U.S. Department of Transportation

BUDGET ESTIMATES
FISCAL YEAR 2025

FEDERAL AVIATION ADMINISTRATION

SUBMITTED FOR USE OF THE COMMITTEE ON APPROPRIATIONS

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OVERVIEW

The FY 2025 President's Budget Request holds safety as the Federal Aviation Administration's (FAA) highest priority, boosting resources to expand the air traffic controller workforce, continue the hiring surge started in FY 2023, and strengthen aviation safety oversight. This budget request places a strong emphasis on the replacement and modernization of facilities infrastructure and radar systems necessary to ensure the safe and efficient operation of the National Airspace System (NAS). The budget request also invests in programs aimed at integrating new entrants into the national airspace, mitigating climate change, and continues implementation of the Bipartisan Infrastructure Law (BIL).

The FAA's temporary grounding of certain Boeing 737-9 MAX aircraft is a stark reminder of the enormity of the FAA's safety mission while the agency works to expand capacity and increase efficiency to meet the future needs of the traveling public. To continue addressing emerging safety priorities while also maintaining efficient operation of the National Airspace System, we will think beyond conventional methods of oversight and continue to engage with our stakeholders and Congress to develop and resource additional tools and measures necessary to maintain the safest, most efficient aerospace system in the world. The agency's FY 2025 budget request includes $1.8 billion for the Office of Aviation Safety. This funding will provide crucial support for air carrier surveillance, production oversight, and continued operational safety.

For FY 2025, the President's Budget requests $21.8 billion for FAA. This includes $1.0 billion ($8.0 billion over five years) for a new Facility Replacement and Radar Modernization proposal. When combined with the $5.0 billion in advanced annual appropriations under the Bipartisan Infrastructure Law, the total FY 2025 funding for the FAA is $26.8 billion. This historic level of investment is needed to ensure the continued safe and efficient operation of the air traffic system.

The President's Budget includes a mandatory proposal of $8.0 billion over five years to make further investments in the air traffic system. To begin to address the pressing challenge of the FAA's aging infrastructure, the Facility Replacement and Radar Modernization program provides funding of $1.0 billion per year in FY 2025 and FY 2026, and $2.0 billion per year in FY 2027-2029. Given the average age of FAA air traffic control towers (40 years) and air route traffic control centers (62 years), these facilities have functioned beyond their intended design life. There are also structural deficiencies and maintenance-related issues at all locations, which can lead to operational risks for the NAS. Developing a reliable source of funding via a multi-year mandatory account is necessary to begin recapitalizing our major infrastructure assets and ensure the continued safety and efficiency of US airspace. This proposal will also allow FAA to implement modernization and replacement radar projects, while continuing to meet today's industry requirements. As these systems age, outages increase in frequency and duration. Repairs also become challenging, as antiquated components become increasingly difficult to obtain.

The National Airspace System (NAS) serves many users including commercial and general aviation aircraft, commercial space flights, and Unmanned Aircraft Systems (UAS). However, not all users of the airspace pay a proportionate share into the Airport and Airway Trust Fund, which funds the bulk of the FAA's costs of operating and maintaining the NAS. The Safety Review Team's recently published report includes a recommendation to "Update Airport and Airway Trust Fund funding sources to account for FAA funding needs and changes in the aviation and aerospace use of the NAS."

This President's Budget takes an important step towards the Safety Review Team's recommendation by including a proposal to enhance excise taxes for business aviation activities so that revenues related to business aviation are aligned to their use of the aviation system. Going forward the Department looks forward to working with aviation and aerospace stakeholders, including Congress, other Federal agencies, and the private sector, on additional options to ensure proper resourcing to FAA's operation of the NAS.

Additionally, FY 2025 requested funds support important programs aimed at facilitating the admittance of new entrants into the NAS. The NAS has sustained rapid growth in the past few years with the significant increase in commercial space operations and expansion of unmanned aircraft systems (UAS). Funding is also requested to promote the Airport Technology Research program, which advocates for the safe and efficient integration of innovative technologies into the airport environment.

Operations - The FY 2025 budget requests $13.6 billion for the Operations account, an increase of $1.7 billion, or 14.2 percent above the FY 2023 enacted level. The FAA estimates $531.7 million in uncontrollable cost increases in FY 2025. These increases include uncontrollable employee compensation costs, such as the annualization of hiring in FY 2024 as well as government-wide pay raises for FAA's Operations-funded workforce in FY 2025. The budget also requests funding to support inflationary cost increases across the FAA, in support service and telecommunications contracts, parts, building leases, and the introduction of new equipment into the system. In addition, the Budget includes $110.0 million to sustain the FAA's existing telecommunications network while the FAA transitions to the FAA Enterprise Network Services.

In FY 2025, the budget proposes to fund $194.0 million for subscription services previously funded under the Facilities and Equipment account out of the Operations account instead. These subscription services represent fixed costs to the FAA that are purchased through long-term contracts and are necessary for the safe operation of the NAS. These funds support subscription services for the Data Communications, Wide Area Augmentation System, and Automatic Dependent Surveillance – Broadcast programs.

The budget request includes $43.0 million to continue to hire and train at least 2,000 new controllers in FY 2025, maintaining the hiring surge started in FY 2023. This increase will allow FAA to rebuild the pipeline of Certified Professional Controller staffing levels to meet current traffic demands, which overall have nearly rebounded to pre-pandemic

levels.

This request also supports a total of $94.0 million of discretionary adjustments in four critical areas that will equip the FAA to meet the challenges of tomorrow with targeted investments supporting aviation safety and security, innovation, climate, and infrastructure support.

These discretionary adjustments include $32.6 million to enhance aviation safety and security. This funding will continue the FAA's multiyear efforts to address the recommendations from independent safety reviews, as well as the requirements in the Aircraft Certification, Safety, and Accountability Act. The Office of Aviation Safety will utilize the requested funding to keep pace with the significant industry growth and the rapid expansion of Urban Air Mobility, Optionally Piloted Aircraft, and supporting Safety Management Systems implementation. Additionally, funding is requested to complete the modernization of the Aircraft Registry system to digitize airmen certificates, aircraft registration and airworthiness certificates. The Security and Hazardous Materials Safety organization will expand oversight by hiring additional safety personnel to ensure hazardous material certificate holders meet the necessary safety requirements, standards, and regulations. Funding is also requested to develop a new regulatory structure for the safe carriage of hazardous materials by innovative aircraft. Requested funds will be utilized to modernize several aeronautical information systems that are integral to flight safety and compliance with national security, including the Notice to Air Missions, commonly known as the NOTAM system. Finally, the President's Budget requests funds to increase Federal staffing at the 24-7 FAA/DOT Security Operations Center facilitate the secure electronic transfer of information and secure transactions across computer networks.

An additional $40.7 million in funding is included for programs focused on innovation, including to support anticipated growth in Space Operations and Unmanned Aircraft Systems. This funding will support anticipated growth in launch licensing and manage increased airspace complexities associated with enhanced space operations. Funding is also requested to initiate the development of regulations, licensing applications and inspections processes for Mission Authorization and Orbital Human Spaceflight. Funds are also requested to aide in identifying credible threats to determine how to integrate new drone technology safely and securely into the National Airspace System. Finally, the budget requests funding for data analytics so the FAA can implement an analytical platform to support safety, operational, and other mission-critical data analysis needs, build an advanced analytic framework, provide oversight and enhancements on the tools needed to conduct vulnerability discovery, identify emerging safety risk, and evaluate impacts of changes to the NAS.

The budget request includes $4.9 million to support Department climate goals, through the construction, installation and maintenance of electric vehicle charging infrastructure at FAA owned and leased facilities.

The FY 2025 budget requests $16.0 million to improve FAA infrastructure and support programs. Requested funds allow FAA to modernize outdated IT applications utilized by FAA organizations that have passed their end of life and pose a significant security risk. They will also support facility maintenance and sustainment efforts at the FAA's Mike Monroney Aeronautical Center and William J. Hughes Technical Center. In addition, funding is requested to advance U.S. aviation engagement, leadership and influence globally, and for FAA's Office of Human Resources and Office of Chief Counsel to support efforts throughout the FAA.

Facilities and Equipment - The FY 2025 budget request includes $3.6 billion for Facilities and Equipment (F&E), an increase of $655 million, or 22.2 percent, above the FY 2023 enacted level. Investment in these legacy systems enables the FAA to address critical needs and deliver improvements that benefit the industry and traveling public.

Infrastructure forms the backbone of the NAS. It is the foundation upon which the FAA builds and conducts its operations, ensuring the safe and efficient functioning of services. Without the necessary modernization, the agency risks falling behind and becoming ineffective in meeting the demands of its stakeholders. The continued investment in the sustainment and modernization of the NAS will ensure that it remains a safe, efficient, and resilient airspace system for the benefit of passengers, airlines, and the overall aviation industry, which is why 65.1 percent of F&E funding is requested for sustainment and modernization programs. The remaining 34.9 percent is for new functionality and program support, which includes support contracts as well as FAA personnel, travel, and related expenses. Some key highlights are identified below.

The budget request provides $419.5 million to modernize the FAA Telecommunication Infrastructure, continuing the transition from legacy Time-Division Multiplexing to the more modern Internet Protocol technology. The enhanced, modernized network will enable seamless and secure connectvity within the NAS for air traffic control facilities, airports, aviation service providers, and other essential enetities, ensuring the rapid and reliable exchange of information necessary for the safe and efficient operations of our skies. This request includes $140.0 million to invest in the new FAA Enterprise Network, moving away from point-to-point, hardwired circuits and enabling the innovation needed to support NextGen operations and meet evolving cybersecurity and resiliency needs.

This budget request provides $501.2 million for FAA air traffic facilities, including $364.2 million to address our nation's towers, TRACONs and en route centers rehabilitation needs, $63.0 million for facility replacement, and $74.0 million for environmental improvements, including replacing fuel storage tanks and removing hazardous materials from the environment and staffed facilities. Funding requested will improve the condition of air traffic control en route radar facilities and centers, while continuing to address its $5.2 billion backlog in sustainment needs. This request, alongside the funding provided by the Bipartisan Infrastructure Law and the new mandatory Facility Replacement and Radar Modernization proposal of $8.0 billion over

five years, will help to tackle the needs of our aging infrastructure. Fully addressing the condition of the FAA's facilities will require a sustained effort over many years.

The request provides $562.1 million to support ongoing NextGen programs, including $70.0 million to replace the unsupportable operating system for En Route Automation Modernization (ERAM); $80.9 million for System Wide Information Management (SWIM) to transition services to a new platform; and $53.7 million for replacement and continued enhancements to the Notice to Air Missions (NOTAMs) system.

In addition, this request provides $690.0 million for the personnel, travel, and related expenses for the F&E workforce performing work across all F&E programs including those work essential to FAA's efforts to sustain and modernize the NAS and FAA telecommunications infrastructure.

Research, Engineering & Development - This budget request includes $250 million for the Research, Engineering and Development account, a decrease of $5 million, or 2 percent, below the FY 2023 enacted level.

The budget requests $71.0 million to support efforts to develop new aircraft and engine technologies, as well as to advance sustainable aviation fuels, through the Continuous Lower Energy Emissions and Noise (CLEEN) program and ASCENT, the FAA's Center of Excellence (COE) for Alternative Jet Fuels and Environment. In addition, $8.4 million is requested to support continuing analyses and testing of unleaded alternative candidate fuels leading to the replacement of current leaded aviation gasoline.

In addition, $15.6 million is being requested to support research that builds upon current drone operations, rules policy, and procedures to achieve full UAS integration in the airspace system. The integration of drones into the national airspace is evolving to operations predominately using electric propulsion. The requested funds also support continued efforts using drones as a learning platform for science, technology, engineering, and mathematics outreach efforts with minority K-12 students.

The request also includes $5.4 million to investigate improvements for the safe integration of commercial space operations into the national airspace. It will support research for new propellant combinations, human space flight, spaceport infrastructure, systemic safety initiatives, and regulatory reform.

Grants-in-Aid for Airports – The budget requests $3.35 billion for Grants-in-Aid for Airports, equal to the FY 2023 enacted level. Of this total, $3.1 billion is for airport grants to preserve and improve critical airfield infrastructure at more than 3,300 public-use airports nationwide. Combined with funding provided through the Bipartisan Infrastructure Law for Airport Infrastructure Grants and the Airport Terminal Program, this request supports our continued focus on safety-related development projects, while promoting a sustainable, clean, and resilient future for the FAA's airport facilities and infrastructure.

The request includes $163.6 million for personnel and related expenses for the FAA's Office of Airports. This funding level includes $6.1 million in annualization of new hiring and uncontrollable pay and non-pay increases in FY 2025.

The request provides $43.4 million for the Airport Technology Research program to support the safe and efficient integration of new and innovative technologies into the airport environment. This funding supports seven new positions to conduct research on ground infrastructure to safely integrate new and emerging entrants. Additionally, $15.0 million is requested for the Airport Cooperative Research Program to carry out applied research on problems that are shared by airport operating agencies.

Conclusion

The FAA's budget request for FY 2025 supports FAA's continued controller hiring and training surge efforts, emphasizes the replacement and modernization of facilities infrastructure and radar systems, and implements aircraft certification reform to ensure the safe and efficient operation of the National Airspace System. It also supports important programs aimed at facilitating the admittance of new entrants into the NAS, including growth in commercial space operations and UAS, and maximizes environmental and sustainability efforts and climate goals. In addition, the new Facility Replacement and Radar Modernization mandatory proposal, coupled with the Bipartisan Infrastructure Law's historic commitment to our infrastructure, and the enhanced AATF tax revenue proposal, will fund critical investments needed to keep pace with the aviation economy and enhance opportunities to improve the safety efficiency of the aviation system.

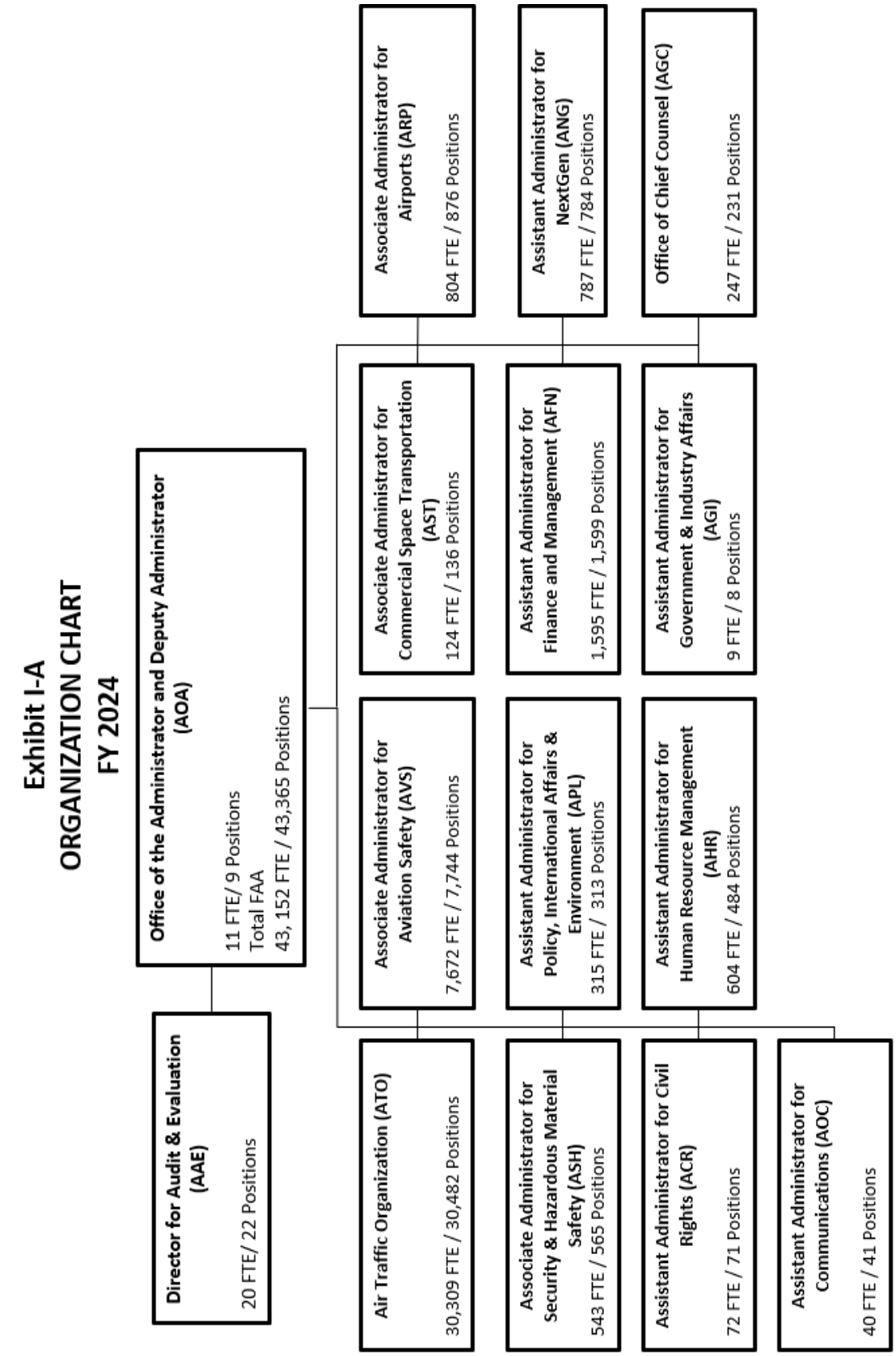
Exhibit I-A
ORGANIZATION CHART
FY 2024
Office of the Administrator and Deputy Administrator (AOA)
11 FTE/ 9 Positions
Total FAA
43, 152 FTE / 43,365 Positions
Director for Audit & Evaluation (AAE)
20 FTE/ 22 Positions
Associate Administrator for Airports (ARP)
804 FTE / 876 Positions
Assistant Administrator for NextGen (ANG)
787 FTE / 784 Positions
Office of Chief Counsel (AGC)
247 FTE / 231 Positions
Associate Administrator for Commercial Space Transportation (AST)
124 FTE / 136 Positions
Assistant Administrator for Finance and Management (AFN)
1,595 FTE / 1,599 Positions
Assistant Administrator for Government & Industry Affairs (AGI)
9 FTE / 8 Positions
Associate Administrator for Aviation Safety (AVS)
7,672 FTE / 7,744 Positions
Assistant Administrator for Policy, International Affairs & Environment (APL)
315 FTE / 313 Positions
Assistant Administrator for Human Resource Management (AHR)
604 FTE / 484 Positions
Air Traffic Organization (ATO)
30,309 FTE / 30,482 Positions
Associate Administrator for Security & Hazardous Material Safety (ASH)
543 FTE / 565 Positions
Assistant Administrator for Civil Rights (ACR)
72 FTE / 71 Positions
Assistant Administrator for Communications (AOC)
40 FTE / 41 Positions

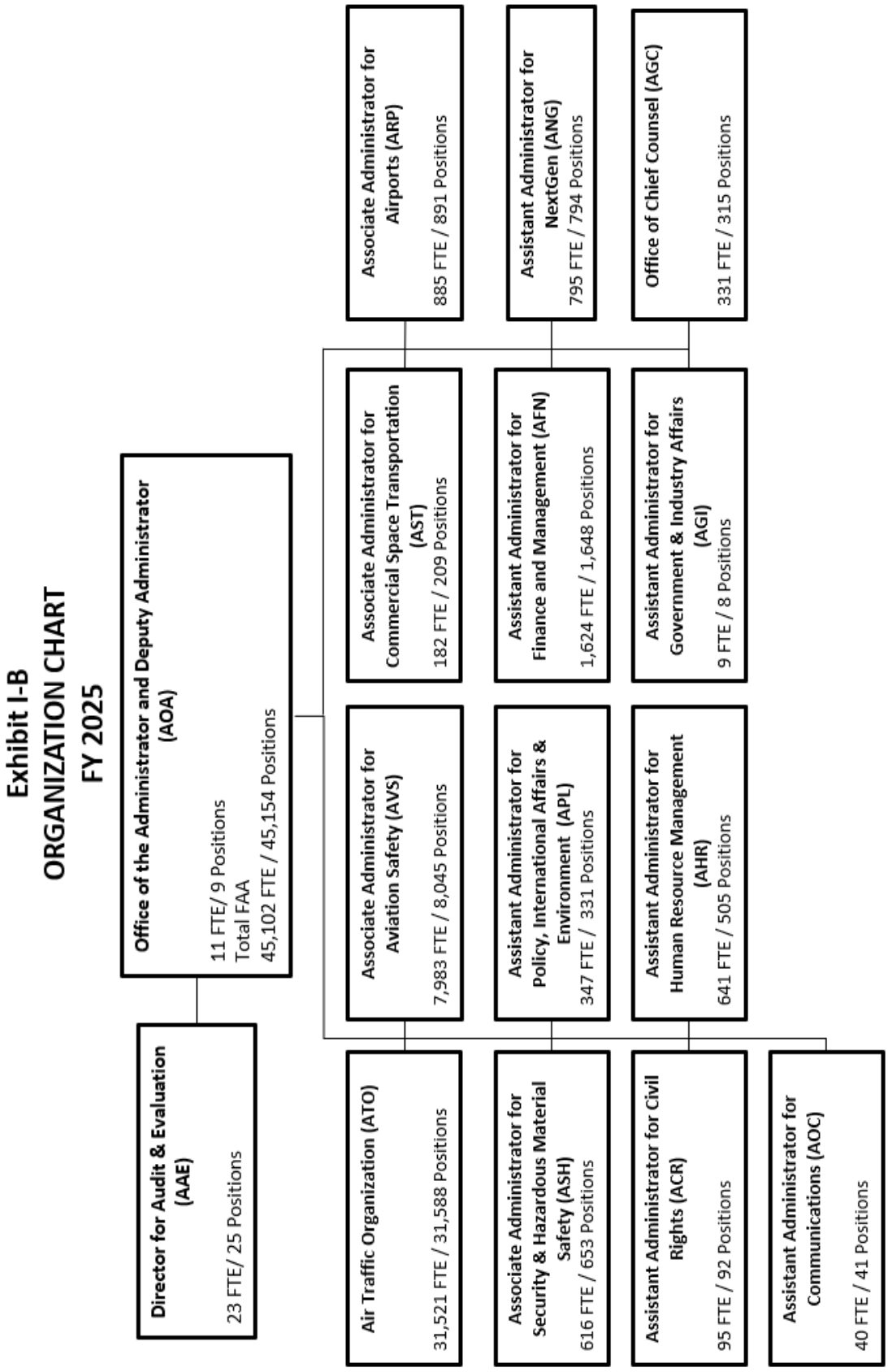
Exhibit I-B
ORGANIZATION CHART
FY 2025
Office of the Administrator and Deputy Administrator (AOA)
11 FTE/ 9 Positions
Total FAA
45,102 FTE / 45,154 Positions
Director for Audit & Evaluation (AAE)
23 FTE/ 25 Positions
Associate Administrator for Airports (ARP)
885 FTE / 891 Positions
Assistant Administrator for NextGen (ANG)
795 FTE / 794 Positions
Office of Chief Counsel (AGC)
331 FTE / 315 Positions
Associate Administrator for Commercial Space Transportation (AST)
182 FTE / 209 Positions
Assistant Administrator for Finance and Management (AFN)
1,624 FTE / 1,648 Positions
Assistant Administrator for Government & Industry Affairs (AGI)
9 FTE / 8 Positions
Associate Administrator for Aviation Safety (AVS)
7,983 FTE / 8,045 Positions
Assistant Administrator for Policy, International Affairs & Environment (APL)
347 FTE / 331 Positions
Assistant Administrator for Human Resource Management (AHR)
641 FTE / 505 Positions
Air Traffic Organization (ATO)
31,521 FTE / 31,588 Positions
Associate Administrator for Security & Hazardous Material Safety (ASH)
616 FTE / 653 Positions
Assistant Administrator for Civil Rights (ACR)
95 FTE / 92 Positions
Assistant Administrator for Communications (AOC)
40 FTE / 41 Positions

EXHIBIT II-1
FY 2025 BUDGET AUTHORITY
FEDERAL AVIATION ADMINISTRATION
($000)

ACCOUNT NAME	M / D	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Operations (TF)	**D**	**$ 11,915,000**	**$ 11,915,000**	**$ 13,603,399**
Rescissions				
Transfers				
Offsets				
Facilities and Equipment (TF)	**D**	**$ 2,945,000**	**$ 2,945,000**	**$ 3,600,000**
Rescissions				
Transfers				
Offsets				
Research, Engineering and Development (TF)	**D**	**$ 255,000**	**$ 255,000**	**$ 250,000**
Rescissions				
Transfers				
Offsets				
Grants-in-Aid for Airports	**M**	**$ 3,350,000**	**$ 3,350,000**	**$ 3,350,000**
Contract Authority (AATF)		$ 3,350,000	$ 3,350,000	$ 3,350,000
Rescissions				
Transfers				
Offsets				
Obligation Limitation [Non-Add]	**D**	**[3,350,000]**	**[3,350,000]**	**[3,350,000]**
Facility Replacement and Radar Modernization	**M**			**$ 1,000,000**
Overflight Fees	**M**	**$ 138,547**	**$ 155,869**	**$ 165,293**
Overflight Fees (Transfer to EAS)	**M**	**$ (138,547)**	**$ (155,869)**	**(165,293)**
Aircraft Sales	**M**	**$ 8,146**		
NET NEW BUDGET AUTHORITY REQUESTED:		**18,473,146**	**18,465,000**	**21,803,399**
[Mandatory BA]	**M**	$ 3,358,146	$ 3,350,000	$ 4,350,000
[Discretionary BA]	**D**	$ 15,115,000	$ 15,115,000	$ 17,453,399
Supplemental Funding		**$ 502,937**	**$ 558,555**	**$ -**
Grants-in-Aid for Airports	**D**	$ 558,555	$ 558,555	
CARES Act*	**D**	$ (7,386)		
Relief for Airports (ARPA)*	**M**	$ (48,232)		
IIJA Supplemental (Division J)		**$ 4,998,000**	**$ 4,998,000**	**$ 4,998,000**
Facilities and Equipment	**D**	$ 1,000,000	$ 1,000,000	$ 1,000,000
Airport Infrastructure Grants**	**D**	$ 2,999,000	$ 2,999,000	$ 2,999,000
Airport Terminal Program**	**D**	$ 999,000	$ 999,000	$ 999,000
Grand Total, All Appropriations		**$ 23,974,083**	**$ 24,021,555**	**$ 26,801,399**

* Reflects rescissions of unobligated balances of Covid relief funding enacted by the Fiscal Responsibility Act of 2023 (P.L. 118-
** Reflects the transfer of $1 million in each year to the DOT Office of Inspector General.

EXHIBIT II-2

FY 2025 TOTAL BUDGETARY RESOURCES BY APPROPRIATION ACCOUNT
FEDERAL AVIATION ADMINISTRATION
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

ACCOUNT NAME	M/D	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Operations	**D**	**11,915,000**	**11,915,000**	**13,603,399**
Air Traffic Organization (ATO)		8,811,812	8,811,812	10,105,678
Aviation Safety (AVS)		1,630,794	1,630,794	1,832,078
Commercial Space Transportation (AST)		37,581	37,581	57,130
Finance & Management (AFN)		917,899	917,899	1,004,787
NextGen (ANG)		65,581	65,581	73,556
Security and Hazardous Materials Safety (ASH)		152,359	152,359	176,988
Staff Offices		298,974	298,974	353,182
Facilities & Equipment *	**D**	**2,945,000**	**2,945,000**	**3,600,000**
Engineering, Development, Test and Evaluation		146,550	136,240	173,800
Air Traffic Control Facilities and Equipment		1,754,900	1,756,461	2,235,600
Non-Air Traffic Control Facilities and Equipment		221,200	202,829	220,000
Facilities and Equipment Mission Support		252,350	232,450	280,600
Personnel and Related Expenses		570,000	617,020	690,000
Research, Engineering & Development	**D**	**255,000**	**255,000**	**250,000**
Grants-in-Aid for Airports		**3,350,000**	**3,350,000**	**3,350,000**
Grants-in-Aid for Airports	**M**	3,146,800	3,146,800	3,128,016
Personnel & Related Expenses	**M**	137,372	137,372	163,624
Airport Technology Research	**M**	40,828	40,828	43,360
Airport Cooperative Research Program	**M**	15,000	15,000	15,000
Small Community Air Service	**M**	10,000	10,000	0
Facility Replacement and Radar Modernization				**1,000,000**
Facilities Replace	**M**			852,000
Radar Replace	**M**			98,000
Personnel and Related Expenses	**M**			50,000
Gross New Budgetary Resources		18,465,000	18,465,000	21,803,399
Rescissions				
Transfers				
Offsets				
TOTAL BUDGETARY RESOURCES:		**$ 18,465,000**	**$ 18,465,000**	**$ 21,803,399**
[Mandatory]		3,350,000	3,350,000	4,350,000
[Discretionary]		15,115,000	15,115,000	17,453,399
[Obligation Limitation]		[3,350,000]	[3,350,000]	[3,350,000]
Supplemental Funding		**502,937**	**558,555**	**0**
Grants-in-Aid for Airports	**D**	558,555	558,555	
CARES Act **	**D**	$ (7,386)		
Relief for Airports (ARPA) **	**M**	$ (48,232)		
IIJA Supplemental (Division J)		**4,998,000**	**4,998,000**	**4,998,000**
Facilities and Equipment	**D**	1,000,000	1,000,000	1,000,000
Airport Infrastructure Grants ***	**D**	2,999,000	2,999,000	2,999,000
Airport Terminal Program ***	**D**	999,000	999,000	999,000
Grand Total, All Appropriations		**$ 23,965,937**	**$ 24,021,555**	**$ 26,801,399**

* The F&E Activity level amounts shown in the FY 2024 Annualized CR column differ from those in the FY 2023 Enacted column to illustrate FAA's discretion in how funding would be proposed to be allocated under this scenario. The higher funding for Activity 5 reflects the level approved in Section 137 of the Continuing Appropriations Act, 2024 (P.L. 118-15). Additional adjustments have been proposed to programs in Activities 1-4 to accommodate the Activity 5 increase as well as align with existing program implementation plans.

** Reflects rescissions of unobligated balances of Covid relief funding enacted by the Fiscal Responsibility Act of 2023 (P.L. 118-5).

*** Reflects the transfer of $1 million in each year to the DOT Office of Inspector General.

EXHIBIT II-3
FY 2025 BUDGET REQUEST BY DOT STRATEGIC AND ORGANIZATIONAL GOALS
Appropriations, Obligation Limitation, and Exempt Obligations
FEDERAL AVIATION ADMINISTRATION
($000)

	Safety	Economic Strength	Equity	Climate & Sustainability	Transformation	Organizational Excellence	Total
OPERATIONS	**$ 7,627,038**	**$ 4,788,430**	**$ 37,660**	**$ 20,012**	**$ 140,712**	**$ 989,548**	**$ 13,603,399**
Air Traffic Organization (ATO)	$ 5,740,692	$ 4,069,050	$ 1,020	$ -	$ 7,018	$ 287,898	$ 10,105,678
Aviation Safety (AVS)	$ 1,694,801		$ 1,050	$ -	$ 13,409	$ 122,818	$ 1,832,078
Commercial Space Transportation (AST)	$ 8,498		$ 480	$ -	$ 48,153	$ -	$ 57,130
Finance and Management (AFN)	$ 4,023	$ 717,031	$ -	$ 6,015	$ 2,460	$ 275,258	$ 1,004,787
Security and Hazardous Materials Safety (ASH)	$ 176,988	$ -	$ -	$ -	$ -	$ -	$ 176,988
NextGen and Operations Planning (ANG)	$ -	$ 1,605	$ -	$ 2,279	$ 69,672	$ -	$ 73,556
Staff Offices	$ 2,036	$ 744	$ 35,110	$ 11,718	$ -	$ 303,574	$ 353,182
FACILITIES & EQUIPMENT	**$ 361,608**	**$ 1,397,814**			**$ 1,839,340**	**$ 1,237**	**$ 3,600,000**
Activity 1 - Engineering, Development, Test and Evaluation	$ -	$ -	$ -	$ -	$ 173,800	$ -	$ 173,800
Activity 2 - Air Traffic Control Facilities and Equipment	$ 158,900	$ 915,000	$ -	$ -	$ 1,161,700	$ -	$ 2,235,600
Activity 3 - Non-Air Traffic Control Facilities and Equipment	$ 133,400	$ 45,000	$ -	$ -	$ 40,600	$ 1,000	$ 220,000
Activity 4 - Facilities and Equipment Mission Support	$ -	$ 169,900	$ -	$ -	$ 110,700	$ -	$ 280,600
Activity 5 - Personnel and Related Expenses	$ 69,308	$ 267,914	$ -	$ -	$ 352,540	$ 237	$ 690,000
RESEARCH, ENGINEERING & DEVELOPMENT	**$ 113,915**	**$ 5,350**	**$ 2,125**	**$ 105,773**	**$ 12,255**	**$ 10,582**	**$ 250,000**
GRANTS-IN-AID FOR AIRPORTS	**$ 1,109,167**	**$ 2,012,808**	**$ 119,244**	**$ 68,230**	**$ 40,363**	**$ 188**	**$ 3,350,000**
Grants-in-Aid for Airports	$ 1,077,792	$ 1,857,091	$ 114,545	$ 56,175	$ 22,413		$ 3,128,016
Personnel & Related Expenses	$ 12,321	$ 144,904	$ 209	$ 3,617	$ 2,560	$ 13	$ 163,624
Airport Technology Research	$ 13,029	$ 9,163	$ 3,940	$ 7,588	$ 9,640		$ 43,360
Airport Cooperative Research Program	$ 6,025	$ 1,650	$ 550	$ 850	$ 5,750	$ 175	$ 15,000
Small Community Air Service	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FACILITY REPLACEMENT AND RADAR MODERNIZATION	**$ -**	**$ 1,000,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1,000,000**
Facilities Replace		$ 852,000					$ 852,000
Radar Replace		$ 98,000					$ 98,000
Personnel & Related Expenses		$ 50,000					$ 50,000
TOTAL REQUESTED	**$ 9,211,728**	**$ 9,204,402**	**$ 159,029**	**$ 194,015**	**$ 2,032,670**	**$ 1,001,555**	**$ 21,803,399**
IIJA SUPPLEMENTAL ADVANCE APPROPRIATIONS	**$ 79,336**	**$ 3,128,261**	**$ 1,102,755**	**$ 651,660**	**$ 35,988**		**$ 4,998,000**
Facilities & Equipment		$ 1,000,000					$ 1,000,000
Airport Infrastructure Grants*	$ 23,392	$ 1,634,755	$ 837,021	$ 467,844	$ 35,988		$ 2,999,000
Airport Terminal Program*	$ 55,944	$ 493,506	$ 265,734	$ 183,816			$ 999,000
GRAND TOTAL	**$ 9,291,064**	**$ 12,332,663**	**$ 1,261,784**	**$ 845,675**	**$ 2,068,658**	**$ 1,001,555**	**$ 26,801,399**

Safety: Make our transportation system safer for all people. Work toward a future where transportation-related serious injuries and fatalities are eliminated.

Economic Strength and Global Competitiveness: Grow an inclusive and sustainable economy. Invest in our transportation system to provide American workers and businesses reliable and efficient access to good-paying jobs, resources, and markets.

Equity: Reduce inequities. Support and engage people and communities to promote safe, affordable, accessible, and multimodal access to opportunities and services while reducing transportation-related disparities, adverse community impacts, and health effects.

Climate & Sustainability: Tackle the climate crisis by ensuring that transportation plays a central role in the solution. Substantially reduce greenhouse gas emissions and transportation-related pollution and build more resilient and sustainable transportation systems to benefit and protect communities.

Transformation: Design for the future. Invest in purpose-driven research and innovation to meet the challenge of the present and modernize a transportation system of the future that serves everyone today and in the decades to come.

Organizational Excellence: Strengthen our world class organization. Advance the Department's mission by establishing policies, processes, and an inclusive and innovative culture to effectively serve communities and responsibly steward the public's resources.

* Reflects the transfer of $1 million in each year to the DOT Office of Inspector General.

EXHIBIT II-4

FY 2025 OUTLAYS
FEDERAL AVIATION ADMINISTRATION
($000)

ACCOUNT NAME	M / D	FY 2023 ACTUAL	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Operations	**D**	**$11,913,819**	**$12,488,000**	**$13,403,000**
General		$1,920,000	$2,492,000	$1,632,000
AATF		$9,993,819	$9,996,000	$11,771,000
Facilities & Equipment		**$3,082,160**	**$3,249,530**	**$3,303,100**
AATF				
- Discretionary	**D**	$3,082,160	$3,249,530	$3,303,100
- Mandatory	**M**			
Research, Engineering & Development	**D**	**$223,070**	**$248,330**	**$283,190**
Grants-in-Aid for Airports	**D**	**$4,495,720**	**$4,564,000**	**$3,301,000**
Facility Replacement and Radar Modernization	**M**			**$136,000**
Aviation Insurance Revolving Account	**M**	**(67,143)**	**($106,000)**	**($89,000)**
Aviation User Fees (Overflight)	**M**	**$1,675**	**$3,000**	**$0**
Franchise Fund	**D**	**($108,696)**	**$21,000**	**($56,000)**
TOTAL:		**$ 19,540,605**	**$ 20,467,860**	**$ 20,281,290**
Mandatory		($65,468)	($103,000)	$47,000
Discretionary		$19,606,073	$20,570,860	$20,234,290
SUPPLEMENTAL FUNDING				
COVID-19 Supplementals				
Grants-in-Aid for Airports	**D**	$25,053	$444,000	$561,000
Relief for Airports	**M**	$3,443,090	$1,196,000	$296,000
Employee Leave Fund	**M**			
Other Supplementals				
Research, Engineering & Dev. - Inflation Reduction Act	**M**	$0	$88,000	$91,000
Infrastructure Investment and Jobs Act (IIJA Division J)				
Facilities and Equipment	**D**	$341,997	$533,000	$845,000
Airport Infrastructure Grants	**D**	$266,992	$1,729,000	$3,079,000
Airport Terminal Program	**D**	$206,308	$868,000	$929,000
Grand Total, Outlays from all Appropriations		**$ 23,824,045**	**$ 25,325,860**	**$ 26,082,290**

EXHIBIT II-5
SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE
Federal Aviation Administration
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

Operations	FY 2023 Enacted	FY 2024 Adjustments	Baseline Changes: Annualization of FY 2024 Pay Raise	Annualization of FY 2024 FTE	FY 2025 Pay Raise	Adjustment for Compensable Days (261 days)	GSA Rent	WCF Increase/ Decrease	Inflation and Other Adjustments to Base	FY 2025 Baseline Estimate	Program Increases/ Decreases	FY 2025 Request
PERSONNEL RESOURCES (FTE)												
Direct FTE	39,049	881		303						40,233	203	40,436
FINANCIAL RESOURCES												
ADMINISTRATIVE EXPENSES												
Salaries and Benefits	$8,416,303	$604,444	$117,269	$59,175	$135,314			$119		$9,332,624	$32,327	$9,364,951
Travel	$125,631	$4,701							$2,663	$132,995	$1,681	$134,676
Transportation	$23,277	$321							$4	$23,602	$560	$24,162
GSA Rent	$126,645	$1,667							$3,039	$131,351	$0	$131,351
Rental Payments to Other	$52,110	$686							$1,053	$53,849	$0	$53,849
Communications, & Utilities	$242,670	$9,282							$96,956	$348,908	$1,854	$350,762
Printing	$5,712	$76							$115	$5,903	$0	$5,903
Other Services	$2,582,717	$199,124						$3,103	$300,033	$3,084,977	$95,507	$3,180,484
Supplies	$118,075	$1,820							$2,379	$122,274	$35	$122,309
Equipment	$217,613	$3,452							$4,418	$225,483	$4,831	$230,314
Land and Strructure	$2,339	$30							$48	$2,417	$251	$2,668
Grants, Claims and Subsidies										$0	$0	$0
Insurance Claims and Indemnities	$1,908	$24							$38	$1,970	$0	$1,970
Admin Subtotal	**$11,915,000**	**$825,627**	**$117,269**	**$59,175**	**$135,314**	**$0**	**$0**	**$3,222**	**$410,746**	**$13,466,353**	**$137,046**	**$13,603,399**
PROGRAMS												
Air Traffic Organization (ATO)	$8,811,812	$627,256	$88,622	$39,019	$102,258			$625	$382,148	$10,051,740	$53,938	$10,105,678
Aviation Safety (AVS)	$1,630,794	$114,738	$19,129	$11,828	$22,072			($74)	$3,587	$1,802,074	$30,004	$1,832,078
Commercial Space Transportation (AST)	$37,581	$4,437	$393		$453				$235	$43,099	$14,031	$57,130
Finance and Management (AFN)	$917,899	$31,477	$3,866		$4,461			($355)	$21,577	$978,925	$25,862	$1,004,787
NextGen (ANG)	$65,581	$4,516	$449	$154	$519			$22	$710	$71,951	$1,605	$73,556
Security and Hazardous Materials Safety (ASH)	$152,359	$11,592	$1,465	$1,455	$1,691			$695	$1,028	$170,285	$6,703	$176,988
Staff Offices	$298,974	$31,611	$3,345	$6,719	$3,860			$2,309	$1,461	$348,279	$4,903	$353,182
Programs Subtotal	**$11,915,000**	**$825,627**	**$117,269**	**$59,175**	**$135,314**	**$0**	**$0**	**$3,222**	**$410,746**	**$13,466,353**	**$137,046**	**$13,603,399**
TOTAL	**$11,915,000**	**$825,627**	**$117,269**	**$59,175**	**$135,314**	**$0**	**$0**	**$3,222**	**$410,746**	**$13,466,353**	**$137,046**	**$13,603,399**

EXHIBIT II-5
SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE
Federal Aviation Administration
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

			Baseline Changes									
Facilities and Equipment	**FY 2024 Annualized CR**	**FY 2024 Adjustments**	**Annualization of Prior Pay Raises**	**Annualization of new FY 2024 FTE**	**FY 2025 Pay Raises**	**Adjustment for Compensable Days (261 days)**	**GSA Rent**	**WCF Increase/ Decrease**	**Inflation and other adjustments to base**	**FY 2025 Baseline Estimate**	**Program Increases/ Decreases**	**FY 2025 Request**
PERSONNEL RESOURCES (FTE)										0		0
Direct FTE	2,724	60		75						2,859	53	2,912
FINANCIAL RESOURCES												
ADMINISTRATIVE EXPENSES												
Salaries and Benefits	559,386	17,982	7,392	15,225	8,529					608,514	$17,504	$626,018
Travel	41,069									41,069	$7,294	$48,363
Transportation	2,018									2,018	$585	$2,603
GSA Rent	1,004									1,004	$264	$1,268
Rental Payments to Others	33,108									33,108	$3,724	$36,832
Communications, & Utilities	74,553									74,553	$22,763	$97,316
Printing	15									15	$2	$17
Other Services:	1,922,753	18							467,854	2,390,625	$10,997	$2,401,622
-WCF	-									-	$0	$0
Supplies	23,931									23,931	$6,834	$30,765
Equipment	196,144									196,144	$45,968	$242,112
Lands and Structures	88,345									88,345	$21,651	$109,996
Insurance, Claims and Indemnities	2,674									2,674	$414	$3,088
Admin Subtotal	**$2,945,000**	**$18,000**	**$7,392**	**$15,225**	**$8,529**	**$0**	**$0**	**$0**	**$467,854**	**3,462,000**	**$138,000**	**$3,600,000**
PROGRAMS												
Engineering, Development, Test and Evaluation	$136,240									$136,240	$37,560	$173,800
Air Traffic Control Facilities and Equipment	$1,756,481								$467,854	$2,224,335	$11,265	$2,235,600
Non-Air Traffic Control Facilities and Equipment	$202,829									$202,829	$17,171	$220,000
Facilities and Equipment Mission Support	$232,450									$232,450	$48,150	$280,600
Personnel and Related Expenses	$617,000	$18,000	$7,392	$15,225	$8,529	$0	$0	$0	$0	$666,146	$23,854	$690,000
Programs Subtotal	**$2,945,000**	**$18,000**	**$7,392**	**$15,225**	**$8,529**	**$0**	**$0**	**$0**	**$467,854**	**$3,462,000**	**$138,000**	**$3,600,000**
BASE PROGRAMS TOTAL	**$2,945,000**	**$18,000**	**$7,392**	**$15,225**	**$8,529**	**$0**	**$0**	**$0**	**$467,854**	**$3,462,000**	**$138,000**	**$3,600,000**

EXHIBIT II-5
SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE
Federal Aviation Administration
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

			Baseline Changes										
Research, Engineering and Development	**FY 2023 Enacted**	**FY 2024 Adjustments**	**Annualization of Prior Pay Raises**	**Annualization of new FY 2024 FTE**	**FY 2025 Pay Raises**	**Adjustment for Compensable Days (261 days)**	**FY 2025 FERS Increase**	**GSA Rent**	**WCF Increase/ Decrease**	**Inflation and other adjustments to base**	**FY 2025 Baseline Estimate**	**Program Increases/ Decreases**	**FY 2025 Request**
PERSONNEL RESOURCES (FTE)											0		0
Direct FTE	198	34		1							233	1	234
FINANCIAL RESOURCES													
ADMINISTRATIVE EXPENSES													
Salaries and Benefits	$46,680	$3,975	$659	$109	$770						$52,193	$218	$52,411
Travel	$1,175	$45								$24	$1,244		$1,244
Transportation	$16	$1								$0	$17		$17
GSA Rent	$0	$0								$0	$0		$0
Communications, & Utilities	$5	$0								$0	$5		$5
Printing	$5	$0								$0	$5		$5
Other Services:													
-Advisory and Assistance Services	$0	$0								$0	$0		$0
-Others	$134,438	($3,961)								$2,610	$133,086	($9,593)	$123,493
-WCF	$0	$0								$0	$0		$0
Supplies	$669	$13								$14	$696		$696
Equipment	$2,450	$49								$50	$2,549		$2,549
Lands and Structures	$432	$9								$9	$450		$450
Grants, Claims & Subsidies	$69,129	$0									$69,129		$69,129
Interest and Dividends	$0	$0									$0		$0
Admin Subtotal	**$255,000**	**$130**	**$659**	**$109**	**$770**	**$0**	**$0**	**$0**	**$0**	**$2,707**	**$259,375**	**($9,375)**	**$250,000**
PROGRAMS													
Research, Engineering and Developmen	$255,000	$130	$659	$109	$770	$0	$0	$0	$0	$2,707	$259,375	($9,375)	$250,000
Programs Subtotal	**$255,000**	**$130**	**$659**	**$109**	**$770**	**$0**	**$0**	**$0**	**$0**	**$2,707**	**$259,375**	**($9,375)**	**$250,000**
TOTAL	**$255,000**	**$130**	**$659**	**$109**	**$770**	**$0**	**$0**	**$0**	**$0**	**$2,707**	**$259,375**	**($9,375)**	**$250,000**

EXHIBIT II-5
SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE
Federal Aviation Administration
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

			Baseline Changes										
GRANTS-IN-AID FOR AIRPORTS	**FY 2023 Enacted**	**FY 2024 Adjustment**	**Annualization of Prior Pay Raises**	**Annualization of new 2024 FTE**	**2025 Pay Raise**	**Adjustment for Compensable Days (261 days)**	**FY 2025 FERS Increase**	**GSA Rent**	**WCF Increase/ Decrease**	**Inflation and other adjustments to base**	**FY 2025 Baseline Estimate**	**Program Increases/ Decreases**	**FY 2025 Request**
PERSONNEL RESOURCES (FTE)													
Direct FTE	565	119.0		24.0							708	4.0	712.0
FINANCIAL RESOURCES*													
ADMINISTRATIVE EXPENSES													
Salaries and Benefits	120,989	19,947	1,679	2,310	1,937		0			0	146,861	698	147,559
Travel	3,156	46								63	3,265		3,265
Transportation	124									2	126		126
GSA Rent	104									2	106		106
Rental Payment to Others	789	8								16	813		813
Communications, Rent & Utilities	265	3								5	273		273
Printing	28									1	29		29
Other Services:	0									0	0		0
-WCF	196	-13							99	0	282		282
-Advisory and Assistance Services	32,557	588								651	33,796		33,796
-Other	48,177	497								489	49,163	-302	48,861
Supplies	1,122									22	1,144		1,144
Equipment	1,236									25	1,261		1,261
Lands and Structures	497									10	507		507
Grants, Claims & Subsidies	3,689,296	-569,631									3,119,666	-7,708	3,111,958
Insurance Claims and Indemnities	1									0	1		1
Interest and Dividends	18									0	18		18
Financial transfers	10,000	-10,000								0	0		0
Admin Subtotal	**3,908,555**	**(558,555)**	**1,679**	**2,310**	**1,937**	**0**	**0**	**0**	**99**	**1,287**	**3,357,312**	**-7,312**	**3,350,000**
PROGRAMS													
Grants	3,705,355	-569,631	0		0					0	3,135,724	-7,708	3,128,016
Personnel and Related Expenses	137,372	20,103	1,613	2,310	1,861				99	266	163,624		163,624
Airport Technology Research	40,828	973	63		73					725	42,662	698	43,360
Airport Cooperative Research	15,000		3		3					296	15,302	-302	15,000
Small Community Air Service	10,000	-10,000	0		0					0	0		0
Programs Subtotal	**3,908,555**	**-558,555**	**1,679**	**2,310**	**1,937**	**0**	**0**	**0**	**99**	**1,287**	**3,357,312**	**-7,312**	**3,350,000**
TOTAL	**3,908,555**	**-558,555**	**1,679**	**2,310**	**1,937**	**0**	**0**	**0**	**99**	**1,287**	**3,357,312**	**-7,312**	**3,350,000**

*Financial Resources does not include resources from the Infrastructure Investment and Jobs Act and American Rescue Plan Act.

