infrastructure Investment and Jobs Act Implementation

As with any initiative of this tremendous size and scope, challenges with IIJA implementation were sure to arise. NASAO has created a working group of state aviation professionals from across the country to review the IIJA and its impact on state aviation programs. Many of these discussions are centering around technical details and the need for clarifications in how the FAA is implementing the law. We hope that sharing these issues will assist the FAA in working with states and local airport sponsors in meeting the goals of the IIJA. We plan to complete this review over the next few months and share our findings with the FAA and Congress in hope of collaborating on developing some adjustments.

ENSURING AIR SERVICE TO SMALL COMMUNITIES

Since its inception, the Essential Air Service (EAS) program has provided a vital link for many otherwise unserved communities to the nation's airways. Unfortunately, rising costs and the ongoing shortage of commercial airline pilots have disrupted service to many of these smaller communities. It is critical for Congress to continue to maintain its commitment to access to aviation for all Americans by fully funding the EAS program.

Unfortunately, one of the impacts of the pandemic for some communities that "graduated" out of the EAS program found that the conditions that supported stable aviation access have eroded or disappeared. NASAO supports *allowing those communities that successfully exited EAS and were then locked out of EAS due to provisions in the FAA Modernization and Reform Act of 2012 (P.L. 112–95) to rejoin the program to help restore scheduled air service* that has been reduced or suspended as a result of the pandemic. Allowing these communities to be eligible to receive EAS assistance would ensure they continue to have access to the national air transportation system and give them the opportunity to reestablish their markets.

PREPARING FOR NEW ERA OF AVIATION

AAM and UAS have the potential to create incredible opportunities within aviation. General aviation airports are most likely to benefit immediately from their promise to open up new markets and expand access to small communities. The prospect of connecting urban, suburban, and rural areas, some of which are not conveniently served by surface transportation, or underserved by existing aviation activities, in a new way that's cleaner, quieter, and more efficient—is exciting to us all, and can revolutionize how many people access the aviation system.

But before this new technology can launch and disrupt existing transportation systems, many questions need to be answered. The FAA has a lot of work to do in certifying aircraft and finalizing criteria for their landing facilities. We still don't know how we will integrate AAM with other aviation activities and the larger transportation network or manage public access and security for AAM and UAS facilities and aircraft. We also need to address how AAM activities will contribute financially to the maintenance of the aviation system. To the extent that they use publicly funded infrastructure, use services, require inspections, and require regulation, AAM and UAS activities should pay some share of these costs, just as other users of the system do.

And of course, as excited as some of us in aviation are about these new technologies, much work must be done by industry and governments to develop a broader public awareness and acceptance of this new aeronautical activity.

State aviation agencies have an important role in this exciting future. State and local governments can and must play their part in managing the integration of these emerging technologies into the larger transportation system. Land use and siting decisions, multi-modal transportation planning, adaptation of existing infrastructure and development of new facilities, integration into existing airspaces, and local acceptance of new modes of flight and their facilities will all require close cooperation and planning at the state and local levels. Unfortunately, many state and local aviation and planning agencies are understaffed and already facing heavy workloads. It is vital that Congress provide funding to assist in planning for integration of these new technologies, both on and off the airport, including development of vertiports. Congress can support integration of these new technologies by:

- *Tasking the FAA with establishing a national standard to address AAM airspace coordination and control* informed by the ongoing work of the Advanced Aviation Advisory Committee, an aviation stakeholder led advisory committee that provides advice and recommendations to the FAA on UAS and AAM integration issues. Allowing for third party providers operating under the guidance of the FAA and the established standards would enable the federated system

to expand more rapidly as AAM aircraft become certified while maintaining the appropriate level of safety.

- *Enacting H.R. 5315, the Drones Infrastructure Inspection Grant (DIIG) Act*, to support the efforts of state, local and tribal governments to capitalize on the benefits of using drone technology to inspect aging infrastructure while investing in workforce development programs to bolster the workforce of the future. We greatly appreciate Representatives Greg Stanton and Garret Graves for their leadership and the Committee for its support in advancing this important legislation.
- *Directing the FAA to establish an outline for a constructive Federal regulatory framework for drone integration strategies* that supports the application of a low-altitude drone activity and require the FAA to work collaboratively with states to develop an acceptable framework.

The Greening of General Aviation

Creating a greener and more sustainable aviation system has been challenging due to some of the industry's particular technical needs. While advances in aircraft design and manufacturing have continued to reduce emissions and lower noise, aviation remains one of the hardest modes of transportation to turn green. However, general aviation airports have an opportunity to not only transform as part of a greener aviation system, but also to become more multimodal as EVs and AAM will eventually become more commonplace.

State aviation agencies and airport sponsors need assistance with this transformational challenge. They will need to access expertise and funding to plan for airport transformation, charging for eVTOL aircraft, electrification of ground support equipment, on airport clean power generation, and EV charging for airport parking facilities. Congress should encourage and fund the development and implementation of these solutions by *directing the FAA to develop plans and policies and identify how to make federal funding available to support both on and off airport development for AAM*. With both electric and hydrogen propelled aircraft in development, it is critical that the FAA start planning how it will support airports and off airport transportation nodes with these new infrastructure needs.

Additionally, the aviation industry faces significant hurdles in its quest for clean and sustainable fuel for aircraft of all types. General Aviation urgently needs an acceptable 100LL drop in replacement fuel standard given the growing concerns over the environment and impending action by the Environmental Protection Agency (EPA). This will require both incentives to produce and distribute meaningful quantities of a replacement fuel within the United States and easing the path for permitting the required refining and production facilities. Similar to the ongoing discussions on sustainable aviation fuels (SAF), our aviation system will be more resilient if we act now to address the 100LL replacement fuel and SAF. NASAO supports the joint FAA/aviation industry/fuel producers' effort known as the Eliminate Aviation Gasoline Lead Emissions (EAGLE) Initiative.

Provide Federal Support for PFAS Clean-up Efforts at Airports

A growing problem amongst general aviation airports, as well as commercial airports, is their use over many years of fire suppression products containing PFAS, or per- and polyfluoroalkyl substances in aqueous film-forming foam (AFFF). For decades, AFFF containing PFAS has been used extensively at airports throughout the world to protect the safety of passengers, crew and others.

The FAA has long required airports to train with and use AFFF fire suppression systems. Airports are faced with difficult choices when called upon to extinguish fires using the only FAA-approved firefighting foams, thereby potentially contaminating the watershed, and potentially being subject to environmental enforcement actions. Airports should not be held liable for PFAS contamination as a result of complying with a federal requirement. *NASAO urges policymakers to review and provide liability protections for all airports faced with this challenge*.

In addition to providing liability protections, *NASAO urges Congress and the FAA to swiftly implement federally assisted clean-up programs for PFAS contamination at airports* stemming from the FAA-required use of firefighting foams containing PFAS. Direct Federal support of airports (separate from the Airport Improvement Program) is needed to accelerate the clean-up process at contaminated sites.

Conclusion

Chair Larsen, Ranking Member Graves, and members of the Subcommittee, the nation's state aviation professionals deeply appreciate the opportunity to share their

views on the "State of General Aviation", and the value you place in their professional judgments on the needs of the industry.

We ask you to remember that more investment is needed to keep the United States in the forefront of aviation. Although Congress has provided a much needed influx of funding for aviation infrastructure, there is still an enormous unmet need to repair and maintain existing general aviation airports, as well as a need to begin planning and developing the sustainable airports of the future.

Thank you for this opportunity to appear today, and NASAO looks forward to continuing to work with this Committee as you consider important policy changes in the upcoming FAA reauthorization bill.

Mr. LARSEN OF WASHINGTON. Thank you very much.

And I will turn to Ed Bolen, president and CEO of National Business Aviation Association. You are recognized for 5 minutes.

Mr. BOLEN. Well, thank you, Chairman Larsen and Chairman DeFazio. Thank you for all that you have done. As my friend Pete Bunce said, your lifetime of service has made a meaningful difference, and we are grateful for that.

And, Ranking Member Graves, thank you for your tremendous effort in Tarkio and helping us have an opportunity to see general aviation in action and underscore the fact that bipartisanship allows general aviation to thrive in the United States.

And I really want to focus on that, because in the opening remarks, you have talked about the importance of general aviation to our Nation's job base. The fact that we create a huge number of jobs and provide economic development, particularly in small towns and rural communities in those large States, we provide access to the world economy, and we are always there for humanitarian efforts.

And so, I want to thank this committee for the leadership it has shown. The United States is the world leader in all aspects of aviation, but nowhere is that more clear and evident than in general aviation.

This committee has been enormously important in our ability to promote general aviation. You have recognized that access to airports and airspace is fundamental to our Nation's transportation system and to our economy.

In the FAA reauthorization bill that was passed in 2018, you ensured that the public's airspace would be overseen by the public's elected Representatives, you. You made sure that we had fair and equal access to airports and airspace, and allowed that economic development and the job growth to take place.

Fortunately, since that bill was passed, we have achieved a major milestone on the modernization of the ATC system. January 1, 2020, we moved forward from a ground-based radar system to a satellite-based system, ADS–B, augmented with ground stations. Today, the U.S. has the most robust ADS–B system anywhere in the world.

But that did not represent an ending point on our modernization journey. It is simply a milestone. We have got more work to do, but fundamental to that success is ensuring we always have fair and equal access to airports and airspace.

I want to touch on a little bit about some of the key points that you have brought forward, and that is our ability to constantly improve the safety of the system. Safety is part of the reason that our system is able to grow and thrive. We have to be safe and we have

to be perceived to be safe. That means that we need to continue to focus on things like the ASIAS program, which general aviation is participating in. It also means we need to use tools like SMS, safety management systems, but to do so in a way that is consistent with operations.

Safety management systems are an important tool, but they have to be scalable and they have to be usable, and that is a key part as we move forward.

I also want to point out that Congress has historically recognized that getting on a general aviation aircraft should not mean giving up your right to privacy. What we have seen since passage of the last FAA Reauthorization Act is we have privacy ICAO addresses and programs that limit aircraft data displays, but technology is moving fast and we need to move faster to make sure that there is a right to privacy reflected in those movements.

We also see that technology is coming together in new and different ways. We saw that with the rollout of 5G. I think that there are important conversations that are taking place between this committee, the FAA, and the telecoms. I think we are moving through finding balances, but we need to be very vigilant about that.

Also talking about the new technologies has been touched on a great deal by everyone that we have advanced air mobility coming forward, this ability to use distributed electric propulsion to get people where they need to be when they need to be there. Congress and this committee introduced legislation and passed legislation to advance this advanced air mobility industry with planning and construction grants. We want to do more, and we want to do better.

And then, finally, let me underscore the importance of workforce development. In the last FAA authorization bill, you called for the Women in Aviation Advisory Board, you created a youth task force at the FAA, and clearly we all recognize that in order for us to go forward, those recommendations have to be made real. We need to recruit the best and the brightest to our industry, and there are underrepresented parts of our society in the aviation workforce that need to be a priority as we move forward.

[Mr. Bolen's prepared statement follows:]

Prepared Statement of Ed Bolen, President and Chief Executive Officer, National Business Aviation Association

Chairman DeFazio, Ranking Member Graves, Subcommittee Chairman Larsen, Subcommittee Ranking Member Graves, and members of the Subcommittee on Aviation, thank you for holding this hearing to address the state of our nation's general aviation industry. On behalf of the National Business Aviation Association's (NBAA's) 11,000-member companies, we are pleased to testify at this hearing.

With the current authorization of the Federal Aviation Administration (FAA) expiring a little more than a year from today, this hearing comes at a crucial time for our industry. We appreciate the work this Subcommittee is already doing to engage with all stakeholders on priorities for a long-term FAA reauthorization bill in 2023, and we look forward to a robust discussion.

NBAA's members, many of which are small businesses, rely on general aviation aircraft to meet some portion of their transportation needs. These aircraft provide connectivity to communities in nearly every congressional district, many of which do not receive airline service. While those airlines serve only around 500 airports, business aviation can reach 5,000 airports, located in places some people have never heard of. This unique American idea of connecting each other—no matter where we

live and work—doesn't make headlines, but it supports 1.2 million American jobs and $247 billion in economic output.

As the Subcommittee knows, general aviation is an essential American industry that has long led the way in innovations that generate new technologies and new ways of thinking. We led the way in GPS, a transformative navigation and safety technology. We led the way in winglets and other technologies that drive safety and efficiency. These and other advancements make aviation safer, more secure, and sustainable and ensure that our country will remain the world's leader in aviation five, 10, and 25 years from now.

General Aviation's Flight Path Disrupted by COVID–19

Given that this hearing focuses on the state of general aviation, it is vital to understand the impact of recent events on the sector, including the COVID–19 pandemic.

As with all aviation segments, the pandemic was devastating for general aviation. By March 2020, there were severe economic consequences for various businesses, from aircraft operators to airports and aviation manufacturers. Teterboro airport—which supports nearly 5,000 jobs and generates more than $1 billion in economic impact—witnessed a near standstill in operations, impacting families, small businesses, and the local community.

In the pandemic's early months, workers were furloughed or let go, including in the U.S. aircraft maintenance industry, which lost 50,000 jobs. In addition, pilots struggled to obtain essential documentation required for flight, including medical certificates. Flight departments faced challenges in trying to keep their airplanes qualified for airworthiness. Flight-training facilities were largely shuttered, causing delays in recurrent training and closing the pipeline for future pilots.

The work of Congress in passing the Coronavirus Aid, Relief and Economic Security (CARES) Act was critical in providing needed relief to the general aviation community and aiding the sector's recovery. Leading up to the passage of the CARES Act, NBAA worked with members of this Subcommittee to ensure that general aviation commercial operators were eligible for the same relief programs as the major airlines. Thousands of small air charter operators that did not have access to capital markets were in desperate need of relief, and with your leadership, the Payroll Support Program provided a sense of certainty during very uncertain times.

For the aviation supply chain, the Aviation Manufacturing Jobs Protection Act provided critical relief for employees in the aerospace supply chain at risk of furlough due to pandemic-related slowdowns and closures. Thanks to this legislation, general aviation manufacturers and suppliers could retain their highly-skilled workers and weather the worst of the pandemic.