EXHIBIT II-5
SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE
Federal Aviation Administration
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

			Baseline Changes									
Facility Replacement and Radar Modernization	**FY 2023 Enacted**	**FY 2024 Adjustments**	**Annualization of Prior Pay Raises**	**Annualization of new FY 2024 FTE**	**FY 2025 Pay Raises**	**Adjustment for Compensable Days (261 days)**	**GSA Rent**	**WCF Increase/ Decrease**	**Inflation and other adjustments to base**	**FY 2025 Baseline Estimate**	**Program Increases/ Decreases**	**FY 2025 Request**
PERSONNEL RESOURCES (FTE)										0		0
Direct FTE	0									0	181	181
FINANCIAL RESOURCES												
ADMINISTRATIVE EXPENSES												
Salaries and Benefits	-									-	$34,546	$34,546
Travel	-									-	$11,623	$11,623
Transportation	-									-	$0	$0
GSA Rent	-									-	$0	$0
Rental Payments to Others	-									-	$0	$0
Communications, & Utilities	-									-	$50	$50
Printing	-									-	$0	$0
Other Services:	-									-	$953,590	$953,590
-WCF	-									-	$0	$0
Supplies	-									-	$6	$6
Equipment	-									-	$185	$185
Lands and Structures	-									-	$0	$0
Insurance, Claims and Imdemnities	-									-	$0	$0
Admin Subtotal	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**-**	**$1,000,000**	**$1,000,000**
PROGRAMS												
Facilities Replace	-									-	$852,000	$852,000
Radar Replace	-									-	$98,000	$98,000
Personnel and Related Expenses	-									-	$50,000	$50,000
Programs Subtotal	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,000,000**	**$1,000,000**
BASE PROGRAMS TOTAL	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,000,000**	**$1,000,000**

EXHIBIT II-6
WORKING CAPITAL FUND
FEDERAL AVIATION ADMINISTRATION
($000)

	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
DIRECT:			
Facilities & Equipment	54	54	54
Grants-in-Aid for Airports	196	67	161
Operations	59,831	65,655	68,758
TOTAL	**$ 60,081**	**$ 65,776**	**$ 68,973**

Footnote: Customer Estimate - FAA
1) F&E and Grants-in-Aid for Airports funding only support E-gov Initiatives
2) Adjustment made for rounding

	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
DIRECT:			
Grants-in-Aid for Airports	20	7	12
Operations	565	212	331
TOTAL	**$ 585**	**$ 219**	**$ 343**

Footnote: Customer Estimate - FAA Regional Transit
1) FY 2023 is the first time the FAA has included the Working Capital Fund - Regional Transit Benefit program in the budget submission.

EXHIBIT II-7
FEDERAL AVIATION ADMINISTRATION
PERSONNEL RESOURCE -- SUMMARY
TOTAL FULL-TIME EQUIVALENTS

	FY 2023 ACTUAL	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
DIRECT FUNDED BY APPROPRIATION			
Operations	39,049	39,049	40,436
Facilities & Equipment	2,709	2,724	2,912
Research, Engineering & Development	198	232	234
Grants-in-Aid for Airports	565	637	712
Facility Replacement and Radar Modernization			181
SUBTOTAL, DIRECT FUNDED	42,521	42,642	44,475
REIMBURSEMENTS / ALLOCATIONS / OTHER			
Reimbursements and 'Other'			
Operations	226	196	196
Aviation Insurance Revolving Fund	4	4	4
Facilities & Equipment	51	53	53
Grants-in-Aid for Airports	2	2	5
Administrative Services Franchise Fund	1,352	1,392	1,392
SUBTOTAL, REIMBURSE./ALLOC./OTH.	1,635	1,647	1,650
BASE TOTAL FTEs	**44,156**	**44,289**	**46,125**
SUPPLEMENTAL FUNDED FTE's			
Supplementals			
CARES Act			
Relief for Airports (ARPA)			
Inflation Reduction Act (IRA)	0	4	4
IIJA Supplemental (Division J)			
Facilities & Equipment	189	330	440
Airport Infrastructure Grants	93	135	140
Airport Terminal Program	34	41	43
SUBTOTAL, Supplemental Funded	**316**	**510**	**627**
TOTAL FTEs	**44,472**	**44,799**	**46,752**

EXHIBIT II-8
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY – STAFFING
FULL-TIME PERMANENT POSITIONS

	FY 2023 ACTUAL	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
DIRECT FUNDED BY APPROPRIATION			
Operations	39,026	39,026	40,243
Facilities & Equipment	2,742	2,772	2,997
Research, Engineering & Development	203	238	240
Grants-in-Aid for Airports	555	709	716
Facility Replacement and Radar Modernization			329
SUBTOTAL, DIRECT FUNDED	42,526	42,745	44,525
REIMBURSEMENTS / ALLOCATIONS / OTHER			
Reimbursements and 'Other'			
Operations	130	98	98
Aviation Insurance Revolving Fund	3	4	4
Facilities & Equipment			
Grants-in-Aid for Airports	1	4	5
Administrative Services Franchise Fund	1,341	1,403	1,403
SUBTOTAL, REIMBURSE./ALLOC./OTH.	1,475	1,509	1,510
BASE TOTAL POSITIONS	**44,001**	**44,254**	**46,035**
SUPPLEMENTAL FUNDED FTP's			
Supplementals			
CARES Act			
Relief for Airports (ARPA)			
Inflation Reduction Act (IRA)	2	4	4
IIJA Supplemental (Division J)			
Facilities & Equipment	212	440	440
Airport Infrastructure Grants	110	135	140
Airport Terminal Program	38	41	45
SUBTOTAL, Supplemental Funded	**362**	**620**	**629**
TOTAL POSITIONS	**44,363**	**44,874**	**46,664**
INFO:			
Allocations to Other Agencies			

EXHIBIT II-9
FEDERAL AVIATION ADMINISTRATION
USER FEES
($000)

	FY 2023 ACTUAL	FY 2024 ESTIMATE	FY 2025 ESTIMATE
USER FEE			
Civil Aviation Registry Fees	1,129	1,264	1,390
Foreign Repair Station/Certification Fees	9,203	10,300	11,330
Aeronautical Charting Fees	36	28	28
Overflight Fees	138,547	155,869	165,293
Unmanned Aircraft Systems Registry Fees	1,208	1,352	1,487
Total User Fees	**150,123**	**168,813**	**179,528**

OPERATIONS

(AIRPORT AND AIRWAY TRUST FUND)

For necessary expenses of the Federal Aviation Administration, not otherwise provided for, including operations and research activities related to commercial space transportation, administrative expenses for research and development, establishment of air navigation facilities, the operation (including leasing) and maintenance of aircraft, subsidizing the cost of aeronautical charts and maps sold to the public, the lease or purchase of passenger motor vehicles for replacement only, $13,603,399,000, to remain available until September 30, 2026, of which $11,771,321,000 shall be derived from the Airport and Airway Trust Fund: Provided, That not later than 60 days after the submission of the budget request, the Administrator of the Federal Aviation Administration shall transmit to Congress an annual update to the report submitted to Congress in December 2004 pursuant to section 221 of the Vision 100-Century of Aviation Reauthorization Act (49 U.S.C. 40101 note): Provided further, That not later than 60 days after the submission of the budget request, the Administrator shall transmit to Congress a companion report that describes a comprehensive strategy for staffing, hiring, and training flight standards and aircraft certification staff in a format similar to the one utilized for the controller staffing plan, including stated attrition estimates and numerical hiring goals by fiscal year: Provided further, That funds may be used to enter into a grant agreement with a nonprofit standard-setting organization to assist in the development of aviation safety standards: Provided further, That none of the funds made available by this Act shall be available for new applicants for the second career training program: Provided further, That there may be credited to this appropriation, as offsetting collections, funds received from States, counties, municipalities, foreign authorities other public authorities, and private sources for expenses incurred in the provision of agency services, including receipts for the maintenance and operation of air navigation facilities, and for issuance, renewal or modification of certificates, including airman, aircraft, and repair station certificates, or for tests related thereto, or for processing major repair or alteration forms.

Note.—A full-year 2024 appropriation for this account was not enacted at the time the Budget was prepared; therefore, the Budget assumes this account is operating under the Continuing Appropriations Act, 2024 and Other Extensions Act (Division A of Public Law 118–15, as amended). The amounts included for 2024 reflect the annualized level provided by the continuing resolution.

EXHIBIT III-1
OPERATIONS
Summary by Program Activity
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Air Traffic Organization (ATO)	$ 8,811,812	$ 8,811,812	$ 10,105,678
Aviation Safety (AVS)	$ 1,630,794	$ 1,630,794	$ 1,832,078
Commercial Space (AST)	$ 37,581	$ 37,581	$ 57,130
Finance & Management (AFN)	$ 917,899	$ 917,899	$ 1,004,787
NextGen (ANG)	$ 65,581	$ 65,581	$ 73,556
Security and Hazardous Materials Safety (ASH)	$ 152,359	$ 152,359	$ 176,988
Staff Offices	$ 298,974	$ 298,974	$ 353,182
TOTAL, Base appropriations	$ 11,915,000	$ 11,915,000	$ 13,603,399
FTEs			
Direct Funded	39,049	39,049	40,436
Reimbursable, allocated, other	226	196	196
Supplemental Funding			
COVID-19 Supplementals			
CRRSA			
Relief for Airports (ARPA)			
Employee Leave Fund (ARPA)			
IIJA Supplemental (Division J)			
Faclities & Equipment			
Airport Infrastructure Grants			
Airport Terminal Program			
TOTAL, Base appropriations	$ -	$ -	$ -
FTEs			
Direct Funded			
Reimbursable, allocated, other			
Operations	$ 11,915,000	$ 11,915,000	$ 13,603,399

Program and Performance Statement

The FY 2025 Budget requests $13.6 billion for Federal Aviation Administration (FAA) operations. This account funds the day-to-day operations of the air traffic control system and safety oversight of the aviation industry. In addition, the request funds regulation of the commercial space transportation industry, as well as FAA policy oversight and overall management functions.

EXHIBIT III-1a

OPERATIONS
SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025
Appropriations, Obligations, Limitations, and Exempt Obligations
($000)

	$000	FTE
FY 2023 ENACTED	$11,915,000	39,049
ADJUSTMENTS TO BASE:		
FY 2024 Adjustment	825,627	881
Subscriptions Services From F&E to Operations	194,000	
Annualization of FY 2024 Pay Raise 5.2%	117,269	
Annualization of FY 2024 FTE	20,156	116
Annualization of FY 2024 FTE -- Controller Hiring Surge	39,019	187
FY 2025 Pay Raise 2%	135,314	
Transition from F&E to Operations	39,334	
Non-Pay Inflation	66,363	
Telecommunications Infrastructure	110,000	
Working Capital Fund	3,222	
Bureau of Transportation Statistics	1,049	
SUBTOTAL, ADJUSTMENTS TO BASE	**1,551,353**	**1,184**
PROGRAM REDUCTIONS		
SUBTOTAL, PROGRAM REDUCTIONS	**0**	**0**
PROGRAM INCREASES		
Controller Hiring and Training Surge	42,992	113
Aviation Safety	15,912	2
Hazardous Materials Safety	2,679	14
Aeronautical Information Management Modernization	10,000	
Cybersecurity	3,960	5
Commercial Space Operations	21,049	38
Unmanned Aircraft Systems	3,732	7
Data Analytics	15,869	12
FAA Electric Vehicle Fleet	4,850	1
FAA Business Application Modernization	8,744	1
Facility Maintenance and Sustainment (WHJTC/MMAC)	4,174	1
Staff Office Support	3,085	9
SUBTOTAL, PROGRAM INCREASES	**137,046**	**203**
FY 2025 REQUEST	**13,603,399**	**40,436**
Supplemental Appropriations	**0**	**0**
TOTAL	**13,603,399**	**40,436**

Operations Summary
($000)

	Dollars (in thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$11,915,000**	**39,026**	**994**	**39,049**
FY 2024 Adjustment	$825,627	862	303	881
Adjustments to Base	**$725,726**	-	-	**303**
Subscription Services from F&E to Operations	$194,000			
Annualization of FY 2024 Pay Raise 5.2%	$117,269	-	-	
Annualization of FY 2024 FTE	$20,156	-	-	116
Annualization of FY 2024 FTE -- Controller Hiring Surge	$39,019	-	-	187
FY 2025 Pay Raise 2.0%	$135,314	-	-	-
Transition from F&E to Operations	$39,334	-	-	-
Non-Pay Inflation	$66,363	-	-	-
Telecommunications Infrastructure	$110,000	-	-	-
Working Capital Fund	$3,222	-	-	-
Bureau of Transportation Statistics	$1,049	-	-	-
Discretionary Adjustments	**$137,046**	**355**	**27**	**203**
Controller Hiring and Training Surge	$42,992	181	27	113
Aviation Safety	$15,912	4	-	2
Hazardous Materials Safety	$2,679	28	-	14
Aeronautical Information Management Modernization (AIMM)	$10,000	-	-	-
Cybersecurity	$3,960	10	-	5
Commercial Space Operations	$21,049	74	-	38
Unmanned Aircraft Systems	$3,732	14	-	7
Data Analytics	$15,869	22	-	12
FAA Electric Vehicle Fleet	$4,850	2	-	1
FAA Business Application Modernization	$8,744	2	-	1
Facility Maintenance and Sustainment (MMAC/WHJTC)	$4,174	1	-	1
Staff Office Support	$3,085	17	-	9
FY 2025 Request	**$13,603,399**	**40,243**	**1,324**	**40,436**

Staffing Summary -- FY 2023 - FY 2025

			Type	FY 2023 Actual	FY 2024 Annualized CR	FY 2025 Request
Air Traffic Organization		ATO	FTP	27,999	27,999	28,595
			OTFTP	741	741	963
			FTE	27,993	27,993	28,752
Associate Administrator for Aviation Safety		AVS	FTP	7,622	7,622	7,923
			OTFTP	43	43	43
			FTE	7,552	7,552	7,863
Associate Administrator for Commercial Space Transportation		AST	FTP	136	136	209
			OTFTP	-	-	-
			FTE	124	124	182
Assistant Administrator for Finance and Management		AFN	FTP	1,400	1,400	1,413
			OTFTP	27	27	27
			FTE	1,394	1,394	1,401
Assistant Administrator for Next Generation Air Transportation System		ANG	FTP	167	167	170
			OTFTP	3	3	3
			FTE	164	164	167
Associate Administrator for Security and Hazardous Materials Safety		ASH	FTP	561	561	649
			OTFTP	2	2	2
			FTE	542	542	615
Staff Offices	Assistant Administrator for Human Resource Management	AHR	FTP	484	484	505
			OTFTP	143	143	243
			FTE	604	604	641
	Office of the Administrator and Deputy	AOA	FTP	9	9	9
			OTFTP	4	4	4
			FTE	11	11	11
	Assistant Administrator for Audit and Evaluation	AAE	FTP	22	22	25
			OTFTP	1	1	1
			FTE	20	20	23
	Assistant Administrator for Civil Rights	ACR	FTP	69	69	90
			OTFTP	2	2	2
			FTE	70	70	93
	Assistnat Administrator for Government and Industry Affairs	AGI	FTP	8	8	8
			OTFTP	1	1	1
			FTE	9	9	9
	Assistant Administrator for Communications	AOC	FTP	41	41	41
			OTFTP	1	1	1
			FTE	40	40	40
	Office of Chief Counsel	AGC	FTP	222	222	302
			OTFTP	14	14	14
			FTE	238	238	319
	Assistant Administrator for Policy, International Affairs and Environment	APL	FTP	286	286	304
			OTFTP	12	12	20
			FTE	288	288	320
Total			FTP	39,026	39,026	40,243
			OTFTP	994	994	1,324
			FTE	39,049	39,049	40,436

Resource Summary -- FY 2023 - FY 2025 ($000)

			FY 2023 Actuals	FY 2024 Annualized CR	FY 2025 Request
Air Traffic Organization (ATO)		pcb	$ 6,354,960	$ 6,354,960	$ 7,063,817
		o/o	$ 2,456,852	$ 2,456,852	$ 3,041,861
ATO Total			**$ 8,811,812**	**$ 8,811,812**	**$ 10,105,678**
Associate Administrator for Aviation Safety (AVS)		pcb	$ 1,377,236	$ 1,377,236	$ 1,527,453
		o/o	$ 253,558	$ 253,558	$ 304,625
AVS Total			**$ 1,630,794**	**$ 1,630,794**	**$ 1,832,078**
Associate Administrator for Commercial Space Transportation (AST)		pcb	$ 26,817	$ 26,817	$ 36,435
		o/o	$ 10,764	$ 10,764	$ 20,695
AST Total			**$ 37,581**	**$ 37,581**	**$ 57,130**
Assistant Administrator for Finance and Management (AFN)		pcb	$ 275,526	$ 275,526	$ 307,007
		o/o	$ 642,373	$ 642,373	$ 697,780
AFN Total			**$ 917,899**	**$ 917,899**	**$ 1,004,787**
Assistant Administrator for NextGen Air Transportation System (ANG)		pcb	$ 33,349	$ 33,349	$ 35,751
		o/o	$ 32,232	$ 32,232	$ 37,805
ANG Total			**$ 65,581**	**$ 65,581**	**$ 73,556**
Associate Administrator for Security and Hazardous Materials Safety (ASH)		pcb	$ 102,571	$ 102,571	$ 121,029
		o/o	$ 49,788	$ 49,788	$ 55,959
ASH Total			**$ 152,359**	**$ 152,359**	**$ 176,988**
Staff Offices	Assistant Administrator for Human Resource Management	pcb	$ 86,486	$ 86,486	$ 98,846
		o/o	$ 31,720	$ 31,720	$ 35,135
	AHR Total		**$ 118,206**	**$ 118,206**	**$ 133,981**
	Office of the Administrator and Deputy (AOA)	pcb	$ 3,074	$ 3,074	$ 2,825
		o/o	$ 809	$ 809	$ 1,334
	AOA Total		**$ 3,883**	**$ 3,883**	**$ 4,159**
	Assistant Administrator for Audit and Evaluation (AAE)	pcb	$ 4,592	$ 4,592	$ 5,139
		o/o	$ 865	$ 865	$ 1,242
	AAE Total		**$ 5,457**	**$ 5,457**	**$ 6,381**
	Assistant Administrator for Civil Rights (ACR)	pcb	$ 13,261	$ 13,261	$ 16,114
		o/o	$ 1,527	$ 1,527	$ 2,706
	ACR Total		**$ 14,788**	**$ 14,788**	**$ 18,820**
	Assistant Administrator for Government and Industry Affairs	pcb	$ 1,563	$ 1,563	$ 2,018
		o/o	$ 417	$ 417	$ 110
	AGI Total		**$ 1,980**	**$ 1,980**	**$ 2,128**
	Assistant Administrator for Communications (AOC)	pcb	$ 8,121	$ 8,121	$ 8,622
		o/o	$ 335	$ 335	$ 526
	AOC Total		**$ 8,456**	**$ 8,456**	**$ 9,148**
	Office of the Chief Counsel (AGC)	pcb	$ 50,246	$ 50,246	$ 66,585
		o/o	$ 5,531	$ 5,531	$ 7,440
	AGC Total		**$ 55,777**	**$ 55,777**	**$ 74,025**
	Assistant Administrator for Policy, International Affairs and	pcb	$ 64,801	$ 64,801	$ 73,310
		o/o	$ 25,626	$ 25,626	$ 31,230
	APL Total		**$ 90,427**	**$ 90,427**	**$ 104,540**
Grand Total			**$ 11,915,000**	**$ 11,915,000**	**$ 13,603,399**

FY 2025 Discretionary Adjustments
(In thousands)

LOB/SO	ATO	AVS	AST	AFN	ANG	ASH	STAFF OFFICES	TOTAL
Discretionary Adjustments								
Controller Hiring and Training Surge (179 FTP/27 OTFTP/112 FTE)	$ 36,920	$ 683		$ 4,023		$ 702	**$ 664**	**$ 42,992**
Aviation Safety (4 FTP/2 FTE)		$ 15,912					**$ -**	**$ 15,912**
Hazardous Materials Safety (28 FTP/14 FTE)						$ 2,679	**$ -**	**$ 2,679**
Aeronautical Information Management Modernization (AIMM)	$ 10,000						**$ -**	**$ 10,000**
Cybersecurity (10 FTP/5 FTE)				$ 3,960			**$ -**	**$ 3,960**
Commercial Space Operations (74 FTP/38 FTE)	$ 7,018		$ 14,031				**$ -**	**$ 21,049**
Unmanned Aircraft Systems (14 FTP/7 FTE)						$ 3,322	**$ 410**	**$ 3,732**
Data Analytics (22 FTP/12 FTE)		$ 13,409		$ 2,460			**$ -**	**$ 15,869**
FAA Electric Vehicle Fleet (2 FTP/1 FTE)				$ 4,850			**$ -**	**$ 4,850**
FAA Business Application Modernization (2 FTP/1 FTE)				$ 8,000			**$ 744**	**$ 8,744**
Facility Maintenance and Sustainment (1 FTP/1 FTE)				$ 2,569	$ 1,605		**$ -**	**$ 4,174**
Staff Office Support (17 FTP/9 FTE)							**$ 3,085**	**$ 3,085**
Subtotal, Discretionary Adjustments	**$ 53,938**	**$ 30,004**	**$ 14,031**	**$ 25,862**	**$ 1,605**	**$ 6,703**	**$ 4,903**	**$ 137,046**

Controller Hiring and Training Surge
Air Traffic Organization (ATO),
Office of Aviation Safety (AVS), Office of Finance and Management (AFN),
Office of Security and Hazardous Materials Safety (ASH), and
Office of Human Resources (AHR)

(In thousands)

	FY 2025
Controller Hiring and Training Surge	**$42,992**
PC&B	$15,726
Non-Pay	$27,266
FTE	**113**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The FAA continues to take steps to reverse the decline in the number of certified air traffic controllers. This effort is needed to increase controller hiring and training impacted by the disruption that began in March 2020 caused by the COVID-19 pandemic. As the impacts of the pandemic became more manageable, the FAA began to restore controller hiring in FY 2022 and achieved its FY 2022 controller hiring goal of 1,020. Although hiring resumed in FY 2022, air traffic levels in the spring and summer of 2022 recovered much faster than forecasted, and some markets even exceeded pre-pandemic levels.

2. Describe the strategy and the proposed solution you are using to address the situation.

The FAA developed a plan to reduce the backlog during FY 2023 and FY 2024. The goal of this training surge effort was to streamline the path for controller training while further increasing resiliency to serve high-demand markets as air traffic increases. The FAA hired 1,512 controllers in FY 2023, exceeding the goal to hire and train 1,500 controllers that year. For FY 2024, the FAA plans to hire and train 1,800 controllers, an increase of 300 above the levels for FY 2023.

The FAA plans to further increase the hiring target for FY 2025 to hire 2,000 new controllers. This increase will rebuild the pipeline necessary to achieve the Certified Professional Controller staffing levels needed to meet current traffic demands, which overall have nearly rebounded to pre-pandemic levels.

3. How much are you requesting? Provide a detailed justification for the increase.

ATO is requesting $36.9 million for:

- $14.5 million and 166 FTP/27 OTFTP/105 FTE for salaries and expenses of 200 additional air traffic controllers to be hired above FY 2024 levels.
- $22.4 million for contract support and travel expenses to increase the training capacity at the Academy and in the field.

FAA is also requesting $6.1 million for the other FAA organizations which support the agency's controller hiring efforts.

- **AFN** is requesting $4.0 million for:
  - $3.1 million provides for contractual software development to the agency's follow-on schedule optimization system. Utilization of a schedule optimization system allows the FAA to maximize controller utilization, resulting in improved efficiency of air traffic control services.
  - $890,000 will support the hosting and sustainment of the FAA's job application system to accommodate the anticipated growth in new controller applications.

- **ASH** is requesting $702,000 for:
  - 8 FTP/4 FTE to process the increased background investigations for controller applicants and associated contract support in the ATO.

- **AVS** is requesting $683,000 for:
  - $110,000 and 1 FTP/1 FTE for salary of a medical officer to support the FAA Air Traffic Controller Specialist applicant increase.
  - $573,000 for the cost of the physical exams, as well as travel, training, and supplies.

- **AHR** is requesting $664,000 for:
  - $414,000 and 6 FTP/3 FTE to support the influx of applicants for additional controller hiring in the ATO. This includes but not limited to increased workload in the all areas associated with the application process for each applicant (Air Traffic Skills Assessment testing coordination, qualification reviews, entrance-on-duty and onboarding coordination and execution, tracking reasons for declinations of offers, and much more).
  - $250,000 for tools to enhance the recruitment of safety critical positions.

Address Aircraft Certification Reform Legislation
Office of Aviation Safety (AVS)

(In thousands)

	FY 2025
Address Aircraft Certification Reform Legislation	**$6,700**
PC&B	$0
Non-Pay	$6,700
FTE	**0**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The Federal Aviation Administration (FAA) is continuing its multi-year efforts to address the recommendations from independent reviews such as the Special Committee to Review the FAA's Aircraft Certification Process, and Joint Authorities Technical Review, as well as the requirements in the Aircraft Certification, Safety, and Accountability Act (ACSAA). Significant industry growth and rapid expansion of Urban Air Mobility and Optionally Piloted Aircraft require additional aircraft certification reform efforts.

While the FAA has made significant progress in addressing the requirements in ACSSA, there are still areas that FAA requires additional resources to fully implement. ACSAA identified opportunities for AVS to strengthen the training of its workforce. This includes Safety Management System (SMS) Training (Section 102); Integrated Project Teams (Section 108); Continuing Education and Recurrent Training (Section 112); and Human Factors Education Program (Section 124).

In response to other ACSAA requirements, AVS developed the Work Tracking System and the Certification Project Notification system to track certification processes and their major milestones. These systems need long term maintenance and modernization funding to remain viable solutions for certification project tracking of existing manufactured aircraft for both AIR and AFS, and to support new products that enable fleet monitoring, risk-based decision making, and proactive data analytics in response to the ACSSA.

Finally, the AVS workforce currently utilizes multiple tools that do not adapt to the changing needs of the aviation industry. In many cases they still utilize paper-driven processes to document and obtain relevant information/data. Due to the swift change of pace within the aviation industry and technology, AVS needs to be able to quickly build and adapt new automated solutions for updated aviation safety policies, processes, and procedures.

2. Describe the strategy and the proposed solution you are using to address the situation.

To implement Safety Management Systems and ACSSA, FAA will develop and execute core and duty-specific training. This new training would also address the needs for safety critical operations personnel, primarily Aviation Safety Engineers, Aviation Safety Inspectors, Human Factors and Safety Systems personnel.

To operationalize the recommendations from independent reviews, AVS will expand the data analytics platform to increase the capacity to accommodate additional data sets. This coincides with the data modernization efforts that are providing enhanced data management and analytics for both domestic and foreign manufacturing design approvals, oversight, safety risk monitoring, as well as production approvals monitoring. Resources are needed to acquire a low-code development platform that will allow for the standardization of skills needed in order to maintain the tool, sustainment of applications built on the tool, and enhance the workforce's ability to make data driven decisions faster and more streamlined since they will be built under a common business architecture.

3. How much are you requesting? Provide a detailed justification for the increase.

AVS is requesting $6.7 million:

- $3 million for the development of workforce training in the areas of Safety Management Systems and Human Factors.
- $2.5 million for the development of a low code/no code platform to improve data management and safety oversight.
- $1.2 million for maintenance and modernization to Work Tracking System and Certification Project Notification system.

Aviation Safety Flight Standards Oversight
Office of Aviation Safety (AVS)

(In thousands)

	FY 2025
Aviation Safety Flight Standards Oversight	**$9,212**
PC&B	$444
Non-Pay	$8,768
FTE	**2**

1. Describe the problem or circumstance that prompted the need for this additional funding.

A resurgent aviation sector is placing increased demands on the Federal Aviation Administration (FAA). Within Aviation Safety (AVS), both the certification process and the aircraft registry require additional resources to ensure FAA's responsiveness to industry changes.

Surveillance and Oversight:
Aviation Safety Inspectors (ASIs) are safety-critical positions within the FAA involved in developing, administering, or enforcing regulations and standards concerning civil aviation safety. The Budget requests 2 additional FTE together with a realignment of data and management support will allow the FAA to better keep pace with certification work activities. Due to a lack of available ASIs, the FAA completed fewer certification service work activities in 2022 than the previous fiscal year. As of January 2023, there were 484 applicants currently going through the certification process, with an additional 653 awaiting to start the certification process. While the time to complete each certification varies depending on the complex nature of the applicant, the average time to complete a typical, straightforward, single-pilot operator certification under Part 135 is over 10 months.

Registry
The FAA is already adapting to increased demand for registry services. The FAA Registry is the system of record for all U.S. aircraft registration, security interest, and airman certification information. The FAA is currently replacing the Registry with a modern solution through the Civil Aviation Registry Electronic Services (CARES) investment. This investment is an ongoing multi-year endeavor, with the first phase of CARES released in FY 2023. The system has aircraft registration features for drones, Amateur, and Light Sport aircraft, along with CARES Business Reporting features. Future releases will focus on replacing the legacy Aircraft examination software in its entirety.

The CARES scope is more complex than originally anticipated. Meeting security requirements, aircraft registration and recordation, as well as identity validation required more time than initially reflected in the original timeline. While the overarching objectives associated with the project remain unchanged, the project has evolved to integrate the Registry more holistically for

use by other FAA programs while also striving to maximize the user interface, ensure security integrity, and strengthen the ease-of-integration.

The FAA is partnering with Homeland Security Investigations for identity assurance and fraud detection as part of the recommendations in GAO-20-164, which calls for improving how the Registry prevents, detects, and better responds to fraud. CARES continues to evolve and adopt more stringent fraud and security protections. CARES is experiencing increased cybersecurity requirements and now needs skillsets to successfully implement the key requirements at an expedited rate, as the legacy infrastructure has frequent failures, is difficult to sustain, and does not readily support available access to aircraft records.

2. Describe the strategy and the proposed solution you are using to address the situation.

Surveillance and Oversight:
Additional inspectors will provide oversight, certification, and surveillance services. A planned realignment of data and program management analysts will provide critical infrastructure support services that will enable inspectors and other technical positions to concentrate on continued operational safety oversight for air carrier and general aviation operators, repair stations and designees.

The revamped workforce will maintain and eventually expand service levels for operators, repair stations, and pilots. It will also aid in assessing risk-based oversight surveillance and certification services as the industry continues to rebound in a post pandemic environment. These resources will provide the additional workforce the tools it needs to support risked based oversight surveillance and certification services.

Registry:
Fully transitioning the legacy Registry functions through the CARES investment will ensure the FAA can both meet industry demands for registration services, as well as meet its Aircraft Certification, Safety and Accountability Act mandate. The FAA intends to decommission the legacy Registry infrastructure in FY 2026.

The FAA intends to add new capabilities to the Registry to help drive innovation by partnering with the European Aviation Safety Agency on creating a plan and prototype for a digital flight deck, capable of making airmen certificates, aircraft registration, and airworthiness certificates digitally for international distribution. The prototype and recommendation will be presented to the International Civil Aviation Organization, aiming for international adoption of the requirements and prototype developed.

3. How much are you requesting? Provide a detailed justification for the increase.

AVS is requesting $9.2 million for:

Surveillance and Oversight

- $444,000 and 4 FTP/ 2 FTE for inspectors to provide oversight, certification and surveillance services.
- $76,000 for operational travel, supplies and equipment, which will enable the inspectors and analysts to conduct their oversight, certification, and surveillance functions.

Registry

- $7.0 million for the CARES program for contract support to provide additional technical support and development, as well as Enterprise Architecture and Solutions Environment mainframe, and facility improvements mail distribution.
- $1.7 million for the licenses and development of a Digital Flight Deck initiative.

Hazardous Materials Safety

Security and Hazardous Materials Safety (ASH)

(In thousands)

	FY 2025
Aviation Safety Inspector Workforce	**$2,679**
PC&B	$1,960
Non-Pay	$719
FTE	**14**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The Federal Aviation Administration (FAA) needs additional resources for hazardous materials safety oversight of passenger and cargo flight, due to resurging air operations and expanded regulatory oversight. Both passenger and cargo flights have significantly rebounded post-pandemic, placing greater demand on the FAA to ensure the safety of air operations, charter and on-demand flights, and repair stations. Additionally, the FAA faces increased oversight responsibilities from congressionally mandated regulatory initiatives and proposed rulemaking activities, as well as an expected increase in the volume of hazardous materials transported by innovative aircraft, such as Unmanned Aircraft Systems (UAS).

By FAA estimates, U.S. domestic passenger enplanements will approach 900 million in FY 2025, significantly above 2019's 740 million. On the cargo front, U.S. air carriers flew 51.3 billion revenue ton-miles (RTMs) in 2021, a 16.9 percent increase from the previous year. In addition, the U.S. commercial fleet is forecast to increase from 5,815 in 2021 to 8,894 in 2042. This growth puts additional pressure on ASH to provide adequate hazardous materials safety oversight for domestic and international passenger and cargo air operations (Parts 121 and 129), charter and on-demand flights (Part 135), and repair stations (Part 145).

The 2018 FAA Reauthorization Act (the Act) directed the Department of Transportation (DOT) to address the safety of lithium batteries aboard aircraft through regulatory initiatives. Additionally, the FAA published in January 2023 a notice of proposed rulemaking (NPRM) expanding the applicability of Safety Management System requirements to Part 135 operators (previously limited to Part 121 operators), which many commercial UAS operators are expected to fall under. Both the Act and NPRM increase demands on ASH aviation safety oversight resources. Although there are myriad aspects to ASH's aviation safety oversight specific to hazardous materials, lithium batteries aboard aircraft (both conventional and innovative) are a prevalent issue. They are carried aboard passenger and cargo-only aircraft (as a commodity as well as within devices powered by them), as well as employed on many modern jet aircraft as part of auxiliary power units and primary power sources aboard UAS.

In conjunction with FAA's Flight Standards Service, ASH is also responsible for analyzing each certificate holder's hazardous materials manual and training program to issue an operations specification (OpSpec). The OpSpec indicates whether the certificate holder (CH) is authorized or prohibited (will carry/will not carry) from transporting hazardous materials. This process is critical to the design of every CH's hazardous materials program and establishing the mitigations that address inherent risks associated with the carriage and delivery of hazardous cargo. Currently, ASH assigns most of its resources to ensure CHs that operate conventional aircraft are operating safely, per their approved hazardous materials program and the Hazardous Materials Regulations. With a projected rapid increase in demand for the future transport of hazardous materials by innovative aircraft, ASH is working across the FAA to provide an operational framework for the safe carriage of hazardous materials by innovative aircraft. Through this work and discussion with innovative aircraft operators, ASH recognizes the need to improve interconnections between the FAA's operational requirements and the HMR.

These additional resources will enable FAA to address gaps in its oversight of traditional Part 129/135/145 operations and embrace innovation in aviation by enabling the development of a safety oversight framework that safely and efficiently integrates air transportation of hazardous materials by new entrants and innovative aircraft (e.g., UAS, Advanced Air Mobility, electric vertical take-off and landing aircraft, and commercial space) into the national airspace system.

2. Describe the strategy and the proposed solution you are using to address the situation.

Additional resources will allow ASH to diversify and right-size its approach to hazardous materials safety oversight to drive positive safety outcomes across the aviation community. It will ensure the highest-risk Part 129/135/145 CHs meet the necessary safety requirements, standards, and regulations through performance inspections, certificate management, evaluations, research, and accident or incident investigations, including lithium battery heat/smoke/fire incidents.

In addition, the proposed solution embraces innovation by providing resources to the FAA to develop regulations that address the evolving nature of the aviation industry and provide safety requirements tailored to these new entrant operations. This will include working closely with the Pipeline and Hazardous Materials Safety Administration to establish a framework for operational approval for air transportation of hazardous materials. The strategy is to enable innovation by working in collaboration with DOT to establish and oversee a new regulatory structure, along with increased operational resources, for the safe carriage of hazardous materials by innovative aircraft.

3. How much are you requesting? Provide a detailed justification for the increase.

ASH is requesting $2.7 million for:

- $2.0 million and 28 FTP/14 FTE
    - To expand oversight and inspections of certificate holders.
    - To establish an operation framework for innovative vehicles and assessing safety risks and trends in data information collected on air cargo hazardous materials environment.
- $719,000 for equipment, training, supplies, and travel.

Aeronautical Information Management Modernization (AIMM)
Air Traffic Organization (ATO)

(In thousands)

	FY 2025
Aeronautical Information Management Modernization (AIMM)	**$10,000**
PC&B	$0
Non-Pay	$10,000
FTE	**0**

1. Describe the problem or circumstance that prompted the need for this additional funding.

In January 2023, the Federal Notices to Air Missions (NOTAM) System experienced an outage that precipitated a system-wide ground stop. Following the January 2023 ground stop, FAA worked to mitigate the outcomes of the outage.

However, the NOTAM system does not operate independently. A series of aeronautical systems and tools all feed information to the NOTAM system and enable its success. Several of these aeronautical systems are operating with software and hardware that is over 10 years old. One key system is the Aeronautical Information System Replacement, which is a web-based service which provides an automated means for collecting and distributing Weather, Flight Plan Data, Pilot Reports, Meteorological Impact Statements, and other operational information. Another tool, the Sector Design Analysis Tool, was last refreshed in 2015. It's used in every Terminal Radar Approach Control and Air Route Traffic Control Center facility for problems ranging from airspace visualization and documentation to sector analysis and data translation for a full-scale airspace redesign project.

These systems and tools require additional funding to ensure the NOTAM safety information can continue to be issued to the aviation community without interruption.

2. Describe the strategy and the proposed solution you are using to address the situation.

FAA will implement software and hardware tech refreshes, update software licenses, and issue critical security updates and patches. These upgrades will enable the FAA to maintain the NOTAM system and its associated aeronautical programs, ensuring the users of the national airspace continue receiving these critical services.

3. How much are you requesting? Provide a detailed justification for the increase.

ATO is requesting $10 million for the following activities:

- Development, testing and implementation of system stability and performance modifications required to support NOTAM Modernization.
- Testing and implementation of deferred Hardware and Operating System upgrades for systems that are beyond the End of Life/End of Service thresholds.
- Systems engineering contract support for safety, security, risk, and configuration management requirements.

Cybersecurity

Office of Finance and Management (AFN)

(In thousands)

	FY 2025
Cybersecurity	**$3,960**
PC&B	$960
Non-Pay	$3,000
FTE	**5**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The FAA's Security Operations Center (SOC) operates as a shared services provider of network security services to the Department of Transportation (DOT). The SOC provides centralized, automated mechanisms and cyber security experts for monitoring networks on a continuous basis. It provides near real-time analysis of potential cyber incidents based on comprehensive detection and threat analysis capabilities.. Federal SOC analysts are the first responders to cyber incidents, detecting and responding to cyber-attacks as they happen. These analysts face an increasing number of security alerts daily. Adversaries are a threat beyond core business hours and our current staffing levels are inadequate to support round the clock operations with services like security and privacy assessments, security logging/monitoring, security waivers, risk acceptance, or authority to operate actions.

As part of FAA's cybersecurity strategy, FAA plans to implement Public Key Infrastructure (PKI) which is an evolving technology that provides the authentication, encryption and integrity needed for a Zero Trust model. It governs the issuance of digital certificates to protect sensitive data, provides unique digital identities for users, devices and applications, and secures end-to-end communications. PKI technology is not new in the marketplace, but the need is new to the FAA, both in relation to specific International Civil Aviation Organization (ICAO) Trust Framework requirements, and in preparation for a massive increase in demand for certificates as we adopt more and more mature Zero Trust policies, technologies, and practices.

2. Describe the strategy and the proposed solution you are using to address the situation.

Increased Federal resources with specialized skillsets are required to provide authorization and acceptance of critical FAA systems. This includes the monitoring and protecting of the organization's assets, including intellectual property, personally identifiable information, information systems, and brand integrity. These positions will ensure the overall SOC information system is implemented, maintained, monitored, and documented in accordance with Federal Information Security Modernization Act, DOT, FAA, local and applicable policy, regulations and Standard Operating Procedures.

FAA will also ramp up support for the issuance and monitoring of public key certificates in support of Zero Trust policies, technologies and practices. This will support FAA's vital collaboration with ICAO on the secure transfer of information.

3. How much are you requesting? Provide a detailed justification for the increase.

AFN is requesting $3.96 million for:

- $960,000 for 10 FTP/ 5 FTE for positions that are specifically designed to implement federally staffed round the clock critical FAA/DOT SOC functions and day-to-day essential cybersecurity services.
- $3.0 million for contract services to support cyber modernization and to facilitate the secure electronic transfer of information and secure transactions across computer networks.

Commercial Space Operations
Air Traffic Organization (ATO)

(In thousands)

	FY 2025
Commercial Space Operations	**$7,018**
PC&B	$2,193
Non-Pay	$4,825
FTE	**10**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The Federal Aviation Administration (FAA) must ensure that ever-evolving space operations can safely and securely comingle with some 50,000 flights every day. Space operations require a great deal coordination to ensure the safety of the flying public. The Air Traffic Organization (ATO) must clear the airspace of aircraft prior to both space launches and recoveries. Restoring the airspace to normal use after a launch or recovery also requires complex coordination. Over the next decade, the FAA expects space operations to increase in both number and complexity. This combination means that ATO must establish new baseline capabilities to manage space operations effectively. These capabilities would ensure the safety of space operations, mitigate flight delays as much as possible, reduce the number of miles flown to stay clear of space operations, and achieve the lowest possible environmental impact.

Within the ATO, there are currently only four Full Time Positions that are fully dedicated to supporting space operations. This limited pool of resources has been required to cover all planned launches, with 24 hours, 7 days a week availability. Space operations occur not only during normal business hours but also nights, weekends, and holidays. The present resources are at capacity for the present launch tempo, much less the expected increases in launch tempo and complexity in the years to come. This shortfall is exacerbated by lack of automation support, as manual methods are the primary means of coordinating each launch.

In calendar year (CY) 2022, the ATO led and operationally managed 92 space operations. One unique fact about space launch activities is they often are canceled generally due to unfavorable weather conditions or mechanical issues with the vehicle. The ATO plans, coordinates, and manages space operations for each launch attempt. Thus, the 92 launches that took place in CY 2022 yielded 153 operations with 61 launches canceled. As of May 22, 2023, only 40% of the way through CY 2023, there have been 43 launches and 30 canceled launches totaling 73 space operations. The ATO's current capabilities to plan and carry out launches are at capacity.

The ATO plans to establish new baseline capabilities in the areas of operations, security, contingency, mission integration, and performance analysis.

2. Describe the strategy and the proposed solution you are using to address the situation.

The ATO plans to develop a 24x7 capability, integrate space operations into present automation capabilities, and provide critical operational support. The additional staffing will begin supporting a 24x7 operational capability in 2025.

The ATO also plans to develop new automation capabilities in the areas of: advanced launch planning and coordination management and tactical tools during launch and recovery operations. Additionally, space operation capabilities must be added to various traffic flow management and data analysis methods, as well as to the present set of airspace security tools.

3. How much are you requesting? Provide a detailed justification for the increase.

ATO is requesting $7.0 million for:

- $2.2 million for 20 FTP/10 FTE to manage increased airspace complexities associated with space operations. Functional duties include, but are not limited to:
    - Conducting pre-mission planning and coordination, managing and leading day-of real-time space operations, and ensuring seamless and efficient traffic flow across the NAS and that each launch is safely de-conflicted from air traffic. These positions are part of building a 24x7 capability.
    - Developing new security requirements in multiple operational procedures.
    - Building analytics capabilities to create space operations performance metrics and to ensure space operations are occurring efficiently within the aviation system.
    - Identifying, assessing, and mitigating shortfalls induced by space operations within Air Traffic facilities (e.g., ZJX/ZMA impacts leading to major delays).
- $4.8 million for contract support to create and/or improve automation and integration capabilities, as well as funds to carry out necessary travel.

Commercial Space Operations

Office of Commercial Space Transportation (AST)

(In thousands)

	FY 2025
Commercial Space Operations	**$7,930**
PC&B	$2,880
Non-Pay	$5,050
FTE	**16**

1. Describe the problem or circumstance that prompted the need for this additional funding.

Due to an increasing number of launches, the transition to performance-based rules, innovative new space launch vehicles, and the dependency of national priorities on timely licensing, the Office of Commercial Space Transportation (AST) has a real time, critical need for additional resources and technical expertise. Nearly every key operational indicator demonstrates this need:

- *A record-breaking number of requests for new authorizations in FY 2023.*
  Nearly 40 companies are currently in initial discussions and nearly 20 more are seeking authorizations in the next 12 months through pre-application consultation. AST has averaged 5 new authorization determinations per year since 2019.
- *A record-breaking number of 40 requests for license modifications in FY 2023.*
  This number exceeded the prior record by over 20%. AST also granted 9 license renewals in FY 2023.
- *A record-breaking number of 752 safety inspections conducted in FY 2023.*
  This number exceeded last year's record of 539. These inspections resulted in the identification of a record number of operator non-compliances and caught a record number of operator procedural errors.
- *A record-breaking number of 7 concurrent mishap investigations in FY 2023.*
  Four of the seven mishaps involved first flights of new vehicles, which historically fail at a rate of about 80%. Of the 20 companies in pre-application consultation, more than two thirds are companies developing new vehicles, so an increasing number of mishaps are anticipated.
- *A record number of 111 engagements with international partners in FY 2023.*
  Since FY 2020, AST has engaged with representatives from more than 20 nations seeking to benefit from AST's skills and experience as they develop commercial space safety regulatory regimes and operational safety capabilities of their own.

The most visible indicator of the increasing level of activity is the annual number of launches and reentries. AST supported 114 licensed commercial space launch and reentry operations in FY 2023, an increase of 35% over last year's total, and exceeding optimistic forecasts by 20%. The FAA commercial space forecast projections are indicating a launch cadence of up to 188 operations in FY 2024 with continued growth into FY 2025.

Adding to the increased launch cadence, the space industry is rapidly growing and advancing with ambitious timelines and deliverables. AST is already working with multiple companies seeking to conduct first-of-their-kind operations, including launching commercial nuclear payloads, designing fully autonomous vehicles, manufacturing fully 3-D printed vehicles, and operating hypersonic research platforms to support national security priorities. AST licensing remains a "gate" to space for other national priorities, including licenses for NASA's Commercial Crew and Cargo programs, which require periodic modifications, and continued flight test of SpaceX's Starship SuperHeavy which is on the critical path for NASA's Artemis Program timelines. The space industry is dynamic, and at an inflection point. To address the increased workload and workflow challenges that evolve from supporting this expansion, AST must be dynamic as well. AST has identified additional Federal resource needs in multiple key areas. Due to the sheer volume and complex nature of the work, AST will require additional contracted resources to keep up with the breakneck pace of the industry.

2. Describe the strategy and the proposed solution you are using to address the situation.

To meet the continued expansion in launch licensing, FAA plans to hire additional staff to conduct authorization evaluations, safety analyses, and safety inspections. Specifically, AST needs additional licensing and permitting evaluators, environmental protection and stakeholder engagement specialists, and safety analysts to double its average annual new authorization determination capacity from 5 to 10 while keeping pace with requests for modifications and renewals. AST will target hiring in specialized areas of expertise, like flight safety, computing system safety, and ground safety analysts, represent some of the most critical needs, as they contribute to current choke points in license evaluation processing.

In addition, AST needs additional safety inspectors, compliance monitors, and mishap coordination leads to manage the expected increasing number of operations, particularly those of new companies with new vehicles. Further, AST has already recognized some shortcomings in the part 450 rule, as well as gaps in standards and guidance, that could be readily resolved with additional resources to support policy development and rulemaking. This will include support for rulemaking committees and assistance in tracking public comments to rules. These resources will also assist AST in continuing its work with international partners to maintain the U.S. global leadership in space safety. International activities require a significant initial investment in resources to establish agreements.

AST will also utilize contracts to identify automation solutions, such as tool improvements, workflow trackers, program management, document management, and other efficiency enablers that will further increase the annual average of new determinations and capacity to evaluate modifications, waivers, and renewals. Additional contract support will perform technical work on all aspects of potential government guidelines, standards, or regulations as they pertain to commercial space transportation. AST will utilize Federally Funded Research and Development Center (FFRDC) support to perform specialized studies, leverage state-of-the-art industry practices, and provide access to classified information to help address the rapid growth of new and innovative launch systems, increasing launch mishaps, and an ever-growing number of international partners. Additionally, many space tasks require leveraging FFRDCs' previous

experience with similar Defense Department and National Aeronautics and Space Administration (NASA) missions. AST has utilized FFRDCs successfully in the past and would look to increase this support in FY 2025.

3. How much are you requesting? Provide a detailed justification for the increase.

AST is requesting $7.9 million for:

- $2.9 million for 31 FTP/16 FTE to support the growth and complexity of license applications for authorization and operations. AST has a critical need for technical expertise across multiple disciplines such as evaluators, inspectors, environmental protection specialists, analysts, rulemaking, standards, and policy specialists.
- $5.0 million in specialized contract support for technical licensing, safety analysis support, safety management system updates, workflow management, rulemaking and guidance, training, and project and program management in support of operational safety.

Orbital Human Spaceflight Oversight

Office of Commercial Space Transportation (AST)

(In thousands)

	FY 2025
Orbital Human Spaceflight Oversight	**$2,609**
PC&B	$1,059
Non-Pay	$1,550
FTE	**5**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The FAA Office of Commercial Space Transportation (AST) does not have rules covering human spaceflight in space, nor does AST have staff in place to have long-term coordination of human spaceflight issues with the National Aeronautics and Space Administration (NASA), industry, and academia. The Administration's mission authorization legislative proposal suggested to close the orbital phase gap by adding authority to regulate human spaceflight vehicles during orbital phases of flight. This includes transient orbital space activities of relatively brief periods of human spaceflight activity up to prolonged orbital space activities, including crewed commercial space stations. In addition to occupant safety, the new authority would cover public health and safety, safety of property, and the national security and foreign policy interests of the United States. The moratorium on FAA regulation of occupant safety is set to expire in March 2024, although it will likely be extended.

2. Describe the strategy and the proposed solution you are using to address the situation.

AST is currently working with industry on possible safety frameworks for human spaceflight occupant safety for launch and reentry. At the expiration of the learning period, AST plans to develop and execute a regulatory scheme for occupant safety during launch, reentry, and suborbital operations. The AST strategy will use three lines of effort to bolster the existing AST oversight structure with focused expertise dedicated to human spaceflight orbital safety.

- The first line of effort will be to develop and staff appropriate safety regulations, standards, and guidance to account for the orbital regime. AST will develop new standards for public safety as well as human protection, flightworthiness, human-to-vehicle integration, and comprehensive system safety rules appropriate for each variation of commercial orbital human spaceflight activity.

- The second line of effort will enhance the licensing and inspection teams with human spaceflight expertise to facilitate the licensing and establish a new sustainable inspection program necessary to cover prolonged human space flight activities.
- The final line of effort includes the development of a human spaceflight safety working group under a senior leader steering group comprised of AST and NASA representatives. AST will dedicate staff, some at or near Johnson Space Center, to ensure effective coordination throughout and beyond the development of the new orbital human spaceflight regulatory structure.

3. How much are you requesting? Provide a detailed justification for the increase.

AST is requesting $2.6 million for:

- $1.0 million and 10 FTP/5 FTE to begin the process of developing orbital human spaceflight safety rules, synergize existing licensing application and inspection processes, and support the human spaceflight interagency coordination effort with NASA. Some staff will be collocated with NASA's human space flight team at Johnson Space Center.
- $1.6 million in contract support for targeted elements of regulation, standards, or guidance, including public safety, long-term radiation protection, reusability standards, medical considerations, training, and occupant safety standards. It would also support training for new staff.

Mission Authorization Oversight

Office of Commercial Space Transportation (AST)

(In thousands)

	FY 2025
Mission Authorization Oversight	**$3,492**
PC&B	$1,427
Non-Pay	$2,065
FTE	**7**

1. Describe the problem or circumstance that prompted the need for this additional funding.

New on-orbit commercial space activities do not fit within existing regulated structures, yet these are being developed and fielded today. Communication and remote sensing are fully regulated by agencies authorized by Congress, but new on-orbit activities lack specific authorization and continuing supervision (which is an Outer Space Treaty requirement). An Administration legislative proposal would grant the FAA oversight of space transportation activities and expand licensing to include launch, in-space, and reentry of space transportation systems. In the proposed legislation, the Commerce Department would be granted the authority to oversee other novel activities that are not regulated by the FAA or FCC. Once authorized by Congress, the FAA must develop and execute a new regulatory structure including pre-application information, application requirements, review standards, and an inspection and compliance scheme.

2. Describe the strategy and the proposed solution you are using to address the situation.

It is unquestionable that commercial space transportation has expanded beyond the original launch and reentry timeframes. Licensing in-space transportation activities must blend the appropriate level of safety review with the persistent oversight of on-orbit supervision. Currently, the closest approach to an in-space license is the Office of Commercial Space Transportation's (AST) current payload review, which the FAA has performed for over 3,000 satellites. An in-space transportation license process consisting of regulation development, application requirements, review and approval, inspection and supervision for U.S. in-space transportation systems is envisioned to be similar to the existing system to authorize, through a license or permit, space launch activities. AST will develop new rules establishing the structure that reviews applications to ensure the missions are consistent with public health and safety, safety of property, space sustainability, U.S. compliance with international obligations, and national security, foreign policy, and other national interests of the United States.

Through rulemaking, AST expects to create tiers of in-space transportation mission authorizations tailored to the three basic space regimes: low earth orbit and non-geosynchronous, geosynchronous, and cis-lunar and beyond. AST will eventually establish one or two Branches to accept, review, and recommend approval of proposed in-space activities. Additionally, AST will utilize Federally Funded and Research Development Centers (FFRDC) and contract support to assist in the development of appropriate rules and an on-orbit activity oversight system.

3. How much are you requesting? Provide a detailed justification for the increase.

AST is requesting $3.5 million for:

- $2.1 million to develop targeted elements of regulation, manage the systems dedicated to providing continuous supervision (an international treaty requirement), and fund training for the new federal staff.
- $1.4 million and 13 FTP/7 FTE for new federal staff who will work with existing AST rulemaking federal staff within the Office of Strategic Management Directorate on the development of new rules, and develop, with the assistance of an FFRDC, program requirements for the on-orbit reporting and tracking system.

Unmanned Aircraft Systems
Office of Security and Hazardous Materials Safety (ASH) and
Office of Policy, International Affairs & Environment (APL)

(In thousands)

	FY 2025
Unmanned Aircraft Systems	**$3,732**
PC&B	$1,310
Non-Pay	$2,422
FTE	**7**

1. Describe the problem or circumstance that prompted the need for this additional funding.

FAA continues to see growth in its drone security mission, from identifying and discerning credible threat streams to determining how to safely and securely integrating new drone technology into the National Airspace System. The number of drone incidents that require investigation by Office of Security and Hazardous Material Safety (ASH) has increased year over year. As a result, there has been an increase in audit activity, requests for reports of incidents, and analytics on drone activity. ASH has a key role in the implementation and risk assessment of the rule known as Section 2209, "Prohibit or Restrict the Operation of an Unmanned Aircraft Systems in Close Proximity to a Fixed Site Facility" which will be implemented in mid-2024.

ASH is working with security partners and critical infrastructure owners and operators to assess fixed-site facility vulnerabilities to drones. ASH will have a key role in the intake and review of Section 2209 Unmanned Aircraft Flight Restriction (UAFR) requests and Part 89 Remote ID FAA-Recognized Identification Area (FRIA) applications. The UAFR applications are expected to be in the thousands in 2025 and the FRIA applications are expected to be in the hundreds. As a result, ASH will need to develop the infrastructure for accepting the applications and documenting the assessments.

The FAA has at least five separate drone safety and security incident and enforcement reporting streams that are asynchronous and thus do not adequately assess the current situation or provide the ability to conduct predictive analytics. In addition, implementation of Remote ID will increase law enforcement referrals and the time associated with reviewing data. There are not enough Law Enforcement Assistance Program (LEAP) Special Agents to support drone related activities.

FAA's Office of Environment and Energy is experiencing a significant increase in applications from industry seeking an environmental certification basis for their aircraft and approval/validation of their certification software to ensure compliance with FAA requirements. Environmental Certification is an important part of the Type Certification process. Additional resources are needed to proactively address environmental certification (Noise/Emissions) requirements so that delays are not incurred by industry as FAA creates the environmental certification basis for new entrant aircraft and reviews/approves applicant certification software.

In recent years, the backlog of Unmanned Aircraft (UA)/Advanced Air Mobility (AAM) aircraft that require an environmental certification basis has grown from 0 to more than 18. More dedicated resources are needed to develop appropriate environmental certification approaches, standards, regulations, and to complete certification software review/approvals in a timely manner.

2. Describe the strategy and the proposed solution you are using to address the situation.

As part of ASH's strategy, we will need to implement Remote ID, Section 2209 UAFR, and the expansion of drone detection equipment at the state and local law enforcement level. This will require increased outreach and training for the Public Safety community. ASH will also need to increase its number of LEAP Special Agents in support of external outreach for education on processes, threat streams, and drone security matters. We will advance National drone security by anticipating and addressing security partners' requirements, while preserving the safety, efficiency, and public access to the nation's airspace. In addition, ASH will develop a more robust assessments agenda and activities to gather and analyze data to inform drone security policy, rulemaking and security initiatives. Finally, in support of Section 2209 ASH will:

- Increase external outreach for education on processes and threat streams.
- Anticipate and address security partners' requirements, while preserving the safety, efficiency, and public access to the national airspace system.
- Expand outreach and engagement with stakeholders on drone security matters.
- Align and adapt enforcement and compliance activities to address the unique challenges posed by integration of drones into the national airspace system.
- Develop a robust assessments agenda and activities to gather and analyze data to inform drone security policy, rulemaking and security initiatives.
- Develop necessary database and dashboard infrastructure to enable the collection, storage, and analysis of data to support Section 2209, Remote ID, outreach, enforcement, partner support, and Congressional requests and oversight.

To facilitate more complex UA and AAM operations, FAA must develop environmental policy, guidance, analytical tools, and data to inform noise certification of UA/AAM vehicles, and to inform community outreach and approaches to addressing community concerns. Additional permanent personnel dedicated to environmental certification are needed to expand and/or supplement these with resources that are tailored to the UA/AAM-unique vehicle designs and operational characteristics. Further, applicants require FAA approval of their certification software prior to use in certification measurements and additional contractor resources will assist us in making timely approvals.

3. How much are you requesting? Provide a detailed justification for the increase.

ASH is requesting $3.3 million for:

- $1.1 million and 12 FTP/ 6 FTE to address drone resource requirements, identify threat streams and risks posed by drones to meet growing security concerns.

- $2.2 million for travel, equipment, training, supplies and contract support to build drone security incident and enforcement databases.

APL is requesting $410,000 for:

- $210,000 for 2 FTP/ 1 FTE to process an increase in industry applications related to environmental impacts.
- $200,000 support FAA review and approval of applicant certification software that is needed prior to making certification measurements.

Data Analytics

Office of Finance and Management (AFN)

(In thousands)

	FY 2025
Data Analytics	**$2,460**
PC&B	$110
Non-Pay	$2,350
FTE	**1**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The goal of the FAA's Chief Data Office is to address FAA enterprise data needs by investing in capabilities to support multiple offices. The Chief Data Office oversees several tools and services related to data storage, compute, and data analytics. The current analytic platforms require a well-trained staff to perform certain advanced data analysis. With the rapid progress in Artificial Intelligence and machine learning, the associated tools have also advanced, allowing for enterprise-scale data integration and collaborative analysis with limited data science training. The Enterprise Information Management data platform does not currently have these advanced low-code tools. This results in slower adoption of data-driven decisions in critical safety and operational areas.

2. Describe the strategy and the proposed solution you are using to address the situation.

The Chief Data Office will implement a low-code analytical platform to support safety, operational, and other mission-driven data analysis needs. The goal is to give decision makers at all levels the data-driven insights needed at a fast pace while enabling a fundamental transformation around the use of artificial intelligence/machine learning. The adoption of a low-code data integration and analytical tools will enable broader access to self-service analytics. The platform will support data pipelines, workflows, reports, and advanced analytics. This allows users to perform data integration, data exploration, and data analytics in a single, integrated environment.

Application modernization plans are being implemented through several offices within FAA; all with the intent to pursue an all-in-one analytics platform. Having a base investment at the enterprise level for such a tool will eliminate duplicate purchases and additional infrastructure. The goal is to deploy a solution that supports multiple offices, this investment can help streamline efforts and allow individuals and teams to take advantage of data products to easily share data-driven insights across FAA.

3. How much are you requesting? Provide a detailed justification for the increase.

AFN is requesting $2.460 million for:

- $2.350 million in contract support for operations and maintenance.
- $110,000 and 1 FTP/ 1 FTE who will be responsible for overseeing enhancements and ensuring user needs are evaluated, addressed, and the platform is available with minimal downtown.

Data Analytics
Office of Aviation Safety (AVS)

(In thousands)

	FY 2025
Data Analytics	**$13,409**
PC&B	$2,451
Non-Pay	$10,958
FTE	**11**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The federal government has been called on by Office of Management and Budget through Memorandum M-19-18 Federal Data Strategy - A Framework for Consistency to provide a common set of data principles and best practices in implementing data innovations that lead to the production of better government data. The Office of Aviation Safety (AVS) recognizes that the aerospace industry and the National Airspace System (NAS) are growing more complex and continuing to evolve at a rapid pace; they are not the same industry FAA regulated and the same NAS that FAA managed in decades past. The agency is challenged every day to learn and understand the causal factors leading to hazards and risks and to leverage new approaches and technologies. The FAA is focusing on predicative analytics and AVS' data modernization to unlock safety opportunities present in the areas of data collection, risk analysis, and information sharing.

2. Describe the strategy and the proposed solution you are using to address the situation.

AVS has identified the following three strategies to advance data modernization and predictive analytics:

- Establish the AVS Data Modernization initiative.
- Establish the FAA's Predictive Analytics Framework on behalf of all agency stakeholders.
- Ensure that the Office of Investigation & Accident Prevention has sufficient staffing levels to able to respond to the data, system architecture, analysis, and safety risk assessment requirements to support Data Modernization and Predictive Analytics within AVS and across the FAA and the Department of Transportation.

The Data Modernization Program will unite and mobilize AVS to deliver an enterprise-wide data strategy and data action plan by providing the foundation necessary for data stewardship and coordination of FAA and AVS data initiatives. These efforts, which include data collection and dissemination, analytical tools and frameworks, and safety analyses and evaluations, are aligned under the Strategic Plan and Flight Plan 21.

- Data collection and dissemination
    - The FAA's Aviation Safety Information Analysis and Sharing - Public, a national FAA application, provides interacted data products to support safety analysis by incorporating multiple data sources. This will allow the FAA to provide critical information to understand current and emerging safety Risk.
- Analytical Tools and Frameworks
    - The System Safety Management Transformation's safety event tools support predictive analytics, and its safety risk models provide transparent, repeatable, and quantifiable assessment of emerging risk and potential "hot spots" within the NAS.
- Safety Analyses and Evaluations.
    - As data and advanced analytics have become more accessible and the complexity of operations across the NAS has increased, the FAA has called for the Safety Data Analysis Team to support a broader set of data management objectives through its operationalization of the FAA's Safety Community of Interest. Similarly, the FAA's Safety Management Systems, aviation's recognized methodology for the organizational-wide approach to managing safety risk and assuring the effectiveness of safety risk controls, must continuously evolve to work within the FAA's Safety Culture and provide oversight.

3. How much are you requesting? Provide a detailed justification for the increase.

AVS is requesting $13.4 million for:

- Program Oversight and Coordination:
    - $1.7 million and 15 FTP/8 FTE in the Office of Investigation and Accident Prevention to provide programmatic and analytical support for all data modernization efforts, predictive analytics, and accident investigation and prevention programs to serve as a force multiplier for AVS and FAA safety initiatives.
    - $6.5 million in contract support to:
        - Provide oversight and enhancements on the tools needed to conduct vulnerability discovery, identify emerging safety risk, and evaluate impacts of changes to the NAS, including new entrants.
        - Incorporate machine learning and natural language processing capabilities through submitted safety reports from the GA Survey, Aviation Safety Reporting Program, and Aviation Safety Information Analysis and Sharing (ASIAS) Public.
        - Continue enhancements to ASIAS – Confidential, System Safety Management Transportation, and Safety Management System to support predictive analytics and safety risk models.
- Data Modernization: $2.0 million and 2 FTP/ 1 FTE to lead AVS' effort to harmonize data and tools that will be shared across AVS to deliver an enterprise strategy and action plan.

- Predictive Analytics: $3.2 million and 4 FTP/ 2 FTE to build an advanced analytic framework based on the Predictive Analytics Operations Plan and Concept of Operations.

FAA Electric Vehicle Fleet
Office of Finance and Management (AFN)

(In thousands)

	FY 2025
FAA Electric Vehicle Fleet	**$4,850**
PC&B	$200
Non-Pay	$4,650
FTE	**1**

1. Describe the problem or circumstance that prompted the need for this additional funding.

EO 14057, "Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability" establishes a firm path to net-zero emissions by 2050, which includes, among other things, a requirement for Federal agencies to transition to 100 percent zero-emission vehicle acquisitions by 2035. Federal agencies must achieve 100 percent zero-emission light-duty vehicle (ZEV) acquisitions by 2027. Given this Order, FAA will need to install Electric Vehicle Supply Equipment (EVSE) at a rate to support the deployment of 500-600 ZEV annually.

FAA has begun to acquire ZEV vehicles as it replaces its existing fleet, but the agency will also need to invest in EV charging infrastructure, or EVSE, to support the new vehicles. EVSE must be installed prior to the deployment of ZEV to ensure they are useful upon arrival. Given the long lead-time for EVSE installations (supply chain, contractor availability, utility capacity), it is critical that funding be made available so that approximately 200 new EVSE ports per year are initiated on average at minimum.

2. Describe the strategy and the proposed solution you are using to address the situation.

While executing the short- and mid-term strategies, the FAA will plan and begin implementation for the charging station infrastructure that will form our long-term strategy, beginning in FY 2025. The waterfall of facilities at which EVSE will be installed from FY 2025 and beyond will largely follow the anticipated GSA vehicle replacement schedule. The strategy will include reaching approximately 16 facilities each fiscal year and installing approximately 80 ports on average each year for ten years such that approximately 980 ports are installed by 2035. This strategy will start with a prioritization of ZEV deployments at FAA owned locations, followed by continued replacement efforts at leased facilities with the largest concentration of vehicles per location.

3. How much are you requesting? Provide a detailed justification for the increase.

AFN is requesting $4.9 million for:

- $4.7 million in non-pay cost to include: contract support for planning; design and construction; utility and power upgrades; acquisition and installation of charging stations; maintenance and warranty agreements; and other soft costs (i.e., signage and line painting).
- $200,000 for 2 FTP/ 1 FTE to set up a program office to support the multi-year effort to accomplish the Administration's EV Charging infrastructure goals.

FAA Business Application Modernization

Office of Financial Management (AFN)

(In thousands)

	FY 2025
FAA Business Application Modernization	**$8,000**
PC&B	$0
Non-Pay	$8,000
FTE	**0**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The FAA utilizes many IT tools and software applications across the agency to conduct its key functional mission. Examples include but not limited to:

- Visual Obstacle Chart Reporting (VOCR) System tool provides the ability to create weekly charts that specify change listings of obstacles; and
- AVS Medical Support Systems (MSS) tool, which enables Aviation Safety to meet it statutory obligations to certify the health of airmen and covered positions.

To continue to meet the agency's mission, the FAA must modernize or replace many existing mission support legacy applications. Most of these legacy applications rely on outdated technology stacks and frameworks that have passed the end of life, with some being over several years past end of life and others are close to reaching end of life within one year, posing a significant security and support risk. These applications also have multiple code bases, outdated architecture, security vulnerabilities, and Plan of Action and Milestones (POAMS) that need attention to secure the portfolio.

The FAA recently conducted a Cyber-Hygiene effort to fortify the applications against potential security risks. This undertaking included a massive effort to change passwords across applications, push patches, and upgrade where possible, but this effort was only a short-term solution. A more proactive and strategic approach is needed to update and secure the administrative and mission support applications for the FAA to keep pace with emerging threats and vulnerabilities in cyberspace.

2. Describe the strategy and the proposed solution you are using to address the situation.

Our request focuses on two approaches to Application Modernization: direct refactoring of some legacy applications and modernizing the application portfolio. The modernization effort will address the cyber security risks by upgrading all end-of-life technologies to remediate security vulnerabilities, address all POAMs, code refactor, migrate to the cloud and containerize using Zero Trust Architecture with vault/secrets capabilities. Once the

applications are modernized, the funding will help the development teams maintain the applications to the latest standards.

3. How much are you requesting? Provide a detailed justification for the increase.

AFN is requesting $8.0 million for the following activities:

- $5.0 million for refactoring 120 legacy applications, with an estimated completion rate of modernizing 19 applications per year.
- $3.0 million for developing modernization solutions including support of intelligent automation, Application Programming Interface services and platform engineering.

FAA Business Application Modernization
Office of Human Resource Management (AHR)

(In thousands)

	FY 2025
FAA Business Application Modernization	**$744**
PC&B	$137
Non-Pay	$607
FTE	**1**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The FAA's Benefits Operations Center (BOC) provides benefits and retirement services to all FAA employees. The BOC currently uses the Human Resources Case Management System (HRCM) to manage over 60,000 customer inquiries, 13,000 benefits actions and over 1,600 retirements each year. A new caseload management system would enable the BOC to better manage, track and report work. A new system will ensure high quality customer service to FAA employees by allowing more than one HR specialist to support a customer's request.

Certain services, such as retirements, can only be processed by Federal employees. Currently, approximately 8,000 FAA employees are eligible for retirement. At the current staffing level, the BOC projects challenges at the current staffing levels in providing retirement counseling to all of those within 5-10 years of retirement.

2. Describe the strategy and the proposed solution you are using to address the situation.

FAA plans to replace the current caseload management system with a newer tool. The funding requested will cover the additional maintenance and license costs incurred by the new tool.

Two additional staff will assist in efficient and timely handling of retirement packages. This funding will allow the BOC to expand services to provide individual retirement counseling to those within 5-10 years of retirement.

3. How much are you requesting? Provide a detailed justification for the increase.

AHR is requesting $744,000:

- $607,000 is requested for the annual licensing fees and operations and maintenance fees of a new caseload management tool. The licensing also would allow customers to check the status of their BOC service requests.
- $137,000 for 2 FTP/1 FTE to deliver timely retirement packages, estimates, and expand counseling services.

Facility Maintenance and Sustainment (MMAC)
Office of Finance and Management (AFN)

(In thousands)

	FY 2025
Facility Maintenance and Sustainment (MMAC)	**$2,569**
PC&B	$0
Non-Pay	$2,569
FTE	**0**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The Mike Monroney Aeronautical Center (MMAC) campus is the second largest FAA facility outside Washington DC. The Center's services and customer base include organizations such as: the FAA Academy, Civil Aerospace Medical Institute (CAMI), Enterprise Services Center (ESC), Civil Aviation Registry, and the FAA Logistics Center.

The Office of Facility Management (AMP) provides facility related services for the Aeronautical Center, which is comprised of 3.4 million square feet of space in 137 buildings spread over 1,100 acres. AMP also manages the Thomas Road Warehouse facility comprised of 240,000 square feet, housing equipment for the FAA's Logistics Center in providing support to the National Airspace System. Combined, these facilities provide a working environment for thousands of federal employees, contractors, and students on a daily basis.

Operating the Center campus, AMP provides key functions and services in the areas of: Operations & Maintenance, Janitorial, Security Services, Mail & Distribution, and Solid Waste Disposal. Maintenance of the campus is vast with annual costs rising. The facility costs to operate the campus has gone up by 20% since FY 2019 and costs associated with campus utilities (electric and water) are also projected to increase in FY 2025.

In addition, IT contracts requirements are increasing. The ESC Telecommunications infrastructure requires annual maintenance on every network switch in operation, as well as campus-wide upgrades to closet switches. There is also a new requirement for virtual hosting.

2. Describe the strategy and the proposed solution you are using to address the situation.

The MMAC campus is requesting additional funding to cover annual operational increases within the key functions and services areas, utility costs, and IT contract support.

3. How much are you requesting? Provide a detailed justification for the increase.

AFN is requesting $2.569 million for contract increases for Operations & Maintenance, Janitorial, Security Services, Mail & Distribution and Solid Waste disposal, IT contract support increases, and utility rate increases.

Facility Maintenance and Sustainment (WHJTC)
Office of NextGen (ANG)

(In thousands)

	FY 2025
Facility Maintenance and Sustainment (WHJTC)	**$1,605**
PC&B	$90
Non-Pay	$1,515
FTE	**1**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The William J. Hughes Technical Center (WJHTC) Operations Division supports the entirety of the WJHTC campus. This support encompasses both Occupational Safety and Health (OSH), and Center Operations and Maintenance Services (COMS) contract support. These two programs provide continuous workplace safety oversight, hazard controls, support for operational functions, preventative maintenance, and corrective maintenance for the WJHTC campus.

The OSH portfolio currently has more than 40 safety and health programs, with four federal employees managing 10 programs each. The industry standard calls for no more than five programs per safety specialist. Twenty of these 40 programs are in jeopardy of non-compliance, and at least seven are functionally deficient. The OSH program is no longer sustainable as our program requirements continue to increase.

The WJHTC is a large facility with an aging infrastructure, with most buildings and facilities constructed over 40 years ago. In order for repair projects to properly address campus needs, FAA must keep pace with significant increases in material and labor costs.

2. Describe the strategy and the proposed solution you are using to address the situation.

With the additional resources, the OSH program would distribute work evenly across all programs providing a realistic expectation of positive outcomes for employee safety. This would allow for the proper oversight of budgetary needs, contracting initiatives, tracking compliance, management of sensitive medical surveillance information and program oversight. This strategy will lead to satisfying the Government's responsibility by/of fulfilling Occupational Safety and Health Administration (OSHA) regulated programs and the health and safety requirements. This will include being fully compliant in the following critical health & safety programs: medical monitoring, hearing conservation, workplace inspection, first aid and employee education.

The COMS contract will have the ability to prioritize and execute projects expeditiously with the additional funding. Known projects can be coordinated and scheduled throughout the fiscal year, based on priority, criticality, and mission needs.

3. How much are you requesting? Provide a detailed justification for the increase.

ANG is requesting $1.6 million:

- $1.5 million will fund OSHA training, hearing equipment, first aid supplies, medical monitoring, and medical surveillance physicals. In addition, these funds will provide additional contract support for repairs and maintenance of the WJHTC campus infrastructure.
- $90,000 for 1 FTP/ 1 FTE to provide management oversight of critical health and safety programs.

Global Leadership

Office of Policy, International Affairs & Environment (APL)

(In thousands)

	FY 2025
Global Leadership	**$1,825**
PC&B	$145
Non-Pay	$1,680
FTE	**1**

1. Describe the problem or circumstance that prompted the need for this additional funding.

FAA is requesting funding to support the President's Partnership for Global Infrastructure and Investment, a collaborative effort by the Group of Seven to fund infrastructure projects in developing nations. The Department of Transportation (DOT) is committed to advancing this Presidential initiative at the transportation level. With this additional sustained funding, the FAA can expand programs with developing nations in Africa, the Caribbean, the Pacific Islands, and Southeast Asia to develop the technical capacity and skillsets to enable safe, secure, and climate-smart aviation systems.

This Administration is focused on increasing United States (U.S.) investment in Africa and developing nations/regions. The U.S. Strategy Towards Sub-Saharan Africa and the DOT Safe and Clean Skies for Africa Program explicitly call for increased U.S. engagement and assistance to this very important region. However, additional funds are needed to advance aviation safety in Africa or any other developing region that can strongly benefit from U.S. FAA engagement and leadership. Due to competing priorities, the FAA has historically supported very few training programs, workshops, seminars, and technical assistance programs in Africa.

FAA's Flight Plan 21 also commits the agency to advance U.S. aviation engagement and leadership for the benefit of the U.S. traveling public. FAA intends to increase U.S. influence and assistance across the globe through better coordinated international training programs and initiatives and with a broader global reach to those developing countries that need FAA assistance the most.

The Office of International Affairs maintains and oversees the FAA's international strategy and its execution in support of U.S. aviation goals and priorities.

2. Describe the strategy and the proposed solution you are using to address the situation.

The current Administration's goals are to restore America's global standing in the world, strengthening U.S. leadership across all domains, and return the U.S. to a "position of trusted leadership" among world democracies. The FAA is in position to be a critical supporter of these goals due to the global nature of aviation and the FAA's reputation as a respected global leader in aviation safety.

The programs and initiatives are as follows:

- **FAA Engagement Program for Africa**

  This request will promote the U.S. Government's efforts led by the National Security Council and the President's Advisory Council on Doing Business in Africa, and will contribute to the current Administration's Prosper Africa Build Together Campaign and the DOT Safe and Clean Skies for Africa Program.

  This request provides the resources necessary for the FAA to support U.S. Government strategic priorities, showcase U.S. leadership in aviation safety, and execute and maintain safety, efficiency, and sustainability programs on an annual basis to advance aviation in Africa. Funding will establish a sustainable annual program to provide technical assistance and training to strategic African states and regional organizations in support of the U.S. Strategy Towards Sub-Saharan Africa Priority and DOT Safe and Clean Skies for Africa Program. The resulting FAA Engagement Program for Africa will be managed by the Office of International Affairs, with technical and operational expertise provided by the FAA Lines of Business and program offices. Annual engagement plans will be approved corporately across the FAA by the International Governance Board to ensure a total-aviation approach to FAA's assistance to the African civil aviation entities.

- **FAA Leadership and Influence in International Civil Aviation Organization (ICAO)**

  The current Administration has made "Restoring America's Global Standing" a key priority. This request furthers that priority by enabling the placement of U.S. aviation experts across the globe at key ICAO offices, ensuring U.S. leadership on all aspects of international aviation. FAA secondments to ICAO, both in Montreal and in ICAO Regional Offices, are vital to influence global standards and decision-making to align with U.S. positions and policies.

  This request will ensure U.S. solutions and procedures are the drivers for global standards and recommended practices, and they are safely implemented in the two most impactful regions (North America, Central America and Caribbean / Asia and Pacific) to U.S. traveling public and aviation stakeholders. The FAA manages airspace in both regions, and our increased presence in these specific offices will support greater harmonization with U.S. policies and procedures while helping to counter growing Chinese and European influence in regional initiatives.

- **FAA Global Leadership Fellowship Exchange Program**

  FAA is an established worldwide leader in most aspects of aviation. Increased engagement opportunities between current and future international leaders are critical to building coalitions that support FAA continued leadership in aviation safety, efficiency, climate and sustainability, and with safe integration of innovative systems, technologies and procedures. This request will fund the establishment of a new Fellowship Program to advance U.S. leadership and influence by placing FAA subject matter experts at ICAO Headquarters and FAA/ICAO Regional Offices, as well as hosting international fellows

at FAA facilities for training and collaborative projects. These training and fellowship efforts will also support ICAO's Next Generation of Aviation Professionals (NGAP) work program.

- **Support for FAA Senior Representative to the Caribbean**

  The FAA support and leadership in the Caribbean region, our "third border," continues to grow in support of Administration priorities to provide assistance to developing island states and regions such as the Caribbean, the Pacific Islands, and Southeast Asia. Current and planned engagement to provide U.S. aviation leadership has outpaced existing resources, and the FAA Caribbean Office is in need of a staff support position. The Caribbean Senior Representative is the only one around the world that does not have the support of at least one civil aviation specialist and administrative support position. The support staff position would assist with communications, strategic planning, outreach with civil aviation authorities and embassies in the Caribbean, as well as liaise with other critical entities based in Miami, including United States Southern Command, International Air Transit Association, Latin American and Caribbean Air Transport Association, Civil Air Navigation Services Organization and other industry organizations.

3. How much are you requesting? Provide a detailed justification for the increase.

APL is requesting $1.8 million:

- $1.7 million to increase FAA's assistance and support to the international aviation community. Funding will also include resources for enhanced engagement through strategic planning, event logistics, training programs, and in-country training events.
- $145,000 for 2 FTP/1 FTE to manage the programs and assist with communications, strategic planning, and outreach.

Resource Support
Office of the Chief Counsel (AGC)

(In thousands)

	FY 2025
Resource Support	**$575**
PC&B	$550
Non-Pay	$25
FTE	**3**

1. Describe the problem or circumstance that prompted the need for this additional funding.

The Office of the Chief Counsel (AGC) anticipates growth in the number and complexity of legal matters requiring legal sufficiency reviews and risk assessments. AGC provides legal support on programs and operations related to rulemaking activities, regulatory matters, and aviation litigation and enforcement matters across the agency.

Legal matters often require the legal posture to review or modify new and existing contracts to meet configuration, business processes, cybersecurity, and cleared personnel requirements. The FAA's transformation and modernization efforts require legal acquisition and policy support, including advisement on cost-efficient initiatives to move more systems to the cloud, create vehicles to share data in new ways and with new partners, and inform data-driven decisions across the enterprise. AGC supports collaboration between multiple agencies and their contractors to acquire, test, and deploy necessary equipment and support services.

AGC projects further Commercial/Non-Model Aircraft category growth leading to more robust environmental documentation, including Environmental Assessments or Environmental Impact Statements. AGC resources are needed to address community engagement, environmental policy, environmental certifications, categorical exclusion determinations, and noise/emission requirements.

2. Describe the strategy and the proposed solution you are using to address the situation.

Additional resources will support the programs and objectives related to U.S. aviation engagement, international aviation legal matters, emergency operations, and national security law matters. AGC will develop policy guidance and support the agency on legal matters related to international organizations, foreign countries, other Government agencies, and industry.

AGC's early and continued legal engagement will ensure appropriate legal sufficiency reviews, vendor assessments, legal rights in commercial software, data and intellectual property rights, and supply chain security across the FAA ecosystem. AGC personnel will be involved in the acquisition, research, consultation, privacy, data storage/security, and records systems across the FAA enterprise through implementation and program execution from a local and national

stakeholder perspective. The legal resources will proactively support the additional requirements regarding policy development and review, public outreach coordination, investigatory staff training, and increased enforcement, employment, and acquisition actions.

3. How much are you requesting? Provide a detailed justification for the increase.

AGC is requesting $575,000 for:

- $550,000 for 5 FTP/3 FTE to provide legal support on the acquisition, regulatory and rulemaking activities, aviation engagements, aviation litigation, national and cyber security assessments, environmental/noise policy, and certifications to ensure legal sufficiency and appropriate legal risk assessment.
- $25,000 for training, travel, legal subscriptions, Case and Document Management licenses, and communication.

Resource Support
Office of Human Resource Management (AHR)

(In thousands)

	FY 2025
Resource Support	**$685**
PC&B	$685
Non-Pay	$0
FTE	**5**

1. Describe the problem or circumstance that prompted the need for this additional funding.

Despite a relatively consistent number of vacancy announcements over the past five years, the number of applications to those announcements has risen, without a corresponding increase in the number of hiring and staffing specialists within the Office of Human Resource Management (AHR).

Hiring initiatives have continued to grow in the FAA, with an emphasis on hiring air traffic control specialists, student hires, and additional staffing in the Office of Aviation Safety (AVS) and the Office of Airports (ARP). In four months, vacancy announcements within the Office of Airports alone accounted for over 10,000 applications.

AHR has deployed seven automation solutions (BOTS), numerous FAA AVIATOR application system and HR process enhancements, and shifted work across regions in efforts to keep up with increased service demand but cannot sustain this volume without additional resources. The increased workload to recruit and retain talent at Federal Aviation Administration is causing losses among specialists due to workload.

2. Describe the strategy and the proposed solution you are using to address the situation.

Additional staff resources will enable AHR to directly address the staffing deficits compared to workload, therefore improving morale and retention of AHR talent in which we have invested time and resources. It will also provide relief for our AHR front-line managers, many of whom have absorbed substantial caseloads themselves to bridge the staffing deficit and avoid attrition of this talent as well. These positions will yield both short-term relief and long-term sustainability for the anticipated continued workload increases.

3. How much are you requesting? Provide a detailed justification for the increase.

AHR is requesting $685,000:

- $685,000 and 10 FTP/5 FTE for additional resources that will enable AHR to hire additional specialist to support controller hiring, Aircraft Certification, and increased

student hiring. Additionally providing relief to existing AHR staff and front-line mangers.

FY 2025 Explanation of Funding Changes

Operations

Adjustments to Base:

Subscription Services: The Budget proposes funding for FAA Subscription Services previously funded under the Facilities and Equipment account in the Operations account. To address some of its capital needs, the FAA used subscription services to improve the NAS instead of building new federally owned infrastructure. These subscription services represent fixed costs to the FAA, purchased through long-term contracts; however, these fixed costs have remained in the F&E account, eroding FAA's ability to leverage F&E funding to improve FAA's capital infrastructure. The Budget proposes to realign the costs for the subscription services for the Data Communications, Wide Area Augmentation System (WAAS), and Automatic Dependent Surveillance – Broadcast (ADS-B) programs to the Operations account.

Annualization of FY 2024 Pay Raise: This increase is required to provide for costs associated with the base salary increases (October - December) resulting from the government-wide pay raise. The factor used is 0.25 of 5.2 percent.

Annualization of FY 2024 FTE: This increase is required to provide for costs associated with the annualization of salaries of new full time equivalent (FTE) employees added in FY 2024.

FY 2025 Pay Raise: This increase is required to provide for costs associated with a proposed government-wide pay raise of 2.0 percent.

Transition from Facilities and Equipment to Operations (TOM): This increase transitions the operational costs of new systems acquired under the Facilities and Equipment account to the Operations account. Systems that go through this transition include everything from navigational aids to major software systems that provide air traffic control capabilities. The ongoing operational costs include hardware maintenance, software maintenance, software licenses, telecommunications, logistics support, physical infrastructure support, and training. Under FAA policy, these operational costs transition to the Operations account no more than two years after a system has been installed.

Non-Pay Inflation: This budget request assumes an inflation factor for non-pay costs. Non-pay costs comprise about 30 percent of the Operations account. Many of the contracts in the Operations account have wage increases which are mandated by the Services Contracting Act or the Davis-Bacon Act. Department of Labor (DOL) wage determination increases have averaged over 3 percent in recent years.

Using the final demand goods less foods and energy price index, the government factor for purchased goods (excluding foods and energy) for the last 12 months has been 5%. This index is a measure of price changes for both unprocessed and processed goods sold to final demand. Given that and DOL's wage determination increases, the FAA is requesting a non-pay increase to keep pace with inflation.

One example of inflationary cost increases is the Federal Contract Tower program, which accounts for 263 towers (49% of the terminal ATC facilities in the system). The cost of the Federal Contract Tower program increased by $35 million in FY 2023 and is projected to increase by another $42 million by FY 2025.

Telecommunications Infrastructure: This increase is for funding to sustain the FAA's existing telecommunications network while the FAA initiates implementation of the FAA Enterprise Network Services (FENS) contract as the agency's long-term telecommunications infrastructure. The majority of FAA sites will remain on the legacy telecommunications infrastructure, FTI, for FY 2025. Funding is requested to cover increased FTI costs due to price increases, discontinuation notices, hardware repairs, and increases to Federal Universal Service Fund surcharges. Funding is also required for the operation and maintenance costs of the sites that begin FENS operations in FY 2025.

Working Capital Fund: This cost adjustment funds the Department of Transportation's Working Capital Fund estimates for the FAA.

Bureau of Transportation Statistics: The FAA currently provides $4.5 million annually to the Bureau of Transportation Statistics (BTS) at DOT to support the collection of aviation transportation data. BTS requires an increase to support the modernization and maintenance of the 20-year old airline financial data program and public data portal. The modernization effort will improve efficiency, enhance quality assurance, and reduce the need for manual intervention during data processing.

Discretionary Increase Requests

Controller Hiring (ATO, AFN, AVS, ASH, AHR): The FAA is requesting additional funding to continue the controller hiring and training surge initiated in FY 2023. The surge will further boost efforts to streamline the path for controller training while further increasing resiliency to serve high demand markets. Funding will also support increases in the FAA offices that support the recruitment, hiring, and onboarding of new air traffic controllers.

Aviation Safety (AVS):

Aircraft Certification (AIR): The FAA is continuing its multiyear efforts to address the recommendations from independent reviews such as the Special Committee to Review the FAA's Aircraft Certification Process, Joint Authorities Technical Review, as well as requirements in the Aircraft Certification, Safety, and Accountability Act (ACSAA). Funding is requested to develop and provide training to the FAA aviation safety workforce in the areas of Safety Management Systems (SMS), and Human Factors. Funding is also requested to develop a low code/no code platform to improve data management and safety oversight. Finally, the funding will support enhancements to the Work Tracking System to support new products that enable fleet monitoring, risk based decision making, and proactive data analytics in response to the ACSSA.

Flight Standards (AFS): The FAA is currently replacing the Registry, which is the system of record for all U.S. aircraft registration, security interest and airman certification information with a modern solution through the Civil Aviation Registry Electronic Services (CARES) investment. This investment is an ongoing multi-year endeavor, fully transitioning legacy Registry functions through the CARES investment will ensure the FAA can meet industry demands for registration services, as well as meet its Aircraft Certification, Safety and Accountability Act mandate. Funding is also requested for additional Aviation Safety Inspectors (ASI) to provide oversight, certification, surveillance services, and support analytical, aircraft, and airman registration services. ASIs are safety-critical positions within the FAA and are involved in developing, administering, or enforcing regulations and standards concerning civil aviation safety.

Hazardous Materials Safety (ASH): Funding is requested to expand oversight by hiring additional safety workforce positions to ensure certificate holders meet the necessary safety requirements, standards, and regulations through performance inspections, certificate management, evaluations, research, and accident or incident investigations, to include lithium battery heat/smoke/fire incidents. In addition, funding is requested to develop the regulatory structure for the safe carriage of hazardous materials by innovative aircraft.

Aeronautical Information Management Modernization (ATO): Funding is requested to modernize several aeronautical information systems that are integral to flight safety and compliance with national security. Modernization of these systems will improve the reliability of the data provided to the Notice to Air Missions (NOTAM) system.

Cybersecurity (AFN): This funding is requested to increase Federal staffing at the 24-7 FAA/DOT Security Operations Center. This funding will also facilitate the secure electronic transfer of information and secure transactions across computer networks.

Commercial Space Operations:

Commercial Space Operations (ATO): This funding is requested to increase staffing in the ATO to support growth in commercial space operations. ATO anticipates increased workload in the areas of operations, security, contingency planning, and command and control of the NAS.

Office of Commercial Space (AST): Funding is requested to meet anticipated growth in launch licensing by AST. The FAA will hire additional staff to review license applications and utilize contract and Federally Funded Research and Development Center support to address the rapid growth of new launch systems, increasing launch failures, and an ever-growing number of international partners.

Orbital Human Spaceflight and Mission Authorization Oversight (AST): Funding is requested to support the FAA Reauthorization by aiding AST in developing targeted elements of regulation for in-space transportation activities. These regulations would ensure that these types of activities, which range from low earth orbit to cis-lunar and beyond, are consistent with public health and safety priorities. Funding is also requested

to support the development and coordination of regulations for emerging space activities such as human spaceflight.

Unmanned Aircraft Systems (ASH & APL): This funding will aid in identifying credible threat streams and determine how to integrate new drone technology safely and securely into the National Airspace System. The resources will expand drone detection equipment at the state and local law enforcement level, as well as increase outreach and training for the Public Safety community. In addition, it will allow for the development of a more robust assessments agenda and activities to gather and analyze data to inform drone security policy, rulemaking and security initiatives. This funding will provide additional resources to address the significant increase in applications seeking an environmental certification basis for aircraft and approval/validation of their certification software to ensure compliance with FAA requirements.

Data Analytics:

Aviation Safety (AVS): Funding is requested to build an advanced analytic framework within AVS, provide oversight and enhancements on the tools needed to conduct vulnerability discovery, identify emerging aviation safety risk, and evaluate impacts of changes to the NAS. Additionally, funds are requested for the creation of AVS Data Management and Predictive Analytics operating plan and guidance.

Finance and Management (AFN): Funding is requested to implement an analytical platform to support FAA-wide safety, operational, and other mission-driven data analysis needs. The goal is to reduce time to insight while enabling a fundamental transformation around the use of artificial intelligence/machine learning. This will allow users to perform data integration, data exploration, and data analytics in a single, integrated environment.

FAA Electric Vehicle Fleet: Funding is requested for construction, installation and/or upgrading and maintaining (EV) Charging Infrastructure at FAA Owned and leased facilities.

FAA Business Application Modernization (AFN & AHR): Funding is requested to remediate and modernize legacy applications that the Office of Information Technology operates and maintains on behalf of FAA organizations. Currently, most of the legacy applications rely on outdated technology and frameworks that have passed their end of life, posing a significant security risk. Funding is requested for the replacement of the Benefits Operations Center Human Resources Case Management System to manage workload for over 60,000 FAA employee inquiries, 13,000 benefits actions and over 1,600 retirements each year. This request is for annual licensing fees and operations and maintenance fees.

Facility Maintenance and Sustainment (AFN & ANG): Funding is requested for facility maintenance and utility increases for the Mike Monroney Aeronautical Center (MMAC) for operations & maintenance, janitorial, security, solid waste, and utility costs. Funding is requested for increased facility operations and maintenance costs at the William J. Hughes Technical Center (WJHTC). This includes repair, maintenance, and emergency facility-related

projects executed for the efficient and effective operation and management of tech center's facilities and utilities usage.

Staff Office Support:

Global Leadership (APL): Funding is requested to advance U.S. aviation engagement, leadership and influence globally. Focus areas include an engagement program for Africa, International Civil Aviation Organization support, Global Leadership Fellowship Exchange program, and creation of a FAA Senior representative in the Caribbean.

Office of Chief Counsel (AGC): Funding is requested for AGC personnel to provide legal support on regulatory and rulemaking activities, aviation engagements, aviation litigation, national and cyber security assessments, environmental/noise policy, and certifications to ensure legal sufficiency and appropriate legal risk assessment.

Office of Human Resources (AHR): Funding is requested for additional staffing specialists to support increased workload and service demands due to multiple hiring initiatives within the FAA and the number of applicants steadily increasing.

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Detailed Justification for the Air Traffic Organization (ATO)

FY 2025 - Air Traffic Organization Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	6,369,029	6,369,029	7,063,817
Program Costs	2,442,783	2,442,782	3,041,860
Total	**$8,811,812**	**$8,811,812**	**$10,105,678***
FTE	**27,993**	**27,993**	**28,752**

*Total does not add due to rounding.

Funding details for ATO's various service units:

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Air Traffic Services (AJT)	4,731,726	4,731,726	5,015,028
Technical Operations (AJW)	1,879,406	1,879,406	1,994,288
System Operations (AJR)	265,617	265,617	398,720
Safety and Technical Training (AJI)	227,701	227,701	257,600
Mission Support Services (AJV)	318,224	318,224	353,393
Management Services (AJG)	224,567	224,567	275,458
Program Management (AJM)	1,036,226	1,036,226	1,676,042
Flight Programs (AJF)	128,345	128,345	135,149
Total	**$8,811,812**	**$8,811,812**	**10,105,678**

What is this program and what does this funding level support?

The Air Traffic Organization (ATO) operates the most complex and technically advanced air traffic control (ATC) system in the world. In FY 2025, ATO is required to sustain and improve effective and efficient ATC throughout U.S. airspace. The funding requested will enable ATO to train the Federal Aviation Administration's (FAA) highly skilled workforce, provide information and updates to the flying public to ensure safe air travel, maintain the critical infrastructure necessary to operate the National Airspace System (NAS), review and update navigational information to promote more efficient air transportation, and effectively control air traffic, which is a major contributor to the national economy.

While the system is already exceedingly safe, ATO is making it safer by moving to a proactive safety culture in which every individual in ATO is committed to assessing and mitigating risks. Even as safety is paramount, ATO is taking steps to enable growth and changes in aviation.

ATO is a performance-based organization providing safe, secure, and cost-effective ATC services to commercial aviation, private aviation, and the military. ATO employs almost 29,000 operations-funded professionals who are committed to providing safe and efficient ATC services. Many ATO employees, including almost 14,000 air traffic controllers, 4,100 air traffic supervisors and air traffic managers, 2,200 engineers, and 5,800 maintenance technicians, directly serve FAA's customers. The remaining employees work in a wide variety of professions to sustain the smooth operations of ATO. They research, plan, and build ATC equipment and programs; manage payroll and benefits programs; maintain productive relationships with the aviation industry and the public; and ensure that the environment and ATO employees are protected.

ATO provides air traffic services for the Nation and is fully committed to the agency's mission. ATO handles over 45,000 scheduled passenger flights per day at U.S. airports and helps transport over one billion passengers per year, a vital part of the Nation's economy. In total, the ATO handles over 46,300 Instrument Flight Rules flights per day, and manages over 155,000 operations (including departures, arrivals, and over-flights) per day at FAA and Contract Towers. FAA data shows that civil aviation accounts for over $1.8 trillion in total economic activity, supporting more than five percent of the U.S. gross domestic product. Approximately 11 million people are employed in aviation-related fields and earn over $488.2 billion a year.

ATO has several efforts underway to make sure fully trained and certified air traffic controllers are available to keep pace with projected increases in air travel demand, including hiring and training several thousand controllers over the next decade. Efforts are underway to streamline our training process while increasing resiliency to serve the high demand markets as air traffic increases and we prepare for the future. The hiring goal has been increased to ensure the hiring plan matches our recruitment and retention strategies. Additionally, the increase will help the FAA meet the needs of a modern-day workforce, while meeting industry demand. The ATO is also focused on optimizing classroom and simulation training by increasing the contract instruction resources at critical facilities. ATO is investing in the Tower Training Simulation to use state-of-the-art capabilities and meet the increased demand.

ATO's eight service organizations include:

Air Traffic Services (AJT): Air Traffic Services provides ATC services from en route, terminal, and combined control facilities in the United States (U.S.), Puerto Rico, and Guam. Air Traffic Services controls more than 29 million square miles of airspace. This represents more than 17 percent of the world's airspace and includes all 50 U.S. states, large portions of the Atlantic and Pacific Oceans, and a great deal of the Gulf of Mexico. Every day, the FAA ensures thousands of positively controlled aircraft are directed safely and efficiently to their destinations.

The en route domain provides ATC services from 21 Air Route Traffic Control Centers or ARTCCs, and four combined control facilities, which interface with more than 18 air navigation service providers. Terminal ATC services include both airport surface operations and terminal area operations. Airport surface operations are conducted from 313 FAA facilities and 263 FAA Contract Towers located at the Nation's airports. Terminal area operations are conducted from 25 stand-alone Terminal Radar Approach Control (TRACON) facilities, which routinely handle aircraft within 40 miles of an airport.

Air Traffic Services is divided into three geographical service areas (i.e., Eastern, Central, and Western) to better manage the delivery of ATC services. The primary function of each service area is to oversee ATC operations within its geographical area and to ensure that quality standards established for safety, capacity, and organizational excellence are met.

Technical Operations (AJW): The national airspace system is composed of a mix of hardware and software systems that enable controllers to monitor and communicate with pilots and other ATC facilities. NAS system capabilities include automation, communications, surveillance, and navigation. Failure at any point in the system can cause capacity reductions and potentially compromise safety. Reductions in capacity cause delays with costs to users and the flying public. Technical Operations ensures that terminal and en route controllers have all critical parts of the NAS infrastructure available for the safe and efficient delivery of air traffic services.

The mission of Technical Operations is to:

- Ensure efficient delivery of all NAS services for all stakeholders.
- Increase NAS capacity for all users through changes in technology.
- Maintain optimal NAS services for all users by strategically investing in the current infrastructure and providing operational oversight of leased NAS services.
- Improve situational awareness for pilots, controllers, and airfield operators by providing them with real-time information concerning potential conflicts and offering possible resolutions.
- Provide a safe and healthful workplace for all FAA employees through an active Occupational Safety and Health Administration program.

Technical Operations supports the delivery of safe and efficient flight services to customers through responsive and cost-effective maintenance of NAS facilities, systems, and equipment. It also provides operational oversight of leased services. The work consists of:

- NAS system design, development, acquisition, installation, maintenance, restoration, modification, certification and oversight of vendor-supplied NAS services and vendor maintenance programs;
- Facilities maintenance; and
- Engineering and assignment of the aeronautical frequency spectrum.

Core work is performed by personnel at System Support and Technical Operations Control Centers (the Centers). The Centers focus on optimizing NAS performance through prioritization of response based on multiple factors, including the importance of the airport or ATC facility that is directly or indirectly affected by the equipment or service outage. Technical Operations leads the day-to-day defense and protection of the NAS by providing governance and requirements to enhance cybersecurity. Technical Operations coordinates threat information sharing and inter-agency collaboration, and tailoring cybersecurity business and acquisition strategies to support the rapid delivery of tools, applications, and other capabilities to defend the critical infrastructure from the evolving threat.

System Operations (AJR): The System Operations directorates perform essential functions for the daily operation of the NAS. Daily operations consist of a broad range of operational services for the ATO that affect all aspects of ATC operations, including air transportation, space operations, delivery of flight services, and integration of new entrants into NAS operations. All national air traffic flow management initiatives are managed by System Operations along with policy and concept development for airport surface flow management programs. System Operations is the focal point for stakeholder interaction through formal collaborative decision-making venues and serves as FAA's customer advocate. System Operations provides the ATO, its customers, and stakeholders with system operational data and performance analysis, trending, and forecasting. It develops strategies and plans to ensure viability. System Operations manages the Slot Program Office, which approves flight schedules at slot-controlled airports.

In addition, System Operations manages a suite of aviation weather programs to increase safety in the NAS, including the Aviation Weather Observation Program, the Center Weather Service Units, and the Weather Camera Program. These programs provide aviation weather for pre-planning, departure en route, and destination phases. They support air traffic management decisions.

System Operations also provides air traffic operational contingency oversight to ensure NAS operations continue efficiently and safely if there are planned or unplanned impacts on the NAS. System Operations protects the United States Air Domain from threats and other major incidents, managing the impact of threats and associated response measures on the safety and efficiency of the NAS. This threat protection mission extends to the outer reaches of the NAS, including Guam and the new threats emanating from those areas. It further impacts unmanned aircraft systems (UAS) and space operation driven security issues, especially Counter UAS security monitoring of launch area airspaces.