In short, congressional action in a crisis moment helped general aviation to be on a flight path to recovery—there is strong demand for new employees, and our industry is serving small towns and communities across the country. We also see strong demand in the new and pre-owned aircraft markets, with historically low numbers of used and new aircraft available for purchase.

While the post-COVID moment has challenged business aviation with supply-chain snags and other concerns facing all sectors, the most important consideration is that aviation workers are back on the job, and in some cases, we are even seeing a return of worker shortages among pilots and other aviation professionals. The general aviation community recognizes the critical role of congressional leadership in passing the CARES Act to make this recovery a reality.

A Focus on America's Continued Aviation Leadership

During previous testimony before this Subcommittee, NBAA has underscored that while the U.S. has the world's largest, safest, most efficient, and most diverse aviation system, we must continually improve and enhance the air traffic control (ATC) system to maintain this leadership role. Through effective oversight by Congress and the public, we are making tremendous progress on new technologies that have brought improved efficiencies and safety enhancements to our system while preserving fair and equal access for all users.

For example, the successful implementation of Automatic Dependent Surveillance-Broadcast (ADS–B) marked a significant positive turning point in our nation's aviation history, transitioning our ATC system from ground-based radar to satellite-based navigation coupled with signal-enhancing ground stations. This technology, and ADS–B equipage across the fleet, is enhancing situational awareness for air traffic controllers and bringing new efficiencies to the national airspace system, making the United States a model for the rest of the world.

While legacy, ground-based radars take anywhere from 5 to 12 seconds to update an aircraft's position, ADS–B equipment now provides controllers with precision GPS position data on aircraft almost every second—enabling ATC to identify and resolve hazardous situations more quickly. At more than 450 general aviation airports, ADS–B provides surveillance coverage at significantly lower altitudes than previously possible using radar, improving safety and access to small communities. Also, through Performance Based Navigation, GPS, and the Wide Area Augmentation System, general aviation operators can conduct safe approaches to more airports in bad weather, providing reliable connectivity to small towns and rural communities.

As we continue moving forward with ATC advancements, which the FAA projects can deliver $100 billion in benefits through the 2030s, NBAA is partnering with FAA leaders and this Subcommittee to advance our shared goals for a next-generation ATC system that is safe, efficient, and overseen by Congress. While we still have work to do in accommodating expected growth and new entrants, now is not the time to allow private interests to control our nation's ATC system. For these reasons, NBAA has always been steadfast in supporting the advancement of our aviation system that allows all stakeholders equal and fair access to airports and airspace.

As we move towards the 2023 FAA Reauthorization, we know that this Subcommittee will prioritize policy solutions that provide a long-term reauthorization and offer funding certainty to the agency while requiring detailed reporting requirements and enhanced oversight. These policies should include metrics on cost-benefit data supporting modernization programs and the status of critical milestones and deliverables. Working with Appropriators in Congress to secure flexible multi-year funding authority for the FAA operations account has also proven helpful and should be considered in the future.

Through our support of the Aviation Funding Stability Act of 2021, we are also committed to maintaining financial stability for the FAA by allowing the use of funds from the Airport and Airway Trust Fund (AATF) during lapses in government funding. Although taxes continue to be paid into the AATF throughout government shutdowns, the FAA is prohibited from using any funds to continue operations or pay the agency's dedicated employees during that time. Passage of this bill would provide the agency additional flexibility to use trust fund revenues for continued operations during government shutdowns or other funding lapses.

NBAA also firmly believes that the current system of trust fund taxes, which are simple to collect and administer, is the proper way to support the Airport and Airway Trust Fund (AATF). The fuel tax and the percentage tax on airline tickets and charter flights do not require the government to issue invoices or institute complex recordkeeping systems that a per-flight user fee would require. In our opinion, maintaining the AATF and associated taxes provides funding stability for the FAA and is the best approach to funding our future aviation infrastructure and modernization needs.

Aviation Safety Always an Imperative

Since NBAA's founding in 1947, safety has been at the core of our mission. Currently, we are working with the FAA, the National Transportation Safety Board (NTSB), and the industry on initiatives developed with our government partners to improve general aviation safety.

Those engagements include expanding general aviation participation in the FAA's Aviation Safety Information Analysis and Sharing (ASIAS) program, which is a conduit for exchanging safety information, so that data can be aggregated and analyzed, and the results used to identify root causes of accidents and enhance safety. General aviation operators are now a growing part of the ASIAS program, and the safety data is used to proactively identify risks and drive positive safety changes across the general aviation community.

In addition, the COVID–19 pandemic brought to light increasing stresses on the aviation community and the toll on pilots' mental health, a critical component to "Fitness for Duty" and aviation safety. NBAA is concerned that FAA aeromedical certification regulations and policy severely dissuade pilots from seeking clinical treatment for mental health conditions. We believe that early intervention with mental health conditions, among all health conditions, makes for the best outcomes in the lives of pilots as well as in aviation safety.

We look forward to working with this Subcommittee and the FAA to define better the mental health cases that require disclosure to the FAA or trigger its review. This includes providing additional pathways for Aviation Medical Examiners to issue airmen medical certificates, minimizing the wait times of FAA reviews, re-

searching and identifying other pharmacological treatment options that can safely be used in the aviation environment, and better defining the need for neurocognitive testing in some cases. Collectively these efforts should reduce barriers to treatment and get pilots the help they need, maintain pilots' livelihoods, aid employers in understanding the readiness of their workforce, and enhance safety.

Safety Management System (SMS) implementation also continues to be a significant focus for business aviation, and our industry is committed to the positive improvements these programs bring to an operator's safety culture. Through voluntary SMS programs, including the International Standard for Business Aircraft Operations (IS–BAO), operators are safer, more efficient, and utilize data to achieve continuous safety improvements.

At the same time, NBAA is concerned that upcoming FAA mandates for Federal Aviation Regulation (FAR) Part 135 on-demand air charter operators and Part 145 repair stations could take a "one size fits all" approach to SMS that is overly prescriptive and not scalable to smaller companies. As the FAA develops these regulations, the agency must recognize the diversity of the business aviation community, with its unique challenges and operating models. NBAA wants to be engaged in the regulatory process, which should involve a look at existing industry standards as part of the solution to achieving regulatory compliance. Importantly, we know this collaborative approach will result in a regulatory framework that enhances safety and allows operators to create a SMS program that addresses their operational needs.

NBAA is engaged with the FAA on airport surface safety by supporting initiatives to reduce wrong surface incidents and mitigate runway incursions. This May, the FAA released new hotspot symbology and Arrival Alert Notices as the culmination of a multi-year, collaborative effort with the industry.

General aviation continues to actively engage in critical safety concerns related to 5G telecommunications networks operating from 3.7–3.98 gigahertz (GHz), commonly referred to as the C-band. Beginning in 2015, NBAA and a broad coalition of aviation stakeholders raised detailed safety concerns about the potential for 5G interference with radio altimeters. We appreciate the Subcommittee's continued attention to this critical matter.

The mitigations to ensure that 5G power levels around many of the nation's airports remain lower than allowed by telecommunications providers have been extended beyond the initial 6-month implementation period and will continue to stay in place for the near term. Currently, only some of the business aviation fleet have alternate means of compliance, allowing them to continue all-weather access to most airports. For a significant portion of our fleet, there is not yet an approved retrofit solution to upgrade the radar altimeter with filters to protect from 5G interference. Over the coming months, we respectfully request that the FAA dedicate the necessary resources to approve alternate means of compliance or the radar altimeter modifications needed for the general aviation fleet to safely operate across our nation's entire airport network.

Finally, in the 2018 FAA Reauthorization, Congress directed the FAA to modify supplemental oxygen requirements under Part 121 of the FARs. This change increased the flight level (F.L.) threshold (i.e., altitude) from FL 250 to 410 (i.e., from 25,000 to 41,000 ft) when the remaining pilot at the aircraft controls must wear an oxygen mask when the other pilot leaves their seat. However, this change did not provide relief to air charter operators under Part 135 of the FARs.

Safety experts have determined that more limited use of oxygen masks below FL 410 does not adversely affect safety because of the extremely low risk for aircraft depressurization at altitudes above FL 250. Also, applying this change to FAR Part 135 operations would harmonize FAA regulations with International Civil Aviation Organization standards. We encourage the Subcommittee to engage with the FAA on modifying the applicable regulations for oxygen use in air charter operations.

Respecting the Privacy, Safety and Security of General Aviation Flights

Another priority for our sector is ensuring that the privacy, security, and protection of someone traveling on a general aviation flight is not compromised by anyone, anywhere in the world with an internet connection. We firmly believe that no one should be required to surrender their safety, security, and business intelligence because they board an aircraft, just as people's movements aboard airlines, railroads, and other systems are not the business of cyber-stalkers.

The general aviation community has fully complied with the FAA's ADS–B mandate. While this is a critical cornerstone technology for our ATC system, incorporating ADS–B into flight operations has produced unintended privacy and security concerns.

To simplify the complicated simple, we're seeing how unencrypted signals that provide an aircraft's flight identification, precise position, and other detailed data are used to widely broadcast to the public the real-time location positioning of general aviation aircraft. This situation presents serious security concerns for companies and individuals who are simply using their aircraft in business or for humanitarian flights. The result is often flight-stalking of Americans on social media or tracking websites that post aircraft movements in real-time.

Individuals who have received threats are in danger because their real-time movements and travel plans are available to the public. Competitors can track where a business aircraft is flying, presenting industrial security concerns. This means that to protect passengers and operators of general aviation aircraft, the FAA must do more to prioritize the development of additional security measures.

For example, the FAA should expedite its work to improve the Privacy ICAO Address (PIA) program, which allows operators to obtain a random "aircraft address" code, which can provide additional security, and isn't tied to publicly available FAA aircraft registration records.

The FAA should also explore the limitations to the PIA program, which is severely limited because the codes cannot be used for international flights or even extended for overwater operations in the United States. The FAA is also limited in how frequently it can issue random aircraft addresses, meaning that members of the public can link an address to a specific aircraft before the operator can obtain a new address.

We respectfully request that this Subcommittee work with the FAA to improve the PIA program, including allowing third-party flight plan service providers to issue privacy aircraft addresses more frequently. Also, the FAA should work internally and with international partners so that privacy addresses can be utilized for all flights. The FAA also must plan for the future by studying how to encrypt ADS–B signals from aircraft, developing relevant equipage standards, and engaging with affected stakeholders for a more effective privacy solution.

AN INDUSTRY'S COMMITMENT TO SUSTAINABILITY

As we think about the state of general aviation, we also know that the future of flight needs to be more sustainable than ever. NBAA and our partners in general aviation are sharply focused on reducing the sector's already minimal carbon footprint.

For example, through the Business Aviation Commitment on Climate Change, our industry has pledged to achieve net-zero CO2 emissions by 2050. This goal builds on our 40-year record of leading the way toward a continually decreased carbon footprint, through fuel-saving technologies, from winglets to highly efficient engine technology and advanced avionics, to other world-leading innovations.

To achieve our 2050 goal, business aviation has a broad-based view of sustainability, including zero-emission electric aviation, sustainable aviation fuel (SAF), optimized GPS technology, utilizing sustainable airport infrastructure, and other strategies.

NBAA has also launched a Sustainable Flight Department Accreditation Program to recognize and encourage business aviation community members to take significant sustainability actions. This comprehensive accreditation will stimulate, document, and audit how operators are making widespread investments and progress towards a carbon-neutral future.

With aviation widely recognized as one of the most challenging transportation sectors to decarbonize, we know that SAF, a low-carbon synthetic jet fuel derived from sustainable feedstocks, will be crucial to meeting emissions reduction goals. SAF can reduce lifecycle greenhouse gas emissions by up to 80% compared to conventional jet fuel.

Everyone understands the promise of this groundbreaking technology: NetJets, one of the largest business aircraft operators, has committed to purchasing 100 million gallons of SAF over the next ten years. Signature Flight Support, the world's largest chain of Fixed Based Operators, has SAF available at a growing list of general aviation airports and has supplied more than 6 million gallons of renewable fuel since 2020.

Despite these impressive accomplishments, the SAF market is still in a nascent stage and requires long-term incentives to meet growing demand, as we have seen with nearly all carbon technologies in the transportation sector. We appreciate the Subcommittee's leadership in supporting H.R. 3440, the Sustainable Skies Act, and want to underscore that the blender's tax credit contained in the bill is specifically aimed at incentivizing the production of SAF, representing the most important action that Congress can take to support decarbonization of aviation.

Policies like the blender's tax credit are crucial to achieving the Administration's goal of 3 billion gallons of SAF by 2030 and 100% SAF by 2050, representing an estimated 35 billion gallons. Building a thriving domestic SAF industry is crucial to our energy security and will put airports and operators on a path to achieving their shared sustainability goals.

Of course, the need to continue moving forward with new aviation fuels extends beyond the consideration of SAF production. That's why NBAA is a full partner in the general aviation community's Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative, which aims to lay out a roadmap to transition piston-engine aircraft to lead-free aviation fuels by the end of 2030. The most important element to this initiative is its collaborative approach, which brings all stakeholders together to determine what is necessary to find a viable high-octane unleaded replacement for 100 octane low-lead aviation gasoline (100LL) without compromising the existing U.S. transportation infrastructure system and general aviation safety.

As sustainable technologies advance, the business aviation community is committed to being a leader and an early adopter. Our broad industry goal for net-zero emissions by 2050 and more detailed goals for Sustainable Flight Department Accreditation participants provide a measurable framework for emissions reductions. Through forums such as the Business Aviation Coalition for Sustainable Aviation Fuel and our support of a SAF blender's tax credit, we have the framework to decarbonize the aviation sector together, and we look forward to this Subcommittee's continued support.

Embracing the Future of Aviation

America has always pioneered in aviation, and our industry continues to lead as we develop transformative technologies such as electric aviation, new propulsion technologies including hybrid and hydrogen, and Advanced Air Mobility (AAM). Today, distributed electric propulsion systems are being harnessed for electric vertical takeoff and landing (eVTOL) aircraft, which will revolutionize our aviation system and create new use cases for general aviation airports.

Incredible advances are being made in next-generation battery technology. As a result, AAM will advance the nation towards sustainable, zero-emission aerospace and open new transportation opportunities to move people between and within urban, suburban, and rural areas.

AAM has the potential to directly connect communities that legacy infrastructure investments may have left behind. The technology will improve mobility, leverage existing public transportation systems, create workforce opportunities, reduce congestion, and support emissions reductions. According to a recent Deloitte study, AAM has the potential to create nearly 300,000 jobs and become an annual $115 billion market by 2035.

Thanks to the work of Chair Larsen, Ranking Member Graves, their staff, and members of this Subcommittee, we are proud that H.R. 6270, the Advanced Aviation Infrastructure Modernization Act, was recently passed by the House. The AAIM Act authorizes funding to plan for and eventually build critical new AAM infrastructure by leveraging existing public transportation facilities to support AAM operations and fostering engagement programs to introduce the latest technologies to diverse communities. This legislation will position the United States to maintain its global leadership in aviation while providing the tools to create thousands of new green jobs for our skilled aviation workforce. We look forward to collaborating with Senators Moran and Padilla on the Senate version of the AAIM Act (S. 4246) so that this legislation can advance in both chambers.

Expanded aviation charging infrastructure will be another crucial element to achieving the benefits AAM can bring to diverse communities. Without the necessary charging infrastructure in place, it is difficult for private businesses and individuals to be confident enough to switch to cleaner, electric aviation. We have seen a similar dynamic with the transition to electric vehicles in automobiles, and policymakers have responded appropriately by providing tax incentives for businesses and individuals and grants and formula funding for state and local governments to install E.V. charging stations.

The Alternative Fuel Vehicle Refueling Property Tax Credit (section 30C of the Internal Revenue Code) allows for a 30% tax credit for the cost of any qualified alternative fuel vehicle refueling property, which includes electric vehicle charging stations and hydrogen refueling stations. Recognizing the challenges posed by climate change and the need to accelerate the transition to a decarbonized future, the Administration and Congress have released proposals to enhance and extend the section 30C tax credit for E.V. charging stations.

NBAA and our AAM Roundtable support a simple technical change to modernize the section 30C tax credit to ensure that the critical investments necessary for AAM, or electric aviation, charging infrastructure are covered and similarly deployed. Leveraging private investment with an expanded Sec. 30C tax credit is key to the successful rollout of charging stations for electric aviation across our existing network of more than 5,000 public-use airports.

Finally, we applaud the FAA's dedication and progress on crucial aircraft certification, air traffic operations, vertiport, and flight standards requirements to facilitate AAM operations. NBAA's AAM Roundtable members appreciate the FAA's goal of setting clear, performance-based standards for the industry that don't compromise on safety. As part of the upcoming FAA Reauthorization, we look forward to continued dialogue on how the agency can utilize the existing regulatory structure to facilitate the safe introduction of these technologies. Providing general aviation with certainty for aircraft certification, airspace integration, operational approvals, airport investment, and infrastructure standards development is a critical element in the United States remaining a global leader in aviation.

As the FAA works towards a Special Federal Aviation Regulation (SFAR) that will enable commercial AAM operations and pilot licensing, we ask that this Subcommittee closely monitor the agency's stated goal of completing the process by December 2024. The first aircraft type certification for an AAM aircraft is expected shortly, and companies are progressing towards Part 135 operations, so the timely completion of the SFAR, with engagement from industry stakeholders, is crucial for the successful launch of commercial service.

INVESTING IN OUR NATION'S AIRPORTS AND PROTECTING ACCESS

Airports and heliports are economic engines for the communities they serve and provide critical air transportation links for residents, visitors, and businesses. NBAA members and the general aviation industry have a shared interest in airports, heliports, and future vertiports being good neighbors to the communities surrounding these facilities and ensuring their viability and accessibility. We are committed to and stand behind targeted and effective measures to address aviation noise concerns.

Unfortunately, in recent years we have observed an increase in efforts to impose mandatory, precedent-setting local restrictions that contradict decades of federal policy and would have detrimental impacts on the national air transportation system. The New York State Assembly recently passed a bill that targets business aviation and helicopter operations in New York City and throughout the state, which NBAA and a coalition of industry groups have opposed. Similar legislation is being contemplated at the city and federal levels. Several other municipalities throughout the nation are also considering various parochial access restrictions to curtail flights.

We encourage the Subcommittee to monitor these developments closely and support the FAA in its mission, including fully implementing the Airport Noise and Capacity Act of 1990 (ANCA). Your continued support of federal grant-based and deed-based obligations, and compliance with ANCA and other aviation statutes and regulations, play an essential role in preventing a patchwork of local operational restrictions and possible airport and heliport closures. We must commit to investing in and protecting our irreplaceable aviation infrastructure, especially at this critical juncture, as new entrants, including AAM with eVTOL aircraft, prepare to take flight.

Federal investment in airports ensures their viability. Federal dollars allow for airports, especially smaller facilities, to remain affordable for general aviation use. Without this vital investment, many local municipalities would not be able to maintain the infrastructure that links their community to the rest of the country and to the world.

We commend the Subcommittee for supporting the Airport Improvement Program (AIP) and numerous airport relief and investment packages it has recently championed. As future airport funding and investment opportunities arise, we encourage the Subcommittee to maintain its focus on investing in our general aviation airports, which are the backbone of our air transportation system.

BUILDING THE AVIATION WORKFORCE

For general aviation to continue growing and supporting communities, we must address significant workforce challenges, including the shortage of qualified pilots and technicians. According to the Boeing company, more than 600,000 new pilots and technicians are needed to address projected growth in the next 20 years.

NBAA has taken the lead on several fronts to address workforce shortages, including working with Chairman Larsen, the late Congressman Don Young, Con-

gresswoman Angie Craig, Senator Gary Peters, Senator Dan Sullivan, and Senator Catherine Cortez Masto on the introduction of H.R. 3310 and S. 1681, the Promoting Service in Transportation Act, which was passed into law through the Infrastructure Investment and Jobs Act (IIJA).

Through targeted public service announcements authorized by the Transportation Workforce Outreach Program in the IIJA, we will start a new dialogue on transportation careers, focusing on the availability of advanced technology and good-paying jobs today. With continued growth and demand for STEM workers, we must remain competitive by educating students about the exciting innovations and technologies under development in the transportation industry. We support the full $5 million appropriation for this program and appreciate the efforts of this Subcommittee with House Appropriators.

Moving toward the upcoming FAA Reauthorization, we look forward to building on programs from the 2018 FAA bill, including grant programs to support the education of future aircraft pilots and the recruitment of much-needed aviation maintenance technicians. Carefully reviewing and adopting recommendations of the Youth Access to American Jobs in Aviation Task Force and the Women in Aviation Advisory Board will be an excellent starting point for additional workforce provisions.

At our largest event, NBAA–BACE, we host a "Careers in Business Aviation Day" that provides workforce development programming as part of the "Collegiate Connect" initiative. We continue these efforts at NBAA's regional events and targeted educational programs by offering student-focused programming to educate young people about the many career opportunities in business aviation. Through partnerships with non-profit organizations, NBAA is also helping to expose, recruit and retain new professionals from underrepresented communities. These initiatives will help to ensure that the industry remains competitive and reflects a more diverse workforce.

NBAA also actively sponsors targeted initiatives to attract, develop and retain underrepresented segments of the population. This includes our sponsoring partnership with The Red Tail Flight Academy, whose volunteer leaders focus on recruitment that bolsters diversity within the aviation industry, including free training for future pilots. We are pleased that this program, inspired by the Tuskegee Airmen, graduated its first class of future leaders last month. We are also a proud partner with Flying Classroom, a program launched by aviation pioneer Barrington Irving that aims to teach all students about careers in Science, Technology, Engineering, and Mathematics.

CONCLUSION

This hearing and similar discussions with policymakers in the coming months will serve as the building blocks for a successful and inclusive FAA Reauthorization process. The general aviation community appreciates the work of this Subcommittee on the 2018 Reauthorization, which set the stage for many of the next-generation developments we are witnessing. Our industry looks forward to continued engagement as we develop policy solutions that safely embrace new aviation technologies and maintain the role of the United States as the world leader in aerospace.

General aviation is witnessing historic technological advancements, from advanced biofuels to electric aviation and AAM, which will connect communities to sustainable transportation options. NBAA appreciates this Subcommittee's continued leadership, and we welcome the opportunity to testify at this critical hearing.

Mr. LARSEN OF WASHINGTON. Thank you, Mr. Bolen.

Now I will turn to Member questions, and we will start with the chair of the full committee.

Representative DeFazio, you are recognized.

Mr. DEFAZIO. Thanks, Mr. Chairman. And thanks to everyone for their testimony.

Mr. Bunce, I've got to tell you, you sounded a lot like me when you were talking about the FAA bureaucracy. There are some people who have raised issues, you know, Phil Washington doesn't have a tremendous amount of aviation experience. What that place needs is a manager, and this guy is a manager. I mean, the things he did with L.A. Metro, innovative stuff, the tunnel boring, the subways, amazing things, on time, under budget.

I am looking forward to someone who will actually shake that agency up. When Administrator Dickson came in, we had this conversation, but unfortunately, I would say he kind of got sidelined by COVID and then obviously all the problems with Boeing and the MAX, and he really didn't get to do the things he had intended to do in terms of unstovepiping that agency and unclogging the plumbing.

The comments about the legal were really interesting, and that should be fairly easy to deal with. I mean, why does technical data have to go through legal? I will certainly be bringing that up with Mr. Washington when I talk to him later this week prior to his, hopefully, approval by the Senate.

So, thanks for that. That is always good. And I am going to ask him to sit down with you, too, and with all of you, in fact, as a group to hear about these things.

Now, Mr. Bolen, the 5G issue, I just spent quite a bit of time talking to Acting Administrator Nolen yesterday about this issue, and I fear we are not really quite resolved yet on this issue as we move forward.

We don't have an agreement on permanent measures yet, and I am sure a lot of your members are struggling with trying to get the filters or the new altimeters or whatever they are going to need. I know there is a fear that you are going to have to do it twice. I raised that with him. We need to know what the longer term is going to be with these new—all the entrants are coming. We have already got the big entrants, now we've got a whole bunch of other entrants coming in.

And other countries have adopted measures that we need to adopt, and I want you to all help us advocate for it with permanent areas of protection, lower power, deflection of the antennas, and other things that will not cripple this industry. It will still be allowed to provide the service, but it is doable, it is being done in other countries, we should be able to do it here.

Unfortunately, we have created the "wild West" when it comes to the FCC and the deregulation of the industry, and nowhere else in the world have they allowed that. So, those really aren't questions, but they are a couple of observations, if anybody wants to opine on those a little bit for a minute. I have got 2 minutes left.

Ed, do you want to go ahead?

Mr. BOLEN. You are exactly right about the situation related to 5G. We have a temporary situation, but we have permanent challenges. And working together I think we are encouraged that the telecom and the FAA have shared a lot of data. We have learned a lot more, but we are in a situation where we have got to find ways to move forward on a permanent basis, and the power, the direction, all of those things have proven to be effective.

And I think you are right, we need to move from temporary agreements to permanent solutions that do facilitate the benefits of safe aviation operations and the benefits inherent in state-of-the-art network systems.

Mr. BUNCE. Chair DeFazio, I would only add, though, that this is just the tip of the iceberg. This is going to happen again and very soon. So, our GPS is going to be interfered with. You are very familiar with the Ligado situation.

Mr. DEFAZIO. Yes.

Mr. BUNCE. But as spectrum becomes more precious and they start being adjacent to our spectrum, our systems take so long to certify, it is going to happen again.

And, really, if you look at what NTIA did not do in the process—the FAA told them this was going to happen, but it was like they were shouting in the woods and nobody was listening, and there was no coordination between the FCC and FAA.

So, if we can do anything in Government, it is to start getting these agencies to work together. And I know that is going to take commerce committee involvement and Senate commerce and everything, but we have got to be able to solve this spectrum issue, because it is going to happen again and again.

Mr. DEFAZIO. A good observation.

I did have a good conversation with the current Chair of the FCC, and she recognized the fact that—the lack of coordination that went on under the last administration and is committed to doing better. But it would be better if we could have a formal MOU or something else between these agencies, which will be something that we have to deal with the commerce committee on.

So, thank you for those observations.

Mr. LARSEN OF WASHINGTON. I thank the chair.

I am going to move to Representative Graves for 5 minutes. Before I do, just an update on votes. It is now looking to be 11:30 to 11:45 when votes are called, just for Members' awareness.

With that, Representative Graves of Louisiana for 5 minutes—sorry, what I meant to say was Representative Graves of Missouri for 5 minutes.

Mr. GRAVES OF MISSOURI. Thank you, Mr. Chairman.

Mr. LARSEN OF WASHINGTON. Like you, I get them mixed up all the time.

Mr. GRAVES OF MISSOURI. We look so much alike.

Thank you, Mr. Chairman. And I would ask unanimous consent that my opening statement be included in the record.

Mr. LARSEN OF WASHINGTON. Without objection.

[Mr. Graves of Missouri's prepared statement follows:]

Prepared Statement of Hon. Sam Graves, a Representative in Congress from the State of Missouri, and Ranking Member, Committee on Transportation and Infrastructure

Thank you, Chair Larsen and Ranking Member Graves, and thank you to our witnesses.

I had the pleasure of meeting with many of today's witnesses at the General Aviation Town Hall we hosted this past weekend in my hometown of Tarkio, Missouri. As I made clear to many of you in Tarkio, now is the right time to be having conversations about the challenges the general aviation community faces, especially as we approach next year's FAA reauthorization bill. Only by working together can we make certain that general aviation thrives for future generations of Americans to enjoy.

For those who might not be as familiar with this industry, the general aviation fleet is comprised of business jets, fixed-wing piston engine aircraft, rotorcraft, lighter-than-air, and light sport aircraft. That's a diverse set of aircraft, each with its own varying levels of pilot training and certification.

General aviation is much more diverse than pilots taking joyrides or people flying in corporate jets. The general aviation community includes rural and remote puddle

jumpers, crop dusters, air ambulances, aerial firefighting, air tourism, living history flights, and more.