Safety and Technical Training (AJI): Safety and Technical Training provides safety, technical training, policy and performance, and strategic outreach necessary to enable air traffic controllers, technicians, and engineers. It supports all personnel in the daily efforts to keep the

NAS safe and efficient. Safety and Technical Training facilitates an ongoing ATO safety culture transformation that leads to improved safety performance and is the focal point for reducing the risk of runway collisions and excursions in the NAS.

Safety and Technical Training is also responsible for ensuring the safety of the NAS through measuring, analyzing, mitigating, and monitoring risks. To that end, Safety and Technical Training implements corrective actions to mitigate identified hazards, gathering safety information from operational employees and systems, and deploying technology to better qualify risk. Safety and Technical Training manages and maintains the ATO's Safety Management System and ensures that national safety management policies are clearly defined, communicated, and followed. Safety and Technical Training conducts audits and operational assessments of NAS changes and new technologies. It provides safety analysis, data management, and integration capabilities to FAA personnel and decision-makers. Additionally, Safety and Technical Training manages safety policy development and reduces fatigue risks through a comprehensive fatigue risk management system.

Safety and Technical Training provides technical training to controllers, technicians, and engineers. Safety and Technical Training strives to craft ATO's learning approach to be more efficient and effective through the development and implementation of the Mobile Learning Platform, Instructor Led, Virtual and Blended Training. These initiatives continue to increase the flexibility and accessibility of training solutions. Safety and Technical Training increases the value to the FAA by integrating simulations, gamification of learning concepts, and use of electronic training devices for the delivery and near real-time update of the course curriculum. Safety and Technical Training manages the course curriculum for more than 14,200 air traffic controllers, 5,200 airway transportation systems specialists, and 2,200 engineers with knowledge and skill transfer to make aviation safer.

Mission Support Services (AJV): Mission Support Services was established in 2010. It fulfills the FAA's mission by providing innovative and strategic direction for infrastructure and airspace design, while ensuring superior execution of policies and procedures. Mission Support Services provides technical and administrative support; develops airspace policy and strategy; designs aeronautical charts and procedures; and leads international airspace coordination. With ATO-wide experience, Mission Support Services aligns its work to meet its customers' needs, integrate stakeholder efforts and perspectives to maximize efficiency and budgets, and communicate often and consistently to ensure all move forward together. It supports over 35,000 personnel including, technicians, engineers, and air traffic controllers whose daily efforts keep aircraft safe, separated, and punctual.

Approximately 1,400 Mission Support Services employees work together and across ATO operations in four core functional areas:

- **Strategy**: Provides ATO corporate focus to align priorities, initiatives, and resources that expedite the implementation of advanced concepts in UAS, Space Operations, and other Air Traffic Management areas. Strategy analyzes current operations and envisions a future state that anticipates key changes that will affect air traffic while driving decisions,

setting goals, and developing plans to implement future ATO innovations and operational needs.

- **Policy**: Develops regulatory policy and provides ATC procedural support to users throughout the NAS. Provides guidance on matters involving ATC standards and procedures and creates rules, policies, and standards for the use of navigable airspace.
- **International**: Represents the ATO and delivers consistent, well-coordinated leadership in support of Global Leadership Initiatives to achieve collaborative international harmonization and operational priorities.
- **Execution**: Implements and coordinates the ATO's prioritized goals at the field facility level. Service includes aeronautical data services, quality control, operations support, planning and requirements, and resource management.

The Mission Support Services strategy, policy, and international work is done predominantly at FAA headquarters in Washington, DC, and the execution work is done in the ATO Service Areas by Aeronautical Information Services and its Service Centers in Oklahoma City, Atlanta, Ft. Worth, and Seattle.

Management Services (AJG): As a shared service organization, Management Services performs leadership, guidance, and support services for all the service units in the ATO. The primary focus of Management Services is to provide the ATO management team with:

- Expertise in culture and change management, organizational development, and strategic planning.
- Support services on all labor related items (e.g., term and mid-term bargaining), providing technical expertise on collective bargaining agreements that impact ATO employees.
- Support services for the development/deployment of talent management solutions customized to the ATO operations, collaborating with the FAA Human Resource organization on agency-wide talent management programs and services to ensure the needs of the ATO workforce are met.
- Support services on diversity, equity, inclusion, and accessibility, awards and recognition, performance management, recruitment and staffing, organizational realignment and reorganization, and policy oversight.
- Coordination for hiring air traffic controllers and technicians; and supervision and assignment of air traffic controller trainees to facilities.
- Support in business, financial, and contract services, emergency preparedness, real property and space management, facility security, and acquisition support.

Program Management Organization (AJM): The Program Management Organization (PMO) provides program and acquisition management for FAA infrastructure programs that transform, modernize, and sustain the NAS. The PMO ensures greater visibility, tighter alignment, and closer integration of innovative, complex, interdependent initiatives and technologies by managing a portfolio of approximately 150 programs to include NextGen, emerging entrants, air traffic, mission and business support systems.

The PMO supports the agency in four distinct functional areas:

- **Air Traffic Systems** that support tactical operations for today, as well as the execution of automation tools for tomorrow. Systems are managed from initial concept through deployment and sustainment using engineering and acquisition expertise.
- **Enterprise Services** across a number of different domains, including: (1) Controller Training Solutions and Federal Contract Towers; (2) Implementation and Program Management & Integration; (3) Communications, Information, and Network Services; (4) Navigation; (5) Aviation Weather and Aeronautical Services; and (6) Data Communications.
- **Surveillance Services** provides surveillance data critical to separate air traffic and situational awareness for airspace users. Sustains systems that support today's tactical operations and executes new NextGen foundational surveillance technologies.
- **Business Support Systems** that enable network, telecommunications, and integrated services to advance the mission (i.e., FAA telephones, computers, networks, and air traffic operations).

Flight Program Operations (AJF): Flight Program Operations is responsible for all agency flight operations, both manned and unmanned, conducted at eight facilities across the country. These responsibilities include all aspects of flight program operations, training, maintenance, safety, policy, and administration.

Flight Program Operations core business is safe flight operations and efficient execution of its four primary missions:

- **Aviation Safety Training**: Provides formal training and currency/proficiency services to Flight Standards Service (FS) participants and Aircraft Certification Service (AIR) participants in the FAA Flight Program. These participants require Flight Program Operations services to become or remain qualified and/or current to operate FAA aircraft in accordance with FS or AIR requirements to perform their primary job duties in an industry proponent/applicant aircraft.
- **Flight Inspection**: Ensures the integrity of instrument approaches and airway procedures that constitute our NAS infrastructure and meet the agency's international commitments. Flight Program Operations accomplishes this mission through the airborne inspection of all space- and ground-based instrument flight procedures and the validation of electronic signals in space transmitted from ground navigation systems. Flight Program Operations also performs inspections of Department of Defense (DOD) navigational facilities designated as essential to the defense of the United States, both foreign and domestic.
- **Research, Development, Test and Evaluation Support**: Conducts flights supporting research, development, test and evaluation of new electronic aids, air traffic procedures, aircraft improvement, and aviation medical research. Flight Program Operations executes testing and evaluation of the air traffic control system, NAS systems (e.g., investigation of radio frequency interference problems), personnel, aircraft, equipment, and procedures. This work also includes 5G deployment modeling, identification, and mitigation.

- **Critical Event Response/Transportation**: Provides transportation required to accomplish official FAA responsibilities in times of emergency or disaster, as well as support the National Transportation Safety Board (NTSB) in carrying out its response. Flight Program Operations also supports other federal agencies under reimbursable agreements,.

FY 2025 Anticipated Accomplishments:

Function/Office	FY 2025 Anticipated Accomplishments
Air Traffic Organization	• Maintain and sustain core infrastructure to ensure that terminal and en route controllers have all critical parts of the NAS infrastructure available for the safe and efficient delivery of air traffic services. • Continue to develop and execute policies for emerging technologies integration for the flight inspection mission, to include augmentation of the infrastructure inspections using UAS. • Continue efforts to improve the NAS with NextGen technologies to support the increased efficiency of the NAS and delivery of services. • Continue to prepare the NAS for new entrants, including UAS and Commercial Space. • Reduce runway incursions, excursions, and other airport surface safety events through use of the Surface Safety Risk Index. • Provide continuous NAS information to external aviation partners. • Develop strategic plans, conduct analyses, and perform systems engineering efforts to align with Trajectory Based Operations and the Performance Based Navigation NAS Navigation Strategy. • Optimize the process for delivering possible vehicle/pedestrian deviations by moving the entire process nationally to the Comprehensive Electronic Data Analysis and Reporting platform. • Foster an environment to improve NAS safety, operational efficiency, and modernization by increasing organizational effectiveness and shared service delivery skills, broadening employee engagement, and ensuring ATO goals and strategies stay on track.

Function/Office	FY 2025 Anticipated Accomplishments
	• Continue increased, focused efforts around Air Traffic Control Specialist training, resulting in more Certified Professional Controllers at over 313 facilities. • Finish implementing an enterprise framework for the integration of UAS security features into the NAS, specifically including Counter-UAS and UAS detection capabilities. • Hire and train 2,000 controllers, as well as address the backlog of training for developmentals currently working in the air traffic facilities.
NextGen and Operational Related	• Provide analytical studies and related safety monitoring services that support the continued use of and further reductions in separation standards within U.S. sovereign airspace. Airspace to include international airspace where FAA has delegated authority to provide air traffic services. • Conduct an annual safety analysis of Reduced Vertical Separation Minimum Operations (RVSM) in North America (i.e., United States, Canada, and Mexico) and within U.S. delegated oceanic airspace per International Civil Aviation Organization Requirements. • Conduct maintenance and operations of independent performance-based monitoring for Altimetry System Error, a key component to the continued safe operation of RVSM.

Adjustments to Base:

Subscription Services: The Budget proposes to fund FAA Subscription Services, formerly in the Facilities and Equipment account, in the Operations account. To address some of its capital needs, the FAA uses subscription services to improve the NAS instead of building new federally owned infrastructure. These subscription services represent fixed costs to the FAA, purchased through long-term contracts. Keeping these fixed costs in the F&E account, however, has eroded FAA's ability to leverage F&E funding to improve FAA's capital infrastructure. The Budget therefore proposes to fund the costs for the subscription services for the Data Communications, Wide Area Augmentation System (WAAS), and Automatic Dependent Surveillance – Broadcast (ADS-B) programs from the Operations account.

Transition from Facilities and Equipment to Operations

Transition to Operations and Maintenance funding covers the operational cost of new systems acquired under the FAA's Facilities and Equipment Capital budget. Once new systems are installed in the NAS, the ongoing operational costs are transferred to the Operations

appropriation. If legacy systems are being replaced or undergoing upgrading (i.e., *tech refresh*), the request is the net of current operating costs and the anticipated cost of the replacement system. New capabilities do not usually have offsetting costs.

The funding provides the ongoing support of contractor-provided hardware and software maintenance, licensing fees, telecommunications costs, recurring training, logistics support, flight inspection and charting.

Transition to Operations and Maintenance	Amount ($000)
Terminal Flight Data Manager (TFDM)	$7,537
Space Integration (SDI)	$4,507
En Route Automation Modernization (ERAM) Sustainment 3	$3,889
Common Support Services Weather (CSS-Wx)	$3,077
Configuration Management Automation (CMA)	$2,499
NextGen Weather Processor (NWP)	$2,109
En Route Automation Modernization (ERAM) Enhancements 2	$1,015
Remote Monitoring Logging System (RMLS)	$1,002
Remote Management Access Gateway (RMAG)	$904
UAS Services (CLM, DISCVR, CAS and GDFS)	$826
Traffic Flow Management System (TFMS)	$628
Communication and Navigational Aids	$423
Distance Measuring Equipment (DME)	$414
NAS Voice Recorder Program (NVRP)	$360
Southwest Florida International Airport (RSW)	$254
Common Terminal Digitizer (CTD)	$241
Weather Camera Program Hawaii	$163
Wide Area Augmentation System (WAAS) Enhance 5	$126
Terminal Flow Management System (TFMS) Surface Viewer	$112
Common Support Services – Weather (CSS-Wx) System Wide Information Management	$105
ATO Grand Total	**$30,191**

Program Increases:

The FY 2025 budget request for ATO includes additional funding for the following programmatic initiatives:

Discretionary Adjustments	Amount ($000)	FTP	FTE
Controller Hiring and Training Surge	36,920	166	105
Aeuronautical Information Management Modernization (AIMM)	10,000	-	-
Commerical Space Operations	7,018	20	10
ATO Total	**$53,938**	**186**	**115**

Controller Hiring: The FAA is requesting additional funding to continue the controller hiring and training surge initiated in FY 2023. The surge will further boost efforts to streamline the path for controller training while further increasing resiliency to serve high demand markets. Funding will also support increases in the FAA offices that support the recruitment, hiring, and onboarding of new air traffic controllers.

Aeronautical Information Management Modernization: Funding is requested to modernize several aeronautical information systems that are integral to flight safety and compliance with national security. Modernization of these systems will improve the reliability of the data provided to the Notice to Air Missions (NOTAM) system.

Commercial Space Operations: This funding is requested to increase staffing in the ATO to support the growth in commercial space operations. ATO anticipates increased workload in the areas of operations, security, contingency, and command and control of the NAS.

(See also *Operations Summary* and *FY 2025 Discretionary Increase Request* for a detailed description of the program increase requests.)

What benefits will be provided to the American public through this request and why is this program necessary?

The ATO continues in its efforts to provide the American public the safest, most efficient aerospace system in the world. In addition, ATO is providing an organized and expeditious flow of air traffic and supporting National Security and Homeland Defense. As part of the NextGen modernization effort, ATO is introducing new airspace innovations every day. These innovations include satellite-based (or performance-based) navigation that enables more point-to-point flying which reduces fuel usage and emissions. ATO will continue to monitor the deployment progress for the Data Communication services into the NAS. Changes like these are making flying more efficient and environmentally friendly, while ensuring that all safety needs are met.

The ATO provides strategic and tactical NAS oversight and regulates real-time air traffic when constraints such as weather, runway closures, equipment outages, security issues, or other impacting conditions affect the NAS. By developing and coordinating FAA operational metrics, system operations develop recommendations for improving NAS capacity and system efficiency

to reduce delays at specific airports and in high volume corridors. The flying public benefits directly by minimizing NAS delays and congestion, which delivers an efficient and safe mode of transportation to travelers. It will also lead to efficiencies that will save fuel and provide a better flying experience to the public.

The ATO's responsibilities also include environmental assessments and policies to manage effective airspace use and complete regulatory development for UAS operations over urban areas. This will expand the use of unmanned aircraft while deliberation on UAS rulemaking actions is completed.

The ATO creates standardization and provides synergy and efficiencies across the operations missions. The organization supports various programs and projects, contributing to the user benefits of safety and flight efficiency to ensure the existing NAS infrastructure remains within established specifications.

The safety of American aviation is unparalleled. The FAA coordinated more than 45,000 flights per day throughout FY 2022, transporting over 2.9 million passengers safely to their destinations. This outstanding record is attributable to FAA's efforts at reducing fatal accident rates, deploying systems and procedures to reduce serious runway incursions, and conducting training programs aimed at reducing operational errors.

Controller Workforce: FY 2018 - FY 2023 End of Year Actuals

FY 2018 Actual	14,695	**FY 2022 Actual**	13,693
FY 2019 Actual	14,375	**FY 2023 Actual**	13,853
FY 2020 Actual	14,242		
FY 2021 Actual	13,850		

Air Traffic Organization (ATO)
($000)

	Dollars (in Thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$8,811,812**	**27,999**	**741**	**27,993**
FY 2024 Adjustment	$627,256	410	195	457
Adjustments to Base	**$612,672**	-	-	**187**
Subscription Services from F&E to Ops	$194,000			
Annualization of FY 2024 Pay Raise 5.2%	$88,622	-	-	-
Annualization of FY 2024 FTE -- Controller Hiring Surge	$39,019	-	-	187
FY 2025 Pay Raise 2.0%	$102,258	-	-	-
Transition from F&E to Ops	$30,191	-	-	-
Non-Pay Inflation	$46,908	-	-	-
Telecommunications Infrastructure	$110,000	-	-	-
Working Capital Fund	$625	-	-	-
Bureau of Transportation Statistics	$1,049	-	-	-
Discretionary Adjustments	**$53,938**	**186**	**27**	**115**
Controller Hiring and Training Surge	$36,920	166	27	105
Aeronautical Information Management Modernization (AIMM)	$10,000	-	-	-
Commercial Space Operations	$7,018	20	-	10
FY 2025 Request	**$10,105,678**	**28,595**	**963**	**28,752**

See Operations Summary for a detailed description of the explanation of funding changes.

Detailed Justification for the Aviation Safety (AVS)

FY 2025- Aviation Safety Budget Request
($000)

Program Activity	FY 2023 Actuals	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,374,656	1,374,656	1,527,453
Program Costs	256,138	256,138	304,625
Total	**$1,630,794**	**$1,630,794**	**1,832,078**
FTE	**7,552**	**7,552**	**7,863**

Funding details for AVS services and offices:

Program Activity	FY 2023 Actuals	FY 2024 Annualized CR	FY 2025 Request
Flight Standards Service	1,010,463	1,010,463	1,083,722
Aircraft Certification Service	320,596	320,596	365,753
Office of Aerospace Medicine	93,772	93,772	94,063
Office of Rulemaking	8,513	8,513	10,463
Air Traffic Safety Oversight Service	34,854	34,854	33,408
Office of Accident Investigation and Prevention	52,184	52,184	71,628
Office of Unmanned Aircraft Systems Integration	34,201	34,201	37,970
Office of Quality, Integration and Executive Services	61,778	61,778	123,118
Organization Designation Authorization Office	14,433	14,433	11,953
Total	**$1,630,794**	**$1,630,794**	**$1,832,078**

What is this program and what does this funding level support?

The request allows Aviation Safety (AVS) to provide essential services for certification, production approval, and continued airworthiness of aircraft as well as the certification of pilots, mechanics, and others in safety-related positions; and to maintain essential safety data reporting capabilities.

AVS is responsible for setting the safety standards for every product, person, and organization that manufactures and operates aircraft in the national airspace. Through its approximately 7,900 employees, AVS provides the following services:

- Development and establishment of safety and certification standards for the civil aviation industry.
- Surveillance and oversight of certificate holders, air carriers, general aviation operators, repair stations, manufacturers, and airmen.
- Issuance or denial of certifications.
- Maintains and, when possible, improves the safety of the National Airspace System (NAS).
- Ensures existing certificate holders continue to meet the safety requirements, standards, and regulations of their original certificate.
- Creates and amends the rules and regulations that provide the safety standards for people, organizations, and equipment, including new entrants, operating in the NAS.
- Conducts independent safety oversight of ATO's air traffic services.

FY 2025 Realignment Proposal

Over the last decade, AVS business operational support has become increasingly inter-related. There is no longer a need to maintain a separate and dedicated operational support office within each of the AVS services and offices. AVS proposes to consolidate business operational support services in the areas of staffing/human capital, budget, and non-technical contracts to the Office of Quality, Integration, and Executive Services (AQS). This allows the other AVS services and offices to focus on our core safety mission of setting, overseeing, and enforcing safety standards for all parts of the aviation industry. The consolidation of business operational support services at the enterprise level will leverage resources and gain efficiency across all AVS services and offices, resulting in the elimination of redundancies that exist across the AVS organization.

Moving to a shared services model within AQS will address concerns that AVS currently conducts similar activities inconsistently across its services and offices. Conducting these activities within each service and office limits AVS' ability to leverage economies of scale and results in missed opportunities for enterprise-wide approaches and efficiencies in conducting business operations. AVS will be able to use resources across the enterprise and as attrition occurs, such positions can be reallocated to technical specialties that support the AVS core safety mission.

AVS services and offices include:

Flight Standards Service (FS): The Flight Standards Service promotes safe air transportation by setting standards, providing certification, and conducting oversight of airmen, air operators, air agencies, and designees.

Aircraft Certification (AIR): The Aircraft Certification Service develops and administers safety standards and procedures governing the design, production, and airworthiness of civil aeronautical products. Certification staff oversee design, production, and airworthiness certification programs to ensure compliance with prescribed safety standards. AIR develops safety standards, policies, and guidance that govern the design, production, and airworthiness of aircraft, engines, and propellers. AIR also issues approvals and provides oversight of approval holders, designees, and delegated organizations.

Aerospace Medicine (AAM): The Office of Aerospace Medicine oversees a broad range of medical programs and services for both the domestic and international aviation communities. AAM performs medical certification/qualification of airmen and other persons associated with safety in flight, inspects and oversees aviation industry drug and alcohol testing programs, manages the FAA employee substance abuse testing programs, and performs aerospace medicine and human factors research.

Rulemaking (ARM): The Office of Rulemaking manages FAA's rulemaking program, processes, and timelines; develops proposed and final rules; manages responses to petitions for rulemaking and for exemption from regulatory requirements; and oversees rulemaking advisory committees that provide advice and recommendations on aviation-related issues.

Air Traffic Safety Oversight (AOV): The Air Traffic Safety Oversight Service conducts independent safety oversight of the Air Traffic Organization's (ATO) air traffic services, using risk-based, data-supported surveillance methods. Surveillance approaches include audits, inspections, investigations, compliance, and approvals, acceptances, and concurrences. AOV staff monitors local air traffic services, processes, and procedures using safety risk standards, safety management system principles, and certification/credentialing programs. AOV approves the ATO's safety management system, monitors the ATO for compliance with its approved safety management system, and reviews and approves the ATO's safety implementation actions and risk management strategies.

Accident Investigation and Prevention (AVP): The Office of Accident Investigation and Prevention manages the national airspace safety risk portfolio by investigating aviation accidents and incidents and collecting, analyzing, and sharing safety information with U.S. and international stakeholders. AVP leads the implementation and evolution of safety management at both the FAA and AVS levels and manages the agency's National Transportation Safety Board and FAA safety recommendations programs.

Unmanned Aircraft Systems Integration (AUS): Unmanned Aircraft Systems **(**UAS) Integration is responsible for facilitating the safe, efficient, and timely integration of UAS into the NAS. This office examines the potential impact of new technologies on the national airspace, their likely benefits, and how the agency can ensure their safe integration into

existing operations in order to maximize their benefits to the American public.

Quality, Integration, and Executive Services (AQS): The Office of Quality, Integration, and Executive Services provides executive oversight and direction of consolidated management support services for all of AVS. AQS manages all phases of planning, financial management, Information Technology liaison services, and administrative activities for the immediate office of the Associate Administrator.

Organization Designation Authorization (ODA): The Organization Designation Authorization (ODA) Office was established to oversee and ensure consistency of the FAA's oversight program for companies that issue certificates and conduct certain inspections on behalf of the agency. This office is also focused on the continued enhancement of standardized development, improved implementation, and the application of a coordinated national ODA program policy.

FY 2025 Anticipated Accomplishments:

Function/Office	FY 2025 Anticipated Accomplishments
Aviation Safety	• Continued emphasis on safety in air transportation by setting standards for certification and oversight of airmen, operators, agencies and designees in a rapidly changing environment challenged by adaptive risk-based surveillance requirements and industry reemergence factors such as anticipated growth in leisure travel, marketplace consolidation and performance, and the dynamics of oversupply and undersupply. • Adhering to the agency's legislative commitments, we will continue to focus on the improvement and revision of the safety lifecycle as directed within the Aircraft Certification Safety and Accountability Act. In addition to, acting upon the recommendations of the Special Committee and supporting the Aircraft Certification Oversight Tool/Data Analytics Platform that enhances the Continued Operation Safety modernization objectives. • Continued focus on our Organization Designation Authorization Office through the standardization, implementation, and application of a fully coordinated national program policy. Furthering our response to a rapidly changing aviation industry, the office will continue its focus on ODA oversight in high-risk areas and support appropriate expansion of the national program. • With an ever-changing aviation environment, AVS will examine the new technologies' potential impact on the national airspace, their likely benefits, and how the agency can ensure their safe integration into existing operations in order to maximize their benefits to the American public.

Adjustments to Base:

Transition to Operations and Maintenance (TOM):

Transition to Operations and Maintenance	Amount ($000)
Regulation and Certification Infrastructure for System Safety (RCISS)	$605
AVS Total	**$605**

TOM funding covers the operational cost of new systems acquired under the FAA's Facilities and Equipment Capital budget. Once new systems are installed in the national airspace system, the ongoing operational costs are transferred to the Operations appropriation.

Regulation and Certification Infrastructure for System Safety (RCISS) is the capital investment that delivers Information Technology infrastructure utilized by the AVS safety workforce. RCISS continues to modernize and enhance the AVS Information Technology infrastructure with solutions focused around improved security, migration to the cloud, and access to tools and applications to support the safety workforce. This request will provide for ongoing second level engineering and licenses.

Program Increases:

The FY 2025 budget request for AVS includes additional funding for the following programmatic initiatives.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Controller Hiring and Training Surge	683	1	1
Aviation Safety	15,912	4	2
Data Analytics	13,409	21	11
AVS Total	**$30,004**	**26**	**14**

Controller Hiring: The FAA is requesting additional funding to continue the controller hiring and training surge initiated in FY 2023. The surge will further boost efforts to streamline the path for controller training while further increasing resiliency to serve high demand markets. Funding will also support increases in the FAA offices that support the recruitment, hiring, and onboarding of new air traffic controllers.

Aviation Safety Aircraft Certification: The FAA is continuing its multiyear efforts to address the recommendations from independent reviews such as the Special Committee to Review the FAA's

Aircraft Certification Process, Joint Authorities Technical Review, as well as requirements in the Aircraft Certification, Safety, and Accountability Act (ACSAA). Funding is requested to develop and provide training to the FAA aviation safety workforce in the areas of Safety Management Systems (SMS), and Human Factors. Funding is also requested to develop a low code/no code platform to improve data management and safety oversight. Finally, the funding will support enhancements to the Work Tracking System to support new products that enable fleet monitoring, risk based decision making, and proactive data analytics in response to the ACSSA.

Aviation Safety Flight Standards: The FAA is currently replacing the Registry, which is the system of record for all U.S. aircraft registration, security interest and airman certification information with a modern solution through the Civil Aviation Registry Electronic Services (CARES) investment. This investment is an ongoing multi-year endeavor, fully transitioning legacy Registry functions through the CARES investment will ensure the FAA can meet industry demands for registration services, as well as meet its Aircraft Certification, Safety and Accountability Act mandate. Funding is also requested for additional Aviation Safety Inspectors (ASI) to provide oversight, certification, surveillance services, and support analytical, aircraft, and airman registration services. ASIs are safety-critical positions within the FAA and are involved in developing, administering, or enforcing regulations and standards concerning civil aviation safety.

Data Analytics: Funding is requested to build an advanced analytic framework within AVS, provide oversight and enhancements on the tools needed to conduct vulnerability discovery, identify emerging aviation safety risk, and evaluate impacts of changes to the NAS. Additionally, funds are requested for the creation of AVS Data Management and Predictive Analytics operating plan and guidance.

What benefits will be provided to the American public through this request and why is this program necessary?

AVS will provide the American public safety and economic benefits by maintaining an enhanced oversight of the national airspace through data analysis techniques used for audits, surveillance, and certification of aircraft operators and production manufacturers, pilots, mechanics, and other safety related positions. In addition, AVS will provide certification and integration services for newly designed and manufactured aviation products associated with UAS. The engineer and inspector resources will provide manufacturing and operational approvals of UAS technologies while maintaining safety oversight services within the national airspace.

Staffing Information

	FY 2023 Actual	FY 2024 Annualized CR	FY 2025 Request
Direct Full Time Equivalents (FTE)	**7,552**	**7,552**	**7,863**
Flight Standards Service	5,206	5,206	5,207
Aircraft Certification Service	1,441	1,441	1,490
Office of Aerospace Medicine	420	420	427
Office of Rulemaking	39	39	48
Air Traffic Safety Oversight Service	132	132	129
Office of Accident Investigation and Prevention	85	85	123
Office of Unmanned Aircraft Systems Integration	99	99	103
Office of Quality, Integration and Executive Services	87	87	283
Organization Designation Authorization Office	43	43	53
Full Time Permanent Employment (FTP)	**7,622**	**7,622**	**7,923**
Flight Standards Service	5,284	5,284	5,203
Aircraft Certification Service	1,443	1,443	1,504
Office of Aerospace Medicine	413	413	420
Office of Rulemaking	34	34	47
Air Traffic Safety Oversight Service	129	129	129
Office of Accident Investigation and Prevention	85	85	142
Office of Unmanned Aircraft Systems Integration	88	88	96
Office of Quality, Integration and Executive Services	99	99	321
Organization Designation Authorization Office	47	47	61

Aviation Safety (AVS)
($000)

	Dollars (in Thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$1,630,794**	**7,622**	**43**	**7,552**
FY 2024 Adjustment	$114,738	275	-	236
Adjustments to Base	**$56,542**	**-**	**-**	**61**
Annualization of FY 2024 Pay Raise 5.2%	$19,129	-	-	-
Annualization of FY 2024 FTE	$11,828	-	-	61
FY 2025 Pay Raise 2.0%	$22,072	-	-	-
Transition from F&E to Ops	$605	-	-	-
Non-Pay Inflation	$2,982	-	-	-
Working Capital Fund	($74)	-	-	-
Discretionary Adjustments	**$30,004**	**26**	**-**	**14**
Controller Hiring and Training Surge	$683	1	-	1
Aviation Safety	$15,912	4	-	2
Data Analytics	$13,409	21	-	11
FY 2025 Request	**$1,832,078**	**7,923**	**43**	**7,863**

See Operations Summary for a detailed description of the explanation of funding changes.

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Detailed Justification for the Office of Commercial Space Transportation (AST)

FY 2025 – Office of Commercial Space Transportation - Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	25,973	25,973	36,435
Program Costs	11,608	11,608	20,695
Total	**$37,581**	**$37,581**	**$57,130**
FTE	**124**	**124**	**182**

What is this program and what does this funding level support?

The Commercial Space Launch Act authorized the Department of Transportation (DOT) to license and monitor the safety of commercial space launches and to promote the industry. Executive Order 12465 designated DOT as the lead Federal Agency for enabling private-sector launch capability.

AST's mission is to ensure protection of the public, property, and the national security and foreign policy interests of the United States during commercial launch or reentry activities, and to encourage, facilitate, and promote U.S. commercial space transportation. Recent years have witnessed dramatic growth in both the number of commercial space transportation companies and total operations. The most visible indicator of the increasing level of activity is the annual number of launches and reentries, from FY 2018 to FY 2021 alone, AST witnessed a 64 percent increase in launch activities. Furthermore, AST supported 114 licensed commercial space launch and reentry operations in FY 2023, an increase of 35% over FY 2022 and exceeding optimistic forecasts by 20%. In addition, the National Space Policy of 2010, the National Space Transportation Policy of 2013, and the National Space Policy of 2020 reflect a greater reliance by the Federal Government on the commercial space industry to accomplish national objectives. As a result, AST continues to see significant increases in the activities required to achieve its mission.

AST accomplishes its safety mission through the execution of its licensing, permitting, and safety inspection functions. Key focus areas include:

- Safety oversight: Primarily through on-site inspections, AST ensures license and permit holders adhere to regulatory requirements. At least one inspection of launch operations is required at time of flight, but inspection also encompasses sending safety inspectors to launch and reentry operations to ensure an operator's compliance with regulations and the representations made in its application. Additionally, key activities including dress

rehearsals and the testing and installation of flight termination systems are also inspected. Finally, each year AST conducts inspections of all licensed launch sites. A record-breaking number of 752 safety inspections were conducted in FY 2023.

- License and Permits: AST has 180 days to evaluate a license application or 120 days to evaluate a permit application. These evaluations are complex in nature, and require an in-depth safety evaluation, which also includes a policy review, interagency review, and a computation of maximum probable loss for determining an applicant's financial responsibility. A record-breaking number of 40 requests for license modifications were received in FY 2023.
- Pre-application Consultation: AST conducts a pre-application consultation with every company or entity that approaches the FAA for a license or permit. This consultation process can last months or even years, as it serves to educate these proponents on the applicable regulations and assist them in identifying potential issues as they develop and shape their plans.
- Spaceports: AST is responsible for licensing the following operation of launch sites or "spaceports":
    - Spaceport Florida at Cape Canaveral Space Force Station, Florida
    - Mid-Atlantic Regional Spaceport at Wallops Flight Facility, Virginia
    - Mojave Air and Space Port, California
    - Kodiak Launch Complex on Kodiak Island, Alaska
    - Oklahoma Spaceport in Burns Flat, Oklahoma
    - Spaceport America near Las Cruces, New Mexico
    - Cecil Field in Jacksonville, Florida
    - Houston Airport System Spaceport at Ellington Airport, Texas
    - Midland International Airport in Midland, Texas
    - Colorado Air and Spaceport in Watkins, Colorado
    - Space Coast Regional Spaceport, Titusville, Florida
    - Camden, GA

FY 2025 Anticipated Accomplishments:

Function/Office	FY 2025 Anticipated Accomplishments
Commercial Space	• Enhance regulatory framework, to include Part 440 and 460, while also implementing Part 450 rule, and its update; additionally support the creation of the regulatory framework for the launch of nuclear systems on commercial space systems. These efforts are needed in order to keep regulations flexible to address the increasing complexity and diversity of suborbital and orbital operations. • Complete licensing and permitting evaluations within statutory time limits. • Complete process reengineering efforts and improvements to support increased industry cadence and technological innovations. • Complete additional safety approval applications, which evaluate space-related components, processes, or services.

Program Increases:

The FY 2025 budget request for AST includes additional funding for the following programmatic initiatives.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Commercial Space Operations	7,930	31	16
Commercial Space Reauthorization –Orbital Human Spaceflight Oversight	2,609	10	5
Commercial Space Reauthorization – Mission Authorization Oversight	3,492	13	7
AST Total	**$14,031**	**54**	**28**

Commercial Space Operations: Funding is requested to meet anticipated growth in launch licensing by the Office of Commercial Space. The FAA will hire additional staff review license applications and utilize contract and Federally Funded Research and Development Center support to address the rapid growth of new launch systems, increasing launch failures, and an ever-growing number of international partners.

Orbital Human Spaceflight and Mission Authorization Oversight: Funding is requested to support the FAA Reauthorization by aiding AST in developing targeted elements of regulation for in-space transportation activities. These regulations would ensure that these types of

activities, which range from low earth orbit to cis-lunar and beyond, are consistent with public health and safety priorities. Funding is also requested to support the development and coordination of regulations for emerging space activities such as human spaceflight.

(See also "Operations Summary" and "FY 2025 Discretionary Increase Request" for a detailed description of the Program Increase requests.)

What benefits will be provided to the American public through this request and why is this program necessary?

Since AST's transfer to the FAA in 1995, the Office has licensed or permitted over 500 commercial space launches and reentries. Providing this service to the commercial space industry, while ensuring the safety of the public, remains AST's top priority. The continued rapid pace of growth in commercial space transportation brings challenges beyond increasing launch cadences, new types of space vehicles, such as balloons and a variety of winged launch and reentry vehicles, increases the complexity of licensing and operations. Additionally, the commercial space industry is also seeing new ventures like small-satellites, cube-satellites, and commercial orbital servicing and commercial space stations, as well as the dawn of commercial human spaceflight operations.

Additionally, the National Aeronautics and Space Administration is increasingly relying on the commercial sector to provide cargo and commercial astronaut services for the International Space Station, with a much-increased launch cadence. Finally, the 2020 National Space Policy requires the Department of Transportation to "seek to remove or streamline regulatory impediments that may discourage commercial space communications providers from obtaining licenses from the United States".[1]

This directive provides for an integrated government–led program, working with private sector partners, for a return to the Moon, and possibly follow-on missions to Mars. The Office of Commercial Space Transportation will play a vital role in assuring the successful implementation of such a directive working to ensure safety while addressing the needs of industry.

[1] Footnote: https://trumpwhitehouse.archives.gov/wp-content/uploads/2020/12/National-Space-Policy.pdf

Office of Commercial Space Transportation (AST)
($000)

	Dollars (in Thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$37,581**	**136**	-	**124**
FY 2024 Adjustment	$4,437	19	-	30
Adjustments to Base	**$1,081**	-	-	-
Annualization of FY 2024 Pay Raise 5.2%	$393	-	-	-
FY 2025 Pay Raise 2.0%	$453	-	-	-
Non-Pay Inflation	$235	-	-	-
Discretionary Adjustments	**$14,031**	**54**	-	**28**
Commercial Space Operations	$14,031	54		28
FY 2025 Request	**$57,130**	**209**	-	**182**

See Operations Summary for a detailed description of the explanation of funding changes.

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Detailed Justification for Office of Finance and Management (AFN)

FY 2025 – Office of Finance and Management – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	282,002	282,002	307,007
Program Costs	635,897	635,897	697,780
Total	**$917,899**	**$917,899**	**$1,004,787**
FTE	**1,394**	**1,394**	**1,401**

What is this program and what does this funding level support?

The Office of Finance and Management (AFN) is responsible for providing the Agency's common business services through a consolidated, integrated approach. AFN oversees the delivery of financial operations, acquisition services, information technology, property management, and technical training to internal and external customers across the Agency.

AFN manages the FAA's enacted budget and plans for future budget requirements, handles more than 32,000 contract actions for more than $6 billion in goods and services annually, and supports over 65,000 technology users. AFN leads the FAA's efforts to identify cost savings, leverage technology, and optimize resources in order to position the Agency to achieve the aviation safety mission.

AFN provides the business services and direct operations that support the FAA's safety mission. Every day we collaborate across the FAA, the federal government, industry, and academia to provide the most efficient and effective acquisitions, IT, and financial services as well as technical training. AFN provides financial and IT management to 35 federal agencies and efficiently manages billions from the Bipartisan Infrastructure Law. AFN also trains thousands of student controllers and technicians at the FAA Academy. We foster the development of software bots FAA-wide to handle repetitive tasks to free up employees for higher-level projects.

Each year, AFN averts cyber incidents by detecting and prioritizing over 100 million cyber alerts for the national airspace and non-national airspace systems throughout the FAA and the DOT and provides critical crisis response capability for all cyber incidents.

AFN's four service organizations include:

Financial Services (ABA)

The Office of Financial Services enables the FAA to meet its aviation safety mission by formulating, justifying, executing, and managing budgets for each of the Agency's lines of business and staff offices. ABA ensures funding is available to support FAA's mission and advocates for funding to support FAA's critical Aviation Safety and Air Traffic personnel, programs, and initiatives. ABA serves as the Agency's Chief Financial Officer and leads the FAA in identifying cost savings, providing responsible financial management of budget appropriations, and managing the Agency's workforce planning.

ABA provides three core services:

Budget and Program Services identifies and defines the Agency's budgetary needs to meet the Agency's goals. This organization tracks Agency's program and project spending to ensure compliance with appropriation law and other federal laws. It also serves as the liaison to Congress for funding and appropriation matters.

Financial Management develops and maintains corporate FAA-wide management systems and manages the capitalization of FAA's capital assets. The organization also implements accounting and financial management policies for the Agency and insures the adequacy of internal controls for compliance with laws, regulations, and policies.

Financial Analysis facilitates the Agency's cost reduction efforts and implements cost control initiatives; oversees financial guidance and advisory services for Agency contracts; ensures that business decisions are sound by analyzing the financial impact of proposed Agency labor contracts; and develops the controller and aviation safety workforce plans.

ABA FY 2025 Anticipated Accomplishments:

Function	FY 2025 Anticipated Accomplishments
Budget and Programming	• Ensure that required funding needs for agency programs are available. • Ensure that agency funds and resources are utilized effectively and that FAA maintains compliance with the Anti-Deficiency Act.
Financial Management	• Lead the Agency on all accounting operations and provide financial oversight and information to assist FAA organizations with making business decisions. • Ensure an unmodified audit opinion on Agency FY 2025 financial statements.
Financial Analysis	• Employ business case discipline to any cost/contract reviews for large investments as the Agency investment analysis process stewards. • Provide Controller and Aviation Safety Workforce plans.

Acquisition and Business Services (ACQ)

ACQ provides contracting expertise, acquisition lifecycle support, and property management that enables the FAA to achieve its aviation safety mission by procuring goods and services that leverage emerging technologies and industry best practices. Procurements are negotiated at best value providing significant cost savings. In FY 2023, ACQ contracted for more than $6 billion in goods and services and generated $104.9 million in cost savings through its Strategic Sourcing of Acquisition of Various Equipment program, for purchases like office supplies, office equipment, IT hardware and software, aircraft navigational charting services, and video teleconferencing equipment.

ACQ develops the FAA's Acquisition Workforce Profile, which serves as the FAA's blueprint for developing and sustaining a high-performing acquisition workforce. ACQ manages certification programs that provide acquisition professionals opportunities to achieve and maintain professional development and certifications throughout the acquisition lifecycle. ACQ is consistently one of the top performers among its peer group across the government due to the strong framework for the Agency's acquisition workforce.

ACQ oversees and manages real and personal property for the Agency. Real property includes management of administrative space at FAA Headquarters and other facilities in the National Capital Region. Real Property manages the space needs of more than 24,000 personnel from every FAA line of business and staff office housed in over 6.9 million square feet of FAA office space across the country.

ACQ provides five core services:

Procurement advises, plans, negotiates, and awards FAA organizations' cost-effective, best value contracts, purchase orders, delivery orders, agreements, and aviation research grants for all of FAA, including FAA headquarters, William J. Hughes Technical Center, Mike Monroney Aeronautical Center (MMAC), and the Service Areas.

Acquisition Workforce Planning and Development updates the FAA's Acquisition Workforce Profile and provides a comprehensive program of career development guidance and competency-based training and certification programs for acquisition personnel.

Acquisition Policy and Oversight develops and maintains Agency-wide lifecycle acquisition policy, guidance, and tools that comprise and support the FAA's Acquisition Management System. ACQ also analyzes acquisition data to formulate trends and traceable metrics that identify areas for improvement to leverage government-leading practices, recommends improvements regarding Agency policies and processes based on lessons learned, potential deficiencies, and best practices. In addition, ACQ administers the Joint Resources Council, which makes and oversees corporate-level investment decisions for Agency acquisition programs.

Real Property Management maintains the DOT-wide inventory associated with more than 27,663 assets department-wide, 27,071 FAA and 592 DOT, including buildings, structures, and land parcels which include administrative offices, structures, and land leases for National Airspace System operational sites. ACQ oversees administrative space leases within each of the regions and field facilities for the Agency's Air Traffic Organization (ATO), Airports, Aviation Safety (AVS), and the Security, and Hazardous Materials Safety organizations.

Personal Property Management and Oversight provides support in leading and integrating logistics initiatives within the FAA and DOT. As part of ACQ's personal property responsibilities, ACQ establishes and oversees the Agency's property management system for the management and physical control of over 270,000 assets valued at $9.0 billion in global Agency assets throughout the national airspace and international facilities; this includes over 4,500 FAA owned and GSA-leased motor fleet vehicles, which represent 76% of the DOT's fleet.

ACQ FY 2025 Anticipated Accomplishments:

Function	FY 2025 Anticipated Accomplishments
Procurement Actions	• Ensure contractor performance is in accordance with contract terms and conditions, issue contract modifications, and monitor contract deliverables. • Develop and implement best practices in acquisition to deliver best value for the taxpayer and increase efficiency and effectiveness of procurement methods. • Conduct internal and external small business outreach/training and target at least 25 percent of total direct procurement dollars as small business awards.
Acquisition Training and Certification	• Manage training and certification programs for acquisition personnel, including program/project managers, contracting officers/specialists, contracting officer's representatives, systems engineers, test and evaluation specialists, and logistics specialists.
Acquisition Oversight	• Manage audits of cost reimbursable, time & material, and labor hour contracts with an estimated value of $100 million or more and perform audits for at least 15 percent of these contracts with estimated values below $100 million. • Conduct Integrated Baseline Reviews on investment programs along with validations of contractor Earned Value Management Systems. • Conduct investment program post-implementation reviews.
Real Property	• Optimize the Agency's Real Property Portfolio by reducing the number of underutilized assets. • Implement performance targets that measure the efficiency of property management activities.

Personal Property Management	• Implement applicable Personal Property Asset Lifecycle Management Policy requirements and best practices that enhance and improve the property management program. Develop customer-friendly automated Property Management tools that help enhance the quality and effectiveness of property management activities, staff productivity, and adequacy of checks and balances. • Optimize the Agency fleet size by reducing the number of FAA's underutilized Fleet Vehicles.

Information and Technology Services (AIT)

AIT operates as the FAA's information and technology backbone by providing and overseeing all aspects of the Agency's IT enterprise. This concept allows all lines of business and staff offices, including Air Traffic Organization (ATO) and Aviation Safety (AVS), to connect, interact, respond to customers, stakeholders, colleagues, as well as access data and resources necessary to perform their daily operations in support of the FAA mission. AIT keeps the FAA's network safe from cyber threats, maintains a comprehensive cyber threat intelligence analysis capability, and supports innovative technology and tools to provide quick reliable information and data access to our customers, while moving the Agency towards a path of increased efficiency and innovation.

AIT is responsible for providing comprehensive IT services to over 65,000 technology users across the FAA. AIT maintains a current inventory of over 300+ Federal Information Security Management Act (FISMA) reportable systems, of which approximately 60 are identified as mission critical. Public facing systems such as FAADroneZone (https://faadronezone.faa.gov/), Low Altitude Authorization and Notification Capability, and FAA.gov (https://www.faa.gov/) are developed and maintained to ensure ease of access and transparency for our public users. AIT's Federal Identity, Credential, and Access Management program continues to support millions of internal and public users to ensure content accuracy and security.

AIT provides three core services:

Shared Services and Modernization delivers effective customer-driven solutions to enhance and modernize core services that meet mandates and initiatives, while evolving as technology advances and the needs of our stakeholders change. AIT supports and maintains the lifecycle of FAA devices, IT infrastructure components, enterprise software, and specialized software application solutions. These core services provide the entire FAA workforce with the necessary tools to enable them to conduct their jobs with maximum efficiency, while sustaining the most cost-effective technical solutions for the Agency.

AIT facilitates enhanced work performance and productivity throughout the workforce, which includes telework readiness capabilities, enhancement of standardized collaboration tools, and

remote access bandwidth that sustains a virtual workplace. As a result, collaboration, screen sharing, and team/peer-peer communication accommodates a functional and effective, remote working environment for the FAA workforce.

Cybersecurity ensures the confidentiality, integrity, and availability of Agency information, information systems, and the overall protection of the Agency mission from evolving cyber threats, resulting in increased safety and security for our workforce, mission support, and the NAS.

AIT oversees cybersecurity across the FAA enterprise including air traffic control, research & development, and mission support systems. This includes tools that provide end-point detection and response capabilities such as Cloud Access Security Broker (CASB) functions, security solutions, and other Advanced Threat Protection (ATP) tools. AIT also continues to participate with the Department of Homeland Security's Continuous Diagnostics and Mitigation (CDM) program. CDM provides the FAA network and systems with tools that continuously identify cybersecurity risks, prioritizes these risks based on potential impacts, and enables cybersecurity personnel to mitigate the most significant problems first.

The attack surface has greatly expanded as the FAA continues to promote remote teams, cloud-based operations, and software-oriented infrastructure solution. This has introduced new levels of cyber risk in vulnerability management and security response strategies. Funding will be used to address gaps in security workflows, visibility, and cross-functional coordination to ensure comprehensive and efficient operations.

Enterprise Information Management (EIM) capability is a modern cloud-based scalable enterprise platform that provides common information management capabilities, integration and services across the FAA, and eliminates the need to acquire and sustain dedicated and redundant information management capabilities for individual systems.

EIM creates an environment that enables the integration and development of diverse operational systems, critical data assets, and unique applications by providing a common framework for data, application re-use, and Agency-wide collaboration. The unified data layer enables analysts and data scientists to rapidly, and efficiently conduct data mining and advanced analysis across FAA data, in order to provide insight and answers to new, emerging, and ad hoc scenarios.

EIM is driving Agency engagement to develop a "culture of data," and adoption of machine learning and Artificial Intelligence (AI), to improve business outcomes. EIM enhancements will provide the FAA workforce with dependable access to FAA enterprise data sources, services and analytic capabilities, enabling efficient access and utilization of relevant data resources to meet their requirements, while reducing duplicate functions. EIM will deliver improved development, testing, and production environments, and system development life cycle documentation, including systems analysis, system design, and system security.

EIM will continue to focus on enhancing "Big Data" analytics, including data science, artificial intelligence, machine learning, data visualization capabilities, and improving data quality throughout the Agency. Major enhancements include adoption of low-code

data integration and analytical tools to enable broader access to self-service analytics. The platform will support data pipelines, workflows, reports, and advanced analytics. This will allow users to perform data integration, data exploration, and data analytics in a single, integrated environment.

AIT FY 2025 Anticipated Accomplishments:

Function	FY 2025 Anticipated Accomplishments
Shared Services and Modernization: *Optimize Information Access through Technology Innovation*	• Maximize the capabilities of the Integrated Service Center and MyIT support to provide improved services to FAA stakeholders. • Maximize employee efficiencies and effectiveness through implementation of process improvements and other enhancements in core IT services delivery. This includes onboarding, off boarding, break-fix and other service center services. • Modernize asset management and service delivery by enabling critical asset procurement, and improve visibility and product information tracking. • Implement additional solutions to improve the Mobile Customer Experience. • Support Cybersecurity initiatives by implementing ZeroTrust and IPv6. • Implement Enhanced Enterprise Monitoring Tools for Enterprise Operations Center. • Streamline the Lifecycle Management of computer assets to reduce security vulnerabilities and increase efficiencies.
Cybersecurity: *IT Risk Management & Information Systems Security*	• Modernize the existing tools and automation technologies in the Security Operations Center to improve the speed and accuracy of detection and response capabilities. • Conduct incident response exercises, both domestically and internationally, to identify process gaps and coordinate remediation activities. • Expand CDM capabilities to holistically manage access controls, privileges, credentials and authentication, and increase boundary protection. • Implement Security Orchestration, Automation and Response tools to conduct threat analysis, remediation processes, and incident response activities via automated standard workflows.

Function	FY 2025 Anticipated Accomplishments
Enterprise Information Management: *Enable FAA's Employees to Work Smarter, Resource Optimization*	• Evolve and mature the integration and use of advanced analytics (e.g. machine learning, natural language processing, predictive analytics) to support and improve the FAA's analytic capabilities. • Continue to expand and evolve EIM Data Platform operations capabilities; provide the cloud-based platform in the Mission Support environment.