General aviation is where all aviators, even airline pilots, get their start and build their experience.

And general aviation manufacturing has paved the way for the modern-day jetliner through advancements in engineering and technology.

Put simply, without general aviation, there simply would be no aviation industry. It is the common denominator shared by all aviators. It underpins the success of the modern-day aerospace system as we know it. Our Nation's aviation industry cannot thrive unless our Nation's general aviation community also thrives.

As such, Congress has a vested interest in making certain that general aviation remains robust and healthy.

From ensuring student pilots make the leap to private pilot, to educating grade-school students about well-paying careers in aviation, to ensuring airspace access in rural communities, to improving aviation safety, we must ensure that the general aviation community has the tools and resources that it needs to flourish for decades to come.

Here in Congress, the General Aviation Caucus—one of the largest caucuses—plays a key role in tracking the needs of the general aviation community and raising awareness on key issues. I appreciate the Caucus' work and know its members will remain engaged on these issues.

I look forward to hearing from our witnesses today about how we can work together to address the challenges the general aviation community faces. Thanks again, Mr. Chairman, for holding today's critically important hearing.

Mr. GRAVES OF MISSOURI. One thing I didn't hear about today was the success of BasicMed and how that has impacted the pilot community. And I know we have some 70,000 pilots that have taken advantage of it, and safety hasn't been compromised.

And the question is probably more for Mr. Baker, but I encourage anybody to chime in.

You might, for the benefit—because I know a lot of us worked on that, and it was implemented back in 2017, but we have new Members on the committee. You might just briefly explain the impact it has had on the general aviation community and what we might be able to do to expand it, for that matter.

Mr. BAKER. Thanks, Sam. That has been one of the biggest wins in general aviation in the last 50 years—70,000 people jumping into that in the last 5 years.

We did the safety look-back. No discernible difference between that and third-class medical, at all, zero, from a safety perspective.

If anything, I think it is an opportunity to revisit it and look at, how could we expand it? People have been safely flying up to five passengers in these aircraft around the country. We are working hard to get Canada to receive BasicMed as an alternative medical, crossing the border. We got it done in Bahamas and Mexico now and most of the Caribbean.

So, the opportunity to take another look at it and say, this has been really a successful program to lower the cost, having pilots work with their own doctors to find out what they need to do to make sure they make the decisions every day before they fly that they are safe to fly with that conditions or whatever they have.

And I am really proud of this bipartisan event that occurred and was signed into law in 2016 and has resoundingly, for certain, improved the value of aircraft and the access to these 5,000 airports in a big way.

Mr. VIOLA. I think that now is a good time to tie that to workforce development as well, because there are people that knew how hard it was to get through the medical process, and now, with

knowing that they can do BasicMed to get things started, they can get involved in aviation. So, I think it even helps there as well.

Mr. GRAVES OF MISSOURI. Well, that was the one thing that I wanted to point out. And it is something I am going to be working with some of the newer Members to explain it to them and why it is so important and what it has done to impact and help, when it comes to a lot of those pilots that just simply, kind of, faded away, and now they have come back.

So, thank you, Mr. Chairman. I appreciate the opportunity.

Mr. LARSEN OF WASHINGTON. I thank the gentleman. He yields back.

I recognize myself for 5 minutes.

The first question I have is for Mr. Rozansky regarding AIP funding to meet infrastructure needs.

Specifically, have you all looked at how advanced air mobility infrastructure needs will impact the investment decisions that airports will be making?

Mr. ROZANSKY. Thank you, Chair Larsen.

Yes, we have taken a preliminary look at how advanced air mobility may impact our long-term capital planning. At this point, however, there are more questions than answers.

There are even several AAM developers working very closely throughout the State of Florida. And with our close proximity to urban centers like Miami-Fort Lauderdale, we believe we will see some early adoption.

But the electrical grid infrastructure remains the biggest single question mark. What sort of voltage needs are there? What qualifications do the personnel on the ground need to have? Are they going to be replaceable battery packs, or do aircraft have to sit on the ground charging? Do you need more ramp space?

So, we have started to contemplate those needs, but without clear standards on the development of vertiports yet from the FAA—which they are moving in that direction. They have issued an engineering brief here lately, although I understand an advisory circular on vertiport design may not come about until 2024, if I recall correctly.

So, we are eagerly awaiting that guidance and talking to some of the developers of these systems, but I think it is still a bit of an evolutionary process.

Mr. LARSEN OF WASHINGTON. Yes. Thank you.

I would note that Representative Davids and Representative Graves are cosponsors of a bill to develop a coordinating council. And then Representative Graves and I are cosponsors of a bill on planning and infrastructure, with a lot of support from folks. Both have passed the House, and, again, waiting on the Senate to act. But we are trying to push these issues forward, because I think we need to begin the planning.

So, Mr. Pecoraro, the same question for you from the aviation officials side, on the public side. How are you all thinking about infrastructure specific to AAM?

Yes, sorry about the—we will get the microphone fixed at the break. Sorry.

Mr. PECORARO. Thank you, Mr. Chairman.

As Mr. Rozansky said, I think that a lot of the challenges right now that we face at the State and local level on this is knowing what the standards are going to be. Is there going to be—just like with charging your cell phone—is there going to be one standard for charging, or are there going to be multiple different types of attachments that people are going to need to be able to charge various types of aircraft?

It is important for the FAA to come forward with that kind of standard and a lot of other types of standards like that to be able to make that case. States can't plan, airports can't plan, local airport sponsors can't plan unless they know what all of these technical standards are going to be.

So, we very much appreciate the work that you have done in trying to push this forward and make some of these funds available. When the standards are available, we will be able to start making those kinds of plans. Because it is coming very rapidly, as you know.

Mr. LARSEN OF WASHINGTON. Yes. One of those issues where we had hoped the FAA may not be able to be ahead of the technology but at least be closer to where the technology is, as compared to the experience we had with UAS.

Mr. PECORARO. And I would just say that the FAA's new office of AAM and UAS is, I think, working hard on these issues, and they are doing a good job of reaching out to States these days to try and incorporate us into the conversation. But things have to move a little faster.

Mr. LARSEN OF WASHINGTON. Sure. Thank you.

Mr. Bunce, I could probably ask anyone here on the panel this question about this relationship between the desired investment in SAF, or sustainable aviation fuel, and the leaded fuel issue within GA.

Is there a nexus here between GA's adoption of—or, as we move forward on EAGLE and in SAF, how are you all thinking about that, as equipment manufacturers?

Mr. BUNCE. Well, Chair Larsen, I think there is a nexus. We are learning more as we dive into this. And, actually, my colleague Tim Obitts went out to NREL just recently, and we are hearing some very promising things, that there may be the feedstocks of waste products that are out there to be able to convert methane into aviation gasoline for piston aircraft. And, obviously, we know that has a lot of nexus with sustainable aviation fuel.

So, the more that we get in—and that is why EAGLE is so important and we are all partners in this, is because the more we see all the tentacles, we know how complicated it is, but we are starting to be able to tap into things like the Department of Energy, who has vast resources, that want to help us with SAF but also maybe now with leaded fuel.

Mr. LARSEN OF WASHINGTON. That is great. Thank you.

And I will turn to the other Representative Graves, from Louisiana, for 5 minutes.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Chairman.

Mr. Chairman, now that Ranking Member Sam Graves is here, I want to reiterate what I said earlier. I do appreciate the ranking member hosting us over the weekend and pulling the aviation

panel together. That was remarkable. I do have to question his judgment, flying a 1940s aircraft upside down, but whatever.

But I also want to apologize to all of you. We had a Natural Resources Committee markup that is scheduled during this time that I am quite certain was done intentionally, but it is not going to stop me from offering amendments. So, I apologize for having to depart earlier and, unfortunately, again later today. My good friend—well—good friend, Chairman Grijalva.

In any case, Colonel, thanks again for being here.

Back in May, at the emissions hearing, we talked a little bit about some of the changes that the FAA has made in the certification process for advanced air mobility aircraft.

I wanted to ask you, could you talk a little bit about collaboration with the FAA and industry on their efforts now on the Special Federal Aviation Regulation, the SFAR, that they are doing now? Can you talk about just collaboration with you or with industry on the development of the SFAR?

Mr. BUNCE. If we go back, Chair Graves, a few years, we went for 5 years trying to certify basically an airplane that had a vertical takeoff capability. And we had begged the FAA for the last 3 years of that process to codify it, to write it down to a procedure. And as the last Administrator left, the decision was made to change the way we are going to certify these aircraft.

That was a very nontransparent process, but what I will say now is that they have come to us and said, we want transparency, we want to work with industry. And so, they sent a team over. We got all the companies that are in AAM together to be able to listen to what they had to say from both flight standards and cert. And then they tasked us to come back to them with a very detailed "this is what needs to be in this SFAR," which is a basic rulemaking, to be able—and it is an aggressive schedule.

They have to get it done now. They have committed to the end of 2024. And we know that the FAA is very behind on rulemaking. So, it is aggressive. We are going to submit that, along with HAI and our other sister associations, to the FAA this week.

But the importance in this process will be twofold. One is that they keep the collaboration and the communications open with industry through the process and they don't go into ex parte where they won't talk to us. And there are ways that legal can allow them to do that by putting things on the docket.

But probably more important to me is that they listen to you, they listen to Congress. And if you hold their feet to the fire on getting this SFAR done, you ask the questions, ask for progress reports, and let them know this is very important, we don't lose in the process.

We do know that, when they shifted gears, the U.K. and Brazil now went with EASA. They went with the Europeans and their forum. So, unless we get this right, our chance for global leadership in this area is gone.

Mr. GRAVES OF LOUISIANA. Thank you. That raises very strong concerns about some of the uncertainty there.

Mr. Bolen, I want to thank you for some of your input. And, over the weekend, we heard, kind of thematically, feedback from many folks about just concerns about the FAA, about lack of decision-

making, lack of leadership, and what I would probably refer to as just kind of inept management over there.

I wanted to ask, from your perspective, your members'—the lack of certification, the lack of regulations, and just the lack of decisionmaking, can you talk about how that is affecting some of the folks that you represent?

Mr. BOLEN. Well, I think, as it has been pointed out, there are a lot of new people in their position at the FAA. And what we are hoping is that people quickly establish command of the issues and the processes and find ways that we can embrace new technologies, new processes, so that we can constantly advance the state of safety, and finding ways to do so that are thoughtful, thorough, but are able to yield real safety benefits.

I know there are countless examples, and we talked about many of those in Tarkio. One of the things that I think is important for our industry has been high-altitude supplementary oxygen. We have a petition for rulemaking that is in. And I think that is a good example of how frustratingly long the rulemaking process is. We put in a petition. It may lead to rulemaking. It may take years.

But we have an opportunity with new technologies to increase compliance, to increase safety, and to solve a lot of the challenges that we have. One of the benefits of business aviation is a lot of times we can fly above the rest of the traffic, and this would help us be able to do that more efficiently and effectively.

Mr. GRAVES OF LOUISIANA. Thank you.

Mr. Chairman, I have questions for some of the other panel members, but I will be submitting those for the record.

Thank you. I yield back.

Mr. LARSEN OF WASHINGTON. Thank you very much.

The Chair will recognize Representative Davids of Kansas for 5 minutes.

Ms. DAVIDS OF KANSAS. Thank you, Chairman Larsen, and thank you to Ranking Member Graves for holding this hearing. I think you are getting my note right now.

So, I was fortunate enough to host Chairman Larsen in my district last week just before Ranking Member Graves' Tarkio airshow. I am sorry I missed you guys there. And we had an aviation roundtable, actually, and we had an opportunity to hear from quite a few local and national stakeholders from the general aviation community about the workforce, needed Federal investment, and challenges that folks are facing right now.

And one of those issues—and, actually, this kind of dovetails on what we were just talking about a second ago. One of those issues is that of aircraft and equipment certification, international validations with folks like EASA.

And, of course, we have a thriving aerospace supplier network in Kansas City, including Garmin. And their businesses unquestionably have been hampered with these validation hangups and in discussion and negotiation.

So, I am curious. Of course, we have established relationships with a lot of regulating authorities for the sole purpose of expediting these types of certifications with some reciprocity. And so, I am curious about the slowdown.

Mr. Bunce, I was hoping maybe if you could share a little bit, not just about why you think we are seeing these bottlenecks—because I know we have heard a little bit about that—but also if there is something that you think we should be doing there or can be doing.

Mr. BUNCE. Representative Davids, we are seeing it in both directions. So, we have these bilateral safety agreements. The one that is talked about the most is between us and the Europeans, but we have them with the U.K., we have Brazil, and Canada. Our industry is global, so, we have to be able to validate products back and forth.

But as we went through all the difficulties with the MAX, it really made validation a lot tougher. And what our perspective is, that, of course, the leadership at the FAA and EASA and the European Commission all say, "Hey, we trust the bilateral, we trust each other's safety competencies," but when it gets down to the technicians and validating new products, that is not happening.

And there is some reciprocity between the organizations, that if we ask a lot of questions about how EASA certified a program, then the European technicians do the exact same thing, and it is bogging down the process. We are talking years, now, that it is taking to validate products.

And then, if you don't see this cooperation and a workplan that is built upfront, then you have problems with other countries, such as with Canada, which is not working well at all.

So, we had an agreement with the Europeans that produced a workplan upfront. That is not being followed. The workplan is not happening.

There is also an office that you called for in the last reauthorization to be able to man up the validation office in the FAA. That is very slow to mature right now, and they need training.

So, right now, validation is not working very well in any direction.

Ms. DAVIDS OF KANSAS. Thank you. I appreciate that.

And I also appreciate all of the work that all of you are doing.

I do want to just mention—it has been discussed a bit—the efforts that we are making and that you all are making around general aviation. The advancements can have such a big impact on economic development. And I know folks have already been—Mr. Baker, you brought that up earlier.

And I have seen it at home. I was just at the Miami County Airport in Kansas, and an extension of the runway there would allow for additional economic development that would be good for the entire region. Their hangars have long waiting lists. There are a couple of businesses there that have—they don't even advertise and they have a year-out wait to get some of their customers serviced.

So, I just appreciate the work you guys are doing around that.