Mike Monroney Aeronautical Center (MMAC or AMC)

The Mike Monroney Aeronautical Center (AMC) provides centralized services critical to ensuring aerospace safety. The Center, located in Oklahoma City, OK is home to the largest single FAA site outside of Washington, D.C. with a population of more than 6,300 FAA employees, contractors, and students. AMC provides facility oversight, operations, architecture and engineering design, construction, space management, maintenance, and environmental and safety support for the entire Center which is comprised of over130 buildings with over 3.6 million square feet of space located on 1,057 acres.

AMC leverages the shared services concept to improve service delivery and performance, enhance customer satisfaction, and optimize value for the FAA and other federal agencies. AMC is home to the Enterprise Services Center, a Quality Service Management Offices (QSMO) designated Financial Management Shared Services Provider and federal Information Systems Security provider. In addition, AMC oversees the FAA's $500.0 million Franchise Fund, composed of six organizations that provide shared services across the federal government. Services include financial management, supply chain and logistics, information technology services, technical and leadership training, flight program maintenance operations, and acquisition. The franchise fund operations provide products and services to the entire DOT and over 30 other different federal agencies. Additionally, the FAA Academy located at the Center is the primary source for aviation technical training for air traffic controllers, aviation safety inspector, and national airspace technicians and engineers.

AMC provides core services:

Technical Training: The FAA Academy (AMA) oversees and manages the delivery of technical training for all five lines of business within the FAA, supporting over 40,000-course completions annually in resident and through distant learning platforms. The Academy is leading the Agency's transformation to remote and virtual training delivery across key platforms. AMA plays a vital role in meeting the Agency's controller workforce plan and the aviation safety workforce plan. Annually, AMA trains over 16,000 air traffic controllers, national airspace technicians, and aviation safety inspectors.

Financial Management Services: The Enterprise Services Center (ESC) is a QSMO designated

Financial Management Shared Services Provider. ESC provides financial management services to over 20 federal agencies including all DOT modes of operation. ESC processes approximately 280,000 commercial vendor invoices, 840,000 grants payments, 100,000 travel vouchers, 860,000 Accounts Receivable receipts for collections and 36,000 Accounts Receivable invoice-billing transactions annually. ESC provides turnkey financial services including financial statement and reporting packages for numerous customers. ESC is at the forefront of implementing intelligent automation, with Web Application Desktop Integrator and Enterprise Data Quality tools in production and continues to automate tasks and processes via Robotic Process Automation. Through financial shared services, ESC will also play a critical role in the reporting requirements for Bipartisan Infrastructure Law implementation.

Information Technology Services: ESC is a QSMO Cybersecurity federal shared services and an accredited Fed RAMP Third Party Assessment Organization that provides a variety of Independent Assessment, Vulnerability Scanning/Penetration Testing and Cybersecurity Support services to federal agencies. ESC provides these services to federal customers enabling them to achieve Federal Information Security Management Act compliance and to better manage risk in today's cyber-centric environment.

AMC FY 2025 Anticipated Accomplishments:

Function	FY 2025 Anticipated Accomplishments
FAA Academy Technical Training	• Ensure the FAA's workforce of the future is equipped with the technical skills necessary to maintain and operate the national airspace. • Increase the safety of the NAS by providing technical training to all Air Traffic Controllers, national airspace technicians and Aviation Safety Inspectors. • Transform the delivery of FAA technical training, with the use of emerging technologies for in-person training, virtual platforms and mixed modalities. • Continue to facilitate a virtual training community of practice to share lessons learned across FAA, DOT, and other federal agency training challenges associated with new learning modalities.

Function	FY 2025 Anticipated Accomplishments
Facilities Oversight, Operations, Space Management, Maintenance, Environmental and Safety Support for the entire MMAC	• Complete annual energy and water evaluations at each facility on the Center. • Integrate all feasible energy efficiency alternatives into new construction and major renovation projects on the Center. • Continue covering total electric usage with renewable wind RECs exceeding 30% of electric usage. • Drive to 100% zero-emission vehicle acquisition and zero-emission light vehicle acquisitions. • Reduce energy intensity by 2.5 percent annually through the end of FY 2025 to meet goals in FAA Order 1053.1C Energy and Water Management for FAA Buildings and Facilities as compared to FY 2015 baseline. • Lead the way with ISO 50001 certification for MMAC and assist the FAA's Office of Environment and Energy with agency-wide certification.
Financial Services / Information Technology	• Achieve efficiencies across federal government through financial shared services as part of the Cybersecurity Quality Services Management Office market place. • Maintain 99.5 percent availability for IT systems as defined in customer agreements detailing specific commitments. • Improve service provision through timely mitigation of audit findings focusing on strengthening processes and closing process gaps.
Franchise Fund Oversight and Management	• Manage over 2,000 active agreements worth $500 million of activity across FAA and other Federal agencies. These agreements are a part of the Franchise Fund activities, which include six franchise services lines.

Adjustments to Base:

Transition to Operations and Maintenance (TOM):
TOM funding covers the operational cost of new systems acquired under the FAA's Facilities and Equipment (F&E) Capital budget. Once new systems are installed in the NAS, the ongoing operational costs are transferred to the Operations budget.

Transition to Operations and Maintenance	Amount ($000)
FAA Critical Infrastructure for System Safety	$4,083
Information Systems Security	$4,455
AFN Total:	**$8,538**

FAA Critical Infrastructure for System Safety TOM: Funding ensures critical IT infrastructure within the Mission Support Technology Refreshment Portfolio that has been modernized and refreshed with F&E funds, can continue to be supported operationally through transition of maintenance support to Operations base for the following Network Infrastructure Services (NIS) and Enterprise Cloud Services (ECS) items:

- NIS consists of the steady state contracted vendor labor required to maintain the Facility Wireless Infrastructure solution deployed at FAA field sites, as well as the ongoing licensing and maintenance required to ensure the wired and wireless network solutions deployed can be efficiently managed and capable of delivering highly secure data to users across the FAA network.

- ECS consists of maintenance agreements for telecommunications infrastructure critical to secure FAA cloud access, bandwidth access to cloud service providers, and secure network transport services.

Information Systems Security TOM: Funding covers the annual operational costs to fortify the security of the FAA's networks and infrastructure by developing and ensuring compliance with Information Technology security and privacy policies and controls. This includes first and second level support and the transition of maintenance support and software subscription renewals from F&E to Operations base for:

- Continuous Diagnostics and Mitigation Phase 2 Program, which includes Identity Lifecycle Manager, Privileged Access Security, and Identity Intelligence Quotient .

- The initial deployment of a Security Orchestration, Automation and Response solution at the FAA/DOT Primary Security Operations Center in Leesburg, VA and the Disaster Recovery Site in Oklahoma City, OK.

Program Increases: The FY 2025 budget request for AFN includes additional funding for the following programmatic initiatives.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Controller Hiring and Training Surge	$4,023		
Cybersecurity	$3,960	10	5
Data Analytics	$2,460	1	1
FAA Electric Vehicle Fleet	$4,850	2	1
FAA Business Application Modernization	$8,000	-	-
Facility Maintenance and Sustainment	$2,569	-	-
AFN Total	**$25,862**	**13**	**7**

Controller Hiring and Training Surge: Utilization of a schedule optimization system allows the FAA to maximize controller utilization and efficiency, resulting in improved efficiency of air traffic control services. The existing tool has reached the end of the contract lifecycle and funding is requested to review market availability for similar, off-the-shelf, scheduling optimization systems at potentially lower lifecycle costs. A switch to a new system would require additional resources to acquire, tailor to our contractual work rules, and deploy before sun-setting the existing system.

Cybersecurity: This funding is requested to increase Federal staffing at the 24-7 FAA/DOT Security Operations Center. This funding will also facilitate the secure electronic transfer of information and secure transactions across computer networks..

Data Analytics: Funding is requested to implement an analytical platform to support safety, operational, and other mission-driven data analysis needs. The goal is to reduce "time to insight" while enabling a fundamental transformation around the use of artificial intelligence/machine learning. The platform will support data pipelines, workflows, reports, and advanced analytics. This allows users to perform data integration, data exploration, and data analytics in a single, integrated environment.

FAA Electric Vehicle Fleet: Funding is requested for construction, installation and/or upgrading and maintaining of EV Charging Infrastructure at FAA Owned and Leased Facilities.

FAA Business Application Modernization: Funding is requested to remediate and

modernize legacy applications that the Office of Information Technology operates and maintains on behalf of FAA organizations. Currently, most of the legacy applications rely on outdated technology and frameworks that have passed their end of life, posing a significant security risk. Additional funds are to support intelligent automation, Application Programming Interface services and platform engineering.

Facility Maintenance and Sustainment: Funding is requested for facility maintenance and utility increases for the Mike Monroney Aeronautical Center for operations & maintenance, janitorial, security, solid waste, and utility costs.

What benefits will be provided to the American public through this request and why is this program necessary?

AFN's shared services approach to delivering the Agency's common finance, acquisition, information technology, property, technical training, IT infrastructure security, is continuous improvement, and streamlined products and services to support the FAA's vital aviation safety mission. AFN's integrated delivery model also focuses on reducing costs across the Agency, saving taxpayer dollars while providing benefits to all customers and stakeholders.

AFN continues to find new and innovative ways to lessen the administrative burden on the Agency's employees, allowing them to meet their individual responsibilities to support the safety of the national airspace.

This budget will enable the continued operational support of all FAA Lines of Business and Staff Offices via the shared services business model. AFN-provided services include the following:

- Overseeing the FAA's annual budget and operating financial, cost accounting, and procurement systems;
- Protecting and updating the Agency's IT infrastructure;
- Competing, negotiating, awarding, and managing more than $5.2 billion in key contracts that support critical programs and projects including NextGen;
- Training more than 16,000 resident students in safety-related occupations annually to keep the national airspace operating at optimal capacity and efficiency at any given time;
- Maintaining 270,000 property and equipment assets.

Office of Finance and Management (AFN)
($000)

	Dollars (in Thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$917,899**	**1,400**	**27**	**1,394**
FY 2024 Adjustment	$31,477			
Adjustments to Base	**$29,549**	-	-	-
Annualization of FY 2024 Pay Raise 5.2%	$3,866	-	-	-
FY 2025 Pay Raise 2.0%	$4,461	-	-	-
Transition from F&E to Ops	$8,538	-	-	-
Non-Pay Inflation	$13,039	-	-	-
Working Capital Fund	($355)	-	-	-
Discretionary Adjustments	**$25,862**	**13**	-	**7**
Controller Hiring and Training Surge	$4,023	-	-	-
Cybersecurity	$3,960	10	-	5
Data Analytics	$2,460	1	-	1
FAA Electric Vehicle Fleet	$4,850	2	-	1
FAA Business Application Modernization	$8,000	-	-	-
Facility Maintenance and Sustainment (MMAC/WHJTC)	$2,569	-	-	-
FY 2025 Request	**$1,004,787**	**1,413**	**27**	**1,401**

See Operations Summary for a detailed description of the explanation of funding changes.

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Detailed Justification for NextGen and Operations Planning (ANG)

FY 2025 – NextGen and Operations Planning – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	32,613	32,613	35,751
Program Costs	32,968	32,968	37,805
Total	**$65,581**	**$65,581**	**$73,556**
FTE	**164**	**164**	**167**

What is this program and what does this funding level support?

The William J. Hughes Technical Center (WJHTC) is FAA's national scientific test base for the research, development, test, and evaluation of air transportation systems. The research, testing, and prototype development conducted by WJHTC staff helps shape the future of our Nation's air transportation system.

ANG maintains facilities and support services for all properties at the WJHTC including land, buildings, and infrastructure. The WJHTC owns and operates approximately 1.6 million square feet of test and evaluation facilities, National Airspace System (NAS) field support facilities, research and development facilities, administrative facilities, and numerous project test sites.

The FAA's Federal Laboratory, the WJHTC is the principal source for conducting Next Generation Air Transportation (NextGen) research, testing, and evaluation. The WJHTC specializes in sustaining and modernizing air traffic control automation, communications, surveillance, navigation, traffic flow management, and weather systems, and supports advancements in airport and aircraft safety, human factors, and separation standards. The WJHTC also provides around the clock operational support to en route, terminal, and other air traffic control facilities throughout the Nation. Annual operations and maintenance costs for the WJHTC are approximately 40 percent of ANG's Operations budget.

FY 2025 Anticipated Accomplishments:

Function/Activity	FY 2025 Anticipated Accomplishments
Facility Related:	• Provide the technical platform for research in aircraft safety (fire, structural, unmanned aircraft systems, etc.), airport technologies (safety and capacity), human factors, and weather. • Provide laboratory systems for conducting integrated concept evaluations, modeling and simulations, and testing and evaluating all new technologies in the national airspace. • Provide 24 hours a day, 7 days a week, 365 days a year field support for all operational systems within the national airspace. • Provide facility operations and maintenance, environmental management and maintenance, and engineering support for all facilities located at the William J. Hughes Technical Center. • Safeguard both employees and campus infrastructure by ensuring compliance with environmental laws, policies, directives, and initiatives.
NextGen and Operational Related:	• Provide analytical studies and related safety monitoring services that support the continued use of and further reductions in separation standards within U.S. sovereign airspace, international airspace where FAA has delegated authority to provide air traffic services, and international airspace where the U.S. and its citizens have safety-related interests. • Conduct an annual safety analysis of Reduced Vertical Separation Minimum Operations (RVSM) in North America (United States, Canada, and Mexico) and within U.S. delegated oceanic airspace per International Civil Aviation Organization Requirements. • Conduct independent monitoring for Altimetry System Error, a key component to the continued safe operation of RVSM, using Automatic Dependent Surveillance-Broadcast (ADS-B) data collected with U.S. rule airspace on a weekly basis. • Provide improved advisories for Flight Operations Center Airline/Operations Center.

Program Increases:
The FY 2025 budget request for ANG includes additional funding for the following programmatic initiative.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Facility Maintenance and Sustainment	1,605	1	1
ANG Total	**$1,605**	**1**	**1**

Facility Maintenance and Sustainment: Funding is requested for increased facility operations and maintenance costs at the William J. Hughes Technical Center. This includes repair, maintenance, and emergency facility-related projects necessary for the efficient and effective operation and management of tech center's facilities and utilities usage.

(See also "Operations Summary" and "FY 2025 Discretionary Increase Request" for a detailed description of the Program Increase requests.)

What benefits will be provided to the American public through this request and why is this program necessary?

Civil aviation accounts for over $1.8 trillion in economic activity and employs approximately 11 million people in aviation-related fields. The FAA has enabled the continued growth of the aviation industry through the ongoing implementation of NextGen technologies, policies and procedures.

The WJHTC is a world class research institution that provides the American public with research, engineering, development, test, evaluation, and maintenance of air navigation, air traffic management, and future air transportation system capabilities. These capabilities directly affect the day-to-day operation of the national airspace, ensuring that safety critical operational systems are constantly maintained and improved. The technical expertise provided by the labs is also key to the implementation of future NextGen capabilities.

NextGen and Operations Planning (ANG)
($000)

	Dollars (in Thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$65,581**	**167**	**3**	**164**
FY 2024 Adjustment	$4,516	2	-	1
Adjustments to Base	**$1,854**	**-**	**-**	**1**
Annualization of FY 2024 Pay Raise 5.2%	$449	-	-	-
Annualization of FY 2024 FTE	$154	-	-	1
FY 2025 Pay Raise 2.0%	$519	-	-	-
Non-Pay Inflation	$710	-	-	-
Working Capital Fund	$22	-	-	-
Discretionary Adjustments	**$1,605**	**1**	**-**	**1**
Facility Maintenance and Sustainment (MMAC/WHJTC)	$1,605	1	-	1
FY 2025 Request	**$73,556**	**170**	**3**	**167**

See Operations Summary for a detailed description of the explanation of funding changes.

Detailed Justification for Security and Hazardous Materials Safety (ASH)

FY 2025 – Security and Hazardous Materials Safety Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	102,739	102,739	121,029
Program Costs	49,620	49,620	55,959
Total	**$152,359**	**$152,359**	**$176,988**
FTE	**542**	**542**	**615**

What is this program and what does this funding level support?

The Security and Hazardous Materials Safety (ASH) organization protects critical FAA assets, personnel, and the flying public from security risks, including criminal, terrorist, and insider threats. This is accomplished 24 hours a day through emergency preparedness and response; global aviation situational awareness; intelligence threat identification, warning, and analysis; robust regulatory investigations; and support and education for law enforcement organizations investigating FAA-certificated entities. ASH collaborates within the FAA and with interagency, industry, and foreign partners to provide national security support and to ensure the safe transportation of hazardous materials (HAZMAT) in air commerce. ASH helps prevent HAZMAT-related accidents or incidents aboard aircraft, using targeted, risk-based oversight, as well as education, outreach, and stakeholder engagement both domestically and internationally.

ASH supports the following key functions:

Hazardous Materials Safety: ASH ensures and promotes the safe air transportation of high-risk cargo, including hazardous materials through:

- Assuring that hazardous materials safety risks are considered and addressed through the certification and oversight of aircraft operators and certificate holders;
- Investigating hazardous materials incidents to identify safety deficiencies;
- Focusing on operators' documented hazardous materials safety programs to promote safe operations;
- Evaluating the effectiveness of operators' risk mitigation strategies;
- Coordinating the collaborative efforts of government and industry safety teams;
- Overseeing and monitoring the safe integration of unmanned aircraft systems, commonly referred to as drones, transporting hazardous materials in the national airspace;
- Evaluating and analyzing the effectiveness of existing ASH certification, regulatory, and compliance systems; and,
- Collaborating with internal and external stakeholders to identify, analyze, mitigate, and manage safety risks.

Personnel Security: ASH promotes the safety and security of over 84,000 personnel in the workplace, ensuring that only properly vetted personnel are granted access to critical FAA operational facilities, systems, and information by administering the:

- Personnel Security Program, and the
- Identification Media and Credential Program

Infrastructure Protection: ASH provides guidance and oversight for the agency's facility security and information safeguards programs. It promotes the safety and security of national airspace critical infrastructure and sensitive information by promulgating program policy, evaluating and mitigating facility security incidents and data breaches, and conducting risk assessments for 1,100-staffed facilities, while also supporting the physical and information security needs of emerging FAA programs and over 10,000 unstaffed facilities. Specific programs include:

- Facility Security Management Program, and the
- Information Safeguards Program

National Security Programs and Incident Response: ASH ensures agency-level emergency readiness and response, crisis management, threat identification and analysis, and national security support. ASH promotes and ensures aviation safety and security of the national airspace system by:

- Maintaining 24/7 situational awareness through the Washington Operations Center Complex;
- Providing intelligence updates for executives and information sharing with stakeholders and maintaining 24/7 intelligence support;
- Coordinating agency support of U.S. Government aviation national security programs;
- Providing the FAA with emergency communications in response to local, regional, and national emergencies when normal common-carrier communications are interrupted and directly supporting the FAA Mission Essential Function of providing Aviation War Risk Insurance to DoD-contracted air carriers in support of national security and defense;
- Coordinating the FAA's emergency management efforts, including Continuity of Operations (COOP), and maintaining a 24/7 Emergency Incident Coordinator position for situational awareness of incidents that could affect the NAS, FAA personnel, or facilities;
- Investigating airmen with specific alcohol and drug-related criminal offenses and motor vehicle actions to prohibit their access to the NAS;
- Serving as the principal point of contact for the National Capital Region in response to aviation-related threats, including unmanned aircraft systems (UAS) and laser incidents; and,
- Supporting law enforcement in denying access (e.g., certificate action) to the NAS by aircraft and individuals transporting illicit drugs, committing criminal acts, or otherwise posing a threat to National Security by violating Federal Aviation Regulations and U.S. Code through the Law Enforcement Assistance Program (LEAP).

Investigations and Professional Responsibility: ASH conducts administrative and civil investigations involving FAA employees, contractors, and non-employees suspected of violating FAA orders and policies. ASH provides services in the following areas: cyber and UAS investigations and analysis, insider threat detection and mitigation, eDiscovery, and defensive counter-intelligence services, including foreign travel briefings and de-briefings. Examples of activities include:

- Internal Misconduct Investigations
- Management Level Accountability for Investigations including Whistleblower Retaliation and Ethics violations
- Policy Production and Oversight
- Case Analysis and Compliance oversight
- Threat Analysis and Mitigation
    - Defensive Counter-Intelligence
    - Insider Threat Detection & Mitigation
    - International Travel Security
    - General Threat Management
- Technical Investigations
    - eDiscovery
    - Computer Cyber Investigations
    - UAS Digital Forensics

Unmanned Aircraft Systems and Emerging Entrants Security: ASH serves as the primary coordinator within the FAA on agency actions, messaging, and requests relating to UAS security issues, including counter-UAS (C-UAS). ASH collaborates with Federal, state, local, territorial, and tribal government partners, and the private sector on UAS security issues. ASH coordinates the implementation of Section 383(a) of the FAA Reauthorization Act of 2018. Specifically, ASH:

- Works with Department and Federal interagency groups to understand emerging threats and creates a U.S. government-wide strategic framework to mitigate threats while understanding risk;
- Maintains the FAA's NAS-wide plan for enabling the deployment of technologies or systems for the detection and mitigation of UAS, without causing adverse impact to the NAS, which includes routinely identifying opportunities for new rulemaking, as well as internal guidance, policy, or control to ensure adequate FAA oversight over the use of UAS detection and mitigation systems;
- Works with Interagency partners to test and evaluate UAS detection and mitigation systems at five airports;
- Serves as the Office of Primary Interest for Rulemaking efforts to protect critical infrastructure from nefarious UAS operations; increases in security concerns (i.e., runway incursions, terrorism, unintentional acts (e.g., human error)) and the implementation of more advanced C-UAS technologies (Section 2209 of the FAA Extension, Safety, and Security Act of 2016);
- Implements and revises Remote Identification Regulations to assist law enforcement, and other federal agencies;
- Engages with international entities such as the International Civil Aviation Organization and the European Aviation Safety Agency to harmonize UAS security protocols globally; and,
- Addresses future emerging concepts, including advanced air mobility security matters and its relationship to Air Traffic Management – National Airspace System Integration.

FY 2025 Anticipated Accomplishments:

Function	FY 2025 Anticipated Accomplishments
Hazardous Materials Safety	• Improve industry compliance with aviation safety regulations and standards through inspections, data analyses, and risk management. • Continue the full implementation of the Safety Assurance System to improve FAA's ability to identify hazards and risks before they result in major incidents and accidents. • Conduct risk-based safety oversight of the aviation industry, targeting the highest-risk operators to ensure continued operational safety. • Implement new programs and revised approaches directed by safety recommendations. • Automate and standardize the safety oversight and inspection process. • Manage and coordinate hazardous materials-related drone activities for ASH and ensure alignment with FAA and DOT initiatives. • Develop new and innovative stakeholder engagement approaches to inform the aviation community and industry of trends and emerging risks. • Improve the effectiveness of existing ASH certification, regulatory, and compliance systems.

Function	FY 2025 Anticipated Accomplishments
Personnel Security	• Provide oversight to ensure the FAA complies with federal personnel security requirements for all employees and for all FAA contractors with access to FAA facilities, systems, and sensitive information. • Initiate and adjudicate background investigations for new employees and contractors. • Facilitate the granting and passing of security clearances for employees in national security positions. • Continue deployment and issuance of identification media in compliance with Homeland Security Presidential Directive (HSPD-12). • Continue enrolling FAA employees in the Trusted Workforce (TW) 2.0 (Continuous Evaluation) program with the Defense Counterintelligence and Security Agency. • Continue implementing the Federal Investigation Standards requiring 5-year background re-investigations for employees and contractors in Moderate Risk positions (much of the FAA). This is a precursor to enrolling these employees in TW 2.0. • Continue improving and ensuring the integrity of contractor on-boarding and off-boarding processes by providing guidance and in-service training to FAA contracting staff and FAA vendors.

Function	FY 2025 Anticipated Accomplishments
Infrastructure Protection	• Assess the security risks of FAA facilities and develop security countermeasure mitigation strategies for each assessed facility. • Ensure FAA facilities are compliant with facility and information security requirements that protect agency employees, visitors, information, systems, and facilities through a robust oversight and inspection program. • Continue to mature the Facility Security Management Program to improve the security posture of the national airspace's critical infrastructure and better inform future security investment decisions. • Enhance standards, programmatic safeguards, and controls for protecting classified national security and controlled, unclassified information from loss, compromise, or unauthorized disclosure.
National Security Programs and Incident Response	• Manage the Washington Operations Center Complex and support the Air Traffic Security Coordinators who manage the Domestic Events Network; provide leadership at FAA, DOT, and the White House with situational awareness of all incidents affecting civil aviation and the national airspace, including a 24/7 intelligence fusion capability. • Support interagency efforts to safely integrate drones into the national airspace; collaborate with national security partners to address drone security concerns; facilitate C-UAS testing and employment. • Support agency investigations of non-compliant drone operations. • Maintain emergency operations network capability and ensure continued situational awareness of daily operations and emergency events. • Support continuity of operations by maintaining the Primary Alternate Facility to enable FAA relocation in an emergency; ensure continuity of operations to maintain mission essential functions, to include continuous monitoring of the national airspace.

Function	FY 2025 Anticipated Accomplishments
	• Investigate airmen with alcohol- and drug-related motor vehicle actions to ensure incidents are reported in accordance with the Code of Federal Regulations. • Initiate enforcement action, when warranted, to remove airmen who pose a risk to the national airspace. • Coordinate incident management response; provide timely and relevant information to leadership and stakeholders throughout the national airspace; coordinate and support preparedness and response policy development across the Agency and with DOT; support recovery operations. • Assist and support federal, state, local, territorial, tribal, and international law enforcement agencies with investigations and interdictions involving illicit use of aircraft for narcotics, weapons, and human trafficking. • Draft and promulgate national FAA policy and provide recurrent training to support regulatory investigations and other law enforcement assistance activities, such as aircraft registration violations. • Develop standards and web-based capabilities to enhance mission effectiveness for the DUI and LEAP programs. • Enhance awareness of drone, Laser, and Unruly Passenger issues using social media, educational material, and the support of our partners. • Develop, implement, and integrate Cyber Threat Intelligence capabilities into the FAA's cyber security architecture.

Function	FY 2025 Anticipated Accomplishments
Investigations and Professional Responsibility	• Conduct investigations of FAA employees and contractors for misconduct and professional accountability. • Conduct administrative and civil investigations/inquiries that fall under the FAA's jurisdiction, including executive misconduct and whistleblower retaliation. • Conduct trend analysis and compliance reviews on all agency wide misconduct allegations, including management inquiries. • Operate an agency-wide complaint intake system that provides data for analysis and compliance to ensure accountability. • Develop and execute FAA's Defensive Counter-Intelligence Program to protect agency personnel, systems, and networks from influence and targeting from Foreign Intelligence Services, including Counter-Intelligence and cyber threat analysis, Insider Threat Detection and Mitigation Program, International Travel Security Program, e-Discovery, Cyber Investigations and UAS Digital Forensics Programs.

Function	FY 2025 Anticipated Accomplishments
Unmanned Aircraft Systems and Emerging Entrants Security	• Ensure the safe integration of C-UAS technologies into the national airspace. • Complete Phase 1 of the UAS Detection and Mitigation ARC. • Deliver National Plan on safely implementing C-UAS devices and protocols into the NAS. • Provide threat identification and analysis to support FAA decision-making regarding emerging threats to aviation safety, to include emerging technologies and capabilities, such as drones. • Complete functional requirements to build an application system for critical infrastructure operators to petition the FAA for airspace protection from UAS. • Adjudicate comments on the Section 2209 Rulemaking and complete submission of the final rule. • Deliver outreach products and events to educate the public and law enforcement entities on the acceptable use of C-UAS and Remote ID in the NAS. • Test and evaluate C-UAS technologies for suitable use within the NAS on and off airport.

Program Increases:

The FY 2025 budget request for ASH includes additional funding for the following programmatic initiatives.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Controller Hiring and Training Surge	702	8	4
Hazardous Materials Safety	2,679	28	14
Unmanned Aircraft Systems	3,322	12	6
ASH Total	**$6,703**	**48**	**24**

Controller Hiring and Training Surge: The FAA is requesting additional funding to continue the controller hiring and training surge initiated in FY 2023. The surge will further boost efforts to streamline the path for controller training while further increasing resiliency to serve high demand markets. Funding will also support increases in the FAA offices that support the recruitment, hiring, and onboarding of new air traffic controllers.

Hazardous Materials Safety: Funding is requested to expand oversight by hiring additional safety workforce positions to ensure certificate holders meet the necessary safety requirements, standards, and regulations through performance inspections, certificate management, evaluations, research, and accident or incident investigations, to include lithium battery heat/smoke/fire incidents. In addition, funding is requested to develop the regulatory structure for the safe carriage of hazardous materials by innovative aircraft.

Unmanned Aircraft Systems: This funding will address capacity and resource gaps to aide in identifying credible threat streams and to determine how to integrate new drone technology safely and securely into the National Airspace System. ASH will expand the drone detection equipment at the state and local law enforcement level, as well as increase outreach and training for the Public Safety community. In addition, ASH will develop a more robust assessments agenda and activities to gather and analyze data to inform drone security policy, rulemaking and security initiatives.

(See also "Operations Summary" and "FY 2025 Discretionary Increase Request" for a detailed description of the Program Increase requests.)

What benefits will be provided to the American public through this request and why is this program necessary?

ASH is responsible for the FAA's critical infrastructure protection, personnel security, emergency operations, threat identification and analysis, contingency planning and crisis response, investigations of employees, contractors, and airmen who may present a safety or security risk to the national airspace, and the safe transportation of hazardous materials in air commerce. Protecting our critical infrastructure is a national and homeland security priority, which continues to demand a high level of attention and innovation.

In recognition of the criticality of the national airspace in our country's transportation infrastructure and economic stability, ASH develops and executes policies and programs to protect FAA employees, contractors, facilities, and assets, as well as airmen, aircraft, and the flying public. The FAA is committed to continuously improving the safety, security, and efficiency of flight, and continues to work with all of our partners and stakeholders to focus our experience, expertise, and new technology to ensure a safer and more secure global airspace.

Security and Hazardous Materials Safety (ASH)
($000)

	Dollars (in Thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$152,359**	**561**	**2**	**542**
FY 2024 Adjustment	$11,592	40	-	39
Adjustments to Base	**$6,334**	**-**	**-**	**10**
Annualization of FY 2024 Pay Raise 5.2%	$1,465	-	-	-
Annualization of FY 2024 FTE	$1,455	-	-	10
FY 2025 Pay Raise 2.0%	$1,691	-	-	-
Non-Pay Inflation	$1,028	-	-	-
Working Capital Fund	$695	-	-	-
Discretionary Adjustments	**$6,703**	**48**	**-**	**24**
Controller Hiring and Training Surge	$702	8	-	4
Hazardous Materials Safety	$2,679	28	-	14
Unmanned Aircraft Systems	$3,322	12	-	6
FY 2025 Request	**$176,988**	**649**	**2**	**615**

See Operations Summary for a detailed description of the explanation of funding changes.

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Detailed Justification for - Staff Offices

FY 2025 - Staff Offices – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	229,291	229,291	273,459
Program Costs	69,683	69,683	79,723
Total	**$298,974**	**$298,974**	**$353,182**
FTE	**1,280**	**1,280**	**1,456**

What is this program and what does this funding level support?

The Staff Offices of FAA include the Office of the Administrator and several assistant administrators who provide mission support services to the various lines of business. These services include legal counsel, economic trend analysis, diversity leadership, government and industry liaisons, communications, public relations, and human resources management. A brief description of staff offices is outlined as follows:

The **Human Resources Management** (AHR) organization provides human resource services to all operating lines of business and staff offices at the headquarters and to all the FAA regions including the two centers and overseas.

The **Office of the Administrator** (AOA) leads the FAA in its mission to provide the safest, most efficient aerospace system in the world. This office is responsible for the overall planning, direction, coordination, and control of FAA programs.

The **Office of Audit and Evaluation** (AAE) performs audit and investigative review functions primarily for internal safety disclosures and concerns, including the FAA Whistleblower Protection Program.

The **Office of Civil Rights** (ACR) advises, represents, and assists the FAA Administrator on civil rights and equal opportunity matters.

The **Office of Government and Industry Affairs** (AGI) serves as the Administrator's principal adviser and representative on matters concerning relationships with the Congress, aviation industry groups, and other governmental organizations, as well as with developing and reviewing plans and strategies involving these groups to enhance aviation safety.

The **Office of Communications** (AOC) is responsible for the policy, direction, and management of the agency's communications programs for the news media and FAA's employees nationwide.

The **Office of the Chief Counsel** (AGC) provides mission-critical legal services for the FAA.

The **Office of Policy, International Affairs, and Environment** (APL) serves as the principal advisor to the Administrator on international matters and manages the FAA's Regional Offices.

What benefits will be provided to the American public through this request and why is the program necessary?

Through the leadership of the Administrator, FAA successfully manages the most complex and safest aviation system in the world. By executing their mission responsibilities and providing management, leadership, and oversight, the FAA's Staff Offices have contributed to the overall success of the FAA.

Staff Offices provide services and resources necessary for the FAA's agency operations. Without these services, lines of business would not have the resources needed to meet their goals. From performing mission-critical services to receiving guidance and counsel on regulatory or legal issues, or managing annual appropriations, Staff Offices make a significant contribution to the mission of FAA.

Detailed Justification for – Human Resource Management (AHR)

FY 2025 – Office of Human Resource Management (AHR) – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	88,215	88,215	98,846
Program Costs	29,991	29,991	35,135
Total	**$118,206**	**$118,206**	**$133,981**
FTE	**604**	**604**	**640**

What is this program and what does this funding level support?

The FAA workforce is the backbone of the Agency's success in providing the safest and most efficient aerospace system in the world. The Office of Human Resource Management (AHR) request covers daily work in providing human resource services to the nearly 40,000 FAA employees. AHR provides the strategic management of human capital that ensures the FAA has the skilled workforce needed to meet the changing demands of the industry we serve. In FY 2025, AHR will:

- Expand efforts to recruit an increasingly diverse FAA workforce, as well as incorporate continued strategic workforce planning to ensure the skillsets and competencies needed to deliver FAA's mission into the future.
- Continue implementing and expand Agency-wide leadership development programs to build a solid pipeline of future leaders and provide existing leaders with the tools needed to provide transformational leadership in support of the FAA mission.
- Refine efforts to improve the engagement, commitment, and satisfaction of FAA's workforce, which is a significant factor in enabling the Department of Transportation to advance the multi-modal transportation system of the future.
- Employ a corporate strategy that fosters effective, positive, and collaborative labor management relations.

As the FAA builds the foundation for the aerospace system of the future through the implementation of NextGen capabilities, the Agency's workforce will play an increasingly critical role. AHR focuses on the FAA's human capital by identifying, recruiting, and developing FAA's workforce with the leadership, technical, and core competencies needed to

meet the challenges of the future while maintaining the world's safest and most efficient aerospace sector. AHR's objectives align with the FAA and the Office of the Secretary of Transportation's strategic goals.

The Office of Human Resource Services, **AHF** establishes, delivers, and improves the Agency-wide employment services and programs through classification, recruitment, pre-employment assessment, onboarding, workforce planning, benefits, payroll and personnel action processing. AHR serves as a strategic business partner to Agency employees, supervisors, managers, and executives on personnel matters involving employment and pay. By doing this, we are able to develop and execute strategic workforce plans across the administration that supports the FAA's evolving mission.

Key Activities include:

- Human resources management consultation
- Position management and classification
- Recruitment, outreach, and FAA onboarding
- Pre-employment assessments and structured interviewing
- Personnel action processing and pay administration
- Oversight and processing of personnel actions including the development of systems to support processing
- Enterprise-wide strategic workforce planning
- Educate, counsel, and process retirement and benefits actions, to include providing counseling on retirement eligibility, survivor benefits, disability compensation, and changes to health insurance, life insurance, and the Thrift Savings Plan. Operate benefits operation center with employees able to call from 7 am to 5pm central and send requests electronically 24/7.

The Office of Compensation, Benefits Strategy, and Worklife, AHB supports the organizational health and performance of the FAA by administering employee compensation, performance management, work-life, workers' compensation, and emergency management programs, as well as, researching and developing new total rewards initiatives.

Key Activities include:

- Administer the Performance Management & Assessment System and provide customer service for the FAA's non-executive workforce.
- Administer Base and Incentive compensation programs that include Short Term Incentives, Superior Contribution Increase, Management Performance Incentive Program, and the (Air Traffic Specialized Pay Plan.
- Manage Agency-wide recognition initiative, INSPIRE.
- Manage the FAA and DOT Workers' Compensation Program to include timely processing of injury claim forms via the automated ECOMP system, containment of Agency costs, and training of Agency managers on legal and regulatory requirements.
- Direct and promote the Employee Assistance Program/ WorkLife Solutions Program.

- Execute and promote work-life programs including the child care centers, health and wellness, child subsidy, nursing mothers, emergency planning, telework, student loan repayment, and voluntary leave share programs.
- Researches and improves and/or develops new total rewards programs for the Agency.

The Office of Labor and Employee Relations, AHL develops and maintains constructive labor-management relations between the FAA and its labor unions and facilitates the appropriate resolution of employee relations matters for all Agency employees.

Key Activities include:

- Manages labor relations with the eight unions (with a total of 33 bargaining units) which represent nearly 34,300 (77%) of the approximate 44,700 employees working at the FAA.
- Represents the Agency in all national, headquarters, and regional negotiations, unless otherwise delegated by AHL-1.
- Handles third party matters, such as unfair labor practice proceedings, Pre-Arbitration Review meetings, arbitrations, Guaranteed Fair Treatment hearings and unemployment hearings at both the national and regional levels of recognition.
- Provides CBA, statutory, case law, and policy interpretation, advice and guidance on all labor and employee relations matters.
- Provides labor and employee relations training to management.
- Provides oversight for management inquiries.
- Provides Agency labor and employee relations services and guidance for the Agency on all conduct and performance issues, such as conduct and discipline; leave; drug and alcohol misuse; medical inability to perform; unacceptable performance; and performance improvement.
- Provides and manages labor and employee relations, employee assistance program, and accountability board/anti-harassment case management tracking services for FAA and departmental modes.
- Provides Employee Assistance Program (EAP) management in Regional offices and Centers.
- Provides Accountability Board Point of Contact management in Regional offices and Centers.

The Office of Career Leadership and Development, AHD delivers innovative Human Capital Development solutions that power individual and enterprise success.

Key Activities include:

- FAA Leadership & Learning Institute (leadership development courses for all managers and web-based training courses for employees and managers at all levels)
- FAA Learning Solutions
- Executive Development

- Department Rotational Assignment Programs, White House Fellowship, National Defense University, and like programs
- Aspiring Senior Manager Program
- Aspiring Managers Program
- FAA Learning and Development Council
- Learning Services Management Contract
- Mandatory Training Program
- Degree Completion Program
- SkillSoft Learning Platform/Shared Services
- Fee for Service Program
- Enterprise Leadership Competencies Development/Implementation

The Office of Accountability and Strategic Business Management, AHA focuses on management accountability in response to allegations of harassment; strategic communications, project and business management; processes/procedures enabling proactive, data driven decision-making across AHR.

Key Activities include:

- FAA Accountability Board
- FAA HR Data Analysis and Reporting
- FAA Federal Employee Viewpoint Survey and Employee Engagement
- Awards (monetary, time off and length of service)
- AHR Financial Contracts & Records Management
- AHR Business Management & Planning
- FAA Off boarding
- FAA Human Capital Management Technology

FY 2025 Anticipated Accomplishments:

Function/Activity	FY 2025 Anticipated Accomplishments
AHF	• Evolving AHR's robotics process automation capability to streamline our human resources operations. Continue maturation of strategic HR services to forecast, recruit, and onboard the optimal number of FAA employees with the critical competencies. • Evolving and growing the FAA internship programs including the Minority Serving Institution Internship and Gateways programs. • Standardizing and automating the Personnel Action Request process. • Implementing enterprise-wide workforce planning priorities. • Benefits Operations Planning: Deployment/Implementation of new Case Management System to include build out of modules, testing and iterative refinements. Continued expansion of education programs to include age/career stage-based webinars and one-on-one retirement counseling sessions. Roll-out of employee self-driven financial calculator through FHR Navigator.
AHB	• Deploy enhanced case management/data reporting tool for workers' compensation. • Ensure compliance with workers' compensation components of Department of Labor's Protecting Employees, Enabling Reemployment initiative including timely filing of claim forms and prompt return to duty. • Administer the Performance Management & Assessment System for the FAA's non-executive workforce and prepare for enhancements in FY 2024. • Enhance Superior Contribution Increase and Short-Term Incentive programs to align with best practices that best support FAA's mission. • Enhance performance management and pay for performance programs to achieve better alignment with all programs, simplify programs, and achieve best practices that best support FAA's mission. • Telework: Support the organizational health and performance of the Agency with the assessment and enhancement of workplace flexibilities and work to enhance telework reporting with the use of one electronic telework agreement for most of the workforce and implementation of OPM's telework agreement type data element.

Function/Activity	FY 2025 Anticipated Accomplishments
AHB Cont'd	• EAP/WorkLife Solutions: To align services with and to develop or deepen stakeholder partnerships in support of the FAA safety mission and the goal of employee engagement (such actions maintain utilization benchmark). • Emergency Planning: Identify an acceptable mobile accountability application and begin collaboration with the unions to implement the program for self-reporting during an event/incident. • Leave Programs: Continue to successfully execute the Voluntary Leave Bank, enhance system capabilities, and continue working in collaboration with the union to transition the Voluntary Leave Transfer Program to a secure electronic system synced with payroll and time keeping systems. • Nursing Mothers Program: Expanding the Nursing Mothers program to include 2 portable lactation rooms.
AHB Cont'd	• Child Care Centers: Assist in establishing a consortium with DHS, Board of Directors and other federal agencies to fund a designated number of child care spaces at various FAA child care facilities. • Child Care Subsidy: Determine if subsidy cap should be increased to meet market demands and incorporate licensed "au pair" and "nanny" as eligible providers to meet the demands of the FAA workforce with non-traditional work schedules.
AHL	• Provide day-to-day operational support and services to FAA managers on labor and employee relations. • Implement a labor and employee relations strategy. • Manage oversight and compliance of all bargaining with FAA unions. • Provide day-to-day administration of the Employee Assistance Program and Accountability Board in the Regional offices and Centers.

Function/Activity	FY 2025 Anticipated Accomplishments
AHD	• Provide best practice leadership development programs to prepare leaders to effectively respond to ongoing changes in strategic priorities. • Continue implementing enterprise level, innovative approaches to leadership development to build a solid pipeline of future leaders, and provide existing leaders the tools needed to deliver transformational leadership in support of the FAA mission. • Enhance the available learning services available to all FAA employees through the eLMS. • Addition of comprehensive virtual learning inventory focusing on managerial and leadership development
AHA	• Continue to foster a workplace free of harassment and inappropriate behavior through investigation and adjudicating allegations of employee misconduct. • Lead the Agency in executing action plans for increased employee engagement across the FAA. • Ensure AHR compliance with IT systems, budget, contracting and financial rules and regulations. • Develop executive level strategic partnerships and communications. • Provide HR data reports and analysis to support FAA-wide human capital decision-making.

Program Increase:

The FY 2025 budget request for AHR includes additional funding for the following programmatic initiatives.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Controller Hiring and Training Surge	664	6	3
FAA Business Application Modernization	744	2	1
Staff Office Support	685	10	5
AHR Total	**$2,093**	**16**	**8**

Controller Hiring and Training Surge: This funding request is for additional staff to support the influx of applicants for additional controller hiring within the ATO. This request also funds the utilization of tools to enhance the recruitment of safety critical positions.

FAA Business Application Modernization: This funding request is for the replacement of the Benefits Operations Center's Human Resources Case Management System to better manage the workload of over 60,000 FAA employee inquiries, 13,000 benefits actions and over 1,600 retirements each year. The current system can no longer be supported by the FAA or the vendor. This request is for annual licensing fees and operations and maintenance fees.

Staff Office Support: Funding is requested for additional staffing specialists to support the increased workload and service demand due to multiple hiring initiatives within the FAA and the number of applicants steadily increasing.

(See also "Operations Summary" and "FY 2025 Discretionary Increase Request" for a detailed description of the Program Increase requests.)

What benefits will be provided to the American public through this request and why is this program necessary?

Funding at the requested level is critical to continue providing personnel services to all FAA employees. The non-pay costs within AHR's budget include systems like CASTLE for time and attendance and FAA's learning management system. AHR also supports the Employee Assistance Program, the FAA's Accountability Board, and the Agency's worker's and unemployment compensation program, all of which are necessary for FAA's lines of business to be successful.

With FAA's core mission of aviation safety, AHR is the lead office with responsibility for attracting, recruiting, and hiring qualified US citizens to fill safety critical positions. This ensures the traveling public is supported by a system which is both safe and secure. At the requested level AHR will be able to support the FAA and achieve and sustain the required level of employees at the right level of qualification and expertise necessary to maintain the safety of the aviation system.

Detailed Justification for – Office of the Administrator (AOA)

FY 2025 – Office of the Administrator –Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	2,608	2,608	2,825
Program Costs	1,275	1,275	1,334
Total	**$3,883**	**$3,883**	**$4,159**
FTE	**11**	**11**	**11**

What is this program and what does this funding level support?

The Office of the Administrator (AOA) leads the Federal Aviation Administration (FAA) in its mission to provide the safest, most efficient aerospace system in the world. This office is responsible for the overall planning, direction, coordination, and control of FAA programs. It represents the FAA in its work with the Department of Transportation (DOT) and other agencies, the White House, Congress, the aviation community, and the general public.

AOA directs and controls the operations of the FAA and acts as principal adviser to the Office of the Secretary of Transportation (OST) on civil aviation matters and air transportation. Throughout fiscal year 2025, AOA will continue to lead the FAA toward achieving the Agency's performance goals and targets.

In leading the FAA, the Administrator oversees the Agency's employees in maintaining, operating, and overseeing the world's largest and most complex aviation system. The Agency determines the regulatory and operational standards for the United States and effectively sets the benchmark for aviation safety around the world.

The funding level supports the executive direction of the FAA and provides for the Administrator and Deputy Administrator's direct staff.

What benefits will be provided to the American public through this request and why is this program necessary?

AOA provides direction and executive oversight for the management and operation of the world's largest, safest, and most efficient airspace system. Aviation is a significant contributor to

the U.S. economy, and the FAA provides continuous operational Air Traffic Control services to airlines and general aviation; safety oversight of operators and manufacturers; management of airport improvement grants; and acquisition of the FAA's NextGen air traffic control system. AOA also houses the Executive Secretariat function using the Electronic Document Management System application and supports the lines of business and staff offices to provide timely responses to correspondence from DOT and other agencies, the White House, Congress, the aviation community, and the general public.

Detailed Justification for – Audit and Evaluation (AAE)

FY 2025 – Office of Audit and Evaluation (AAE) – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	4,267	4,267	5,139
Program Costs	1,190	1,190	1,242
Total	**$5,457**	**$5,457**	**$6,381**
FTE	**20**	**20**	**23**

What is this program and what does this funding level support?

The Office of Audit and Evaluation (AAE) has four primary functions: safety-related whistleblower investigations, coordination and response to Department of Transportation (DOT) Office of Inspector General (OIG) and General Accountability Office (GAO) audits, internal and external hotline operations, and the new Whistleblower Ombudsman.

Investigative staff conducts investigation of whistleblower safety disclosures, which includes reports received from the FAA External Whistleblower Protection Program, FAA employees and the U.S. Office of Special Counsel. AAE investigations lead to recommendations made to the Administrator and Assistant Administrators for corrective or other actions to address discrepancies noted in the investigation.

Audit staff coordinates all audits of FAA programs by the DOT/OIG and GAO and evaluates FAA responses to these audits.

Hotline operation staff manages all incoming reporting, delegation of investigations and oversight of investigative results conducted by delegated FAA organizations.

The office provides an impartial Agency venue for investigation and resolution of safety disclosures. To support this, the Aircraft Certification Safety and Accountability Act of 2020 required that a Whistleblower Ombudsman Office be created as part of the Office of Audit and Evaluation and the Aviation Safety Whistleblower Investigation Office.

The FY 2025 funding will continue to support the enhancement and upgrade of the FAA's Hotline and Whistleblower Protection Program system to include the Ombudsman module that lives within a cloud solution while continuing to provide a centralized Agency focus for internally and externally generated hotlines. Planned enhancements include increased analytics,

searching, reporting, and improved case management and acquiring a data system for internal investigations and the new Whistleblower Ombudsman branch as part of The Aircraft Certification Safety and Accountability Act of 2020.

What benefits will be provided to the American public through this request and why is this program necessary?

AAE has established itself as a viable forum for raising and addressing internal safety concerns and has developed standards to measure its successes. Currently, the success of the program can be gauged by its ability to timely process hotline matters, complete investigations, validate the completeness of Agency responses to identified safety concerns, and ensure Agency compliance with corrective actions.

AAE has become a vital and effective organization productively addressing and resolving safety-related whistleblower disclosures. Significantly, the visibility and accomplishments of the AAE office have generated a critical awareness and recognition that employees can bring their safety sensitive disclosures to an internal organization and have them objectively reviewed by an unbiased entity.

AAE enhances Agency accountability for internally identified safety concerns, whistle blower contributions, and employee workplace conflicts. The safety benefits of an effective internal reporting program are well received.

The direct beneficiaries of AAE's services are the Agency and the flying public. AAE embodies FAA's commitment to a vibrant and evolving internal safety culture based on continuous review, evaluation, objective analysis and measured change. AAE provides Agency employees and external stakeholders with an independent and highly visible forum to raise, address, and resolve safety complaints, concerns, or whistleblower contributions safely and constructively.

Detailed Justification for – Civil Rights (ACR)

FY 2025 – Office of Civil Rights (ACR) – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	12,542	12,542	16,114
Program Costs	2,246	2,246	2,706
Total	**$14,788**	**$14,788**	**$18,820**
FTE	**70**	**70**	**93**

What is this program and what does this funding level support?

The Office of Civil Rights (ACR) administers several critical federally mandated programs under Titles VI and VII of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, the Americans with Disabilities Amendments Act, the Genetic Information Nondiscrimination Act, the Age Discrimination and Employment Act, and the Equal Pay Act.

Internally, the ACR mission is to aid in the prevention of unlawful discrimination because of race, color, national origin, sex, age, religion, sexual orientation, and individuals with disabilities employed by the FAA. In addition, ACR works to proactively prevent complaints and resolve potential conflicts early and at the lowest possible level in order to reduce potential legal liability to the FAA. ACR also dedicates resources towards building a fully diverse and inclusive workforce and understanding potential barriers to Equal Employment Opportunity (EEO). The Office of Civil Rights implements a robust internal training program for the purpose of educating the workforce on adhering to EEO policies and guidelines, inclusion, diversity and reducing EEO complaints.

Externally, ACR's mission is to provide airport oversight for civil rights laws and regulations. ACR works to ensure that all beneficiaries of federally assisted transportation programs are offered equal opportunity for participation and are free from discrimination. These efforts address airport compliance with the Americans with Disabilities Act (ADA), Rehabilitation Act, Disadvantaged Business Enterprise Program, Title VI, Limited English Proficiency (LEP), Environmental Justice (EJ), and other civil rights regulations.

FY 2025 Anticipated Accomplishments:

Function/Office	FY 2025 Anticipated Accomplishments
Internal Civil Rights Services • EEO Complaint Services/Alternative Dispute Resolution Services • Model EEO Program • Diversity and Inclusion • EEO Training • Reasonable Accommodations Request Processing	• Process 100 percent of the allegations and inquiries regarding EEO complaints by providing quality counseling, mediation, and consulting services. • Assist and provide resources for Agency selecting officials to increase the hiring of people with targeted disabilities. • Ensure that reasonable accommodation requests are processed timely and equitably. • Assist the Agency in building a Model EEO Workplace through outreach, consultations, collaboration and educational partnerships. • Increase FAA managers and employees conflict resolution skills through the Conflict Coaching Program and reduce the number of EEO complaints that are filed in the Agency with early intervention techniques. • Implement the FAA's Diversity and Inclusion Strategic Plan, thus ensuring a more inclusive workforce.

Function/Office	FY 2025 Anticipated Accomplishments
External Civil Rights Services • Disability Airport Compliance • Airport Non-discrimination Compliance (Title VI of the Civil Rights Act) • Disadvantaged Business Enterprise (DBE)/Airport Concession Disadvantaged Business Enterprise (ACDBE) Compliance	• Conduct DBE/ACDBE, ADA/504, and Title VI/LEP/EJ compliance reviews and ensure that small and disadvantaged business enterprises are able to compete with larger companies for airport construction projects and concessions. • Maintain an online FAA DBE-connect system to connect DBEs with relevant airport opportunities and allow airports to identify certified DBEs in areas of work needed to support their DBE goals. https://faa.dbesystem.com/ • Deliver training, technical assistance, and consultations in order to increase knowledge in the areas of DBE/ACDBE, ADA/504, and Title VI/LEP/EJ at the Nation's airports. • Ensure that resources are allocated sufficiently, justly, and equally in underserved communities.

What benefits will be provided to the American public through this request and why is this program necessary?

Under Title VI of the Civil Rights Act of 1964, all Federal agencies are required to ensure that federal funds do not subsidize programs or activities that discriminate on the basis of race, color, or national origin. ACR provides leadership and direction for civil rights, diversity, and EEO matters. The ACR mission is to implement civil rights, EEO policies, and operational programs to ensure their full and successful development in support of the FAA's mission to provide the safest, most efficient aerospace system in the world. ACR's goal is to achieve safety through implementing a strong civil rights program and further enhancing FAA's inclusive culture so that all employees understand they have the opportunity to achieve their full potential and, when conflicts arise, they are resolved early and at the lowest possible level.

ACR is committed to providing a workplace that promotes equal opportunity, is free of harassment, and is an environment where employees can focus on productivity, not conflict. Our vision is to create, within the FAA and its Federally-assisted programs, an environment free of civil rights violation and discrimination, where all are treated equitably with dignity and respect. The result of these efforts is a diverse and satisfied workforce that collaboratively helps to ensure the safety of the flying public.

Detailed Justification for – Government and Industry Affairs (AGI)

FY 2025 – Government and Industry Affairs (AGI) – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,862	1,862	2,018
Program Costs	118	118	110
Total	**$1,980**	**$1,980**	**$2,128**
FTE	**9**	**9**	**9**

What is this program and what does this funding level support?

The Office of Government and Industry Affairs (AGI) supports the Administrator and represents the FAA by providing the principal linkage between the Agency and Congress.

AGI works with FAA offices to coordinate, facilitate, and present FAA's legislative message. AGI consistently monitors and gauges the interest and needs of the United States Congress. This relationship also extends to coordinating FAA legislative initiatives and responses with the Department of Transportation (DOT). AGI also serves as liaison with the aviation industry, from manufacturers to carriers, and with other aviation-related organizations. Additionally, AGI serves as the principal point of contact for state and local governments.

The following core activities represent the FY 2025 Budget request:

- Communicate to Congress on behalf of the Administrator and Management Board.
- Provide OST's Office of Governmental Affairs with factual, concise, and complete information from significant AGI congressional contacts and activities.
- Foster strong partnerships with key industry stakeholders.

What benefits will be provided to the American public through this request and why is this program necessary?

AGI continuously improves the quality, timeliness, and usefulness of FAA core business functions. AGI fosters productive relationships with key members of Congress and Congressional Oversight Committees. AGI solicits information from program offices within the

Agency to better understand and communicate areas of interest or concerns to the United States Congress.

AGI's mission is to provide high quality, timely communications to Congress. It is essential that public policy be debated on its merits so that the best outcomes can result. The work of AGI enables the Administrator, Deputy Administrator, and Associate Administrators to effectively interact and communicate the policies and positions of the FAA before the United States Congress. AGI's established congressional relations are vital to advancing the aviation priorities of the FAA, the Department of Transportation, and the Administration.

Detailed Justification for – Communications (AOC)

FY 2025 – Communications (AOC) – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	7,952	7,952	8,622
Program Costs	504	504	526
Total	**$8,456**	**$8,456**	**$9,148**
FTE	**40**	**40**	**40**

What is this program and what does this funding level support?

The Office of Communications (AOC) is responsible for the direction and delivery of critical safety information and policy to the news media, stakeholders, and FAA employees worldwide to support Agency operations, programs, and its mission. AOC oversees, manages, and executes strategic communication plans which includes the development and delivery of a consistent, compelling, and strategic messaging across the FAA as well as the Department of Transportation (DOT) to educate the public and key stakeholders. In support of the DOT's strategic goals of Safety, Infrastructure, Innovation and Accountability, AOC provides well-coordinated, innovative, creative, and effective communications programs and campaigns, which includes traditional public affairs and media relations support, with modern digital tactics. AOC helps the FAA achieve its mission by providing timely and accurate information and performing robust outreach to an increasingly diverse set of stakeholders delivering timely and accurate safety information to the public and its workforce. AOC tracks the return on investment of its projects and uses the data to make improvements and adjustments for continued success.

AOC provides a full suite of strategic communications by delivering effective messaging and engagement with key stakeholders to maximize outreach, generate buzz, and increase safety to the public. AOC promotes FAA safety programs and policies, informs, and interacts with stakeholders, and amplifies our Agency voice by responding to all FAA media inquiries, press activities, official spokesperson statements, speechwriting, creative services, internal & external webmaster support, speechwriting, digital/live event planning and social media outreach for the FAA. Organizations are encouraged to partner with AOC in the early stages of communication activities to take advantage of the full suite of available services and expertise, which will avoid duplication of services and achieve a greater return on investment for the Agency.

FY 2025 Anticipated Accomplishments:

- Increase awareness and understanding of FAA initiatives and other issues through press conferences, media briefings, press releases, social media, and other communication channels.
- Increase awareness of the FAA's role as a world leader in aviation.
- Support open government initiatives to make data available, improve online services, and increase collaboration with citizens, stakeholders, and other government agencies.
- Expand the use of social media platforms to educate the public & new audiences.
- Use a variety of internal communication vehicles to educate employees about Agency strategic goals, programs, and activities.

What benefits will be provided to the American public through this request and why is this program necessary?

With more than 119 million page views a year, FAA.gov provides a wealth of resources to the American public. Pilots, mechanics, and other members of the flying public consistently read FAA's news, directives, hazardous materials information, and airworthiness information every second of every day of the year.

The FAA has seen a persistent increase in demand for secure access to critical aviation safety information. Users downloaded more than 9.5 million documents from FAA.gov related to pre-flight safety procedures and planning, airmen/aircraft certification, aircraft mechanical records, airport safety regulations, and accident/incident data. Information for air traffic operations, General Aviation safety, NextGen, and Unmanned Aircraft Systems are delivered via text, video, and graphical formats.

With more than 40,000 employees working in offices and in the field, across the country and abroad, the FAA intranet, employee news, daily broadcast, and audio/video production services are a vital part of ensuring employees relate to the vision, mission, and values of the agency. These vital communication vehicles ensure that employees can access information about everything from Human Resource benefits to changes in compensation programs that may directly affect them. Strong internal communications generate a more engaged, productive, and loyal workforce.

As the demand for safety information continues to grow from all stakeholders (employees, the public, the media, and the aviation community), these groups expect unfettered 24 hours a day/7 days per week access to information the FAA provides, and interaction with that information through the Web, email, and social media. AOC will provide accurate critical information about FAA operations, safety oversight, efficiency initiatives and other programs to all of these groups as quickly as possible.

Detailed Justification for – Office of Chief Counsel (AGC)

FY 2025 – Office of the Chief Counsel (AGC) – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	48,910	48,910	66,585
Program Costs	6,867	6,867	7,440
Total	**$55,777**	**$55,777**	**$74,025**
FTE	**238**	**238**	**319**

What is this program and what does this funding level support?

The Office of the Chief Counsel (AGC) provides mission-critical legal services for the FAA. Within the FAA, AGC is both a key partner to each line of business and staff office and an integral contributor to the success of every major agency program and function. AGC provides legal advice across every line of business and agency program, reviews agency actions for legal sufficiency, represents agency interests in various administrative and court forums, defends the agency's actions, and proactively identifies and mitigates risk. In addition, AGC is responsible for internal FAA adjudicative functions, including arbitrating bid protests and contract disputes, aviation civil penalties below a specified threshold, and complaints filed against airport sponsors. The Chief Counsel's Office also provides alternative dispute resolution services.

AGC's principal legal practice areas are:

- Enforcing aviation safety rules, airport grant assurances, civil rights requirements, protecting intellectual property/data rights interests, and processing aircraft registrations.
- Protecting FAA's interests with zealous defense of FAA decisions, including, but not limited to, rulemaking litigation, constitutional claims, aviation torts, Freedom of Information Act (FOIA) and Privacy Act (PA) litigation, environmental approvals, and personnel decisions.
- Rulemaking activity, international activity and harmonization of safety rules, environmental legal services, airport legal services in support of airport expansion and capacity, provide opportunities for disadvantaged business enterprises, commercial space legal services which support launch activities, Unmanned Aircraft Systems (UAS) integration, and acquisition of technologies that support increased capacity and efficiency; and

- Enhancing FAA's high-performing workforce, supporting numerous agency-wide strategic initiatives, and providing legal services in support of agency administrative functions including, but not limited to, acquisition and fiscal law; employment and labor law; ethics counsel and program; information law; Congressional oversight investigations; real property, data, and intellectual property; aviation registrations; national security; cybersecurity; legislative; and emergency management.

FY 2025 Anticipated Accomplishments:

Funding at the FY 2025 requested level would support necessary legal services, including representation, in support of significant FAA program responsibilities and functions. Among the more significant of these are:

- Advice and counsel on the implementation of key priorities of the Administration, including a post-Pandemic return to work, safer federal workforce, climate change, environmental justice, and equity, as directed in Executive Orders issued since January 20, 2021.

- Proactive legal engagement and program support for executing and managing the technical aspects of FAA programs and helping ensure that FAA interests and equities are protected.

- Rulemaking on critical safety rules and regulatory aspects of NextGen, including the safe and timely integration of new entrants into the national airspace. In particular, AGC has had to devote a steadily increasing amount of resources to aid in the safe integration of UAS, commonly referred to as drones. For example, current drone rulemaking projects involve the substantial time of nine attorneys. More than 10 percent of AGC personnel are engaged in drone matters, and the workload is increasing.

- Providing legal counsel and training on aircraft registrations on non-citizen/U.S. citizen trusts; corporations/limited liability companies/partnerships; fractional ownerships; and other areas.

- Providing counsel to FAA's Office of Civil Rights for purposes of adjudicating complaints of discrimination, assuring access to the national system of airports regardless of disability, and implementing disadvantaged business enterprise programs so that all communities have the opportunity to benefit from aviation's economic success.

- Providing advice and training on a broad spectrum of intellectual property (IP)-related issues, including, but not limited to, patents, copyright, and trademarks, technology transfer (including the development of cooperative research and development agreements (CRADA) and licenses), and data rights strategy – across the FAA, including the development of associated policies.

- Enforcement of FAA regulations and statutes, including those involving illegal drone operations, unruly passengers, noncompliance with drug and alcohol use prohibitions and industry drug testing requirements, certificate holder falsification, improper aircraft maintenance, medical disqualification, illegal aircraft charters, and noncompliance with hazardous materials requirements. Attorneys advise on enforcement investigations, work with FAA offices on the development of compliance and enforcement policies, and coordinate with other federal and state agencies regarding matters concerning aviation safety.

- Defending aviation accidents, other tort claims, and appellate challenges to FAA Order and final agency decisions.

- Improving FAA information management through legal sufficiency reviews of hundreds of Freedom of Information Act (FOIA) and Privacy Act (PA) initial responses and administrative appeals; counsel on FAA initiatives and policies to ensure compliance with the requirements of FOIA, PA, E-Government Act, Trade Secrets Act, Open Governance, Federal Records Act, Paperwork Reduction Act, Children On-Line Privacy Protection Act, FAA's statutory authority to protect voluntarily provided safety information; and training of FAA personnel.

- Counseling FAA program offices on the appropriateness of pursuing patent and trademark applications, and when appropriate, draft the applications and conducts all activity associated with the filing and prosecution of the applications.

- Supporting environmental reviews of airports capacity enhancement projects and grants, environmental streamlining for airport infrastructure projects, new entrants, including UAS operations and commercial space launch activity, NextGen development, and any litigation support resulting from environmental approvals.

- Providing legal counsel to the Office of Airports for the implementation of numerous grant-in-aid programs to airports and the passenger facility charge program, enforcing the terms of grant agreements, including their associated assurances, and providing counsel to airport engineering functions with regard to safety regulation and advisory circulars.

- Providing management advice and counsel to AOA, Senior Executives, and Regional Administrators on noise issues, including community engagement. Noise issues may act as an environmental constraint on aviation growth. As a result, AGC devotes substantial time of attorneys and all managers to this issue.

- Safety and environmental review of commercial space launch activities.

- Providing proactive legal support to all FAA policy development, focusing on acquisition and finance operations, and key support to UAS and the War Risk Insurance program.

- Supporting all aspects of lifecycle acquisition management for the FAA through proactive legal engagement and program support to increase quality, reduce the time, and manage the risk and budget of delivering safe and secure services to the aviation community and flying public. In particular, AGC devotes increasing resources to acquiring and administrating services and support, operational safety systems, and associated equipment and real property, including acquisition aspects of NextGen development and compliance with commercial and fiscal requirements. The increasing levels of effort are directly related to growing complexities in data rights and utilization; cybersecurity requirements; licensing issues; and growing virtual operations requirements that include contractor and contracted efforts.

- Acquisition legal support and oversight of contracts that supply 40,000 contractor support personnel, requirements development, planning support, and applicability of evolving government-wide policies. This support and oversight involves operationalizing an increasingly integrated virtual and actual combined contractor-federal work environment and ecosystem.

- Implementation of Congressional and Executive Branch mandates regarding FAA personnel.

- Representing the FAA in administrative litigation before the Merit Systems Protection Board, Equal Employment Opportunity Commission, and judicial litigation in Article III courts.

- Providing management advice and counsel on employment and labor matters, including the following areas: whistleblower protection, DEIA initiatives, labor negotiations, post-pandemic work environment and policies, contours of the FAA's unique personnel management system, class action litigation, client training, and air traffic controller hiring.

- Providing management advice and counsel to AOA, ADA, Senior Executives, and other leadership on the Federal Advisory Committee Act (FACA) requirements and options available to engage with stakeholders in compliance with the law.

- Representing the FAA's interest in FOIA, PA, FACA, IP, and aircraft registration-related court challenges.

- Supporting the FAA's national security and cybersecurity missions.

- Advising lines of business and staff offices about Congressional oversight investigations and responding to Congressional document and interview requests.

- Advising lines of business and staff offices on all matters related to international aviation and space law issues, providing legal expertise in international safety assessments and technical assistance, and developing international agreements.

- Serving as a liaison for FAA on international aviation legal matters with international organizations, foreign countries, and other Government agencies and industry.

- Providing legal support for FAA emergency operations and warnings to the aviation community respecting foreign airspace.

- Dispute resolution services and/or administrative adjudication of acquisition-related disputes and administration of the Civil Penalty Program; representation of Agency interests and choice of actions, including the National Transportation Safety Board (NTSB); and representing the FAA in litigation before the Office of Dispute Resolution for Acquisition (ODRA).

- Coordination across the Executive and Legislative branches on legislative services.

- Provides a broad range of pre-, during, and post-employment advice to FAA managers and employees throughout the agency as to their ethical obligations.

- Review of financial disclosure reports filed by those employees at the FAA, currently approximately 18,000, whose duties and responsibilities require the employee to participate personally and substantially through decision or the exercise of significant judgment in the agency taking action regarding an inherently governmental function. These numbers disclose that AGC touches approximately one out of every 22 financial disclosure statements filed by employees of the Executive Branch of the United States Government.

- Provide required onboarding and annual ethics training.

Program Increase:

The FY 2025 budget request for AGC includes additional funding for the following programmatic initiative.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Resource Support	575	5	3
AGC Total	**$575**	**5**	**3**

Resource Support: Funding is requested for AGC personnel to provide legal support on regulatory and rulemaking activities, aviation engagements, aviation litigation, national and cyber security assessments, environmental/noise policy, and certifications to ensure legal sufficiency and appropriate legal risk assessment.

(See also "Operations Summary" and "FY 2025 Discretionary Increase Request" for a detailed description of the Program Increase requests.)

What benefits will be provided to the American public through this request and why is this Program necessary?

AGC contributes to the overall success of FAA programs and supports the strategic objectives of the Department of Transportation. AGC's contributions cannot be assessed through a single measure. AGC contributes to many programs to ensure that overall FAA actions are consistent with legal requirements, risks are defined and managed to the extent practicable, and the interests of the government and the flying public are strongly represented.

The enforcement attorneys provide essential legal support for the agency's safety oversight programs, including handling over 2,000 cases on average each year where legal enforcement action is necessary for national airspace safety. Aviation accident and tort litigators are critical to defending Agency employees and systems against claims of negligence arising from fatal aircraft accidents.

The rulemaking attorneys play a critical role in establishing regulatory requirements involving certification (airman and aircraft), operations, airspace, airports, and commercial space licensing. Information Law attorneys are critical for ensuring the proper management of the information and data generated and collected by the FAA consistent with the FAA's legal obligations, including the protection from disclosure of voluntarily provided safety information. Information Law attorneys also play a strategic role in addressing FAA's data rights in negotiated agreements, including, but not limited to, CRADAs, and addressing FAA's IP needs through patents and trademarks. They are critical in addressing novel legal issues pertaining to aircraft and airmen registrations.

The Airports and Environmental Law attorneys are critical to ensuring environmental reviews are completed for infrastructure projects funded by the Bipartisan Infrastructure Law and Airport Improvement Program, integration of UAS, commercial space activities, and performance-based navigation implementation. In addition, they provide legal counsel to the Office of Airports for the implementation of numerous grant-in-aid programs to airports, enforcing the terms of grant agreements, and providing counsel to FAA's Office of Civil Rights.

The Employment and Labor attorneys support the unique demands of the FAA's workforce and operations by maximizing the legislative flexibilities afforded to the FAA through the series of Congressional enactments commonly referred to as Personnel Reform. The Employment and Labor attorneys support the FAA's nearly 6,000 managers through day-to-day counseling, training, and support of high-profile disciplinary matters. In addition to defending the agency in

employment and labor litigation, the employment attorneys have a significant role in addressing the staffing and labor implications of the air traffic control system.

AGC acquisition attorneys provide key support in the development, acquisition, and deployment of NextGen air traffic control and safety systems and technologies, including land and facility sites that house said NextGen equipment and systems. The FAA's Acquisition and Fiscal law attorneys support the deployment of 40,000 contract support personnel, support business decisions in every FAA line of business, the protection (and ownership) of information and data rights, real property issues, legislative initiatives, critical support to financial operations, the franchise fund, and engagement in policy-making.

The national security and emergency management attorneys are critical in supporting the FAA's efforts to protect the FAA's critical infrastructure, including the handling of sensitive national security information/data. The international law attorneys develop the FAA's position on international aviation and space law issues and are critical in providing legal advice on all matters related to international aviation, including aircraft registration, flight standards subjects, airworthiness and certification, air traffic matters, UAS, statutes addressing international issues, and treaties and conventions concerning aviation and space and matters.

Detailed Justification for – Policy, International Affairs, and Environment (APL)

FY 2025 – Office of Policy, International Affairs, and Environment (APL) – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	62,935	62,935	73,310
Program Costs	27,492	27,492	31,230
Total	**$90,427**	**$90,427**	**$104,540**
FTE	**288**	**288**	**320**

What is this program and what does this funding level support?

The Office of Policy, International Affairs, and Environment (APL) consists of the following offices:

Aviation Policy and Plans is responsible for providing critical economic analysis, forecasting, corporate planning and performance management to improve FAA's effectiveness and support FAA's policy and regulatory initiatives; makes coordinated and well-informed policy decisions for crosscutting and novel civil aerospace issues using independent economic, quantitative and qualitative analysis, information and visual tools; conducts benefit-cost and regulatory impact analyses to fulfill analytical requirements for rulemaking actions; implements and manages the Samya Rose Stumo National Air Grant Fellowship Program; and, positions the FAA for the future by coordinating FAA's multi-year reauthorization efforts and identifying, researching, and projecting emerging issues and trends impacting aviation safety.

International Affairs is responsible for formulating the FAA's international strategy and associated regional and global priorities, aligning FAA's international activities, programs and initiatives, and training to most effectively accomplish the strategic goals and initiatives of the FAA, DOT, and the United States government, and leading collaborative engagement and cooperation with civil aviation authorities and aviation stakeholders across the world.

Environment and Energy is responsible for developing, recommending, coordinating, and implementing national and international standards, policy and guidance, research and studies, and analytical capabilities on aviation environmental and energy matters with the vision of removing environmental constraints on aviation growth by achieving quiet, clean, and efficient air transportation.

National Engagement and Regional Administration is responsible for conducting outreach,

engagement, and horizontal integration to Congressional officials, federal, state and local governments, airports, military, civic organizations, as well as to customers across the Agency. In addition, the office provides a national strategy and oversight for the Agency's Science, Technology, Engineering, and Math Aviation and Space Education program (STEM AVSED). In addition, it is responsible for administration of regional offices and coordinates with building facility managers of the Agency's administrative buildings. Regional Administrators oversee regional emergency operations and integration services to ensure that appropriate communication and coordination occurs in critical crisis response incidents related to U.S. National Airspace System continuity.

APL will continue to achieve the goals of the Administration and the Department in connection with various domestic and international initiatives, while maximizing outcomes through the leveraging of partnerships, technology, and expertise.

FY 2025 Anticipated Accomplishments:

Function/Activity	FY 2025 Anticipated Accomplishments
Aviation Policy and Plans	• Facilitate the implementation of a long-term FAA reauthorization bill, working across the Agency, with the Administration, and with Congress and stakeholders. • Implement and manage the Samya Rose Stumo National Air Grant Fellowship Program by establishing multi-year cohorts of fellows to gain experience in aviation legislation and policy. • Provide timely benefit-cost and regulatory analyses to develop and implement critical safety rules, such as those to promote airport and operator Safety Management Systems and those required by the 2020 Aircraft Certification, Safety, and Accountability Act; to develop and implement economically enabling rules supporting future powered-lift operations, UAS beyond visual line of sight and advanced operations, and expanded commercial space operations; and, to coordinate timely review and approval of these analysis through the Office of the Secretary of Transportation and the Office of Management and Budget. • Develop national and airport level activity forecasts, benefit-cost studies, issue analysis, economic impact studies, and stakeholder outreach, to facilitate national airspace planning. • Improve FAA's effectiveness by leading streamlined and responsive corporate planning, performance, and risk management processes for the Agency. • Conduct analysis and coordinate cross-FAA efforts regarding impacts to the FAA and the aviation industry, including economic, pandemic, and pilot shortage recovery impacts.

Function/Activity	FY 2025 Anticipated Accomplishments
International Affairs	• Influence the International Civil Aviation Organization, member States, and appropriate regional aviation organizations and industry to align global standards and recommended practices with U.S. best practices in aviation safety oversight, operational efficiency and capacity, climate and environmental sustainability, commercial space transportation, and integration of new and innovative technologies. • Achieve a safer, more seamless, and more secure global air transportation system through coordinated outreach, data and information sharing, and training on U.S. aviation innovative systems, procedures, concepts, and safety/security risk-based decision making. • Manage international agreements and arrangements to support FAA and United States research, collaboration, and technical assistance with States and key international organizations to advance global aviation safety, efficiency, airspace security, capacity, and climate/environmental stewardship. • Orchestrate FAA monitoring of, response to, and support of areas of global conflict and crisis/incident management events to mitigate impacts to the safety and security of U.S. civil aviation operators and the flying U.S. public. • Take an enterprise-level, data-informed approach to maximize FAA global impact to promote a positive aviation safety culture globally and with key partners, especially where U.S. stakeholders are impacted; improve the efficiency and interoperability of air navigation services outside U.S. controlled airspace through regional air traffic flow management programs; facilitate the acceptance of U.S. aerospace products in foreign markets through collaboration between regulators; ensure close coordination of airspace restrictions during commercial space launches; and promote a global approach to reducing aviation's impact on the climate.

Function/Activity	FY 2025 Anticipated Accomplishments
Environment and Energy	• Review and update environmental policies, as needed, based on research outcomes, technology development, and stakeholder engagement with a particular focus on community noise. • Support standard setting and certification, including the development and/or updating of processes and procedures for noise and emissions certification of subsonic aircraft, UAS, advanced air mobility vehicles, and supersonic aircraft. • Provide international leadership on aviation environmental matters, including through implementation of the Carbon Offsetting and Reduction Scheme for International Aviation. • Continue to improve environmental review processes and update the FAA's National Environmental Policy Act implementation Order 1050.1, associated analytical tools and references, as necessary. Lead FAA planning, analysis, coordination, and reporting of energy and water efficiency and resilience of facilities, operations, and infrastructure to the impacts of climate change.
National Engagement and Regional Administration	• Enhance aviation safety by increasing awareness and outreach on the FAA high priority safety initiatives. • Enhance community engagement techniques to support FAA initiatives, including those focused on aviation noise concerns associated with aircraft and airspace procedures with communities throughout the US. • Support emergency preparedness and continuity of operations. • Provide program management assistance and coordination activities to support the prioritization and implementation of Northeast Corridor initiatives that reduce delays and improve schedule reliability. • Provide necessary resource increases to the Science, Technology, Engineering, and Math (STEM) Aviation and Space Education (AVSED) program to fully support the FAA's commitment to the creation of a consistent and diverse pipeline of future aerospace industry professionals.

Program Increases:

The FY 2025 budget request for APL includes additional funding for the following programmatic initiatives.

Discretionary Adjustments	Amount ($000)	FTP	FTE
Unmanned Aircraft Systems	410	2	1
Staff Office Support - Global Leadership	1,825	2	1
APL Total	**$2,235**	4	2

Unmanned Aircraft Systems: This funding will provide additional resources to address the significant increase in applications seeking an environmental certification basis for aircraft and approval/validation of their certification software to ensure compliance with FAA requirements.

Global Leadership: Funding is requested to advance U.S. aviation engagement, leadership and influence globally. Focus areas include an engagement program for Africa, International Civil Aviation Organization support, Global Leadership Fellowship Exchange program, and creation of a FAA Senior representative in the Caribbean.

(See also "Operations Summary" and "FY 2025 Discretionary Increase Request" for a detailed description of the Program Increase requests.)

What benefits will be provided to the American public through this request and why is this program necessary?

APL is the Agency lead for Aviation Policy, International Aviation, National Engagement, and Environmental issues. Specifically, APL coordinates the Agency's reauthorization before Congress, and is responsible for national aviation policies and strategies including aviation activity forecasts, regulatory analysis and rulemaking support, a variety of economic analyses, aircraft noise and emissions analyses and mitigation, and environmental policy.

In addition, the Regional Administrators serve as the corporate representatives for the FAA Administrator in communicating with local, state and Federal agencies, the aviation industry (from manufacturing to air carriers), and community organizations. APL works closely with other Federal agencies on national and international policy, environmental and energy issues, as well as with industry partners, other civil aviation authorities, academia, non-governmental organizations, and community representatives to strengthen U.S. positions as the gold standard for aviation.

As a trusted and respected global leader in aviation, the FAA must engage internationally to influence improved global aviation standards and enhance overall aviation safety, efficiency and

capacity. APL is responsible for improving environmental performance and addressing energy and sustainability needs, and for developing broad based approaches and coordinating Agency responses to limit and reduce future aviation environmental impacts.

APL operates the Cornerstone Regional Operations Center that serves as a 24-hours-a-day/7 days-a-week communication hub that provide voice and data dissemination necessary to direct management of the national airspace. Regional Administrators coordinate communication responses related to aircraft accidents, emergencies, missing aircrafts, hijacking, security threats, facility and system outages, airport closures, earthquakes/natural disasters and public information requests and complaints.

Currently, the United States is experiencing severe workforce shortages in critical aviation and aerospace careers, which has an impact on national and global economies. The FAA is working to avert future such workforce crises through early student outreach to diverse populations of students.

Staff Offices
($000)

	Dollars (in Thousands)	FTP	OTFTP	FTE
FY 2024 Continuing Resolution	**$298,974**	**1,141**	**178**	**1,280**
FY 2024 Adjustment	$31,611	116	108	118
Adjustments to Base	**$17,694**	**-**	**-**	**44**
Annualization of FY 2024 Pay Raise 5.2%	$3,345	-	-	-
Annualization of FY 2024 FTE	$6,719	-	-	44
FY 2025 Pay Raise 2.0%	$3,860	-	-	-
Non-Pay Inflation	$1,461	-	-	-
Working Capital Fund	$2,309	-	-	-
Discretionary Adjustments	**$4,903**	**27**	**-**	**14**
Controller Hiring and Training Surge	$664	6	-	3
Unmanned Aircraft Systems	$410	2	-	1
FAA Business Application Modernization	$744	2	-	1
Staff Office Support	$3,085	17	-	9
FY 2025 Request	**$353,182**	**1,284**	**286**	**1,456**

See Operations Summary for a detailed description of the explanation of funding changes.

FACILITIES AND EQUIPMENT

(AIRPORT AND AIRWAY TRUST FUND)

For necessary expenses, not otherwise provided for, for acquisition, establishment, technical support services, improvement by contract or purchase, and hire of national airspace systems and experimental facilities and equipment, as authorized under part A of subtitle VII of title 49, United States Code, including initial acquisition of necessary sites by lease or grant; engineering and service testing, including construction of test facilities and acquisition of necessary sites by lease or grant; construction and furnishing of quarters and related accommodations for officers and employees of the Federal Aviation Administration stationed at remote localities where such accommodations are not available; and the purchase, lease, or transfer of aircraft from funds made available under this heading, including aircraft for aviation regulation and certification; to be derived from the Airport and Airway Trust Fund, $3,600,000,000, of which $690,000,000 is for personnel and related expenses and shall remain available until September 30, 2026, $2,802,450,000 shall remain available until September 30, 2027, and $107,550,000 is for terminal facilities and shall remain available until September 30, 2029: Provided, That there may be credited to this appropriation funds received from States, counties, municipalities, other public authorities, and private sources, for expenses incurred in the establishment, improvement, and modernization of national airspace systems: Provided further, That not later than 60 days after submission of the budget request, the Secretary of Transportation shall transmit to the Congress an investment plan for the Federal Aviation Administration which includes funding for each budget line item for fiscal years 2025 through 2029, with total funding for each year of the plan constrained to the funding targets for those years as estimated and approved by the Office of Management and Budget.

EXHIBIT III-1

FACILITIES and EQUIPMENT
SUMMARY BY PROGRAM ACTIVITY
Appropriations, Obligations Limitations, and Exempt Obligations
($000)

	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Engineering, Development, Test and Evaluation	$ 146,550	$ 136,240	$ 173,800
Air Traffic Control Facilities and Equipment	$ 1,754,900	$ 1,756,481	$ 2,235,600
Non-Air Traffic Control Facilities and Equipment	$ 221,200	$ 202,829	$ 220,000
Facilities and Equipment Mission Support	$ 252,350	$ 232,450	$ 280,600
Personnel and Related Expenses	$ 570,000	$ 617,000	$ 690,000
TOTAL, Base	$ 2,945,000	$ 2,945,000	$3,600,000
FTEs			
Direct Funded	2,709	2,724	2,912
Reimbursable	51	53	53
Supplemental Funding			
COVID-19 Supplemental			
IIJA Supplemental			
Facilities & Equipment	1,000,000	1,000,000	1,000,000
TOTAL, Base	$ 1,000,000	$ 1,000,000	$1,000,000
FTEs (Direct Funded)	189	330	440
Facility Replacement & Radar Modernization			
Facilities Replace			852,000
Radar Replace			98,000
Personnel & Related Exp.	-	-	50,000
TOTAL, Base	$ -	$ -	$1,000,000
FTEs	0	0	181
Total	**$ 3,945,000**	**$ 3,945,000**	**$5,600,000**

The F&E Activity level and Budget Line Item amounts shown in the FY 2024 Annualized CR column differ from those in the FY 2023 Enacted column to illustrate FAA's discretion in how funding would be proposed to be allocated under this scenario. The higher funding for Activity 5 reflects the level approved in Section 137 of the Continuing Appropriations Act, 2024 (P.L. 118-15). Additional adjustments have been proposed to programs in Activities 1-4 to accommodate the Activity 5 increase as well as align with existing program implementation plans.

Program and Performance Statement

Funding in this account provides for the deployment of communications, navigation, surveillance, automation, weather systems, and related capabilities within the National Airspace System (NAS). This work includes funding for critical sustainment of legacy systems, modernization, and several activities of the Next Generation Air Transportation System (NextGen) to improve the safety, capacity, security, and environmental performance of the NAS.

The funding request supports the Federal Aviation Administration's comprehensive plan for modernizing, maintaining, and improving air traffic control and airway facility services. In FY 2023, the agency achieved 97.7% of the critical acquisition milestones by their scheduled due dates. Achievement of this target indicates the FAA's forward-thinking ability to manage programs that allow for a timely transition of NextGen programs. The transition involves acquiring numerous systems to support precision satellite navigation, digital, networked communications, integrated weather information, layered adaptive security, and more.

EXHIBIT III-1a

FACILITIES and EQUIPMENT
SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025
Appropriations, Obligations Limitations, and Exempt Obligations
($000)

	$000		FTE
FY 2024 ANNUALIZED CR	$2,945,000		2,724
ADJUSTMENTS TO BASE:			
FY 2024 Adjustments	18,000		60
Annualization of FY 2024 FTE	15,225		75
Annualization of Prior Pay Raise(s)	7,392		
FY 2025 Pay Raise	8,529		
GSA Rent	0		
Working Capital Fund	0		
Non-Pay Inflation & Adjustment to Base	467,854		
SUBTOTAL, ADJUSTMENTS TO BASE	**517,000**		**135**
PROGRAM INCREASES			
Engineering, Development, Test and Evaluation	37,560		
Air Traffic Control Facilities and Equipment	11,265		
Non-Air Traffic Control Facilities and Equipment	17,171		
Facilities and Equipment Mission Support	48,150		
Personnel and Related Expenses	23,854		53
SUBTOTAL, PROGRAM INCREASES	**138,000**		**53**
FY 2025 REQUEST	**3,600,000**		**2,912**
Supplemental Appropriations	**1,000,000**		**440**
Facility Replacement & Radar Modernization	**1,000,000**		**181**
TOTAL	**5,600,000**		**3,533**

Facilities and Equipment (F&E) Index

2B04	ATCT/Terminal Radar Approach Control (TRACON) Facilities - Improve	44,550,000	92
2B05	NAS Facilities OSHA and Environmental Standards Compliance	35,000,000	94
2B06	Integrated Display System (IDS)	45,500,000	97
2B07	Terminal Flight Data Manager (TFDM)	59,100,000	100
2B08	Unmanned Aircraft Systems (UAS) Implementation	10,000,000	103
2B09	Airport Ground Surveillance Portfolio	105,200,000	105
2B10	Terminal and En Route Surveillance Portfolio	95,650,000	109
2B11	Terminal and En Route Voice Switch and Recorder Portfolio	120,050,000	116
2B12	Enterprise Information Platform	9,000,000	120
2B13	Remote Towers	3,000,000	122
2C01	Future Flight Services Program	3,000,000	124
2C02	Alaska Flight Service Facility Modernization (AFSFM)	2,700,000	126
2C03	Weather Camera Program	6,500,000	128
2C04	Weather Systems Portfolio	30,100,000	131
2D01	Very High Frequency (VHF) Omnidirectional Radio Range (VOR) Minimum Operating Network (MON)	7,000,000	135
2D02	Wide Area Augmentation System (WAAS) for GPS	73,200,000	137
2D03	Instrument Flight Procedures Automation (IFPA)	4,100,000	141
2D04	Runway Safety Areas - Navigational Mitigation	1,800,000	143
2D05	Landing and Lighting Portfolio	57,750,000	144
2D06	Distance Measuring Equipment (DME), Very High Frequency (VHF) Omni-Directional Range (VOR), Tactical Air Navigation (TACAN) (DVT) Sustainment Portfolio	4,000,000	149
2E01	Fuel Storage Tank Replacement and Management	10,600,000	151
2E02	Unstaffed Infrastructure Sustainment	63,300,000	153
2E03	Aircraft Replacement and Related Equipment Program	113,100,000	155
2E04	Airport Cable Loop Systems - Sustained Support	10,000,000	157
2E05	Real Property Disposition	9,000,000	159
2E06	Child Care Center Sustainment	1,200,000	161
2E07	Electrical Power Systems - Sustain/Support	120,500,000	163
2E08	Energy Management and Compliance (EMC)	4,800,000	167
2E09	FAA Telecommunications Infrastructure	419,500,000	169
	Total, Activity 2	**2,235,600.000**	

Activity 3 - Non-Air Traffic Control Facilities and Equipment			
3A01	Hazardous Materials Management	23,600,000	173
3A02	Aviation Safety Analysis System (ASAS)	29,900,000	174
3A03	National Air Space (NAS) Recovery Communications (RCOM)	12,000,000	177
3A04	Facility Security Risk Management	15,000,000	179
3A05	Information Security	38,700,000	181
3A06	System Approach for Safety Oversight (SASO)	13,200,000	184
3A07	Aerospace Medical Equipment Needs (AMEN)	1,500,000	186
3A08	NextGen System Safety Management Portfolio	15,000,000	189
3A09	National Test Equipment Program	3,000,000	191
3A10	Mobile Assets Management Program	4,000,000	193
3A11	Configuration, Logistics, and Maintenance Resource Solutions (CLMRS)	17,000,000	195
3A12	Tower Simulation System (TSS) - Tower Training Simulator	5,100,000	197
3B01	Aeronautical Center Infrastructure Sustainment	41,000,000	199
3B02	Distance Learning	1,000,000	202
	TOTAL ACTIVITY 3	**220,000,000**	
Activity 4 - Facilities and Equipment Mission Support			
4A01	System Engineering and Development Support	38,000,000	204
4A02	Program Support Leases	45,000,000	207
4A03	Logistics and Acquisition Support Services	12,000,000	209
4A04	Mike Monroney Aeronautical Center Leases	16,900,000	211
4A05	Transition Engineering Support	19,000,000	213
4A06	Technical Support Services Contract (TSSC)	28,000,000	215
4A07	Resource Tracking Program (RTP)	11,000,000	217
4A08	Center for Advanced Aviation System Development (CAASD)	57,000,000	219
4A09	Aeronautical Information Management Program	53,700,000	222
	TOTAL ACTIVITY 4	**280,600,000**	
Activity 5 - Personnel and Related Expenses			
5A01	Personnel and Related Expenses	**690,000,000**	227
	TOTAL ALL ACTIVITIES	**3,600,000,000**	

Executive Summary – Facilities and Equipment (F&E) Budget Summary

What is this program and what does this funding level support?

The FY 2025 President's Budget requests $3.6 billion to enable FAA to maintain the capacity and safety of the current National Airspace System. This is an increase of $665.0 million, or 22 percent, above the FY 2023 enacted budget request. In addition, the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), provides $1.0 billion in advance appropriations for the F&E account, for a combined total of $4.6 billion. The FY 2025 President's Budget also proposes $8.0 billion in mandatory budget authority over a period of 5 years under a new Facility Replacement and Radar Modernization Program (FRRM). The $8.0 billion will include $1.0 billion per year in FY 2025 and FY 2026 and $2.0 billion per year in FY 2027 – FY 2029. Of this total, at least $5.0 billion will be dedicated to air traffic control facility replacements, $2.0 billion will be dedicated to radar replacements, and $1.0 billion for personnel related expenses.

The $3.6 billion investment will sustain current systems, including maintaining aging infrastructure, power systems, information technology, navigational aids, communications, surveillance, and weather systems. The requested funding will also continue to sustain the safety of the national airspace, make necessary technological enhancements, and make vital transitions to new systems, which will phase out older systems no longer supported by service providers.

The FY 2025 President's Budget request proposes to move reoccurring subscription services costs from the F&E account to the Operations account. This action will provide more transparency of the FAA's recurring uncontrollable costs. These subscription services are fixed costs that provide a financing option for capital infrastructure through annual payments over many years making the program more affordable. A total of $194.0 million is requested for subscription services costs in the Operations account, which includes the Data Communications, Wide Area Augmentation System (WAAS), and Automatic Dependent Surveillance-Broadcast (ADS-B) programs.

The F&E budget continues to be structured around five activities that group programs according to a common purpose.

Activity 1 - Engineering, Development, Test and Evaluation

For Activity 1, the President's Budget requests $173.8 million to sustain the laboratories and facility infrastructure at the William J. Hughes Technical Center and for pre-implementation innovation work. This represents an increase of $27.3 million over the FY 2023 enacted budget. The increase is primarily for the William J. Hughes Technical Center Infrastructure Sustainment and Traffic Flow Management Portfolio programs.

Activity 2 - Procurement and Modernization of Air Traffic Control Facilities and Equipment

For Activity 2, the President's Budget requests $2.2 billion for modernization of air traffic control facilities, systems, and equipment, and to support infrastructure upgrades, system replacements, and technology refresh at manned and unmanned facilities. This request is an increase of $480.7 million above the FY 2023 enacted budget.

Activity 2 supports major systems acquisitions and facilities infrastructure programs in the implementation phase. These programs and initiatives fund the procurement and modernization of air traffic control facilities and equipment, including all funding related to the acquisition of air traffic control facilities, navigation and landing aids, surveillance equipment and facilities, automation systems, and communications systems and equipment. Activity 2 funding will support the following work:

- Aid in acquiring production systems to replace existing systems, extend serviceable life, or refresh technology of system components
- Deploy systems for installation or transition to operational status
- Sustain satellite-based infrastructure such as Automatic Dependent Surveillance-Broadcast and Wide Area Augmentation Systems
- Provide support for replacing or plan for modernizing manned and unmanned air traffic control facilities
- Support in initial replacement or planning for modernization of automation, communications, navigation, surveillance/weather infrastructure, systems, and equipment
- Decommission and dispose of old systems

Activity 3 - Procurement and Modernization of Non-Air Traffic Control Facilities and Equipment

For Activity 3, the President's Budget requests $220.0 million for the modernization of non-air traffic control facilities, business systems, and equipment. This represents a decrease of $1.2 million below the FY 2023 enacted budget. The programs under Activity 3 support safety, regulation, security, information technology security, and regional and service center building infrastructure and support.

Activity 4 – Facilities and Equipment Mission Support

For Activity 4, the President's Budget requests $280.6 million to provide system wide integration, transition engineering, and technical contractual support in direct support of system acquisition or installation. This request is an increase of $28.3 million above the FY 2023 enacted budget, Most notably for increased investment in the Aeronautical Information Management Program.

Activity 5 - Personnel, Compensation, Benefits, and Travel (PCB&T)

For Activity 5, the President's Budget requests $690.0 million for the direct cost of federal salaries, benefits, travel, and related personnel costs of FAA employees supporting all capital projects under the F&E account. This amount represents an increase of $120.0 million above the FY 2023 enacted budget. This increase will cover inflation, pay raises and FERS increases in FY 2025.

NAS Facility Infrastructure Sustainment

FAA has an approximately $5.2 billion sustainment backlog for facilities that directly support national air space operations. The request includes $438.2 million to address our nation's towers, radars and centers rehabilitation needs. Funding requested will improve the condition of air traffic control en route radar facilities and centers.

In addition, the IIJA provides $1.0 billion in additional funding towards these types of projects in FY 2025. Of this amount, $556.0 million will be for replacement activities; $244.0 million will be for sustainment of power systems, environmental compliance, hazardous material management, facility security risk management, energy management and compliance, real property disposition, unstaffed infrastructure sustainment, and landing and lighting; and $200.0 million for pay, compensation, benefits and training.

NextGen

NextGen is a portfolio of programs, systems, and procedures at different levels of maturity that will provide enhanced capabilities for the movement and management of Air Traffic. The request includes $562.1 million for NextGen programs. This is a decrease of $96.5 million from the FY 2023 enacted budget. The work in the portfolios continue to be deployed in stages. Some enhancements are currently in deployment, some are nearing implementation, and some of the capabilities of NextGen are being defined and matured as the technology to support them becomes available.

Note: The F&E Activity level and Budget Line Item amounts shown in the FY 2024 Annualized CR column differ from those in the FY 2023 Enacted column to illustrate FAA's discretion in how funding would be proposed to be allocated under this scenario. The higher funding for Activity 5 reflects the level approved in Section 137 of the Continuing Appropriations Act, 2024 (P.L. 118-15). Additional adjustments have been proposed to programs in Activities 1-4 to accommodate the Activity 5 increase as well as align with existing program implementation plans.

Detailed Justification for - 1A01 Advanced Technology Development and Prototyping

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Advanced Technology Development and Prototyping	$24,300	$34,440	$31,900

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Runway Incursion Reduction Program	---	$3,500.0
B. System Capacity Planning and Improvements	---	2,000.0
C. Operations Concept Validation and Infrastructure Evolution	---	3,000.0
D. Major Airspace Redesign	---	6,500.0
E. Strategy and Evaluation	---	1,000.0
F. Dynamic Capital Planning	---	3,200.0
G. Operational Modeling Analysis and Data	---	3,500.0
H. Enterprise, Management, Integration, Planning and Performance	---	4,000.0
I. Integrated Services and Analysis	---	2,000.0
J. In-Service Engineering	---	2,300.0
K. Strategic Initiative Analysis and Validation	---	900.0

What is this program and what does this funding level support?

FAA's Advanced Technology Development and Prototyping program develops and validates technology and systems that support safe and efficient air traffic services. For FY 2025, a total of $39.5 million is requested to support the evolving air traffic system architecture and improvements in airport safety and capacity.

A. Runway Incursion Reduction Program (RIRP)

The Runway Incursion Reduction Program objective is to discover and research innovative technologies that will detect the presence of a high-speed object in the Runway Safety Area and deliver a visual directive cue to the individual who can take corrective action.

Consistent with standing National Transportation Safety Board recommendations, Runway Incursion Reduction research will emphasize the testing and development of situational

awareness tools aimed at pilots, controllers, and vehicle operators that operate on taxiways and runways. Current initiatives include Runway Safety Assessment studies such as Runway Incursion Prevention Shortfall Analysis to identify candidate small-to-medium sized airports with historically high rates of Runway Incursions. Candidate technologies best suited to an airport based on causal factors encountered at that site (e.g. converging runways, ground vehicle operations, taxiway/runway hotspots, etc.) will be identified.

For FY 2025, $3.5 million is requested for technology testing, demonstration, and documentation for the reduction of risk associated with the acquisition of new safety technologies in the National Airspace System.

B. System Capacity, Planning, and Improvements

This program provides a collaborative means for experts from the FAA, academia, and industry to develop recommendations for improving system capacity and efficiency and for ways to reduce delays at specific airports. Using performance-based measurement systems and operations research capabilities, this group can quantify the efficiency of the National Airspace System and form recommendations for system improvements.

Methods for correlating airline schedules, weather events, and FAA actions with outcomes such as flight delay, cancellations, diversions, or extended routing are developed, and dashboard style reporting tools for these relationships are provided to both FAA management and commercial airlines. These dashboards align and harmonize performance metrics for use during joint operational reviews.

Additionally, this program funds operational performance reporting under Memoranda of Cooperation with Europe and Singapore and to other international organizations, such as the International Civil Aviation Organization and the Civil Air Navigation Services Organization.

For FY 2025, $2.0 million is requested to continue support of National Airspace System modernization through performance metric and reporting tool development, as well as to fulfill performance-reporting commitments under FAA international agreements.

C. Operations Concept Validation and Infrastructure Evolution

As new concepts evolve, this program identifies operational gaps and potential technologies that could address these gaps. It conducts studies and analyses in operational focus areas to include Commercial Space Operations in the National Airspace System, Evolution of Trajectory-Based Operations, and Time-Based Metering Operations with Advanced Rerouting. This program ensures that potential enhancements are operationally sound and captured in the architecture plans for the national airspace.

For FY 2025, $3.0 million is requested to conduct analysis and risk mitigation activities for the identified operational focus areas.

D. Major Airspace Redesign

The purpose of this national initiative is to review, redesign, and restructure airspace. The FAA prioritizes candidate airspace redesign projects to determine which projects provide the most benefits and develops criteria for assessing that project's system-wide impact. Redesign projects have taken on increased emphasis at both the national and regional levels to ensure that FAA is able to manage effectively the projected growth in demand, increased complexity, new entrants, and changing infrastructure needs at FAA facilities and airports.

For FY 2025, $6.5 million will continue implementation of airspace redesign efforts that frequently result in changes in the number and shape of operational positions, sectors or facility boundaries. Required infrastructure changes will include communication modifications such as changes in frequencies, connectivity of a radio site to the air traffic control facility, and improved controller-to-controller connectivity. In addition, these changes may include surveillance infrastructure modifications to ensure proper radar coverage as well as automation modifications to the En-Route Automation Modernization data processing or flight data processing. The program is also developing the Airspace Modernization Roadmap, the agency's strategic plan to continuously evaluate and modernize the National Airspace System while balancing the needs of the FAA and aviation stakeholders.

E. Strategy and Evaluation

This program develops and maintains mathematical models of the National Airspace System that are used to aid organizations throughout the FAA in new investment analyses, implementation prioritizations, trade-off studies, and capability benefit estimates under various operational conditions (e.g., weather, demand, new entrants, etc.). The FAA and contractors use these simulation capabilities to analyze advanced air traffic management concepts and conduct related national airspace performance analyses. These models also support rapid analysis of airport improvements, air carrier demand changes, and new air traffic technology implemented within the national airspace. For FY 2025, $1.0 million is requested to enhance our existing models in order to more effectively estimate potential benefits of new concepts and implementations of trajectory-based operations.