And, with that, I will yield back, Chairman.

Mr. LARSEN OF WASHINGTON. Thank you.

I recognize Representative Massie of Kentucky for 5 minutes.

Mr. MASSIE. Thank you, Mr. Chairman.

Mr. Bunce, at first I wasn't sure, as an engineer, how to take your comment that if you put five engineers in a room you will get seven answers, but I have decided that you are just characterizing

them as overachievers. And I don't need any further comment on that.

But you did elucidate several of the problems that are facing general aviation today. I want to give you a chance to offer some solutions. I know you have already mentioned some already, but if there are some other solutions that we might take into consideration, please give them to us.

Mr. BUNCE. Well, thank you, Mr. Massie. And our mutual friend Dan Schwinn, I am sure, would be agreeable to the disagreement between engineers.

Mr. MASSIE. Well, if one of the five engineers is from MIT, just take his answer.

Mr. BUNCE. There you go.

Mr. MASSIE. OK.

Mr. BUNCE. But one of the solutions, I think, is: You can't fix it unless you measure it. And what we are seeing in some of the aircraft certification offices out there is, pre-pandemic, we got response time from the FAA down to about 30 days, on the average. We have one ACO that just told a company it is now 120 days before we are going to get back to you on when we go and put an issue paper forward and they have to respond to it.

Now, 120 days. Think about that. Four months. How can we, as industry, deal with something like that? Because you have a burn rate because you are not selling any product while you are trying to develop it. And just to get this back-and-forth answer, whether it is 90 days or 120 days.

So, what we can do? More resources for them. But, also, try to cut down this response time, and be able to say, "OK, are you measuring it, FAA? We want a report back to this committee on what you are doing to fix that."

And a lot of it is processes. And I think, if the new Administrator is confirmed there, that is one thing we hope he takes on as a task, is looking at his processes across the agency and saying, "OK, how can we right this ship and get this flightpath corrected so that we can help industry innovative?" Because innovation relates directly to safety.

Mr. MASSIE. I think in a couple years you are going to look like a prophet, talking about the spectrum issue and mentioning that there are going to be further conflicts that are going to come up. I mean, it is inevitable.

The value of the spectrum, if you look at the prices at the auctions, have increased by two orders of magnitude since the 1980s and the 1990s when these systems were first developed. And our ability, engineering-wise, to segment that spectrum has increased by an order of magnitude.

Can you tell us where some of the other collisions you think are going to happen? Not arbitrary. I mean, these are driven by the markets and by the value of the spectrum. But you mentioned another one, GPS, that might occur?

Mr. BUNCE. Yes, sir. If you think about a GPS satellite, I think it is operating at a very low wattage rate. It is 210 watts, or whatever. So, it is like a light bulb out in space. So, it takes very little to overwhelm our receivers.

And receivers, in both the airlines and civil aviation, we may have a receiver that was one of the earlier generations of GPS versus some of the later ones, where the filters are not as good. So, once they start transmitting right next to our spectrum, they are going to interfere. And then we are going to have to spend a lot of money, or we will be regulated from certain type of approaches if we don't get that fixed.

Now, one thing that the satellite receiver folks got through the big sale of the spectrum—I think it was an $80 billion sale—was part of it was compensation for them to help migrate away so that they wouldn't have the impact from the 5G.

And I think, as we look to sale of spectrum, which, you are exactly right, is precious—and we want the U.S. to move forward. We are not trying to fight that. But if it is going to affect us in aviation, which takes years and years to certify a new product, is there a way to compensate that and think ahead of time so we can have the widgets available to be able to have a rapid plug-in to new aircraft or existing aircraft, but also have a way to help compensate folks that have to do that?

Mr. MASSIE. I am going to give other folks a chance to answer this question.

We know there is a shortage of chips, and that is affecting general aviation. Are there shortages of other things that people could let us know about that are going to affect GA?

Mr. ROZANSKY. Member Massie, if I may, regarding workforce, the Contract Tower Program is suffering from a significant shortage of viable workforce, some of which—a culmination of factors, some of which driven by recruitment to the FAA staff towers.

Secondly, the wages are out of alignment with Department of Labor. And I know there has been an effort on this subcommittee, which we greatly appreciate. So, some controllers are making difficult financial decisions, what is best for them and their families. And the CONTRACT Act would go a long way towards helping those efforts.

Coordination with the FAA on a transition of a recruitment from a contract tower, backfill vacancies, go to the FAA, would help a great deal. It is all part of one NAS.

Mr. MASSIE. Thank you. My time has expired. It wasn't the answer I anticipated, but it was a good answer. Thank you very much.

I yield back.

Mr. LARSEN OF WASHINGTON. Thank you very much.

I now turn to Representative Johnson of Georgia for 5 minutes.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Chairman, for holding this hearing.

And thank you to all of the witnesses for your time and your testimony.

Lead is a neurotoxin with harmful developmental effects in children. Over 25 years ago, lead was banned from all road vehicles due, in part, to the severe health consequences of lead exposure.

Today, aviation fuel for piston-engine aircraft is our country's main and primary source of lead emissions. And the link between piston-engine aircraft and blood lead levels have never been strong-

er. Recent research shows a correlation between high levels of lead in children's blood in relation to proximity to airports.

We have heard testimony today about the joint Government and industry Eliminate Aviation Gasoline Lead Emissions, or EAGLE, initiative, which would remove lead from piston-engine aircraft fuel by 2030. The EAGLE initiative is long overdue and is critical to reducing lead exposure to all Americans.

Mr. Bunce, are you and the manufacturers you represent confident that the EAGLE initiative will succeed?

Mr. BUNCE. Yes, sir. We are confident.

Mr. JOHNSON OF GEORGIA. At last month's stakeholder meeting, what progress was discussed? And were any concerns raised about the program, the initiative?

Mr. BUNCE. I thought that we were able to really get an organizational structure in place that allows very good cooperation between the industry associations, the pillar leads of the four pillars that we have in the EAGLE initiative, two of which are industry-led, two of which are FAA-led, and the collaboration and actually the ability to be able to go toward a certification of a fuel.

Remember, the FAA has never done this. We certify the engines to operate on a fuel. The FAA has never certified an actual fuel.

But I think my colleagues would agree, the last meeting set the stage for us to be able to explore improved avenues to be able to accelerate the process to get to testing so we can do what is called a fleetwide approval of a fuel or multiple fuels that can satisfy the entire fleet.

Mr. JOHNSON OF GEORGIA. Thank you.

Helicopter air ambulances fly at low altitudes and fly in and around communities with potentially high 5G traffic.

Mr. Viola, how has 5G interference impacted helicopter operations since the 5G rollout began?

Mr. VIOLA. Congressman, thank you for that question.

We have worked hand-in-hand with our operators, and we have actually put in an exemption, especially on the air ambulance providers, because we knew that they couldn't be shut down. So, there are some additional risk mitigations that we had to address in order to operate without those radar altimeters in that area.

Other than that, there are some areas that we are working through. And I think as you heard earlier today, the goal is to not have to continually do retrofits, but actually come up with policies and procedures that will enable us to do one-time fixes and then work on the spectrum issues with policy again to make sure that it is not that we are playing catchup in the aviation industry with safety concerns but that we are laying a safe future as we bring in this future technology.

Mr. JOHNSON OF GEORGIA. Thank you.

Mr. Bunce, are there any actions that you recommend Congress to take to ensure success of the EAGLE initiative?

Mr. BUNCE. Thanks, sir. Showing interest from this committee on progress would be very beneficial and helpful to us. And I know you all care about this, as we do. And so, just continually pulsing the FAA.

But also encouraging the FAA to work very closely with other Federal agencies, like I mentioned earlier, the Department of En-

ergy and others, to be able to help us find a solution would be very beneficial to us.

Mr. JOHNSON OF GEORGIA. OK. Thank you.

I have no further questions, and I yield back.

Mr. LARSEN OF WASHINGTON. Thank you.

The Chair recognizes Representative Mast of Florida for 5 minutes. Representative Mast.

Mr. MAST. Thank you, Mr. Chairman.

Mr. Bunce, obviously everybody likes you, but you can throw me in that lot as well. I like you as well. Good to see you here today.

I wanted to talk to you all a little bit about the flavor of the summer, I guess I would call it, the flavor of the summer. Any of us that have flown, we have all felt the delays. Whether it is for weather, whether it is because of those that are in the towers and the shortages there, whether it is pilot shortages, we have felt it.

But I think we touched on it just a couple of questions ago, what's going on in the towers; it was touched upon. Competitive wages, it was touched upon, the shortages there.

I just want to hear a little bit more about how general aviation is affected by the shortages in the towers, the contract towers and otherwise. Whoever might be the best person to discuss that, I would be curious to hear a little bit more on that.

Mr. BOLEN. Well, this is Ed Bolen with the National Business Aviation Association.

I think it is inherent for the broad aviation community to constantly work and communicate what the needs on the system are.

And, clearly, staffing has been a front-burner issue in several press stories, whether it is staffing at airports, in control towers, with various airline operations. That has been a big challenge as we, as a community, went through the pandemic and trying to come back in terms of that.

There are programs in place that we can try to leverage to minimize operations, increase efficiencies. We have a dual AFP program that we are using in places. So, I think there are opportunities there. And we have had, particularly in Florida, important meetings that have taken place in Jacksonville to explore those opportunities and to continue the dialogue.

But you are touching on something that is really important. Staffing, workforce issues are a challenge throughout the industry. It came up earlier that there were supply-chain issues. The workforce issues are every bit as pressing and deserve a great deal of attention.

Mr. MAST. Thank you. I appreciate your comments. It is something that we all feel, and I know it is felt in different segments. I would just point out this: I think it is something for us to discuss certainly as a committee and subcommittee more broadly.

You mentioned moving off of COVID, moving from COVID. My understanding of it right now is that FAA is still requiring a 10-day quarantine for people testing positive with COVID. And the CDC guidelines, as an example, I want to say, is half that from when your symptoms end. So, right there, that is a staffing issue. It doesn't solve everything, but it is certainly a piece of it.

We should also be looking at, as well, the individuals that are being moved on from Government service because of an unwilling-

ness, for any hosts of rightful reasons, to not get a COVID vaccine. If that is affecting the FAA workforce as well, that is something that we should be looking at as well, making sure that individuals are not being kicked out of Government, whether it be the military or the FAA or any other Government agency, for choosing to not get a vaccine. I think that is something we should be looking at as well.

With that, Mr. Chairman, I have no further questions, and I yield the remainder of my time.

Mr. LARSEN OF WASHINGTON. Well, thank you, Representative Mast.

At this point, I would like to recognize Representative Payne for 5 minutes.

Mr. PAYNE. Thank you, Mr. Chairman, and thank Ranking Member Graves for having this committee hearing today.

Let's see. Mr. Baker, in your testimony, you mentioned that the commercial aviation industry will need 600,000 new pilots over the next 20 years. AOPA's website estimates that it costs between $6,000 and $12,000 to earn your initial pilot certificate. It can cost thousands more to earn a commercial pilot certificate.

How can we, as Congress, make sure that this cost is not a barrier to producing the pilots we need for the general aviation sector?

Mr. BAKER. Thank you for the question.

Yes, we recognize that fuel costs have gone up, and the basic license, as you said, is between $8,000 and $12,000, at a minimum, today for an average student.

Now, we also believe that a lot of the simulator work that can be accomplished is a real positive, and there is movement to get more of those credits put forth. But, as you also recognize, to get all the way to a commercial license with the hours, the 1,500 hours, is a very expensive proposition.

Now, part of that is that there is a big need for flight instructors. Flight instructors are making a reasonable wage today, and for those that have the ability and the consciousness to be a flight instructor, there is a good opportunity there.

But maybe there is a potential that we have to look at for how are we going to finance or allow loans or some other ways to get these young people access to get to those very highly experienced levels that make them the safe pilots, good pilots, that we need to consider.

Mr. PAYNE. OK.

Also, given its diversity of aircraft within the aviation community, does the cost to train some aircraft differ than the cost of training for other aircraft? And does this impact those from lower income situations?

Mr. BAKER. It certainly does. The unmanned part of this thing can be a lot lower cost, for certain. But we don't know exactly where that is headed to, when you start to have unmanned carried passengers, and where that is all going to lead to and what kind of certifications that are going to be required. That is something that we need to work closely with the FAA and the regulator on, to figure out what is the standard that is going to be required at some future date when that becomes a reality.

But I would tell you that I believe that the numbers that Boeing continues to print out there, which is 600,000 pilots for just the airline world in the next 10 or 15 years, is a really big number. And we are not at a level where we can support that level of accreditation. We don't have enough designated pilot examiners today. We have 700-and-some examiners. We need 1,500 examiners from the FAA. And it has been really a slow move to get that up to a number that I think is going to help us get to the 50,000 pilots a year that this country needs to produce.

Mr. PAYNE. OK. Thank you——

Mr. VIOLA [interrupting]. I would like to answer that question also, when you talk about the differing cost of certification for pilots.

When you look at the rotorcraft community, it is going to be a little more expensive than the airline, or the airplane. So, as you look at funding for part 141 schools and such, make sure that any limitations that you put on there may affect the actual aircraft that they are getting qualified in.

Mr. OBITTS. And—Mr. Obitts here with NATA—with regard to the eligibility, we are hearing from our flight schools that they are having issues related to student loans and also use of GI bills. So, that should be looked at as well.

Mr. PAYNE. Thank you.

Mr. Bunce, we are expecting a similar demand for trained aircraft mechanics in the future that we are expecting as for pilots. What are your members doing to help train the next generation of aircraft manufacturers and mechanics?

Mr. BUNCE. Well, Member Payne, we are extremely supportive of the efforts that our colleagues at AOPA, AEA, and our other associations are doing to build a pilot workforce.

But, also, if we make advanced air mobility happen, that is going to be a feeder for the airlines. Because these pilots will be able to fly in what is called part 135 type of operations. So, they will need a commercial ticket, but they can use that flight time that they mature in advanced air mobility to be able to go and build up to the 1,500-hour rule. So, we consider advanced air mobility a real enhancer to aviation.

Also, if you think about an electric aircraft as a trainer, where you are doing a lot of the basic work of just landing and taking off, if you can do that much more cheaply with an electric motor, you reduce cost dramatically.

Mr. PAYNE. Well, thank you. And my time——

Mr. LARSEN OF WASHINGTON [interrupting]. The gentleman's time has expired.

Mr. PAYNE. Yes. I yield back.

Mr. LARSEN OF WASHINGTON. Thank you very much.

The Chair recognizes Representative Balderson of Ohio for 5 minutes.

Mr. BALDERSON. Mr. Chairman, thank you very much.

Mr. Bunce, thank you for being here today. And I also want to talk about the supply-chain issues you described in your testimony.

I want to go back to a question that Mr. Massie asked—didn't get the answer, but he had a great answer—about workforce development, but on the semiconductor issue. Does this really factor in

to the general aviation supply issue? And can you expand on the importance that these chips play in general aviation and why it is crucial we expand our domestic production?

Mr. BUNCE. Absolutely, sir.

I spoke to one company in North Dakota the other day. So, their chip sourcing went from a chip that was basically a $7.50 chip to now over $780 per chip. And this is for a piece of equipment that they sell that a lot of us use in our aircraft here that only sells for about $2,800. So, think about a chip that costs that much. And he absolutely refuses—he is having to suck it up instead of putting a $700 surcharge.

What other companies are having to do is, they are having to take chips and put their engineering teams onto being able to modify the boards to work with a different type of chip. But then that has to go back through the FAA processes.

And not only that, but then the aircraft manufacturer has to certify that wherever that chip came from, that they have the quality-control processes to be able to have it go into an aircraft. The automotive industry doesn't have those restrictions.

So, it is a true problem. And having more chips available here in the U.S., I think, is a national strategic priority.

Mr. BALDERSON. Thank you. Great answer, and I couldn't agree with you more. And there was a letter sent off by the Commerce Secretary and Secretary Austin today too that talked about this same issue. So, thank you very much for that answer.

Mr. Bunce, today it was announced that the Consumer Price Index is at 9.1 percent. What impact has this record inflation had on the general aviation manufacturing industry?

Mr. BUNCE. Sir, I didn't hear you well. You are talking about the inflation rate and the impact on the industry?

Mr. BALDERSON. Yes. I apologize. The rate hit 9.1 today. What effect has this record inflation rate had on the general aviation manufacturing industry overall?

Mr. BUNCE. It is tremendous. And remember, the lead lag in taking orders and fulfilling the orders at a certain cost point when your suppliers now as you are building—and we have what is called a book-to-bill ratio that is out there about 2–2½ years. So, as you are accepting aluminum or fiber and everything, you are having to pay this increased inflationary cost in addition to having to pay increased labor cost, but you still made a contractual price to your customer.

So, it is reducing the margins that our manufacturers have out there. And, eventually, for the next orders that they take, you have to start passing those increases along. So, it is having a big impact.

Mr. BALDERSON. All right.

Thank you very much for your answers.

And, Mr. Chairman, I will yield back my remaining time. Thank you, sir.

Mr. LARSEN OF WASHINGTON. Thank you.

Just a heads-up: They called votes on the floor just now. So, we will continue with questions, and—sorry, I can't see that far—we will go with Congresswoman Norton.

You are recognized for 5 minutes.

Ms. NORTON. Thank you, Mr. Chairman.

Mr. Viola, as one of the chairs of the Quiet Skies Caucus, I am particularly concerned with the effects of helicopter noise on the lives of my constituents here in the District of Columbia. Helicopter noise is a major concern, not only in my jurisdiction, but in the national capital region.

What steps do you believe the Federal Aviation Administration and helicopter operators should take to reduce helicopter noise?

Mr. VIOLA. Thank you for that question.

And whether the helicopter, today or tomorrow, we are talking about AAM. And I mentioned earlier the societal good that vertical flight brings to society, with the emergency air ambulance and others. And we understand that we do need that community compatibility.

And so, we do offer the Fly Neighborly initiative, which is a voluntary noise-reduction program, as we continue to work with communities such as yours. And then, as part of that, we look to the stakeholders to see what we can do, how we can operate with a reduced noise footprint.

Of course, the future aircraft have that promise. And we look forward to keeping open the ability to operate inside the cities today as we get that future technology that will enable us to operate even more quietly and more friendly.

But, in June, we were down here with the Eastern Region Helicopter Council, and we introduced a new noise initiative for Washington, DC. We established a noise complaint system for individuals in and around the region to share their concerns. HAI and the Eastern Region Helicopter Council aim to work with the DC community to review and process the noise complaints and then use this data to help mitigate the noise.

Using available flight tracking data, we will be able to accurately identify aircraft that are participating or not participating, and some of the measures that we are trying to work with you and other Government officials with to try to focus that increased community compatibility.

So, just flying safely in compliance is not enough. We want to be neighborly. And we hope, with the advancements in technology that are coming, we will continue to get safer so we can continue to use vertical flight into the cities in the future.

And you have heard some of the other panel members here, with the technology, with the electric aircraft and others, that will come. So that we keep access is very key at this point.

Ms. NORTON. Thank you. That is useful.

Continuing with you, the Government Accountability Office conducted a study of helicopter noise in the national capital region and recommended that the Federal Aviation Administration develop a mechanism to exchange information with all helicopter operators in the national capital region.

Now, I understand the Helicopter Association International and the Eastern Region Helicopter Council, in cooperation with the FAA, are doing a test of such a mechanism this summer. How will the information gathered by this mechanism aid in the reduction of helicopter noise in the national capital region?

Mr. VIOLA. Yes, ma'am. Thanks for that question.

I think that, as you asked as well, it is a test program. We are looking to make sure that we correlate the noise issues that are coming in and the locations and the aircraft. And then that is when we will use the technology to see if there is a way, based on what aircraft, when, and locations.

And we are working with the FAA and other agencies to make sure that we can get a clear picture of what is going on today and then plan the future and work with the community to continue to increase the compatibility.

Ms. NORTON. Mr. Rozansky, I want to thank you for bringing up aircraft noise in your testimony, which negatively impacts the lives of our constituents. It affects their sleep, health, and quality of life.

The 2021 FAA Neighborhood Environmental Survey indicated individual and community annoyance with aircraft noise has considerably increased.

Could I ask you, what tangible actions can FAA and airports take to engage with their communities to reduce aircraft noise and aircraft noise annoyance?

Mr. ROZANSKY. Thank you, Member Norton. That is a topic I cited extensively in my complete written testimony.

The Naples Airport Authority has been an industry leader in noise-abatement efforts. We are currently in the midst of our fourth part 150 noise study, in part as a result of the dramatic growth in private-jet activity that we have seen, but because so many who come to our community are seeking that quality of life you refer to.

So, it is a balance amongst all the stakeholders. We certainly strive to preserve and promote a healthy and robust aviation system, providing great access to and from our community, but while also protecting the quality of life of the folks who live nearby the airport. And——

Mr. LARSEN OF WASHINGTON [interrupting]. Thank you for your comments.

Mr. ROZANSKY. I am sorry, Chair?

Mr. LARSEN OF WASHINGTON. Time has expired.

Mr. ROZANSKY. Oh, my apologies.

Mr. LARSEN OF WASHINGTON. Thank you.

Thank you, Congresswoman Norton.

We are going to now turn to Representative Nehls for 5 minutes.

Mr. NEHLS. Thank you, Mr. Chairman.

And thank you to all the witnesses who have testified here today.

Mr. Bolen, eVTOL aircraft will provide a quiet alternative to conventional aircraft. Companies like Lilium [holding up a photo]—a beautiful picture here we have; looks like something from "The Jetsons." Companies like Lilium have announced that they will sell their eVTOL aircraft to individuals and businesses, allowing general and business aviation to reap these benefits.

What should the FAA be doing to prepare the eVTOL aircraft to join the general aviation fleet?

Mr. BOLEN. Well, the eVTOL have an enormous promise for our Nation and for the world. They will enable us to take the next step in on-demand air mobility, getting people where they want to be when they need to be there and doing it safely, securely, and sustainably.

I think a lot of us at this table recognize that, a lot of times in aviation, some of the most unpredictable part of that is getting from a city center to an airport. So, this will complement the airline and business aviation as we move forward.

We also have an opportunity, particularly here in the United States, where we have over 5,000 public-use airports, we have an opportunity to ensure that that infrastructure, which has been so invaluable to growing general aviation, is able to serve the eVTOL community.

I think we have already talked about at some length the certification issues that we have challenges with and are working through. As we begin to see the introduction into service, we are going to need to look at the operations, and that will include airport operations, vertiport operations, but also air traffic operations, and making sure that the FAA, the community, is all coming together to understand what challenges we have and what opportunities we have, making sure we get this right.

Because, as you take the technology industry and the aviation industry, if we can bring the best of both together, we are going to have a safe, secure, sustainable industry that is going to provide enormous benefits for all of humankind.

Mr. NEHLS. Thank you. That is good news. Great to hear.

Mr. Baker, we have all read or personally experienced the delays in commercial flights ongoing throughout the Nation. Can you detail some of the efforts the FAA has taken recently to address the air traffic controller shortage?

If you would give me 1 minute, because I have one more question.

Mr. BAKER. Sir, the issue that all of air traffic control, all workforce is really real, in my opinion. And that is one of the reasons we kicked off this 4-year high school program. It starts in the 9th grade, goes to the 12th grade. Twelve thousand kids took it this last year. As we look forward to the registrations this year, we will be in 45 States, in over 500 high schools.

And what I believe the objective should be: We should be in 1 of every 10 high schools. We should be at 2,500 high schools with a free education program to show pathways in aviation, including controlling.

Mr. NEHLS. Thank you.

Last question. Mr. Viola, I read in your testimony about the alarming situation ongoing for our air tour operators at several of our national parks. It seems the FAA and National Park Service are rushing to meet a court-ordered deadline but have opted to exclude critical stakeholders like the National Parks Overflights Advisory Group.

As you mention, air tour operators offer people with disabilities and often the elderly an opportunity to view and enjoy some of our Nation's most treasured landscapes they otherwise would not be able to see.

I have also been told that some of these air group operators in the off-season help the Federal Government fight wildfires and other natural disaster events.

Do you have any suggestions on how we can help alleviate this issue?

Mr. VIOLA. Thank you very much for that question and pointing out that issue.

In 2000, the NPATMA was established by Congress. That is really all we need to do, is follow what was established by Congress. There was a court order in 2020 that drove the two agencies together, and they basically went underground, the National Park Service and the FAA, and they are now processing all that information on their own.

What you had required in 2000, as Congress, was for industry to work together. And the solutions we were working were, what aircraft were making what noise? What altitudes? We were actually trying to work together to make sure that we could continue to have access for the public.

And as you probably hear as well with your constituents, anytime I tell people that the National Park Service is trying to prevent all overflights, they are shocked, because they have actually gone out and participated and were able to view our beautiful parks from the air.

So, I think going back and looking at the NPATMA, what was established in 2000, and ensure that cooperation happens.

Mr. NEHLS. Well, thank you, Mr. Viola. And you have my commitment, I will continue to look into this.

Mr. VIOLA. Thank you.

Mr. NEHLS. I yield back.

Mr. LARSEN OF WASHINGTON. Thank you.

Before I go to Representative Titus from Nevada, just a quick administrative update. We will go to Representative Titus, we will recess, and then we will come back. There are two votes. We are in the middle of one right now. So, after the recess, it shouldn't be any more—well, famous last words—any more than 30 minutes, I would guess less than that. And we will come back and we will see if there are any other Members who have questions.

So, I would ask for your patience, but to wait for us to come back, if you don't mind.

But, before that, we will go to Representative Titus.

You are recognized for 5 minutes.

Ms. TITUS. Thank you, Mr. Chairman.

I just wanted to share some figures with you that are good news before I ask my questions.

Compared to pre-pandemic levels, general aviation traffic is up 20 percent at the Henderson Executive Airport in southern Nevada, and it is up 7 percent at the North Las Vegas Airport.

And this is thanks largely to a number of events that have occurred in Las Vegas—the draft, the football draft, and the Pro Bowl, and the opening up of Raiders stadium. We think that is going to increase even more as we look towards the Super Bowl and also Formula 1 races. So, this is a very important part of the economy and the tourist sector in southern Nevada.

Now, going back to the previous question, many of the people who come to Las Vegas know that it is more than just the bright lights on the strip. They like to look at our surrounding areas.

And so, I am interested in the work that you are doing with the national parks, Mr. Viola, as well. Because I think there are 23 national parks, and I just wonder what impacts you think this plan

is going to have on the helicopter tourism industry out of Las Vegas, many of whom fly over Lake Mead or the Grand Canyon.

Mr. VIOLA. Yes. Thank you very much for that question.

Yes, that is a problem. And we are trying to highlight that right now, that the plans, as they are being put together, without going through the NPOAG, without having industry input, are very concerning to being able to put a lot of those people out of business.

So, yes, we would love to follow up on this topic and provide as much detail as you would like to hear, ma'am.

Ms. TITUS. Thank you. I would like to do that.

And there is no ability to have local government input or, say, the convention center input? It is just strictly behind closed doors with the National Park Service?

Mr. VIOLA. Yes, the technique they are using is, they have done some open meetings, but you will see by the meetings or if you watch one of them on YouTube, they are really not taking any questions. Some of your constituents have actually written in and provided additional documents, and they have not been acknowledged. So, it is not a good thing that is going on right now in that area.

Ms. TITUS. Well, I would appreciate if you would work with me to see if we can't at least have some voice in there.

Mr. VIOLA. Yes, ma'am. We will reach out and connect and ensure that we work together on this.

Ms. TITUS. Well, thank you.

And one other thing I would like to ask you: I am the cochair of the Unmanned Systems Caucus, and we have been hearing about some unauthorized drones who interfere with the helicopters, especially when they are fighting fires.

Could you kind of address that, of how we can be sure that only authorized drones are in that airspace, and they don't interfere with any operations you all might be engaged in?

Mr. VIOLA. Yes, ma'am. So, currently, when we have firefighting operations going on, the FAA will put out a temporary flight restriction in those areas. But what happens is, it ends up being the participants or the ones that are qualified to fly the UAS will stay out of those areas.