F. Dynamic Capital Planning

The Dynamic Capital Planning tools and support will allow FAA to continue to make optimal decisions based on best business practices. These tools and support validate that disciplined management of capital programs continues to be carried out and major acquisition programs remain on schedule and within cost. The Oracle Business Intelligence Wide Accounting Network provides a means for the FAA community to obtain the necessary accounting and contract information for reporting and analysis by the budgetary, financial, accounting, and acquisition communities. The Strategic Planning Implementation Reporting and Evaluation tool provides for the management and control of acquisition baselines and execution plans. This tool also supports the requirements collection for the formulation of the Capital Improvement Budget. The program will focus on the following activities:

- Determining quantitative economic value and internal benefits validation for capital projects
- Milestone tracking, schedule modeling, and performance measurement
- Earned value management, auditing, trend analysis, and monitoring through program life cycle
- Field implementation planning and support for capital portfolio management and post implementation analysis for corporate lessons learned results
- Monitoring resource information associated with deployment of Capital Programs

For FY 2025, $3.2 million is requested to sustain the automated tracking and reporting systems for facilities and equipment projects. Managers and engineers have up-to-date reliable data on projects which create efficiencies for standardized project management operating procedures.

G. Operational Modeling Analysis and Data

The Operational Modeling Analysis and Data program provides support to national airspace performance analysis by improving the efficiency and integration of operational data, national airspace performance reporting, and the tools used for both. This program also makes enhancements to individual and consolidated products in an effort to keep up with growing data demands in the FAA. These enhancements support the Air Traffic Organization operational units, operational and capital investment planning, as well as post operational modeling and analysis.

For FY 2025, $3.5 million is requested to modernize and integrate the NAS Data Warehouse and the Aviation System Performance Metrics systems. This program will address a shortfall in available analytical products through the creation of a database to capture operational events associated with individual flights. It will improve the timeliness of operational analyses and reduce costs, and develop and publish standardized operational events data on a per-flight basis and by facility (e.g. airport). The data products will be available to the FAA Enterprise for users and applications throughout the FAA to perform required analysis and reporting in areas such as safety, performance, security, enforcement, predictive analytics, research and development, Freedom of Information Act requests, and Congressionally mandated Overflights invoicing.
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H. Enterprise, Management, Integration, Planning and Evaluation for NAS/NextGen

The Enterprise Management, Integration, Planning and Peformance Evaluation for the National Airspace System NextGen program will support human capital management, enterprise management, technical support, and outreach functions required to deliver the NextGen enterprise. Transforming the National Airspace System into a flexible, scalable, and time-based management system is the fundamental objective of NextGen research, infrastructure development and operational integration. The successful, ongoing rollout of NextGen is the

result of rigorous program and acquisition management partnered with stakeholder collaboration. This program provides technical support for conducting proof of concept for new technology planned for integration into systems that enables more efficient and effective business processes in support of National Airspace Systems operations. This will lead to the transformation of the National Airspace System and promote increased capacity and efficiency. For FY 2025, $4.0 million is requested to support this initiative.

I. Integrated Services and Analysis

The Integrated Services and Analysis function provides a wide variety of support services for more than 55 implementation programs and over 20 pre-implementation programs. It does this through four key mission areas: Integrated Resource Management, Program Acquisition Support, Program Health Management, and Planning, Analysis, and Integration. These mission areas:

- Provide integrated resource and business management services to help Program Management Organization customers achieve programmatic and corporate goals. It also administers a program support services contract which includes over one hundred task orders with customers across the Agency and manages over 60 digital support products such as dashboards and knowledge sharing platforms.
- Deliver acquisition and programmatic expertise, artifacts, best practices and partnering services to support investments as they navigate through the Acquisition Management System processes.
- Generate both individual program and enterprise-level recommendations to mitigate risks and capitalize upon opportunities and further promote the health of current and future implementation programs.
- Provide a variety of technical services used by all Program Management Organization programs such as Safety, Information Security, Human Factors, Integrated Logistics Support, Requirements Management, Configuration Management, and Risk/Issues/Opportunity Management.

For FY 2025, $2.0 million is requested for this initiative. This funding will be used to develop and provide engineering analysis, documentation, and support services for these technical areas in support of the Program Management Organization programs.

J. In-Service Engineering

In-service engineering allows for immediate response and tactical distribution of resources to emerging technology solutions. For FY 2025, $2.3 million is requested for ongoing engineering support of all prototyping efforts.

K. Strategic Initiatives Analysis and Validation

For FY 2025, $900,000 is requested for technological advances and innovation opportunities in the interests of aviation improvements for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts, validation of commercial products offered to FAA for

certification, as well as exploration of concepts for future aviation operational usage one to four years from now. These opportunities typically arise during the execution budget year after funding has been appropriated.

What benefits will be provided to the American public through this request and why is this program necessary?

The projects funded under this program will ensure that the essential hardware and software components are in place and operational in order to accurately collect and report operational and safety data associated with air traffic operations. These projects will support management and oversight of implementation for new programs, assess metrics and operational parameters of new programs, and allow for alterations of programs based upon that data. These efforts will ensure the National Airspace System remains the safest and most efficient air traffic control system in the world.

Detailed Justification for - 1A02 William J. Hughes Technical Center Laboratory Sustainment

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
William J. Hughes Technical Laboratory Sustainment	$16,900	$16,900	$23,400

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
William J. Hughes Technical Center Laboratory Sustainment		$23,400.0

What is this program and what does the funding level support?

This program sustains the William J. Hughes Technical Center (WJHTC) Laboratories. This centralized set of laboratories supports the Acquisition Management System lifecycle of projects from concept and requirements definition through the determination to implement those systems in the National Airspace System.

These laboratories are the only location where it is possible to simulate the National Airspace System in a realistic environment, and it is necessary to maintain the laboratory systems with capabilities that match existing or planned field sites. These facilities can be altered to replicate desired field configurations and traffic scenarios providing stakeholders with an understanding of how upgraded systems will perform prior to operational deployment. These labs also provide a flexible high-fidelity environment to support and validate research that advances future air traffic concepts in an environment that is integrated with other WJHTC capabilities. For FY 2025, $23.4 million is requested to support the following activities:

- **Laboratory Support Contracts**: Includes contract support services to sustain the operation of the laboratories including infrastructure engineering and minor construction; technical services; laboratory networking; test and simulation services; laboratory maintenance; scheduling support for multi-user laboratories; and laboratory management.

- **Hardware/Software Licenses and Maintenance Agreements**: Over 50 annually renewed hardware and software licenses and maintenance agreements are required for the Laboratory equipment each year. Examples include Cisco maintenance; Lutron lighting maintenance; AutoCAD License and annual subscription services; RSMeans estimating software; SKM Electrical ArcFlash modeling software; Linux; Red Hat; etc.

- **Laboratory Space and Infrastructure Master Plan**: A long-term laboratory Master Plan will improve the overall function and efficiency of the facility while maintaining the flexibility to meet the needs of NAS program requirements. The FY 2025 portion of this plan will continue the laboratory reconfiguration and modernization on the 3rd floor of Building 300 as well as initiate investigation into a Cyber Security laboratory.

- **Laboratory Equipment Technology Refresh**: Laboratory Equipment refresh addresses lifecycle replacement of national airspace supporting equipment. This ensures that laboratory equipment is available for use and in proper operating order. Technology Refresh is required of the Laboratory Network Management and Laboratory Network Operations Center systems.

- **Land Leases, Miscellaneous Supplies and Parts**: Items include land leases for three radar sites, laboratory communications, laboratory cabling, general supplies, and diagnostic equipment.

- **Continued Improvements to Laboratory Systems and Infrastructure:** The FAA's centralized set of laboratories and infrastructure must be modified, upgraded, and reorganized as capital programs and their supporting systems are delivered, installed, and eventually removed. The laboratory infrastructure encompasses over 210,000 square feet of laboratory space in the main buildings, along with numerous outlying buildings, and remote sites. Lifecycle replacement of infrastructure includes some of the on-going improvements such as transient voltage surge suppression upgrades; raised floor replacements; electrical distribution panel lifecycle replacements; and computer air conditioning unit replacements.

What benefits will be provided to the American public through this request and why is this program necessary?

The American public benefits by having WJHTC Laboratory Facilities to support research, development, testing, and evaluation of current and future National Airspace Systems. This support includes the operational support of National Airspace Systems in the field. When problems are identified at field locations, the appropriate laboratory is utilized to recreate or simulate the problem, identify a solution, test the solution, and if necessary, develop a field modification to correct the problem. The capabilities developed in the laboratories will reduce the overall cost of National Airspace System development and will enhance the safety and efficiency of air travel.

Detailed Justification for - 1A03 William J. Hughes Technical Center Infrastructure Sustainment

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
William J. Hughes Technical Center Infrastructure Sustainment	$15,000	$10,000	$39,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
William J. Hughes Technical Center Infrastructure Sustainment	1	$39,000.0

What is this program and what does the funding level support?

This program sustains the William J. Hughes Technical Center facilities, site utilities, and infrastructure. This represents approximately 1.6 million square feet of test and evaluation, research and development, and administrative facilities, plus numerous project test sites on 5000+ acres of land. The William J. Hughes Technical Center is at the forefront of the Federal Aviation Administration's challenge to modernize the United States air transportation system. For FY 2025, $39.0 million is requested to accomplish the following projects that promote sustainment of the Federal Aviation Administration's infrastructure at the William J. Hughes Technical Center:

- **Main Electrical Utility Substation Sustainment.** Construction efforts to replace high voltage electrical distribution switching equipment and associated structures that are more than 35 years old and have exceeded the industry standard lifecycle of 25 years. This main electrical substation provides power for the Federal Aviation Administration owned and operated buildings as well as several Federal and State agencies, including organizations that directly affect active airspace such as the Atlantic City International Airport Control Tower. It also includes all airfield lightning and flight instruments, and all first and second level support for the Federal Aviation Administration owned National Airspace System and related systems located in the Technical and Administrative Complex (Building 300) and Advanced Automation Systems (Building 316).
- **Program Support** provides project engineering design services, design reviews, and construction management/oversight for various engineering disciplines. This work includes, but is not limited to, electrical, mechanical, and architectural engineering type projects in the Capital Investment Plan.

- **Mechanical Systems Sustainment - Mold Remediation Program** Construction efforts required to replace Heating, Ventilation, and Air Conditioning equipment. The air-handling units are more than 35 years old and have exceeded the industry standard lifecycle of 20 years.
- **Civil/Mechanical/Electrical Sustainment and Renovation** - Construction efforts to replace 25+ year-old roofing systems, electrical service and distribution equipment, lighting fixtures, and Heating, Ventilation, and Air Conditioning equipment.
- **Electrical Systems Sustainment** Construction and design efforts supporting the replacement, repair, and sustainment of aging (beyond life) electrical equipment and distribution systems to meet power demands and current building code requirements.

What benefits will be provided to the American public through this request and why is this program necessary?

The nation is experiencing a period of tremendous opportunity and change in aviation. To support this growth and evolution, the William J. Hughes Technical Center must maintain and modernize the physical, technological, and human infrastructure that enables flexibilities in our air and space transportation systems to respond to shifting needs. Supported by manufacturers, operators and other stakeholders, the FAA plays a significant role in providing regulatory oversight to mitigate safety risk and in promoting technological solutions and best practices to reduce aviation-related fatalities. This program supports the sustainment of critical infrastructure allowing the William J. Hughes Technical Center to continue its work towards improved NAS efficiency, safety, and cost savings through reductions in delays, route deviations, fuel burn, emissions, and emerging technologies. The William J. Hughes Technical Center has an unfaltering commitment to its safety mission which has contributed to the current high level of safety, reinforcing the prevalence of aviation as an accessible and viable mode of transportation that the flying public enjoys today.

Detailed Justification for - 1A04 NextGen - Separation Management Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
NextGen - Separation Management Portfolio	$17,000	$14,400	$11,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Separation Automation System Engineering	---	$3,000.0
B. Closely Spaced Parallel Runway Operations	---	1,000.0
C. Concept Development for Integrated National Airspace Design and Procedures Planning	---	2,000.0
D. Unmanned Aircraft Systems (UAS) Upper Airspace	---	2,000.0
E. Common Trajectory Models	---	3,000.0

What is this program and what does the funding level support?

This portfolio evaluates concepts and capabilities that enhance aircraft separation assurance through use of ground-based automation and aircraft enhancements. The improvements identified under this portfolio will enable more arrival and departure aircraft operations.

A. Separation Automation System Engineering

This program matures emerging separation management automation capabilities and develops automation enhancements for En Route, Terminal, and Oceanic domains to support planned operational improvements. Separation management automation includes all air traffic control computerized capabilities that assist air traffic controllers in maintaining safe aircraft separation while maximizing the number of aircraft in the airspace. This program plans to explore leveraging new innovative technological advancements and agile services to accommodate and integrate new entrants into the national airspace system such as unmanned aircraft systems, urban air mobility services and new types of space vehicles.

For FY 2025, $3.0 million is requested to conduct concept exploration activities for separation management in the Extensible Traffic Management (xTM) environment and engineering analysis for En Route and terminal automation enhancements. This program will also evaluate micro-services and cloud technologies for hosting separation management applications, such as conflict probe and alerting capabilities, in the national airspace system.

B. Closely Spaced Parallel Runway Operations

This program involves simultaneous approaches and departures of aircraft at airports with parallel runways that are closely spaced, or less than 4,300 feet apart. These operations are utilized at several large metropolitan airports to accommodate increased aircraft volume. The program will develop and finalize concepts for airports with closely spaced parallel runways that face operational constriction when under limited visual conditions. It will focus on performing safety studies on integrated arrival and departure concepts; reductions in minimum radar separations on final approach; and research to reduce separation requirements for the dependent departures concept. The program will also conduct site analyses for the various concepts to determine applicable airports and parallel runways in the national airspace system.

For FY 2025, $1.0 million is requested to complete concept validation for implementing reductions in minimum radar separation for aircraft on Final Approach, conduct safety analysis and assessment for new closely spaced parallel operations concepts and provide technical reports and conduct wake and TCAS assessments of new CSPO concept.

C. Concept Development for Integrated National Airspace Design and Procedures Planning

This program continues to prepare for the future National Airspace System-wide implementation of Performance Based Navigation procedures with the initial focus on Established on Required Navigation Performance (EoR) Instrument Approach Procedures. As EoR matured, the research moved to the next Performance Based Navigation initiative known as Multiple Airport Route Separation (MARS). This initiative leverages the EoR concept and extends it from single airport usage to multiple airport operations. MARS safety analysis requires six-phased incremental analysis arranged by geometries to explore the concept of arrival and departure paths for air traffic at adjacent airports. EoR expansion efforts continue to evolve to further explore EoR to xLS and EoR with Advanced RNP (A-RNP).

For FY 2025, $2.0 million is requested to complete MARS Phase I geometry (Same Direction Approaches with 2 Controllers) concept validation plan, commence MARS Phase I concept validation operations, commence next PBN initiatives safety analysis (e.g., MARS Phase III) and compile safety risk management artifacts to support NAS-wide separation standard change (e.g., MARS Phase II).

D. UAS Class E Upper Airspace

This program will investigate future operations above 60,000 feet, where demand for this airspace is projected to increase. This operating environment is known as Class E Upper Airspace Traffic Management (ETM). While current Class E regulations are predicated on traditional airspace usage, the advent of new technologies and increasing commercial interests present opportunities for the diversification of operations within this airspace. Air Traffic Management systems, policies, and procedures must be reviewed and refined, or developed through supporting research, to ensure the safe operation of vehicles that transition to and operate in upper Class E airspace.

This program will develop and analyze communications, navigation, and surveillance (CNS) requirements needed to integrate these types of operations (i.e. geostationary, extreme velocity, and long duration) in Class E and Class E adjacent, Air Traffic Management (ATM) airspace. This includes developing performance requirements for a cooperative information network between users for self-separation within the cooperative area. Information requirements to support coordination with air traffic in controlled airspace (domestic and international) will be investigated. Activities will include engineering and assessments of communications, navigation, and surveillance solutions and conducting modeling and simulation on separation procedures for traditional airspace and Upper Class E Airspace above 60,000 feet.

For FY 2025, $2.0 million is requested to analyze candidate technologies that meet requirements for CNS, conduct engineering analysis on necessary NAS Infrastructure changes and services needed to support ETM, analyze information sharing and exchange methods for ETM operations, analyze operational and mission intent information, and perform limited trajectory and conflict modeling of operations in ATM airspace, analyze and mature description of ETM stakeholder interactions and procedures, and mature ETM scenarios to support engineering activities.

E. Common Trajectory Modeling

This program performs engineering work to produce a standardized approach to trajectory data, modeling, and use across national airspace systems. In the National Airspace System, several systems perform trajectory modeling in support of functions such as surface management, conflict probe, time-based metering, and strategic flow management. Each system separately derives and modifies trajectories from route or the flight plan information to meet its unique requirements. This can result in sub-optimal or even conflicting National Airspace System level operational outcomes. Controllers, traffic flow managers, and dispatchers need the capability to reconcile multiple operational objectives represented in trajectory information from different systems. Trajectory data synchronization and common trajectory modeling have been studied between individual systems and an integrated enterprise approach across national airspace systems is needed to support Trajectory Based Operations.

For FY 2025, $3.0 million is requested to develop a concept of use for common trajectory service in an Info-Centric National Airspace System environment/architecture as well as conduct an analysis for multiple uses of trajectory service and its required performance.

What benefits will be provided to the American public through this request and why is this program necessary?

Separation Management Portfolio enhancements will provide controllers with tools and procedures to manage aircraft in a mixed environment of varying navigation equipment and wake generation and encounter capabilities. Separation management in the National Airspace System can be accomplished procedurally and/or by using automation support. Through this request, procedures, orders and automation support capabilities will be enhanced, thus improving safety, increasing operational efficiency, and expanding current capabilities throughout the National Airspace System.

Detailed Justification for - 1A05 NextGen – Traffic Flow Management (TFM) Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
NextGen – Traffic Flow Management (TFM) Portfolio	$15,000	$10,000	$9,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Surface Tactical Flow	---	3,000.0
B. Strategic Flow Management Application	---	3,000.0
C. Advanced Methods	---	3,000.0

What is this program and what does this funding level support?

This portfolio involves national airspace operators and FAA traffic managers, along with advanced automation, in managing daily flight and flow decision making. The project evaluates airspace and airport capability issues, such as special activity airspace and weather to improve the overall efficiency of the National Airspace System. TFM provides greater flexibility to the flight planners and makes the best use of available airspace and airport capacity.

A. Surface Tactical Flow

This program is researching and developing airport surface capabilities in support of Trajectory Based Operations (TBO) to optimize the experience for the flying public, Air Traffic Control, and industry by improving collaboration and decision-making among NAS users. The program will provide the micro-services necessary to achieve a virtually collaborative surface environment by participating in collaborative decision-making initiatives where the input of flight operators, airport authorities, and air traffic controller's viewpoints are used to provide a shared surface situational awareness and improve predictability.

For FY 2025, $3.0 million is requested for activities that include:

- Continue to explore emerging technology for development of applications or services for surface movements and standardized information exchange into FAA flow systems for strategic planning.
- Develop mobile application architecture for integration with future NAS infrastructure
- Analysis of Field demonstration of E-CFR Time Coordination in Non-TFDM Airports
- Develop lab demonstration plan for Commercial-off-the-shelf (COTs) Technology in Non-TFDM Air Traffic Control Towers (ATCTs)

B. Strategic Flow Management Application

This program will leverage automation to improve Traffic Flow Management operations by addressing system-wide demand and capability imbalances. There is a need to access and share data for the purpose of advancing future traffic flow operations. These are addressed through research in Traffic Flow Management Information Flows and the concepts identified in the Performance Based Flow Management concept of operations. The Performance Based Flow Management environment features shared decision-making responsibilities among relevant stakeholders enabled by improved coordination, communication, and information sharing. Industries across the board are investing in data driven solutions by leveraging learning automation and cloud computing. The aviation/aerospace industry is no exception. Performance Based Flow Management will move away from legacy, monolithic automation systems to a new cloud and micro services-based, flexible, and scalable architecture that leverages new learning automation technologies.

For FY 2025, $3.0 million will be used for activities that include:

- Initial operational requirements for additional candidates for future TFM capabilities
- Tech transfer of initial candidates for future TFM capabilities
- Human-in-the-Loop planning, development, evaluation, and report for selected capabilities
- Conduct Engineering analysis for Flow Object concept and architecture integration into future NAS Flight Information Management architecture

C. Advanced Methods

Advanced Methods will explore technologies (e.g. speech recognition, machine learning, and artificial intelligence), infrastructure enhancements, and procedural changes to meet current and future traffic management needs. This program will

support improvements to increase airport capacity and sector throughput and reduce sector delays by providing National Airspace System users and air traffic management with a common understanding of national airspace constraints. The program will develop and test prototype improvements and provide operational concepts and requirements for potential implementation in automation programs and operational organizations. These leading-edge technologies could advance the use of data storage solutions to provide better organized and accessible data. Additionally, improved coordination data will allow the FAA to drive operational analysis of traffic management. This program will also support improvements needed to adapt the FAA's certification tools, processes, best practices and policies.

For FY 2025, $3.0 million is requested for activities that include:

- Develop prototype for the Artificial Intelligence Traffic Flow Management capability
- Document Concept of Use to combine the use of the technologies to the operational goals of future flight and flow services including automated notification to users
- Expand the development of certification framework to include higher technical risk and higher functional criticality AI-based projects
- Document lessons learned for the Artificial Intelligence Traffic Flow Management capability demonstrations

What benefits will be provided to the American public through this request and why is this program necessary?

The TFM portfolio researches and implements capabilities that are expected to improve both the efficiency of individual flights and optimization of throughput. This work will make travel safer for the traveling public, help reduce passenger delays leading to a better traveling experience and contribute to less pollution as the result of improved prediction performance for TFM decision support systems. These support systems include flexibility to avoid airspace constraints, better predict capacity demands and ensure efficient utilization of national airspace capacity.

The TFM portfolio provides improved operational predictability through more accurate and efficient end-to-end strategic planning and scheduling. Enhanced flight efficiency is achieved by delivering more efficient flows into and out of major metropolitan areas through integrated operations. Increased operational flexibility is provided through increased user collaboration regarding preferred trajectories and priorities to support business objectives.

Detailed Justification for - 1A06 NextGen – On Demand National Airspace Information System Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
NextGen – On Demand National Airspace System Information Portfolio	$8,500	$8,500	$9,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Flight Objects (FIXM)	---	$3,000.0
B. Common Status and Structural Data	---	2,000.0
C. Dynamic Airspace	---	1,000.0
D. Flight Deck Collaborative Decision Making	---	3,000.0

What is this program and what does this funding level support?

Operating in an Info-Centric National Airspace System environment, the On Demand National Airspace System Information portfolio conducts pre-implementation work to reduce risk in supporting the efficient and secure exchange of information within the FAA as well as between the FAA and other national airspace system users. This portfolio provides flight planners, air navigation service providers' staff, and flight crews with reliable information on changes in conditions throughout the National Airspace System. This portfolio examines concepts and matures capabilities through validation activities, demonstrations conducted with stakeholders, and human systems engineering.

A. Flight Object

The project will define the mechanisms for capturing and sharing the most up to date information on any flight. Additionally, using innovative technologies the project will develop a single common reference for all system information about a flight and will seek to eliminate redundant or inconsistently defined exchange of flight information. This project is engaged in the alignment of the standards for flight information definitions with the emerging International Civil Aviation Organization efforts such as

Flight and Flow-Information for a Collaborative Environment. The global Flight and Flow-Information for a Collaborative Environment concept will be the basis for both Flight Information Exchange Model standard and Flight Object information exchange and will support the modernization of flight planning across various users in air traffic management. The Flight Information Exchange Model includes definition and format for flight information exchange.

For FY 2025, $3.0 million is requested to demonstrate and mature Flight Object capabilities including service to support new flight information from the new entrants, and functional requirements for Upper Class-E operating environment. Develop additional analysis to identify Flight Object functional requirements to support NAS automation modernization in an Info-centric NAS architecture. This effort will also include update of the Flight Object concept report to support future flight information management concepts and provide the technical transfer of the Flight Object package to our implementation organization. In addition, Flight Information Exchange Model artifacts for the next release will be developed.

B. Common Status and Structure Data

The project will establish the requirements and information flows for the collection, management, and maintenance of Aeronautical Information in a structured digital format for machine-to-machine exchange to enable a fully integrated aeronautical information sharing environment. The common data and information services, as well as related integration activities, enable improved flight planning and pilot briefing services. They also allow increased on-demand National Airspace System operational performance information, as well as better airspace management using timely schedule information and a common awareness of Special Activity Airspace status across the National Airspace System.

For FY 2025, $2 million is requested to facilitate alignment and inclusion of new requirements into the Aeronautical Information Exchange Model (AXIM) including new entrants to the NAS. Develop steps to increase the digitization of data contained in Letter of Agreement (LOA) documents to further improve machine to machine exchanges.

C. Dynamic Airspace

The project will create a future in which flexible routing of national airspace infrastructure data to Air Traffic Control facilities enables the temporary transfer of airspace control from one or more facilities to other facilities in the event of an outage. This will improve national airspace resiliency and flexibility. With the evolution of the FAA architecture to a cloud environment, a resilient network to support the operations in this cloud environment is needed. The work will capitalize on planned enhancements to National Airspace System infrastructure and Air Traffic Management automation focused on cloud-based systems and Internet Protocol routable networks. This program enables Dynamic Airspace by developing and

allocating functional requirements for implementation into appropriate automation, communication, navigation, surveillance, and flight data and information management systems.

For FY 2025, $1.0 million is requested to continue to update a Concept of Operations for a resilient infrastructure, beyond current legacy systems, in support of an Information Centric NAS Vision and develop a limited set of scenarios and use cases to conduct laboratory evaluation activities including data performance requirements for resilient network technologies.

D. Flight Deck Collaborative Decision Making

With an evolution to Information Centric NAS operations, more structured digital information will be available, and technologies will allow the various airspace users to make decisions based on the latest information. This project is leveraging this information and technology evolution to address the disparities in the implementation of flight deck automation advancements to support flight crew decision making. This project will determine the initial services to be deployed with System Wide Information Management services for use with the flight deck in the National Airspace System. It will support the flight crew in their decision-making abilities by providing Electronic Flight Bag applications and the corresponding air traffic management enhancements that will enable future capabilities such as flight planning, mobile Instrument Flight Rule clearances, and trajectory negotiations. An electronic flight bag is a handheld information management device that helps flight crews perform flight management tasks more easily and efficiently with less paper. The program will develop, standardize, certify, approve and implement flight deck applications that enable enhanced participation by the flight crew in the collaborative decision-making process.

For FY 2025, $3.0 million is requested to develop an implementation strategy plan for Flight Deck CDM applications and a detailed technology testing and evaluation plan. Complete flight deck clearance application development/testing including speech-to-text functionality. Conduct engineering analysis on information architecture to support information exchange with flight crew and ground control, and complete flight deck aircraft parameter exchange application engineering and prototype environment development.

What benefits will be provided to the American public through this request and why is this program necessary?

This portfolio will improve efficiency, minimize delays, and will provide benefits to the American public in the areas of safety, capacity and efficiency, and cost avoidance. These projects enhance common information exchange and collaboration between all NAS users and enable more efficient decision making. Accelerated recovery following system outages accompanied by systemic reduction in delays allows for continuous, efficient use of available airspace capacity.

Detailed Justification for - 1A07 NextGen – NAS Infrastructure Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
NextGen – NAS Infrastructure Portfolio	$20,850	$12,000	$12,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Weather Forecast Improvements	---	$2,500.0
B. New Air Traffic Management (ATM) Requirements	---	7,000.0
C. Information Management	---	3,000.0

What is this program and what does this funding level support?

The National Airspace System (NAS) Infrastructure portfolio conducts pre-implementation activities to reduce risk for aviation weather-related and cross cutting engineering issues. The NAS Infrastructure (NI) Portfolio contains key transformational and infrastructure sustainment capabilities that are critical to the success of NextGen. They involve the transformation or improvement of infrastructure that supports multiple portfolios. This portfolio provides the research, development, and analysis of validation activities, human system engineering, and demonstrations. Work in this portfolio supports the following programs:

A. Weather Forecast Improvements

This program seeks to improve weather predictions and the use of that information to support diverse operations in an Information Centric NAS. Currently, there is minimal automation available to assist with identifying, analyzing, and translating raw weather data into NAS constraints. For FY 2025, $2.5 million in funding will support the following:

- Exploration of weather translation techniques for non-convective weather constraints, and weather advisory and collaborative lab experiments designed to explore aviation weather integration concepts and capabilities.

- Final Investment Decision support work for NextGen Weather Processor and Common Support Services – Weather Future Enhancements

- FAA weather commitments to the International Civil Aviation Organization including updated reports depicting U.S. position on draft amendments to ICAO

- Facilitation and coordination of the Weather Community of Interest meetings and yearly technical letter

B. New Air Traffic Management Requirements

This program identifies new opportunities to improve the efficiency and effectiveness of air traffic management. It supports the goal of expanding air traffic management capacity by developing decision support tools that improve the strategic management of operations in the NAS. New Air Traffic Management Requirements will continue activities in support
of Weather Transition, Advanced Air Ground Communications (Connected Aircraft), Artificial Intelligence for Air Traffic Management, and Digital Communications. For FY 2025, $7.0 million will support work that includes:

- Develop an initial list of prioritized FY 2025 WIMAT/WRS/EWRS program support capabilities, activities, and candidates for change.
- Conduct Hyper Connected ATM Systems Test/Analysis.
- Analyze capabilities/services described in TBO relative to CA articulated performance and architecture.
- Develop Concept Framework for Aircraft-to-Aircraft information exchange to expand from procedural "visual separation" to digital maneuvers.
- Conduct initial study using a limited sample size to determine the effectiveness of AI learning on data related to aircraft separation.
- Develop translator between FANS and ATN message set.

C. Information Management

This program is performing engineering analysis on the information infrastructure to address future requirements for NAS Information Management. Information Management (IM) will merge the information sharing needs with additional requirements from upcoming NextGen initiatives and capabilities. The IM program will identify gaps, business needs, alternatives, and tradeoffs that exist in the transition from the current information management systems and define the functional requirements for future enhancements to NAS information management systems to support information sharing with NAS systems and users. The work performed within IM will be used to inform decisions on NAS modernization. For FY 2025 $3.0 million is requested to:

- Evaluate information storage and access requirements in a modernized NAS and develop guidance materials for system owners
- Investigate and define requirements for NAS common services
- Accomplish SWIM Segment 3 (SWIM S3) Final Investment Decision

What benefits will be provided to the American public through this request and why is this program necessary?

The work under the National Airspace System Infrastructure portfolio supports the goals of improved capacity, efficiency, and safety of the NAS though its cross-cutting development programs. Through improved weather forecast timeliness and accuracy, Weather Forecast Improvements will optimize the usage of available airspace. New Air Traffic Management Requirements benefit operational improvements that will increase the number of arrivals and departures at major airports. Information Management will improve the use of enterprise-wide data and information management for data analysis purposes while also minimizing costs by providing an enterprise solution for the collection, storage, and analysis of operational data for post-operational use.

Detailed Justification for - 1A08 NextGen Support Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
NextGen Support Portfolio	$5,000	$5,000	$8,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
NextGen Laboratories	---	$8,000.0

What is this program and what does the funding level support?

The NextGen Support Portfolio provides the National Airspace System laboratory environments required to evaluate, mature, and validate the broad framework of concepts, technologies, operational functions, and systems prior to and in the early phases of implementation into the operational national airspace environment.

The NextGen Integration and Evaluation Capability Laboratory (NIEC) is an integration and evaluation facility located at the William J. Hughes Technical Center in Atlantic City, New Jersey. This laboratory provides an environment that allows for concept development and validation, integration, and operations analysis capabilities through Human-in-the-Loop simulation testing and data analysis. Human-in-the-Loop simulations have the intended users (air traffic controllers/technicians/etc.) of a concept actively participate in the simulation to help identify any issues/concerns. This work supports studies that measure and validate concept feasibility, human performance, usability, changes in workload, and safety.

The Florida Test Bed (FTB) laboratory is located at the Daytona Beach International Airport and provides a platform where early-stage, info-centric NAS concepts are integrated, demonstrated, and evaluated. The Florida Test Bed core infrastructure is configured to enable remote connections with other FAA and industry partner sites to allow for multi-site demonstration capabilities. The laboratory infrastructure is being enhanced to support the FAA's Automation Evolution Strategy and associated prototyping activities. The FTB provides the ability for industry to bring and integrate new concepts and technologies.

The FAA is working towards a vision for the future evolution of the NAS automation systems, called the Automated Evolution Strategy (AES). For AES to transition from concept to investment, it is important these concepts and the envisioned services-based architectures be developed and validated in a Research & Development cloud environment. The Research & Development Operating Environment (RD-OE) is a cloud platform, with data and mission layers and integrated zero trust for security to support the research of ICN services for future NAS.

The Enterprise Operational Performance Analysis task focuses on continued analysis of historical data both for assessing past implementations as well as identify benefit future benefits. Post operational analyses include those key implementations supporting the Joint Analysis Team (JAT) as well as other implementations that inform the NextGen Advisory Committee and other FAA Stakeholders. This work also ensures the NextGen Segment Implementation Plan is updated to include the incremental improvements necessary to develop, integrate, and implement new capabilities in the national airspace system. This project also supports detailed analyses of shortfalls in the national airspace system that inform future investment prioritizations and locations. Included in these analyses are the changing impacts of Unmanned Aircraft Systems in controlled airspace as well as Commercial Space Launches. These new entrants have an impact on prioritizing improvements in the National Airspace System and must be better understood in the historical data sets.

For FY 2025, $8.0 million is requested for the annual operation, maintenance, and limited system enhancement of both laboratories. The requested funding will provide for the maintenance of the RD-OE cloud platform to support future research activities in cloud environment and development and hosting of microservices & prototypes on the RD-OE cloud platform. Additionally, the funding will support impact assessments of national airspace requirements and capabilities as they become available in an operational environment.

What benefits will be provided to the American public through this request and why is this program necessary?

The American public benefits by having flexible laboratory environments and tools to evaluate future concepts and technologies that are necessary to move the national airspace system into the 21st century. These advanced tools will benefit the American public through the enhancement of safety and efficiency for air travel.

With Operational Performance Analysis the flying public also receives transparency on the benefits provided to the public from new NAS implementations.

Detailed Justification for - 1A09 NextGen – Unmanned Aircraft Systems (UAS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
NextGen – Unmanned Aircraft Systems (UAS)	$13,000	$14,000	$20,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. UAS Concept Validation and Requirements Development	---	$5,000.0
B. UAS Traffic Management	---	$5,000.0
C. Urban Air Mobility	---	$10,000.0

What is this program and what does the funding level support?

These projects will allow integration of Unmanned Aircraft Systems (UAS) operations into the National Airspace System without impact to manned aircraft operations or creating disruptions or delays. The program will identify industry's innovation work that can be leveraged in public-private partnerships. These projects support expanded operational opportunities while ensuring that national airspace operations will continue to remain as safe as they are today.

A. UAS Concept Validation and Requirements Development:

This project conducts the overall analysis and planning for the development and integration of UAS enabling technologies within the national airspace infrastructure. The project will examine, develop, and validate concepts and requirements, leading to investments in support of expanding UAS access to the National Airspace System. This work provides the foundation for the development of new air traffic policies, procedures, automation functionality, and training requirements to enable safe integration of UAS operations into the National Airspace System. The program will analyze cross-cutting construct by collecting data, identifying gaps, and allocating the necessary research and engineering activities in an effort to address the holistic NAS needs as the various operational environments are defined.

For FY 2025, $5.0 million is requested to:

- Develop prototype communications infrastructure and services to support large UAS BVLOS

- Integrate communications prototype into test environment for large UAS BVLOS

- Evaluate and analyze prototype communications infrastructure performance requirements

- Explore alternative surveillance technologies, location services, and infrastructure for UAS position triangulation and tracking

B. UAS Flight Information Management:

UAS Flight Information Management project supports multiple UAS operations in the national airspace at 400 feet AGL and below to keep the airspace safe from aviation-related known and potential hazards and provide adequate notification to users. Existing Air Traffic products, policies, and procedures must be reviewed and refined or developed using supporting research in order to permit UAS operations in the NAS. The FAA must be aware of when and where UAS operations are occurring in order to operate an effective and safe National Airspace.

This program will identify requirements for enabling and managing UAS operations in airspace that are conducted at and below 400 feet above ground level for predominantly smaller UAS. This will be accomplished through the development of Flight Information Management System (FIMS) Industry is developing many of the services needed for UTM, which is a separate but complementary traffic management system to coincide along with the FAA's Air Traffic Management System. FIMS will build upon the existing FAA information sharing infrastructure to meet the expected increase of UAS operations by enabling the exchange of information among all stakeholders in globally standardized exchange protocols to ensure seamless and interoperable data management.

For FY 2025, $5.0 million will support work that includes:

- Complete UTM Data Exchange Requirements for Integrated UTM Operations Version 4.0 (e.g., BVLOS).

- Complete UTM Functional Allocation Version 4.0 (e.g., BVLOS).

- Complete Reference Implementation Version 3.0 (e.g., Operations Over People and at Night, Security).

- Complete UTM System Prototype Version 4.0 (e.g., BVLOS).

- Continue UTM Strategic De-Confliction Research

- Develop Core FAA Services for UTM (e.g., test harness, authorization server, data correlation)

- Complete analyses on standards related to UTM services including American Society for Testing and Materials (ASTM) UAS Service Supplier (USS) Interoperability standards.

C. Urban Air Mobility:

For the UAM concept to mature to operational viability, it is important to understand stakeholder business models and operational needs, as well as their impact, for incorporation into the NAS. The FAA has collaborated with NASA and participated in a series of additional industry stakeholder engagements to identify examples of desired operations and environments for Urban Air Mobility/ Advance Air Mobility aircraft.
Urban Air Mobility requires innovative traffic management techniques and tools where traditional air traffic management and separation services provided by the FAA may not be adequate. The program will also examine procedures, airspace design, rules, and policies to determine an optimal approach to accommodate the inclusion of UAM traffic in urban airspaces. This project will also explore the safe integration of UAM operations into the national airspace, which may need to operate within both UAS Traffic Management and Air Traffic Management environments. Innovate28 includes the development of an ecosystem of technologies, systems, processes, and organizational structures that will help enable AAM operations in a sustainable and repeatable manner. The Innovate28 project is looking to integrate UAM/AAM operations at a key site. UAM also includes efforts associated with Airborne Collision Avoidance System-Rotorcraft (ACAS Xr) for aerial cargo and air passenger aircraft.

For FY 2025, $10.0 million will provide the following:

- Develop UAM ConOps version 3.0
- Develop UAM prototype systems to enable conducting evaluation exercises
- Develop recommendations for UAM requirements and inform rulemaking and policy
- Complete Final UAM data exchange model
- Complete final UAM data exchange model with operational performance requirements
- Develop cybersecurity requirements for UAM
- Execute operation evaluation of UAM in ATM environment
- Conduct HITL evaluation exercise for UAM in heterogenous environment with increase in automation
- Conduct Simulation Activities for Automation Capabilities
- Initial Automation Prototyping Evaluation

- Develop ACAS Xr v4 architecture and Interface Report
- Complete ACAS Xr software package for RTCA SC-147

What benefits will be provided to the American public through this request and why is this program necessary?

The UAS projects play a critical role in enabling UAS operations in the national airspace without affecting manned aircraft operations, without creating disruptions or delays, and ensuring national airspace operations will continue to be safe. This program will also identify the necessary infrastructure, requirements, and internal and external stakeholder coordination to support the integration of UAS operations in the NAS. A major part of providing for UAS operations is the direct engagement with industry to build a public-private partnership exploiting industry's research and innovative technologies. Leveraging the partnership to provide improvements to national airspace capabilities and operations through this integrated framework provides a cost-effective approach to addressing needs and solutions.

Detailed Justification for - 1A10 NextGen – Enterprise, Concept Development, Human Factors, and Demonstrations Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Enterprise, Concept Development, Human Factors, and Demonstrations Portfolio	$11,000	$11,000	$10,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Enterprise Concept Development	---	$1,500.0
B. Enterprise Human Factor Development	---	1,500.0
C. Stakeholder Demonstrations	---	7,000.0

What is this program and what does this funding level support?

Enterprise Concept Development, Human Factors, and Stakeholder Demonstration Portfolio conducts enterprise level activities, including the development of concepts across the National Airspace System, human factors analysis of a NextGen operational environment, and demonstrations of proposed system improvements to ensure operational feasibility and viability.

These early development efforts will lead to improvements that provide air traffic controllers with new and/or improved tools and procedures to manage air traffic. As an example, the Urban Air Mobility program held a series of FAA, National Atmospheric and Space Administration, and Industry collaborative forums to validate key assumptions regarding incorporating Unmanned Aircraft System operations into the National Airspace System. The outcome of these activities will inform demonstrations that showcase the practical application of proposed system improvements and validate their feasibility.

A. Enterprise Concept Development

The Enterprise Concept Development program is used to identify and assess early concepts and conduct validation activities (i.e., modeling and real-time simulations)

that will transform the National Airspace System. Areas of interest include, but are not limited to, trajectory-based coordination, the use of artificial intelligence in the National Airspace System and the potential of unmanned aircraft systems for urban transportation. When appropriate, concept activities will be considered from a global perspective including International Civil Aviation Organization requirements for global aircraft tracking and network communication.

For FY 2025, $1.5 million is requested to support concept development and validation activities, research, concept engineering, and concept analysis. It will include developing a concept of operations for Smart Airports, completing a concept of operations for a Responsible Artificial Intelligence Framework.

B. Enterprise Human Factor Development

The Enterprise Human Factor Development program provides human performance guidance and recommendations to support the maturation, development, and validation of new concepts. Embedding human factors considerations into concept development activities allows for the identification of potential human performance issues and mitigation strategies for those issues. This increases the usability, acceptability, and safety of new concepts and systems as they integrate into the National Airspace System.

For FY 2025, $1.5 million is requested to continue research into human factors performance considerations for modernization and future requirements of the National Airspace System.

C. Stakeholder Demonstrations

The Stakeholder Demonstration program provides practical application and analysis of proposed system improvements to verify concept feasibility and assess the cost-benefit trade space. Through collaboration with stakeholders, operators, and end-users, these demonstrations reduce implementation risk by providing early prototyping of requirements before capabilities are fully incorporated. Demonstrations collect and provide data to support business case and investment decisions. These demonstrations promote industry involvement and attain community acceptance. Rigorous demonstrations ensure the integration and interoperability of systems and reveal the need for rulemaking, policy changes, and training for the FAA's stakeholders.

For FY 2025, $7.0 million is requested to support multiple demonstrations related to modernizing the National Airspace System including, but not limited to, the following:

Urban Air Mobility Demonstration: This Demonstration project will use an iterative approach to collaborate with industry pioneers and leaders to demonstrate Urban Air Mobility elements and showcase operations with increasing complexity in measured and controlled steps. It will present an opportunity to exhibit the creation and management

of notional Urban Air Mobility corridors and architecture components that support information exchanges in the ecosystem. It will showcase Urban Air Mobility aircraft capabilities and coordination between the FAA, Urban Air Mobility operators, Providers of Services for Urban Air Mobility, and Public Interests delineated in the Urban Air Mobility Concept of Operations.

Adaptive Learning for Flow Management and Routing Decision Demonstration: This project will demonstrate an automated digital assistant function (backed by artificial intelligence and adaptive learning technologies) that can determine relevant information and provide recommended action to improve strategic and tactical flow operation and performance. Adaptive Learning for Flow Management and Routing Decision will evaluate flight, weather, and aeronautical information in time to provide details on changes to the projected operating environment to internal and external stakeholders. It will also compare information against projected demand profiles and continually assess whether a Traffic Management Initiative is the correct course of action.

Class E (Upper Airspace) Traffic Management (ETM) Demonstration: This project will demonstrate the feasibility of integration new entrants into the Class E Traffic Management airspace (above 60,000 ft.). It will execute a demonstration of these emerging flight operations and their interaction in partnership with industry stakeholders. The project will validate the Class E Traffic Management Concept of Operations, develop an initial gap analysis, develop the system prototypes, and execute the necessary demonstrations to support advancement and implementation.

Extended Projected Profile v. Flight Intent Info Demonstration: This project will use synchronized ground and aircraft-derived trajectory plans to assess multiple architecture and technology configurations. It will showcase multiple architecture/technologies to share flight intent information through data collection flights and analyses will show the gap between these architectures and technologies. Exercising the different aircraft technologies and equipage will provide insight for those aircraft technology configurations on the critical path for meeting 2030 and 2040 timeframe equipage levels.

What benefits will be provided to the American public through this request and why is this program necessary?

The Enterprise Portfolio promotes safety, efficiency, and a reduction in air traffic delays. The program will continue to validate operational concepts to identify technical and operational requirements paying particular attention to human factors considerations and conduct stakeholder demonstrations to collaborate with users, operators, and other partners on emerging technologies and National Airspace System wide concepts to prepare for air traffic operations in 2035 and beyond.

Detailed Justification for – 2A01 En Route Automation Modernization (ERAM) System Enhancements and Technology Refresh Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
ERAM System Enhancements and Technology Refresh	$108,150	$75,500	$70,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks Quantity	Locations	Estimated Cost ($000)
A. ERAM Sustainment 3	---	$31,600
B. ERAM Sustainment 4	---	$14,000
C. ERAM Operating System Upgrade	---	$24,000
D. ERAM Sector Enhancements - Independent Operational Assessment (IOA)	---	$400

What is this program and what does this funding level support?

The ERAM system is the automation system used in 20 Air Route Traffic Control Centers. The ERAM system displays all aircraft positions in the En Route Sectors across the country and provides the main tools used by air traffic controllers in the En Route environment to maintain the safe and efficient separation of aircraft.

A. ERAM Sustainment 3

This project is the third in the planned technology refresh required to sustain the ERAM equipment, which has become obsolete and unsupportable. This sustainment program will address all remaining ERAM infrastructure hardware, network equipment and operating system in the operational, training and support environments that were not replaced in the previous technology refresh efforts.

For FY 2025, $31.6 million is requested to support the following activities:

- Start Final Deployment Hardware Installations and Transitions at Air Route Traffic Control Center sites

- Complete ERAM Sustainment 3 Program Upgrades at the FAA Academy Air Traffic and Tech Ops Training Labs

- Complete test, deployment and integration of William J. Hughes Technical Center replacement ERAM Software Integration and Test Facility systems

- Implementation activities for items planned for deployment (servers, workstations, monitors, network equipment and other associated items)

    - Complete System Support Directives

    - Complete procurement of remaining Contractor Depot Logistics Support Spare Parts for ERAM Sustainment 3

    - Commence Legacy Hardware (IBM AIX Infrastructure Hardware) and AIX Software Disposition

- Overall ERAM System Transitions and performance assurance

- ERAM Common Gateway hardware support

- Complete all ERAM Sustainment 3 Training and Logistics related activities

B. ERAM Sustainment 4

ERAM Sustainment 4 is one of a series of programs to sustain the operations of the ERAM system, including the ERAM Communication Gateway sustainment or replacement, and operating system upgrades. It upgrades equipment that is obsolete or near the end of their service life, exploits new information systems architecture solutions for the system to remain current with the state of technology, and implements information systems security Plans-Of-Action-and-Milestones to maintain compliance with FAA regulations. The program addresses system equipment that has already or will soon surpass its end-of-life milestone date and will no longer be supported by its vendors. A list of the equipment to be upgraded will be developed during the investment's Concepts and Requirements Definition phase.

In order to ensure Specific ERAM Sustainment 4 capabilities in FY 2025, $14.0 million has been requested. This budget will cover system engineering for hardware and operating system modifications, hardware prototyping activities to reduce technical and operational risks, as well as proposal, and investment analysis. The goal is to reach Final Investment Decisions for FY 2025.

The period of performance of the ERAM sustainment 4 program will be from FY

2025 to FY 2031. The priority of scope contents deployment will be determined during the Final Investment Analysis phase.

C. ERAM Operating System Upgrade

During FY 2025 the ERAM Program will continue upgrading the ERAM Operating System. This is required in order to remain compliant with security mandates and updates to security patches with the agency.

For FY 2025, $24.0 million is requested to upgrade the Operating System from Red Hat Enterprise Linux Version 7, deployed with ERAM Sustainment 2, to Red Hat Enterprise Linux Version 8. In FY 2025, the funding will cover Software development, Systems Engineering and regression testing.

D. ERAM Sector Enhancements - Independent Operating Assessment (IOA)

In FY 2025, $400,000 will be dedicated for ERAM Software Capability Assurance activities at Air Route Traffic Control Centers prior to final ERAM Release Transition to Operations.

What benefits will be provided to the American public through this request and why is this program necessary?

The program focus is on maintaining the high availability of the ERAM capability. The ERAM Sustainment projects are necessary for the replacement of equipment that is approaching the end-of-life, beyond economic repair and hardware that is discontinued by the manufacturer. This includes maintaining the proper security compliant operating system. This program will sustain the safety critical Air Traffic operations as well as lower system life cycle cost.

Detailed Justification for - 2A02 Next Generation Weather Radar (NEXRAD)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Next Generation Weather Radar (NEXRAD)	$3,000	$3,000	$3,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Next Generation Weather Radar (NEXRAD) Sustainment 2	---	$3,000.0

What is this program and what does the funding level support?

NEXRAD is a long-range weather radar that detects, analyzes, and transmits weather information for use by the Air Traffic Control System Command Center, En Route, Terminal, and Flight Service Facilities. NEXRAD detects, processes, and distributes for display, hazardous and routine weather information. NEXRAD is a joint program among the Departments of Transportation, Defense, and Commerce, with the National Weather Service as the lead. The FAA owns and operates 12 NEXRADs, located in Alaska (seven), Hawaii (four), and Puerto Rico (one).

NEXRAD was originally installed between 1990 and 1996 with an economic service life of 20 years, there are currently 159 operational NEXRAD systems in the United States and overseas, jointly operated and maintained by the Tri-Agency partners. NEXRAD has reached the end of its economic life and a major sustainment effort is required to extend the service life.

For FY 2025, $3.0 million is requested to support the National Weather Service's sustainment efforts. The FAA funding share for NEXRAD Program Improvement and Technology Refresh is an annual requirement as established in the Memorandum of Agreement among the three agencies.

What benefits will be provided to the American public through this request and why is this program necessary?