So, what we do have is, we have nonparticipants or people that aren't flying in accordance with the rules that are actually interfering. They are interfering with firefighting, and they are also interfering with air medical. And nothing better that they try to do is to launch a UAS so they can get a look at an accident scene.

So, we are really trying to do some public awareness and working with the FAA on ways to prevent or have some counter-drone capability, so when there are some public safety issues going on, such as firefighting and/or air ambulance emergencies going on, that we can somehow help keep those out of the area.

Ms. TITUS. Is there anything this committee can do to help you in that, or is it just strictly you and the FAA? Anything Congress can do? I mean in the reauthorization.

Mr. BAKER. Say the question again. I am sorry, I couldn't hear it.

Mr. VIOLA. The question was, for anyone here, as we are trying to keep the unauthorized-drone activities from becoming a safety

hazard to general aviation, they just don't understand that there is other aviation that is out there.

Mr. BAKER. Yeah, we are certainly very concerned about some of the drone usage, and we want a safe integration of that airspace. We believe in drones; we think it is the right thing for our economy. But it has to be done with a detect-and-avoid for general aviation, not put the burden on the small aircraft below 400 feet. It doesn't work that way.

Mr. BUNCE. And there does need to be civil penalties. Just like if somebody points a laser at a pilot, that is a safety-of-flight issue. And if we hit one of these drones out there with an aircraft or a rotorcraft, it is different than a bird. That battery can come through the windscreen and be very dangerous. So, we have to enforce the airspace rules.

Ms. TITUS. Well, maybe you can work with us on the caucus to see if we can come up with something that helps both sides.

Thank you, Mr. Chairman. I yield back.

Mr. LARSEN OF WASHINGTON. Thank you very much.

So, since they have called for votes on the House floor, the committee will recess, and we will restart the hearing as soon as the last vote is over.

Again, there are two votes. One, the time is out, but there are 350 people left to vote, so, it will be a little bit as we rush over—I am sorry, 330 people. So, 20 people voted in the time I said that.

So, we will be back. I guarantee I will be back, and then we will make an assessment then. So, I really do appreciate the indulgence of the panel.

And, with that, the committee will be in recess.

[Recess.]

Mr. LARSEN OF WASHINGTON. I call the committee to order.

We will continue with Member questions. The Chair calls on Representative Auchincloss from Massachusetts for 5 minutes.

Mr. AUCHINCLOSS. Thank you, Chairman. I appreciate letting me waive on to the committee to ask these questions.

In the commercial aviation sector, my constituents and indeed someone who commutes back and forth between Boston and Washington, me, have been really very significantly disrupted by staffing shortages in the commercial airlines and the flight delays that has led to. We are seeing that commercial airlines are scheduling flights that are almost guaranteed to not be able to fly because of the lack of pilots and staff, which is really not an acceptable business practice.

I know that some of my colleagues on the Republican side of the aisle have asked about the impact of staffing shortages in general aviation, and I would like to continue that line of questioning.

Mr. Baker, as you mentioned, the shortage of air traffic controllers has been causing delays for an extended time, and the FAA is working to increase controller staffing. Can you shed some light on factors that have led to staffing shortfalls within the industry?

Mr. BAKER. So, there is clearly an opportunity for young people to join aviation right now, and you can tell by the average wages that are going up in all sectors in aviation. The demand is high and the supply is not enough. And one of the reasons why we have our high school programs is to introduce young people into aviation in

9th, 10th, 11th, 12th grade, and we look forward to growing that program significantly.

We do know that the FAA has had some recruiting going on for air traffic controllers and had big turnout for people that did apply for the jobs, but it takes them a long time to get up to speed to run one of the bigger sectors in the ATC centers of that traffic.

So, in other words, there is a long lead time to have an employee and an experienced employee ready to take on those roles. So, we believe and have seen in every sector, including general aviation where there is a shortage of flight instructors and others, maintenance workers, in general aviation as well. But we continue to be working through that and people are attracted to aviation, fortunately, because it is a fun and interesting industry.

Mr. AUCHINCLOSS. Can you, and others can also jump into this, can you speak about work that both general and commercial aviation could do to diversify and make more resilient and widen the pipeline for new talent coming in to this industry?

And what help the airlines should be giving to invest in this new pipeline, given that they have used buyouts and early retirements during the pandemic, despite more than $50 billion in Federal aid; whether they need to be making investments now to replenish and strengthen and make more resilient that staffing shortfall, both for pilots and also, as you have said, for designated pilot examiners, who I know are another shortage area.

Mr. BAKER. So, one of the things that we have recorded in our high school program thus far in the last 5 years is that 40 percent or more of the kids taking these programs come out of underrepresented groups, minorities. Twenty-five percent are young women. Both sectors are underrepresented in the aviation working world today.

So, creating the pathways and interests and showing them that they can, too, be participating in this world and we need them is really a big part of our high school initiative. And I think that is the first place you get that done.

Mr. AUCHINCLOSS. We are talking about 5- to 10-year projects, I know. You don't train a pilot or an air traffic controller or a DPE overnight, nor would I think anybody would want you to.

We are facing a summer of disruption right now, and I see an analogy here with healthcare, where we have got significant shortages in healthcare staffing acutely felt in Massachusetts where a big cause of that has been a lack of immigration. We are 2 million immigrants short of where we were supposed to be based on prepandemic trajectories.

I would be interested to hear from you or from any of your colleagues here at the witness table, what can we do to increase the number of certified immigrants coming to the United States who could help staff the airline industry in the short term?

Mr. ROZANSKY. Regarding Federal contract towers—and thank you for the question—the contractors are not able to develop their own workforce. They must rely on federally certified air traffic controllers trained only by the FAA.

They are developing a business case for how they could help develop the pipeline starting in contract towers, which may very well include a more diverse workforce, kind of the next generation of

those that are underrepresented. They would still have to be trained and certified by the FAA, but as of right now, and this is a big item that could be included in an upcoming FAA reauthorization, having the contract tower operators help develop their own workforce would be a huge initiative in that direction.

Mr. AUCHINCLOSS. Well, I would certainly encourage in this reauthorization that both general and commercial aviation think about how we can expand and diversify the training pipeline, and also how we can look to immigrants and other nontraditional populations for help in the short term, because we can't take much more of the disruptions that we are seeing in the airports across the United States.

Thank you, Chairman.

Mr. LARSEN OF WASHINGTON. Thank you, Representative.

I understand Representative Van Drew has logged on. If Representative Van Drew has logged on. To the folks at home, just give us a few minutes—a few moments. It will not be a few minutes. Just a moment.

If I can get a clear message from staff on the—OK. We understand he is logged on and we are just trying to get him up. So long as everyone is comfortable with silence. There you go.

Representative Van Drew, you are recognized for 5 minutes.

Dr. VAN DREW. Good morning. Actually, good afternoon by now.

Thank you to Chairman Larsen and Ranking Member Graves for holding today's hearing on the state of general aviation.

General aviation encompasses many different sectors, but today, I would like to focus on the advanced aviation technologies of unmanned aircraft systems, we know it as UAS, and advanced aviation mobility, AAM.

My district in South Jersey is home to the William J. Hughes Technical Center where cutting-edge research is happening in the UAS office and in the AAM program. This committee, the FAA, and the aviation stakeholders community are in conversation to determine how to best structure Federal organizations and policies so that these industries may grow in a safe and an efficient manner.

With next year's FAA authorization around the corner, this hearing is an excellent opportunity to publicly explore how we can improve the Federal Government to unlock the potential of advanced aviation.

I offer my questions to three of our witnesses: Jim Viola of Helicopter Association International, Pete Bunce of the General Aviation Manufacturers Association, and Mark Baker of the Aircraft Owners and Pilots Association.

My question is this: Is the FAA's current approach to rulemaking and certification for UAS and AAM operations satisfactory? If not, please elaborate on the ways that you would improve the FAA's approach from both an organizational and a policymaking standard.

Mr. Viola, please respond first, followed by Mr. Bunce, and Mr. Baker. And I will yield the remainder of my time for these responses.

Thank you so much, Chairman.

Mr. VIOLA. Thank you, Congressman, for that question. It is a very important question, indeed, with the FAA's ability to be flexible with certification and also ensure the safety. I really think that

I would recommend a top level look at even what the FAA mission statement is today, and then see what it is we are requiring of them.

We all talked workforce issues today. The FAA, as a Government agency, also has a workforce. I think you will hear some other peers here talk about the growth of Government as well as the industry side. I think there is a lot of work that we can do on the industry side to help keep the FAA at a smaller, more oversight capability without all the necessity for growing a workforce that tries to keep up with the rapid pace of technology.

Mr. BUNCE. Representative Van Drew, I would add that we are supportive of a technology office at the FAA, but the purpose of that office needs to be to break down the stovepipes in the lines of business.

We learned through the Garmin Autoland system, where somebody with an incapacitated pilot can push a button and an airplane will land autonomously, that the Air Traffic Organization wasn't involved in the development, or the right people from the ATO weren't involved, and that really hampered and caused that program to be 7 years long.

What we would be very wary of is if we went and separated out like this certification directorate and pulled people out of there to just work that one segment, because it is interdependent with the aviation industry that we already have established.

Take fly-by-wire or take the autonomy that is already being built in the aircraft, they need to rely on that expertise to be able to go and make advanced air mobility work. So, we have got to make the stovepipes work together, but we don't want to bust up the stovepipes.

Mr. BAKER. Adding to that only would be the general expectation that when it becomes rulemaking, it is not expedited at all. We have been working and waiting for the MOSAIC, which is an update for the aircraft's certifications for, I think, 6 years in that rulemaking effort. It is basically on the shelf. We are standing by for the LODA rulemaking. It is not a good process when it goes and just sits and doesn't have the urgency and the timelines associated with it. So, that is our, kind of, feeling about it.

Dr. VAN DREW. OK. Well, I thank you, and I am disappointed to hear the last statement, but understanding where you are coming from. Hopefully, we will do better with the rulemaking and move forward. I mean, this is obviously the cutting-edge technology that is going to bring us into the future.

So, with that, I will yield. And, Chairman, once again, thank you.

Mr. LARSEN OF WASHINGTON. Thank you, Representative Van Drew.

The Chair recognizes Representative Perry of Pennsylvania for 5 minutes.

Mr. PERRY. Thank you, Mr. Chairman.

And for the folks that are testifying here today and answering some questions, my questions will be for Mr. Baker.

When we left, we were talking about the EAGLE, I guess, initiative or what have you. Seems like everybody here loves it. I just want to go on the record. I guess we are forcing you to love it. I

don't love it. I don't know that it is any good. I've got a lot of questions and concerns about it.

Now, even you said, some of you said, somebody here said that we have never done this with a fuel before. Right? We have never done—there might be a reason for that, right? And the unintended consequences, the gentleman from New Jersey, my colleague from New Jersey, talked about the cost of going to flight school, especially for people that have a hard time coming up with the money to learn. It is expensive. I don't necessarily think the costs that I heard here are actually reflective of the true cost of the whole thing. At the same time, we are promoting stuff like this, which I am not a rocket scientist, all right, but this raises the cost for everybody, right?

So, you talk about making it affordable; at the same time, this very committee—of course, you all have to be committed to it because we told you you've got to be, right? So, I am not picking on you.

But for Mr. Baker, Santa Clara County has unilaterally prohibited the sale of 100 Low Lead, right? And it violates their AIP grant assurances and increases the risk of misfueling. And I wonder if you can comment on that situation, if left unaddressed and other municipalities or political enclave seek to do that, and if it poses a particular threat to the general aviation industry overall, and particularly to things like disaster relief, emergency operations, search and rescue, or particular law enforcement issues.

And then, finally, in that regard, what should this Congress and the FAA do about that?

Mr. BAKER. It is a great question. I thank you for that one.

We are really concerned about the slippery slope of letting these individual airports violate their agreements and decide that they are going to only carry one type of fuel and not another type of fuel, which is a huge safety concern. If an airplane gets misfueled, the engine will detonate. It will become a problem and the airplane is going to come down.

The request that we put into the FAA and the FAA legal group is to say, you can't violate those grant assurances and you must keep all this fuel available. The FAA has not been able to come to agreement with Santa Clara County——

Mr. PERRY [interrupting]. Has not been able to or is unwilling to enforce? Like, they enforce their will on the rest of us around here, right? I mean, you go install the wrong floor in your 1947 Bonanza and see what happens to you.

So, tell me if they can't or they won't.

Mr. BAKER. The response was, it is complicated. And I know that. If it was easy, we would have solved it a long time ago. But it is a very important safety issue. And I believe that the regulator, who is in charge of safety aviation in this country, should take that at the paramount most important part first, that if we get this misfueling done, and it will happen, it is a big problem.

Mr. PERRY. Is there something—look, we are in the Aviation Subcommittee. I thank the gentleman for calling the hearing. This is an important issue. These are important issues.

What should we be doing about it? Like, I will tell you I have already had concerns about the program. I don't know what is

wrong with the 100 Low Lead. If we want alternatives, OK, God bless it. Let the market work that out.

There is a whole bunch of aircraft out there that use them, that use 100 Low Lead. And, I guess, if we are going to go back to the cost of flight school, I guess we are going to change every single engine in every one of these GA community aircraft. Like, what can this committee, what should this Congress be doing about this situation?

Mr. BAKER. In the urgency of asking the FAA to respond to make sure that we do not lose 100 Low Lead till the transition is complete. We support the transition. It is the right thing to do long term. We need to hold the refineries, and I think they will be competitive with the current price of fuel, because there is only one supply of Low Lead, by the way, the lead in the world [inaudible] supply chain.

Mr. PERRY. Right. Even when you say that, with all due respect, you say, make sure the suppliers provide it, as we force it to be phased out; the market isn't doing this. This is self-imposed regulatory ideology and policy coming from the Government. And you are saying, we are going to force you to keep making it, even though your market is diminishing and even though we are telling you we are going to destroy your market for doing this.

What do you think that is going to do to the price of 100 Low Lead?

Mr. BAKER. I believe that the opportunity for the alternative fuel to be made by the current refineries is high, and so, they will have an opportunity to change over to that other fuel. It is the right thing to do. But I will also tell you, we need the time to make that transition safely or we are going to risk a very significant part of the aviation's ecosystem.

Mr. PERRY. I thank the gentleman.

I yield.

Mr. LARSEN OF WASHINGTON. Thank you, Representative Perry.

That concludes our hearing. I want to thank the witnesses for their testimony. The comments and insights have been very informative and very helpful.

So, I ask unanimous consent the record of today's hearing remain open until such time as our witnesses have provided answers to any questions that may be submitted to them in writing. And I know a few Members have questions for the record.

I also ask unanimous consent the record remain open for 15 days for any additional comments and information submitted by Members or the witnesses to be included in the record of today's hearing.

So, without objection, so ordered.

And, with that, the subcommittee stands adjourned.

[Whereupon, at 1:01 p.m., the subcommittee was adjourned.]

SUBMISSIONS FOR THE RECORD

Prepared Statement of Hon. Eddie Bernice Johnson, a Representative in Congress from the State of Texas

Thank you, Chairman Larsen and Ranking Member Graves, for holding today's hearing on the state of general aviation. I would also like to thank our outstanding witnesses for testifying before us today.

General aviation airports don't get the same attention as commercial airports but play a critical role in our aviation system. Like most businesses, general aviation has faced significant challenges from the pandemic, but has shown resilience and a focus on growing to meet the future needs of the industry.

I'm proud to represent the Dallas Executive Airport which provides corporate and private travel, numerous aviation services, flight training, and facilities for law enforcement. Dallas Executive also serves as a reliever airport for Love Field and plays an important role in the North Texas aviation system.

I look forward to hearing from our witnesses on the health of the general aviation system and learning what we can do to help support the industry.

Letter of July 27, 2022, to Hon. Rick Larsen, Chairman, and Hon. Garret Graves, Ranking Member, Subcommittee on Aviation, from Hon. Jennifer Homendy, Chair, National Transportation Safety Board

JULY 27, 2022.

The Honorable RICK LARSEN,
Chairman,
Subcommittee on Aviation, Committee on Transportation and Infrastructure, United States House of Representatives, Washington, DC 20515.

The Honorable GARRET GRAVES,
Ranking Member,
Subcommittee on Aviation, Committee on Transportation and Infrastructure, United States House of Representatives, Washington, DC 20515.

DEAR CHAIRMAN LARSEN AND RANKING MEMBER GRAVES:

As Chair of the National Transportation Safety Board (NTSB), I want to thank you for your leadership to help ensure the safety of general aviation, and respectfully submit this letter for the record regarding the July 13, 2022, hearing, "The State of General Aviation."

As you know, the NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—highway, rail, marine, pipeline, and commercial space. We determine the probable cause of the events we investigate and issue safety recommendations aimed at preventing future occurrences.

The vast majority of our investigations involve general aviation accidents, and those investigations have contributed to the improved safety of general aviation over the years. In fact, since 2010, 96 percent of all NTSB investigations were in the aviation mode, and of those, 94 percent were in general aviation, meaning that general aviation investigations account for roughly 90 percent of our investigations. In 2020, our Office of Aviation Safety opened 1,139 investigations; 1,085 were in general aviation.[1]

[1] 2021 data is not yet available.

RECENT SAFETY TRENDS IN GENERAL AVIATION

Since 2001, the rate of fatal accidents in general aviation operations has generally trended downward. In 2001, the fatal accident rate per 100,000 flight hours was 1.274, and although it has been as high as 1.381 (in 2005) and as low as935 (in 2017) over the last 20 years, in 2020, the rate was 1.049. Although the safety of general aviation has improved in the last decade, we do see areas where additional effort is needed.

For example, in March 2021, we released a report discussing the ongoing safety issues associated with revenue passenger-carrying operations conducted under Title 14 Code of Federal Regulations (CFR) Part 91 for general aviation.[2] These operations include the following:

- certain nonstop commercial air tour flights
- sightseeing flights conducted in helicopters and hot air balloons
- nonstop intentional parachute jump flights
- living history flight experience sightseeing flights
- glider sightseeing flights
- air combat/extreme aerobatic experience flights and tour flights conducted under the premise of student instruction or training flights

The NTSB has long been concerned that these operations, which carry thousands of passengers for compensation or hire each year, are not held to the same maintenance, airworthiness, and operational standards as air carrier, commuter, and on-demand operations. Members of the public who pay to participate in Part 91 revenue passenger-carrying activities are likely unaware that these operations have less stringent requirements than other commercial aviation operations. Although Part 91 revenue passenger-carrying operations are diverse, the need for greater safety requirements and more comprehensive oversight applies to all of these operations. As a result of our Part 91 investigation, we made six new recommendations and reiterated four previous recommendations to the Federal Aviation Administration (FAA).

These recommendations were derived from numerous investigations NTSB investigated between 2016 and 2019, including accidents in Honolulu, Hawaii; Lockhart, Texas; Mokuleia, Hawaii; Windsor Locks, Connecticut; Morrisville, Vermont; Four Corners, California; Poipu, Hawaii; and New York, New York. These eight accidents alone resulted in 45 fatalities, 6 serious injuries, and 4 minor injuries, and the NTSB remains concerned that the safety issues identified in each of these accidents continue to occur at multiple Part 91 revenue passenger-carrying operators; as a result, safety improvements are needed to avoid placing future passengers at risk. Our recommendations and their statuses are enclosed.

In brief, we identified four categories of safety deficiencies that still must be addressed, which we wanted to bring to your attention as you consider legislation to reauthorize the FAA.

- *The Need for an Appropriate Framework for Part 91 Revenue Passenger-Carrying Operations*. The operating rules for Part 91 general aviation, which include revenue passenger-carrying operations, do not require operating certificates, operations specifications, FAA-accepted general operations manuals, FAA-approved training programs, or FAA-approved maintenance programs, all of which are required for Part 135 commuter and on-demand operations, including most commercial air tours. Because Part 91 revenue passenger-carrying operators are not required to have initial and recurrent pilot training programs, the operators have no formal method to determine if pilots are adequately prepared for the responsibilities associated with the company's operations.

  Our review demonstrated that the FAA should be implementing one level of safety for all commercial air tour operators, especially given the longstanding safety concerns in this area. In addition, to address other Part 91 revenue passenger-carrying operations, we recommended that the FAA develop national safety standards, or equivalent regulations, for revenue passenger-carrying operations that are currently conducted under Part 91. These standards, or equivalent regulations, should include, at a minimum for each operation type, requirements for initial and recurrent training and maintenance and management policies and procedures.

- *The Need to Address Regulatory Loopholes and Omissions*. The FAA created certain exceptions to Part 91 rules that allow some operations to be conducted outside of the scope of regulatory and oversight requirements that apply to oper-

[2] NTSB. *Enhance Safety of Revenue Passenger-Carrying Operations Conducted Under Title 14 Code of Federal Regulations Part 91*. Washington, DC: NTSB. AAR 21/03.

ations conducted under an operating certificate. However, some Part 91 revenue passenger-carrying operators have exploited specific exceptions in federal regulations by carrying revenue passengers for purposes other than the exceptions intended, allowing them to avoid more stringent regulatory requirements. For example, two of the accident flights reviewed for this report were inappropriately operating under the student instruction exemption, even with the knowledge of the local FAA office.

The NTSB recognizes that other regulatory loopholes and omissions might also exist. Therefore, the NTSB recommends that the FAA identify shortcomings in 14 CFR 119.1(e) that would allow revenue passenger-carrying operators to avoid stricter regulations and oversight and to address these loopholes as part of a new framework for Part 91 operations.

- *The Need for Increased Federal Aviation Oversight*. Part 91 revenue passenger-carrying operators are not subject to the same level of FAA oversight and surveillance as Part 135 operators. The NTSB concludes that the FAA's oversight and surveillance of Part 91 revenue passenger-carrying operations do not ensure that these operators are properly maintaining their aircraft and safely conducting operations. The FAA needs to provide its inspectors with sufficient guidance to pursue more comprehensive oversight of Part 91 revenue passenger-carrying operators. Such guidance and oversight could help ensure that these operators are properly maintaining their aircraft and safely conducting operations.
- *The Need for Safety Management Systems*. Operators need to establish safety management systems (SMSs). An SMS is an effective way to manage and mitigate risks in aviation operations; the FAA has described them as a "formal, top down business-like approach to managing safety risk." The four components of an SMS are safety policy, safety risk management, safety assurance, and safety promotion. Only Part 121 air carriers (generally larger airlines and regional carriers as well as cargo carriers) are currently required to incorporate an SMS, but the FAA has only encouraged voluntary SMS implementation beyond Part 121 operations.

  Part 91 revenue passenger-carrying operators would benefit from an SMS to ensure that operational risks are sufficiently mitigated. In addition, FAA oversight of SMSs for passenger revenue-carrying operations currently conducted under Part 91 is critical for ensuring that mitigations are in place to address potential safety hazards.

General Aviation and Reauthorization of the NTSB

Our investigations often find safety issues or identify trends that are important to improving aviation safety, as well as provide information to the flying community about lessons learned.[3] That is one of the reasons why it is so important that we have reduced our backlog of investigations open for more than 2 years by more than 75 percent, to 78 from 440, since the start of 2022. We anticipate reducing this backlog to zero by the end of the fiscal year. To achieve this, we established a process that filled open investigative and technical review positions to support the mission; triaged investigations that were ready for expedited completion through reassignment; used reemployed annuitants to broaden the pool of report reviewers in the short-term while creating a longer-term solution; enhanced employee performance standards; and developed quality metrics and a means to track them for all investigations.

As you know, I came before the committee earlier this year to discuss our proposal to reauthorize the NTSB. The goal of our reauthorization proposal is to right-size the agency over time and to ensure that our employees have the right skill set. This year, our goal is to grow by about ten percent, increasing our staffing to roughly 412 full-time equivalent positions. Our reauthorization proposal anticipates adding roughly 15 people per year through 2027, in addition to filling the vacancies that will occur through retirements and separations. These 75 total positions do not even fill one-half of the identified needs in our agency. In fact, our staff identified the need for an additional 192 positions over the next 5 years. Of those positions, more than 20 percent are in our Office of Aviation Safety. The vast majority of these new investigators in OAS would investigate general aviation accidents.

[3] In 2022, to date, we have issued 10 recommendations as a result of general aviation accident investigations. These recommendations concern carbon monoxide sensors, hazardous icing conditions in Alaska, and technical issues with particular models of aircraft.

I welcome the opportunity to further discuss these safety issues and recommendations with the Committee. In addition, I appreciate the Committee's consideration of our reauthorization proposal, which would allow the NTSB to hire more staff to meet the expanded need for transportation investigations, including those related to general aviation.[4] Please do not hesitate to contact me if I may be of any assistance to you.

Sincerely,

JENNIFER HOMENDY,
Chair, National Transportation Safety Board.

Enclosure

Recommendations Regarding Revenue Passenger-Carrying Operations Conducted Under Title 14 Code of Federal Regulations Part 91

Number	Status	Recommendation
A–21–9	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: Develop national safety standards, or equivalent regulations, for revenue passenger-carrying operations that are currently conducted under Title 14 Code of Federal Regulations Part 91, including, but not limited to, sightseeing flights conducted in a hot air balloon, intentional parachute jump flights, and living history flight experience and other vintage aircraft flights. These standards, or equivalent regulations, should include, at a minimum for each operation type, requirements for initial and recurrent training and maintenance and management policies and procedures.
A–21–10 ...	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: Identify shortcomings in Title 14 Code of Federal Regulations 119.1(e) that would allow revenue passenger-carrying operators to avoid stricter regulations and oversight in operations that include, but are not limited to, air combat/extreme aerobatic experience flights and tour flights operating as student instruction, nonstop commercial air tour flights operating as aerial photography flights, and glider sightseeing flights; after these shortcomings are identified, use that information to add other types of flight operations to the national safety standards, or equivalent regulations, requested in Safety Recommendation A–21–9.
A–21–11 ...	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: Revise FAA Order 8900.1, Flight Standards Information Management System, to include guidance for inspectors who oversee operations conducted under any of the living history flight experience exemptions to identify potential hazards and ensure that operators are appropriately managing the associated risks.
A–21–12 ...	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: Develop and continuously update a database that includes all of the revenue passenger-carrying operators addressed in Safety Recommendations A–21–9 and –10 to facilitate oversight of these operations.
A–21–13 ...	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: Require safety management systems for the revenue passenger-carrying operations addressed in Safety Recommendations A–21–9 and –10.
A–21–14 ...	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: For the revenue passenger-carrying operations addressed in Safety Recommendations A–21–9 and –10, provide ongoing oversight of each operator's safety management system once established.

[4] NTSB. National Transportation Safety Board Draft Reauthorization Act of 2022. Washington, DC: NTSB.

Recommendations Regarding Revenue Passenger-Carrying Operations Conducted Under Title 14 Code of Federal Regulations Part 91—Continued

Number	Status	Recommendation
A–19–28 ...	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: Require all commercial air tour operators, regardless of their operating rule, to implement a safety management system. (Reiterated).
A–19–30 ...	Open—Acceptable Response.	TO THE FEDERAL AVIATION ADMINISTRATION: Revise Order 8900.1, Flight Standards Information Management System, to include guidance for inspectors who oversee Title 14 Code of Federal Regulations (CFR) Part 91 operations conducted under any of the 14 CFR 119.1(e) exceptions to identify potential hazards and ensure that operators are appropriately managing the associated risks.
A–19–31 ...	Open—Unacceptable Response	TO THE FEDERAL AVIATION ADMINISTRATION: Develop and implement national standards within Title 14 Code of Federal Regulations (CFR) Part 135, or equivalent regulations, for all air tour operations with powered airplanes and rotorcraft to bring them under one set of standards with operations specifications, and eliminate the exception currently contained in 14 CFR 135.1.
A–17–45 ...	Open—Unacceptable Response	TO THE FEDERAL AVIATION ADMINISTRATION: Analyze your current policies, procedures, and tools for conducting oversight of commercial balloon operations in accordance with your Integrated Oversight Philosophy, taking into account the findings of this accident; based on this analysis, develop and implement more effective ways to target oversight of the operators and operations that pose the most significant safety risks to the public.

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