NEXRAD systems have increased aviation safety with the accurate and timely detection of hazardous aviation weather conditions. Weather related arrival and departure delays have been reduced, thus allowing aviation fuel consumption savings.

Detailed Justification for - 2A03 Air Route Traffic Control Center (ARTCC) and Combined Control Facility (CCF) Building Improvements

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
ARTCC/CCF Building Improvements	$81,700	$23,014	$99,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. ARTCC and CCF Facility Sustainment	---	$89,200.0
B. Enterprise Facilities Sustainment	---	8,200.0
C. In-Service Engineering	---	2,300.0

What is this program and what does this funding level support?

The ARTCC and CCF Building Sustainment Program supports En Route air traffic operations and service-level availability by providing life-cycle management of the physical plant infrastructure at the 21 ARTCCs and two CCFs, and 10 Enterprise Facilities. It is one of the programs within the Air Traffic Control Facilities Sustainment Portfolio.

Many of these structures were built in the 1960s and have been expanded several times since then. The average age of the ARTCC and CCF facilities is 61 years old. Currently, there is a $397.2 million facility backlog of needed repairs or upgrades, which includes all building systems such as heating, ventilation, and air conditioning components; all piping, plumbing, control systems; and both the exterior and interior of the building. This backlog increases the risk of outages and may result in increased maintenance costs. This program sustains these buildings to meet air traffic service requirements and to reduce the backlog of building components that are critical to the safe and efficient continuous air traffic control operations.

Major construction projects will replace obsolete plant equipment and improve work areas. These projects include replacement of chillers, cooling towers and associated mechanical and electrical system elements necessary for cooling national airspace system electronics and computer equipment. Fire protection systems that have risk for failure will be replaced. The new systems are more efficient and will reduce energy consumption at the facilities.

For FY 2025, $89.2 million is requested for ongoing ARTCC sustainment projects. The requested funding amount is required to continue efforts to ensure that critical National Airspace System En Route and Enterprise Facilities are brought into a state of good repair and help promote the health and safety of the Air Traffic and Technical Operations workforce.

The FY 2025 major improvement projects:

- **Environmental Wing Project** - This project will remove the major facility equipment, chillers, boilers, pumps, and critical spaces air handling units from untenable locations such as basements and attics. The new environmental wing structure will co-locate a large proportion of the mechanical equipment in a location, which provides significantly improved access for both preventive and corrective maintenance. Increased reliability and improved Operation Risk Management are the key benefits to this project. The project will also selectively allow the replacement of other essential facility equipment that is part of the backlog such as air handling units, electrical panels, lighting controls, roofs, and raised floor systems.

- **Fire Suppression Piping System** – This project will address the deterioration and potentially failure of the dry-pip fire suppression systems. The replacement of these systems will implement best practices to minimize corrosion and maintenance.

FY 2025 Projects

- Construct Environmental Wing – Jacksonville, FL ARTCCs.
- Design Environmental Wing – Houston, TX, and Los Angeles, CA ARTCC.
- Construct Fire Suppression Piping - Boston, MA, Albuquerque, AZ and Kansas City, MO ARTCC

Specific mission critical and local sustainment projects will also be accomplished at ARTCC/CCF facilities to replace old and/or obsolete building infrastructure and equipment that support air traffic operations.

For FY 2025, $8.2 million is requested for the sustainment of FAA Enterprise Facilities. These facilities include the FAA Air Traffic Control System Command Center, two National Enterprise Management Centers, and the Northeast Operational Support Facility. The major work in FY 2025 will be the construction phase of the expansion of the control room within the Command Center, to include the upgrade of the heating, ventilation, and air conditioning system associated with that expansion.

For FY 2025, $2.3 million is requested for in-service engineering activities that provide an immediate response to emerging technology solutions.

What benefits will be provided to the American public through this request and why is this program necessary?

This program sustains 21 ARTCC and two CCF facilities, as well as 10 Enterprise Facilities that are critical to facilitating the FAA's mission to serve the flying public. The mission of the En Route Facilities Sustainment Program is to support En Route Air Traffic operations and service level availability through facility life-cycle program management of the 21 ARTCCs, the two CCFs at San Juan and Guam, and the 10 Enterprise Facilities, such as the FAA Air Traffic System Control Command Center and National Enterprise Management Centers buildings. Much of the infrastructure and plant equipment within these buildings has exceeded its life expectancy and must be replaced. This program replaces obsolete equipment and provides an efficient, reliable, and safe work environment for En Route air traffic control and Enterprise facilities operations.

Detailed Justification for - 2A04 Air/Ground Communications Infrastructure

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Air/Ground Communications Infrastructure	$9,400	$5,700	$7,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Communications Facilities Sustainment	---	$6,000.0
B. Radio Control Equipment Sustainment	---	1,000.0
C. In-Service Engineering	---	700.0

What is this program and what does the funding level support?

The Air-to-Ground Communications Infrastructure Sustainment programs enhance operational efficiency and effectiveness by replacing aging radio equipment, providing new, relocated, or upgraded remote communications facilities, and providing equipment and support to detect and resolve radio frequency interference with FAA communications.

A. Communications Facilities Sustainment

For FY 2025, $6.0 million is requested to initiate the expansion/relocation sites as determined by the Air-To-Ground Integrated Requirements Team Meeting in FY 2025. This work will upgrade obsolete communications equipment, procure replacement radios, equipment racks, antennas, towers, and continue multi-year projects previously initiated.

The Communications Facilities Sustainment project provides new, relocated, or upgraded Remote Communication Facilities to enhance the Air to Ground communications between air traffic control and the aircraft when there are gaps in coverage or new routes are adopted.

B. Radio Control Equipment – Sustainment

For FY 2025, $1.0 million is requested for the Radio Control Equipment- Sustainment Program to maintain existing units in the National Airspace Systems that are organically maintained by Oklahoma City. This project replaces obsolete radio signaling and control equipment, which

controllers use to select a remote radio channel enabling them to talk to pilots. The funding will support the construction and verification of the Radio Control Equipment test beds. Additionally, the program will redesign and procure modules to replace obsolete parts while providing longer-term support for the operational Control Site Radio Control Equipment systems.

C. In Service Engineering

In-service engineering allows for immediate response and tactical distribution of resources to emerging technology solutions. For FY 2025, $700,000 is requested for ongoing engineering support of communication systems.

What benefits will be provided to the American public through this request and why is this program necessary?

Air/Ground Communications Infrastructure will significantly improve safety by replacing aging and increasingly unreliable equipment and communications facilities. New communications equipment will lower periodic and correctional maintenance costs associated with the old and technically obsolete equipment in the field, and as a result will reduce costs for the FAA and taxpayers.

Detailed Justification for - 2A05 Air Traffic Control En Route Radar Facilities Improvements

($000)

Activity/Component	FY 2023 Enacted	FY2024 Annualized CR	FY 2025 Request
Air Traffic Control En Route Radar Facilites Improvements	$6,700	$5,977	$8,100

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Long Range Radar Infrastructure Sustainment	---	$7,400.0
B. In-Service Engineering	---	$700.0

What is this program and what does the funding level support?

The Air Traffic Control En Route Radar Facilities Improvements Program is responsible for 157 Long Range Radar surveillance facilities that provide aircraft position information to FAA En Route control centers for air traffic control, and to the Department of Defense and the Department of Homeland Security for security monitoring of the national airspace system.

About 80 percent of the long-range radar inventory is older than 30 years. Sixty-six of these sites were established in the early 1950's and have reached the end of their useful life. Average Facility Condition Index of all 157 long range radar facilities is currently at 78.2 percent, which is below the minimum 90 percent required for such facilities. This surveillance equipment must remain operational for the foreseeable future.

For FY 2025, $7.4 million is requested to sustain approximately 29 facilities that are in poor condition and have greatest impact to the national airspace system. The scope of the long-range radar infrastructure sustainment program includes upgrades and/or replacement of buildings; towers; radomes; mechanical, electrical, security, fire detection, and lightning protection systems; facility access roads; and related infrastructure. This work will extend the service life of the facilities and reduce the chance of outages that often cause air traffic delays.

For FY 2025, $700,000 is requested for ongoing engineering support of long-range radar. In-service engineering allows for immediate response and tactical distribution of resources to emerging technology solutions.

What benefits will be provided to the American public through this request and why is this program necessary?

The infrastructure improvements will improve the reliability of, better protect, and reduce the operating costs of these critical long range radar sites. The goal of this infrastructure sustainment program is to reach 90 percent Facility Condition Index by 2030.

Detailed Justification for - 2A06 Oceanic Automation System

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Oceanic Automation System	$12,250	$6,550	$12,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Oceanic Improvements	---	$2,000.0
B. Advanced Technologies & Oceanic Procedures Enhancements 1	---	$3,200.0
C. Advanced Technologies & Oceanic Procedures Sustainment 3	---	$7,000.0
D. Independent Operational Assessment	---	$300.0

What is this program and what does the funding level support?

From 2005 to 2007, the Advanced Technologies & Oceanic Procedures program replaced the original oceanic air traffic control system, updated procedures, and modernized the Oakland, New York, and Anchorage Air Route Traffic Control Centers, which house the oceanic automation systems. Advanced Technologies & Oceanic Procedures integrates flight and surveillance data processing and detects conflicts between aircraft for safe oceanic air traffic control operations.

A. Oceanic Improvements

Support a category of requirements that address system changes driven by new operational standards and other International Civil Aviation Organization mandates. These changes are small in nature, must be addressed quickly, and the scope of these enhancements does not require significant capital investments. For FY 2025, $2.0 million is requested for analysis and solution implementation activities that improve the delivery of oceanic domain services.

B. Advanced Technologies & Oceanic Procedures Enhancement 1

Addresses the operational shortfalls of the current oceanic system as the FAA moves forward with new distance-based separation standards, and other national airspace system upgrades.

For FY 2025, $3.2 million is requested for the Advanced Technologies & Oceanic Procedures Enhancement 1 program. This request will be used to support defect resolution and the transition of the legacy weather interface to the System Wide Information Management interface at operational sites, and to provide program management support to complete the Enhancement 1 program. FY 2025 funding will support the final acquisition program baseline milestone, T32 initial operational capability at third site.

C. Advanced Technologies & Oceanic Procedures Sustainment 3

Addresses updates to the hardware and commercial software baseline to resolve end-of-life and end-of-service concerns and implements emerging technology requirements and agency mandates to ensure the continued safe delivery of oceanic air traffic control services. Scope for Sustainment 3, pending approval at Final Investment Decision, includes transition to Internet Protocol Version 6 from Version 4, replacement of the Motif graphics library that is no longer supported by future versions of the operating system, and transition to a more current version of the operating system. If approved, the program will also explore options for the replacement of the existing hardware platform ranging from: (a) a box-for-box replacement of the current hardware, (b) a reduced hardware footprint solution that runs virtualized ATOP software on blade servers, or (c) a cloud-centric solution that aligns with the agency's Automation Evolution Strategy objectives.

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For FY 2025, $7.0 million is requested to begin development for the transition of external interfaces to Internet Protocol Version 6, replacement of the Motif graphics library, and modernization of interfaces for surveillance data and improved flight information sharing. The funding will also support technical investigations for the transition of Advanced Technologies & Oceanic Procedures to a modern, service-based, cloud-centric architecture.

D. Independent Operational Assessment

For FY 2025, $300,000 is requested for an assessment to identify any safety hazards and/or operational concerns with Enhancement 1 capabilities.

What benefits will be provided to the American public through this request and why is this program necessary?

The new enhancements will provide airlines and general aviation with reduced operating costs and system delays by delivering user request capabilities that support optimum flight profiles, increasing the likelihood of on-time arrivals. The planned sustainment scope will ensure supported oceanic operations and system performance through 2038.

Detailed Justification for – 2A07 Next Generation Very High Frequency (VHF)/ Ultra High Frequency (UHF) Air/Ground Communications System (NEXCOM)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Next Generation Very High Frequency Air/Ground Communications System	$57,000	$64,000	$53,200

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Next Generation VHF/UHF A/G Communications Phase 2	---	$23,200.0
B. Next Generation VHF/UHF A/G Communications Phase 3	---	30,000.0

What is this program and what does the funding level support?

For FY 2025, $23.2 million is requested for Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System Phase 2. This project will replace and modernize the aging and obsolete National Airspace System air-to-ground analog radios that allow direct voice communication with pilots with new Very High Frequency and Ultra High Frequency radios at terminal and flight services facilities.

For FY 2025, $30.0 million is requested to support the operational testing of a new radio product in support of Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System Phase 3.

The existing Very High Frequency analog controller-to-pilot communications system lacks the capacity and flexibility to accommodate future growth in air traffic and air/ground communication frequency assignments. The system is beyond its estimated lifecycle and is increasingly expensive to maintain. Air/ground communication is the most fundamental and safety important element of the air traffic control system supporting all phases of flight for En Route, Terminal, and Flight Service operational environments.

The Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System program plans to use funding to deploy 2,500 new Terminal Air Traffic Control Radios (receivers and transmitters) at 115 terminal and flight services facilities, purchase Very High Frequency and Ultra High Frequency radios, procure Emergency Transceivers, and fund related

implementation and support activities. Ultimately, 35,000 Very High Frequency and Ultra High Frequency radios will be deployed in the National Airspace System under the Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System Phase 2 program through 2026.

Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System will meet the new and growing demands for air transportation services and provide the operational flexibility and Voice over Internet Protocol capability. Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System allows for efficient utilization of Very High Frequency spectrum required for voice communications and enables the recovered spectrum to be available for data communications as needed.

What benefits will be provided to the American public through this request and why is this program necessary?

Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System will improve reliability and reduce growing maintenance costs replacing existing communications equipment with modern Air to Ground Communications equipment. An added performance benefit of Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System is the ability to increase capacity by expanding the number of communications channels within the spectrum assigned to the FAA. The Mean Time between Failure performance metric, which is closely related to availability, will be increased from 11,000 hours to 50,000 hours at the completion of Next Generation Very High Frequency/Ultra High Frequency Air/Ground Communications System Phase 2. This will both increase the safety of the National Airspace System benefitting commercial airlines, general aviation and the flying public as well as reducing costs to taxpayers.

Detailed Justification for - 2A08 System-Wide Information Management (SWIM)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
System-Wide Information Management (SWIM)	$10,200	$40,000	$80,900

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. System-Wide Information Management (SWIM) Segment 2C	---	$5,000.0
B. National Cloud Integration Service (NCIS)	---	4,000.0
C. SWIM – Segment 2D	---	31,200.0
D. SWIM – Segment 3	---	40,700.0

What is this program and what does this funding level support?

System-Wide Information Management (SWIM) is an information management and data sharing system that provides policies, standards, and an enterprise infrastructure to support data management, secure data integrity, and control data access and use, as the FAA migrates toward an information rich environment and information centric operations.

E. System-Wide Information Management (SWIM) Segment 2C

SWIM Segment 2C provides a technology refresh of aging national airspace system Enterprise Messaging Service infrastructure. This messaging service centralizes data messaging between internal and external systems and users. It also refreshes SWIM capabilities and equipment reaching end of service, end of life, and the end of security patching. These capabilities include:

- **Identity and Access Management:** Provides certificate-based authentication capability to secure communications within national airspace programs and external partners. This authentication capability reduces cyber security vulnerabilities by strengthening security to access data between systems.

- **SWIM Terminal Data Distribution System:** Provides a solution to meet the needs

of SWIM internal users requiring consistent access to data. This solution also serves as a steppingstone towards elevating SWIM to efficiency critical operations.

For FY 2025, $5 million is requested to finish technology refresh of national airspace system Enterprise Messaging Service infrastructure and to complete deployment of SWIM Terminal Data Distribution System software at all sites in September 2025.

F. National Cloud Integration Service (NCIS)

This project will establish services, processes, and capabilities to address FAA programs' emerging need to enable cloud services and enterprise infrastructure adoption. This will significantly reduce the technical risks and complexity for programs. The National Cloud Integration Service project defines standardized processes for providing engineering support to national airspace system programs seeking to transition to a cloud environment and readily identify the most useful services that will optimize their cloud benefits.

For FY 2025, $4.0 million is requested to continue maintaining and enhancing the National Cloud Integration Service Sandbox environment and continue to work with ATO programs to help facilitate their transition to cloud and enterprise services.

G. System-Wide Information Management (SWIM) - Segment 2D

SWIM Segment 2D addresses the operational shortfalls associated with the ending FAA Telecommunications Infrastructure program as well as recurring Enterprise Messaging Service infrastructure technology refresh requirements through transition of SWIM capabilities and operations from the legacy program to the replacement FAA Enterprise Network Services program. Segment 2D will enhance the SWIM messaging services to support efficiency critical operations. Programs like Common Support Services – Flight Data and Flow Management & Data Services are dependent on the increase in reliability, maintainability and availability that SWIM Segment 2D will provide.

For FY 2025, $31.2 million is requested to continue transition of SWIM services and capabilities to the replacement program and to continue architectural design and software development of Information Management Services to replace legacy national airspace system Enterprise Messaging Service, to purchase hardware materials, and to continue transition and user outreach.

H. System-Wide Information Management (SWIM) - Segment 3

SWIM Segment 3 represents the next evolution of SWIM and will continue to transform the National Airspace System into an agile, information-centric system which will leverage cloud-based services. Segment 3 will extend efficiency critical operations to SWIM business services and security services; improve data quality and security of information exchange; increase visibility into operational performance and increase adoption and use of platform services by users. Programs like Common Support

Services – Flight Data and Flow Management & Data Services are dependent on the increase in reliability, maintainability and availability that SWIM Segment 3 will provide. As part of SWIM S3, enhancements will be made to Identity and Access Management services which is foundational to the implementation and execution of Zero Trust for the agency.

For FY 2025, $40.7 million is requested to begin development of software enhancements to support efficiency critical operations and increase security, provide systems engineering, design review, code review, transition planning, and governance.

What benefits will be provided to the American public through this request and why is this program necessary?

SWIM reduces both the number and types of unique communication interfaces, reduces redundancy of information and better facilitates information sharing, improves predictability and operational decision-making, and reduces cost of service. The improved coordination that SWIM provides allows for the transition from tactical conflict management of air traffic to strategic trajectory-based operations. SWIM provides the foundation for greatly enhanced information exchange and sharing with other agencies. SWIM provides policies and standards to support data management, secure data integrity, and control data access and use.

Detailed Justification for - 2A09 Automatic Dependent Surveillance – Broadcast (ADS-B) NAS Wide Implementation

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
ADS-B NAS Wide Implementation	$155,200	$138,400	$92,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. ADS-B In NAS Wide Implementation - Interval Management	---	$10,000.0
B. ADS-B Baseline Services Future Segments (BSFS)	---	50,500.0
C. ADS-B BSFS Phase 2	---	$20,000.0
D. ADS-B Enhancement 1	---	12,200.0

What is this program and what does this funding level support?

ADS-B is an advanced surveillance technology that provides highly accurate information by using an aircraft's broadcasted position instead of position information from traditional radar. This technology reduces delays and enhances safety. Aircraft position (longitude, latitude, altitude, and time) is determined using the Global Navigation Satellite System. The aircraft's ADS-B equipment processes this position information, along with other flight parameters, for a periodic broadcast transmission, typically once a second, to airborne and ground-based ADS-B receivers. The information is used to display aircraft position on En route and terminal automation systems used by air traffic controllers.

The Gulf of Mexico implementation of air traffic control services is providing ADS-B surveillance data for aircraft operating in a large area without access to traditional radar coverage. The program utilizes energy platforms in the Gulf of Mexico to host surveillance, communications, and weather facilities. These platforms have a temporary lifespan that is impacted by several economic and technical criteria. The shutdown of a platform requires the removal of existing facilities and the installation of replacement facilities on platforms that address any operational shortfall. Program funding supports the removal, refurbishment, and relocation of the ADS-B, Very

High Frequency communications, and/or weather facilities.

A. ADS-B In NAS Wide Implementation - Interval Management

The Interval Management project consists of a set of ground and flight deck capabilities and procedures that are used in combination by air traffic controllers and flight crews to either reduce spacing between aircraft near an airport or to manage spacing between aircraft more efficiently and precisely.

The airlines are interested in using Cockpit Display of Traffic Information Assisted Visual Separation avionics to perform pilot-applied separation operations, called Cockpit Display of Traffic Information Assisted Separation (CAS), in ceiling/visibility conditions that do not currently allow such operations. Cockpit Display of Traffic Information Assisted Separation operations are being developed for use during approach and departure phases of flight, improving airport throughput under those conditions.

For FY 2025, $10.0 million is requested to support a Final Investment Decision for ADS-B In Capability Indicators, continue automation software development work, and begin CAS Safety Risk Management work. The ADS-B In Capability Indicators work will enable the display of ADS-B In capabilities on the automation data blocks. ADS-B In Capability Indicators will be required for all CAS and Interval Management operations.

B. ADS-B Baseline Services Future Segments (BSFS)

For FY 2025, $50.5 million is requested to provide for the continued implementation of the following baseline applications: ADS-B Separation Services, Pilot Advisory Services, Traffic Information Services – Broadcast, Flight Information Services – Broadcast, Automated Dependent Surveillance – Rebroadcast, and Weather and National Airspace System Situation Awareness.

The funding will also allow continued implementation of Wide Area Multilateration surveillance services capabilities that provides aircraft location information to automation systems at certain Air Route Traffic Control Centers and Terminal Radar Approach Controls. Additionally, the funding will allow for critical engineering and implementation activities including:

- Continued engineering, design and implementation work for spectrum congestion solutions in the national airspace system

- Collaboration with Air Traffic Control, Department of Defense, and other key stakeholders to assess and coordinate divestiture of individual radars

- Testing and deployment of upgrades required to improve ADS-B resilience, including data validation, spectrum data collection, and jamming/spoofing identification

- Testing and deployment of upgrades required for changes in the Minimum Operational Performance Standard for ADS-B

- Engineering activities for the acquisition of ADS-B In capabilities

- Ongoing sustainment engineering analyses and implementation to prevent and address service disruptions

- Regular program management and systems engineering tasks

Requested funding will also support continuation of the implementation of FAA air traffic control services with Gulf of Mexico helicopter operators and energy platform owners. This funding will be used to:

- Remove and refurbish facilities and equipment from active energy platforms that owners intend to shut down

- Identify and evaluate appropriate sites to restore lost services

- Install new or refurbished systems on strategically located energy platforms

Funding will also continue the implementation of ADS-B Baseline Services. The anticipated FY 2025 activities are expected to:

- Provide for anticipated contract increases during the negotiation of a new contract for ADS-B services or an extension of the Period of Performance on the existing services contract

- Provide enhancements to the ADS-B pre-flight Service Availability Prediction Tool and to the ADS-B Performance Monitor tool

A portion of this program's funding requirement has been transferred to the Operations account in the FY 2025 request.

C. ADS-B Baseline Services Future Segments (BSFS) Phase 2

ADS-B BSFS Phase 2 will replace the existing Surveillance and Broadcast Services (SBS) contract with a follow-on contract to continue baseline services, applications, engineering and implementation activities. ADS-B BSFS Phase 2 will also provide security updates to maintain alignment with the Federal Information Processing Standards 199 high security categorization and with periodic updates to the National Institute of Standards and Technology security controls.

For FY 2025, $20.0 million is requested to support the follow-on contract transition and award activities needed to continue SBS and avoid interruptions to operations. The current SBS contract Period of Performance ends in August 2025. Award of the

follow-on contract is expected prior to the end of FY 2025.

D. ADS-B Enhancement 1

For FY2025, $12.2 million is requested to support the operational enhancement of the ADS-B portfolio. The funding will be used to provide additional ADS-B benefits by implementing activities that may include:

- Expanding ADS-B service coverage in selected areas with limited surveillance. This expansion is focused on five remaining service volumes in Alaska

- Utilization of additional ADS-B parameters to monitor altitude compliance, enhancing safety and efficiency of the national airspace system. This project includes updates to the En Route Automation Modernization software that will use data from ADS-B Out messages to notify Air Traffic of discrepancies between the pilot selected altitude and the controller cleared altitude

- Implementation of security requirements to support the transition of the Surveillance and Broadcast Services system from Federal Information Processing Standards 199 moderate to high categorization.

Subscription services funding is requested in the ATO Operations account for FY 2025.

What benefits will be provided to the American public through this request and why is this program necessary?

Benefits provided by ADS-B NAS-Wide Implementation to the American public include more efficient use of airspace capacity, fewer flight delays, more optimal routing for aircraft, and a more secure National Airspace System. Other efficiency benefits include reduced weather deviations and fewer cancellations during inclement weather conditions resulting from increased access to some Alaskan regions and throughout Gulf of Mexico operations. These efficiencies translate to savings in both aircraft direct operating costs and passenger value of time.

ADS-B meets a large performance gap in the capability of pilots and air traffic control to receive situation awareness information, thus providing for safety in ways legacy systems cannot by delivering the following services through cockpit avionics:

- Enhanced see-and-avoid capabilities, which will assist pilots in preventing mid-air collisions

- Air Traffic Control services in non-radar airspace

- Weather information, helping to reduce incidences related to Instrument Flight Rule operations

Detailed Justification for - 2A10 Air Traffic Management Implementation Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Air Traffic Management Implementation Portfolio	$7,400	$32,100	$41,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Traffic Flow Management Improvements	---	$2,000.0
B. Traffic Flow Management System Sustainment 3 Implementation	---	7,700.0
C. Flow Management Data and Services	---	30,000.0
D. Air Traffic Management - In-Service Engineering	---	2,000.0

What is this program and what does the funding level support?

Throughout each day, Traffic Managers use Traffic Flow Management System (TFMS) to maintain near real-time situational awareness and predict areas that may experience congestion due to capacity reductions or unusual demand increase. The TFMS becomes especially important when external factors, such as adverse weather, reduce National Airspace System capacity. This requires proactive planning, coordination, and adjustments to mitigate impacts, for missed connections, canceled flights, increased fuel consumption, etc. resulting from the weather. The Air Traffic Control System Command Center uses TFMS to model and implement national airspace system wide Traffic Management Initiatives to make the most efficient use of available capacity to avoid gridlock and minimize delays.

A. Traffic Flow Management Improvements

This project implementation responds to stakeholder-identified inefficiencies in current Traffic Flow Management Systems. The scope of these National Airspace System improvements is limited to operational changes that do not require significant capital investments nor involve significant systems complexity, interdependencies, or National Airspace System operational changes. This project will support operational and engineering analyses, solution development, and solution implementation activities designed to improve the delivery of Traffic Flow

Management services. For FY 2025, $2.0 million is requested to complete the following improvements:

- Rapid Development Deployment Pioneering will develop a model to expedite the development and deployment of new traffic flow management decision support applications and tools.

- Traffic Flow Management System Auxiliary Offloading will provide testing and benefits assessment for offloading non-operational (e.g. administrative and post-analysis) tools from the Traffic Flow Management System and relocating them in a cloud environment.

- Pivotal agile software development will use new methodologies and cloud-based technologies to enhance traffic flow management software, reducing development time and costs and delivering new software in an incremented process.

B. TFMS Sustainment 3

TFMS Sustainment 3 Implementation (S3I) contains activities that are urgently needed to stabilize and sustain the system. For FY 2025, funding is requested to continue the targeted technology refresh of extending the service life of existing hardware and corresponding software that is currently beyond the End-of-Life/End-of-Service. This effort will bridge the gap between TFMS, and a new concept of operations proposed in Flow Management Data and Services. The TFMS Sustainment 3 Implementation investment also includes risk mitigation activities to stabilize further an already overtaxed TFMS Core, which will lessen the likelihood of any service interruptions or other impacts to the vast Traffic Flow Management user community. For FY 2025, $7.7 million is requested to conduct the following:

- Conduct targeted replacement of the Traffic Flow Management Processing Center (TPC) hardware until Flow Management Data and Services can be put into operation

- Risk mitigation activities, including offloading routine Traffic Flow Management web applications onto a separate platform

- Perform Program Management and engineering activities to support the two items above

C. Traffic Flow Management Infrastructure (TFM-I) Flow Management Data and Services

For FY 2025, $30.0 million is requested to begin the development of the Flow Management Data and Services system specifically to award a primary development contract and prepare a preliminary design. The main objective of Flow Management Data and Services is to provide a robust and reliable automation system to facilitate Traffic Flow Management activities in the NAS. Flow Management Data and Services, when fully deployed, will replace the aging TFMS. In so doing, Flow Management Data and Services will address shortfalls in TFMS related to the inability of its architecture and hardware to support long-desired features and functions. Flow Management Data and Services also will adopt modern best practices in software architecture and development that:

- Promote software maintainability over its lifecycle
- Provide scalability to additional users and data
- Are extensible to new functionality
- Improve the user experience

D. In Service Engineering:

In-service engineering allows for immediate response and tactical distribution of resources to emerging technology solutions. For FY 2025, $2.0 million is requested for ongoing engineering support of air traffic management systems.

What benefits will be provided to the American public through this request and why is this program necessary?

The program will improve the overall availability and reliability of the TFMS tools by selectively replacing aging/obsolete hardware in the Traffic Flow Management Processing Center. In addition, sustainment of the system by offloading some of the administrative functions, will allow TFMS to maintain the overall operational availability within the national airspace system, enabling the Traffic Flow Management system and capabilities that reside on it to continue providing benefits that include:

- Greater system reliability, dependability, and availability, enabling TFMS to achieve and sustain its full benefits of avoiding national airspace system delays as well as retain TFMS users' trust.
- Decrease maintenance and repair activities, thereby reducing time to repair which will lessen the impact of outages as well as avoid increased TFMS operational and support costs.

Detailed Justification for - 2A11 Time Based Flow Management (TBFM) Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Time Based Flow Management (TBFM) Portfolio	$21,300	$33,000	$15,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Time Based Flow Management Sustainment 1	---	8,900.0
B. Time Based Flow Management Sustainment 2	---	1,400.0
C. Strategic Initiatives Analysis and Validation	---	5,000.0
D. Independent Operational Assessment	---	400.0

What is this program and what does the funding level support?

The Time Based Flow Management portfolio includes Sustainment 1 initiatives and previous TBFM Enhancement capabilities that support the national airspace system. These capabilities enhance system efficiency by leveraging the time based metering decision-support tools, a system that has already been deployed to Continental United States Air Route Traffic Control Centers, select Terminal Radar Approach Control facilities and select Air Traffic Control Towers.

For FY 2025, $15.7 million is requested for the Time Based Flow Management Portfolio to continue efforts to maintain the current operational system and hardware of the Time Based Flow Management tools. Maintenance of the core Time-Based Metering operational system and of the Time Based Flow Management tools will enhance efficiency and optimize demand and capacity.

A. Time Based Flow Management Sustainment 1

TBFM Sustainment 1 will replace existing End-of-Life hardware and upgrade the TBFM Operating System that will increase the reliability of the current system and reduce operations costs. Integration of the hardware and software improvements will meet security and maintainability requirements. Addressing the capability and availability shortfalls from the End-

of-Life hardware through the selection, testing, and deployment of new hardware and increased FAA Telecommunication Infrastructure capacity will yield a decrease in sustainment costs for obsolete equipment and an increase of the availability of TBFM hardware deployments to new sites.

Additionally, the TBFM Sustainment 1 system will support the sustainment and maintenance of the TBFM operational system in the NAS.

For FY 2025, $8.9 million is requested to:

- Conduct System Engineering and Analysis for the Red Hat Linux upgrade for new hardware selection.
- Complete hardware integration and testing activities.
- Initiate key site testing and support system modification activities for new hardware suite.
- Initiate System Engineering and Analysis in support of Second Level Engineering Tool Development.

B. Time Based Flow Management Sustainment 2

TBFM Sustainment 2 will focus on migrating the Time Based Flow Management system to a modern, layered architecture to accrue a number of benefits for the Federal Aviation Administration. This will include development of software and providing time based metering services through a more automated process which will provide services and operational capabilities more quickly to the users.

For FY 2025, $1.4 million is requested to initiate System Engineering and Analysis.

C. Strategic Initiatives Analysis and Validation

For FY 2025, $5.0 million is requested for technological advances and innovation opportunities in the interests of aviation improvements for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts, validation of commercial products offered to FAA for certification, as well as exploration of concepts for future aviation operational usage one to four years from now. These opportunities typically arise during the execution budget year after funding has been appropriated.

D. Independent Operational Assessment

For FY 2025, $400,000 is requested for an assessment to identify any safety hazards and operational concerns with TBFM capabilities.

What benefits will be provided to the American public through this request and why is this program necessary?

The TBFM capabilities will enable an increase in arrivals and departures in areas where demand for runway capacity is high. TBFM tools will increase efficiency by allowing aircraft to fly Performance Based Navigation operations down to approach. The public will experience fewer delays and reduced carbon emissions as a result of TBFM system.

The TBFM Sustainment program will reduce maintenance costs of the existing hardware and continue sustainment of the TBFM system. It will ensure Operational Availability of 99.5 percent at the TBFM sites.

Detailed Justification for - 2A12 Next Generation Weather Processor (NWP)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Next Generation Weather Processor (NWP)	$30,700	$48,700	$29,800

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. NextGen Weather Processor (NWP)	---	$16,800.0
B. Common Support Services Weather	---	12,600.0
C. Independent Operational Assessment	---	400.0

What is this program and what does this funding level support?

Air Traffic Management and flight operations rely on weather information for decision making. Current aviation weather processing infrastructure and capabilities are inadequate and do not meet the real-time needs of air traffic management decision support tools and operational decision-makers. Existing aviation weather products lack the spatial resolution and the timeliness necessary to assess the impact of weather phenomena on air traffic. Legacy weather system infrastructure is limited and unable to ingest and process observation, forecast, and modeling data to create high quality weather products with a longer time horizon than currently available.

A. Next Generation Weather Processor (NWP)

This program will establish a common weather processing platform that functionally replaces legacy FAA weather processor systems and hosts new capabilities. NWP uses data from the FAA and National Oceanic and Atmospheric Administration radar and sensors and forecast models. NWP includes sophisticated algorithms to create aviation-specific current and predicted weather information. NWP creates enhanced weather products that will be available via the Common Support Services-Weather system. The system will perform the weather translation necessary to enable the use of weather information by automated decision support tools. For FY 2025, $16.8 million is requested to provide the following:

- Continue NWP Solution Development and Implementation activities
- Execute Project Management oversight by the government and its support organizations
- Achieve NWP In-Service Decision
- Complete NWP First Site Operational Readiness Demonstration (ORD)

B. Common Support Services-Weather

This program will enable universal access and the standardization of weather information for dissemination to users by System Wide Information Management. Common Support Services-Weather will filter weather information by location and time. Consumers of the information published by Common Support Services-Weather will include air traffic controllers, traffic managers, commercial aviation, general aviation, and the flying public. This system will be the FAA's single provider of aviation weather data, consolidating several legacy weather dissemination systems, and will provide weather information for integration into NextGen enhanced decision support tools. Common Support Services-Weather will also be scalable to facilitate the addition of new users and new systems.

This system will make improved weather products provided by NWP, the National Oceanic and Atmospheric Administration's NextGen Information Technology Web Services, and other weather sources, available to FAA and national airspace system users for input into collaborative decision-making. Common Support Services-Weather will resolve the issue of multiple interfaces, inflexible and inefficient information data management, unique data types and point-to-point information exchange.

Implementation of this capability will provide cost savings, improvement of capacity, efficiency, and safety in adverse weather. For FY 2025, $12.6 million is requested to:

- Continue Common Support Services-Weather Solution Development and Implementation activities
- Execute Project Management oversight by the government and its support organizations
- Achieve CSS-Wx In-Service Decision (ISD)
- Complete CSS-Wx First Site Operational Readiness Demonstration (ORD)

C. Independent Operational Assessment

Additionally, for FY 2025, $400,000 is requested for an assessment to identify any safety hazards and operational concerns with NWP and Common Support Services-Weather capabilities.

What benefits will be provided to the American public through this request and why is this program necessary?

Users will be able to identify the best routes to fly based on aircraft type, flight plan and flying preferences, using optimized weather observations, improved predictions, and translation of weather information into airspace constraints. Improved weather products will enable Traffic Flow Management to plan operations that optimize airspace capacity and reduce passenger delays. Additionally, the production of advanced aviation specific weather information improves safety for the American public.

Detailed Justification for – 2A13 Airborne Collision Avoidance System X

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Airborne Collision Avoidance System X (ACAS-X) Segment 2	$0	$0	$1,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Airborne Collision Avoidance System X (ACAS-X) Segment 2	---	1,700.0

What is this program and what does this funding level support?

The Airborne Collision Avoidance System X (ACAS-X) is a family of collision avoidance capabilities that has been developed to support NextGen airspace requirements, new user classes, and to address Traffic Alert and Collision Avoidance System II shortfalls. ACAS-X Segment 2 supports the periodic software update of published ACAS-X logic, as well as textual updates to corresponding Radio Technical Commission for Aeronautics ACAS-X Minimum Operational Performance Standards to maintain National Airspace System interoperability. The $1.7 million requested is based on system performance monitoring and stakeholder feedback, and the funding will support the vetting and implementation of identified critical safety updates to ACAS-X system standards.

What benefits will be provided to the American public through this request and why is this program necessary?

This effort ensures that proper airspace system performance and interoperability are achieved within the National Airspace System and with other collision avoidance systems. It ensures the proper level of safety capability is maintained within the National Airspace System by implementing critical safety updates to ACAS-X standards and software logic as system performance issues are identified via the FAA's monitoring program.

Detailed Justification for - 2A14 Data Communications in Support of NextGen Air Transportation System

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Data Communications in Support of NextGen Air Transportation System	$103,050	$69,950	$5,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Data Communications - Segment 1 Phase 2 Initial Services	---	5,000.0

What is this program and what does this funding level support?

The Data Communications (Data Comm) program provides data communications between Air Traffic Control facilities and aircraft and serves as an enabler for the NextGen operational improvements. Data Comm is needed to bridge the gap between current voice-only air traffic control and the data-intensive NextGen operations. Data Comm enables air traffic controller efficiency improvements and permits capacity growth without requisite cost growth associated with equipment and maintenance.

Data Comm is comprised of automation enhancements for air traffic control message generation and exchange (hardware and software) and the communications data link between ground and airborne users. Current analog voice communications contribute to operational errors due to miscommunications, stolen clearances, and delayed messages due to frequency congestion. In FY 2004 and FY 2005, approximately 20 percent of En Route operational errors were voice communication related, and 30 percent of the high severity En Route operational errors were deemed communications related. Data Comm significantly reduces communications related operational errors and improves the safety of air travel.

Data Comm increases controller efficiency by automating routine exchanges. As controllers become more productive, Tower and En Route capacity will grow without the need to assign additional resources. This increase in traffic handling ability has a direct correlation to reduced delays and increased efficiency. Recent benefits analysis show airline operations are benefiting from reduced gate delay and taxi times and improved on-time performance. The busiest airport clearance delivery positions at the busiest airports are seeing the most dramatic benefit.

Data Comm services improves operations in the following manner:

- Improves flight efficiency due to improved controller and flight crew efficiency by providing automated information exchange
- Improves re-routing capabilities
- Provides more efficient routes for aircraft
- Decreases congestion on voice channels and provides an alternate communications capability
- Improves national airspace system capacity and reduces delays associated with congestion and weather
- Improves communication accuracy and safety with digital communication (i.e., reduced read/hear back errors, reduced loss of communications events)
- Reduces environmental impact due to reduced fuel burn and fewer emissions
- Reduces direct operating cost savings from increased throughput realized through reduced delays and improved communications

A. Segment 1 Phase 2 Initial En Route Services

For FY 2025, Data Comm is requesting $5 million for Segment 1 Phase 2 Initial En Route Services. This funding will be used to complete the implementation, site testing, and training activities at the remaining Continental United States Air Route Traffic Control Centers. The funding will go towards En Route Automation modernization (ERAM) prime vendor support of site testing, training, and fixing any software issues found during testing and implementation. Funding is also needed for program management, program control, implementation, operations and contract management support as well as second-level engineering support.

Segment 1 Phase 2 Initial En Route Services milestones include:

- Last Site Initial Operating Capability for En Route Services moved to FY 2025 due to impacts from Government shutdown, latent avionics, and air to ground interoperability issues and COVID-19.

Funding for Data Comm network services is being requested in the ATO Operations account for FY 2025.

What benefits will be provided to the American public through this request and why is this program necessary?

The Data Comm program delivers air-to-ground data link infrastructure and applications that enable controllers and flight crews to exchange air traffic control information more efficiently

than existing voice communications. Data Comm services enable the transmission of complex instructions that can be quickly and efficiently loaded into an aircraft's flight management system upon review and acceptance by the pilots. Program benefits include reduced communication time between controllers and flight crews, improved National Airspace System efficiency and capacity as a result of reduced delays and increased throughput, enhanced safety through the mitigation of errors that can occur over voice, and reduced environmental impacts as a result of less fuel burn and CO2 emissions. The Data Comm program is a NextGen Advisory Committee commitment and a key enabling capability for the evolution of the National Airspace System towards NextGen.

Detailed Justification for - 2A15 Offshore Automation (OA)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Offshore Automation Phase I	$48,000	$59,600	$30,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Offshore Automation Phase I	---	$30,000

What is this program and what does the funding level support?

The Offshore Automation Phase I program objective is to standardize automation platforms that support control of En Route and terminal airspace at the four non-continental United States facilities referred to as the offshore facilities: Anchorage Air Route Traffic Control Center, Honolulu Control Facility, Guam Center Radar Approach Control, and San Juan Center Radar Approach Control. These facilities do not currently have an En Route Automation Modernization or a Standard Terminal Automation Replacement System to perform air traffic control.

The program will provide nationally supported standardized automation platforms that will bring the four facilities and their systems into better strategic alignment with the Continental United States National Air Space. The program will develop solutions to improve automation redundancy and resiliency, address future lifecycle challenges associated with these facilities and systems, and increase workforce flexibility by providing standardization to the offshore facilities.

The Offshore Automation Phase I program is executing a phased approach to be more affordable. Phase 1 addresses sustainability concerns with the Offshore Flight Data Processing System in Honolulu. Offshore Flight Data Processing System is reaching end of life status due to hardware limitations with the mainframe computer that is approximately forty (40) years old, as well as challenges with retention of legacy expertise. Phase 1 will standardize the Honolulu and Anchorage En Route environment with Continental United States National Air Space En Route Automation Modernization capabilities; address Offshore Flight Data Processing System sustainability concerns at Honolulu; address software maintenance challenges by replacing the

Flight Data Processing System at Anchorage; and provide terminal and En Route support to Guam from Honolulu via En Route Automation Modernization flight data processing capability. These efforts will reduce two (2) one-off legacy systems (Offshore Flight Data Processing System and Flight Data Processing System). Initial Operating Capability at Honolulu and Anchorage will occur by FY 2028 Q1 and FY 2029 Q1, respectively.

This FY 2025 funding will also support the Final Investment Analysis for Phase 2 of the Offshore Automation program. The Phase 2 Final Investment Analysis will address the business case and scope for implementation of Standard Terminal Automation Replacement System at the remaining offshore sites.

For FY 2025, $30.0 million is requested for the following to:

- Continue preparing the infrastructure necessary to develop and deliver operational training at Honolulu Control Facility and Anchorage Air Route Traffic Control Center for Air Traffic and Tech Ops.
- Complete software development for Honolulu Control Facility functions and associated systems engineering and program management.
- Provide deployment support at Honolulu Control Facility to include hardware installation and address software changes resulting from testing and evaluation.
- Begin software development for Anchorage Air Route Traffic Control Center for Air Traffic functionality and associated systems engineering and program management.
- Complete the Anchorage Air Route Traffic Control Center for Air Traffic physical infrastructure improvements to prepare the sites for hardware installation.
- Complete the Final Investment Analysis activities for Phase 2.

What benefits will be provided to the American public through this request and why is this program necessary?

The Offshore Automation program will standardize the En Route and the terminal systems utilized by air traffic control at Anchorage Air Route Traffic Control Center, Honolulu Control Facility, Guam Center Radar Approach Control, and San Juan Center Radar Approach Control facilities.

Phase 1 will standardize En Route systems at offshore sites. The program will address sustainability risk for Offshore Flight Data Processing System at Honolulu and software maintenance challenges for Flight Data Processing System at Anchorage; provide improved controller tools, integrated flight data, and coordination thereby enhancing workforce efficiency and flexibility; enhance safety and increase system resiliency; enable evolution of the National Airspace and access to current and future NextGen technologies; and provide legacy system cost avoidance.

Detailed Justification for - 2A16 En Route Service Improvements

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
En Route Service Improvements	$1,000	$2,000	$2,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
En Route Service Improvements	---	$2,000.0

What is this program and what does the funding level support?

This program supports a category of requirements that address necessary and unplanned changes in the En Route domain. These sudden needs are the result of operational changes in the field, unanticipated changes from external organizations like the International Civil Aviation Organization, third party data providers, neighboring Air Navigation Service Providers, or potential cost-savings initiatives. The scope of these changes is limited to operational changes that do not require significant capital investments or involve significant systems complexity or system interdependencies. For FY 2025, $2.0 million is requested for operational and engineering analysis, solution development and implementation activities. This work will improve the presentation, access, and use of En Route Automation Modernization and other systems data by air traffic controllers and managers, resulting in more efficient, safer, and cost-effective delivery of En route services.

What benefits will be provided to the American public through this request and why is this program necessary?

This program will provide increased Air Traffic Management efficiency, improved target levels of safety, and enhanced productivity through the implementation of high priority En Route functional improvements. Improved interaction between the human and the systems and increasing the accuracy and use of flight data will directly enhance the timeliness and fidelity of controller decisions.

Detailed Justification for - 2A17 Commercial Space Integration

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Commercial Space Integration	$5,000	$1,000	$4,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. NAS Space Integration Capabilities	---	$2,000.0
B. ATO Space Operations Portal	---	$2,500.0

What is this program and what does the funding level support?

The Commercial Space Integration into the National Airspace System program will automate the FAA's ability to monitor and respond to launch and reentry operations in the airspace. Many of the planned commercial space missions will include new technologies that have never been undertaken such as reusable rockets, presenting an unprecedented level of complexity. Planning and execution challenges are making it increasingly difficult for the FAA to manage the growing volume of operations in the National Airspace System without significant disruptions to both space and air operators.

A. NAS Space Integration Capabilities

For FY 2025, $2.0 million is requested for investment analysis in preparation for Final Investment Decision in September 2027. Upon completion of the investment analysis, implementation of National Airspace System Space Integration Capabilities will enable space data to be displayed on existing automation systems to help FAA users ensure the availability of airspace for space launch and reentry operations while minimizing the effect of these operations on other national airspace stakeholders.

B. ATO Space Operations Portal (SpORT)

For FY 2025, $2.5 million is requested to operationalize, maintain and manage the Space Operations Portal capability on the Mission Support network. Operationalizing the Space

Operations Portal capabilities will increase operational efficiency during Pre-Mission planning, streamline artifacts and standardize data. During mission planning and preparation, the Space Operations Portal will improve situational awareness and planning for broader aviation stakeholders, reducing risk of errors due to manual coordination and communication.

What benefits will be provided to the American public through this request and why is this program necessary?

This program is necessary to support the increasing commercial space traffic with the national airspace system. This program will automate resource intensive processes and reduce the potential for human error during launch and reentry operations. This program will also help maximize availability of airspace to support space operations, while minimizing the impact on other stakeholders such as major airlines, general aviation and the general flying public.

Detailed Justification for - 2B01 Standard Terminal Automation Replacement System (STARS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Standard Terminal Automation Replacement System (STARS)	$68,000	$90,100	$136,800

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Standard Terminal Automation Replacement System (STARS) Sustainment 3	---	$20,200.0
B. Standard Terminal Automation Replacement System (STARS) Sustainment 4	---	$92,000.0
C. Standard Terminal Automation Replacement System (STARS) Sustainment 5	---	$9,400.0
D. Terminal Precipitation on the Glass	---	$6,700.0
E. Standard Terminal Automation Replacement System (STARS) - Evolution	---	$4,000.0
F. Strategic Initiatives Analysis and Validation	---	$4,500.0

What is this program and what does the funding level support?

Standard Terminal Automation Replacement System is used by Air Traffic Controllers to ensure the safe separation of both military and civilian aircraft within the nation's terminal airspace. It is a real-time digital processing and display system that replaced legacy air traffic control automation equipment at:

- 146 Federal Aviation Administration and 90 Department of Defense Terminal Radar Approach Control facilities, totaling 236
- 432 Federal Aviation Administration and 167 Department of Defense Air Traffic Control Tower facilities, totaling 599
- More than 100 systems installed and maintained at the Standard Terminal Automation Replacement System support sites that include Operational Support Facilities and the Federal Aviation Administration Academy.

A. Standard Terminal Automation Replacement System (STARS) – Sustainment 3:

This program will enable the Federal Aviation Administration to replace key elements of Standard Terminal Automation Replacement System that have reached their end of life and/or are no longer compatible with current commercial offerings. This sustainment investment will deploy products required to mitigate end of life technology issues and will ensure continued Standard Terminal Automation Replacement System reliability, maintainability, and availability. Continued sustainment investments for Standard Terminal Automation Replacement System are necessary to maintain system performance levels, respond to future security threats, and continue support for Air Traffic Control Tower operations by replacing obsolete components with modern technology. For FY 2025, $20.2 million is requested for the following work:

- Deployment of the new Operating System
- Deployment of Digital Video
- Deployment of X4000 Replacement Processors
- Preparing Standard Terminal Automation Replacement System to be compatible with either Time Division Multiplexing or Internet Protocol based communications between Terminal Radar Approach Control Facilities and Air Traffic Control Towers
- Program Office Support for program management, training, deployment, systems engineering and logistics

B. Standard Terminal Automation Replacement System (STARS) – Sustainment 4:

This investment will provide engineering, development and deployment activities that will enable the Federal Aviation Administration to replace key components of Standard Terminal Automation Replacement System that have reached their end of life and are no longer compatible with current commercial offerings. Continued sustainment investments for Standard Terminal Automation Replacement System are necessary to maintain system performance levels, respond to future security threats, and continued support for Terminal Radar Approach Control operations by replacing obsolete components (primarily in the Terminal Radar Approach Control Front Room) with modern technology.

For FY 2025, $92.0 million is requested to fund development activities associated with the next investment of sustainment activities for Standard Terminal Automation Replacement System. The program will evaluate and implement:

- Updates to the Standard Terminal Automation Replacement System Operating System and subsequent Operating System Pathfinding
- A New Terminal Controller Workstation for Full Standard Terminal Automation Replacement System sites
- New Terminal Controller Workstation Variants
- A set of qualification activities and corresponding procurement for replacement for various End of Life Standard Terminal Automation Replacement System components including:
  - Main Display Monitor
  - Processor and Data Recording Device

  - Local Area Network Switch
- Support for Standard Terminal Automation Replacement System Baseline Activities including:
  - Non-product specific hardware and software baseline activities (including anticipated scope)
  - Support for baseline day-to-day Terminal Automation Modernization and Replacement Program Office processes and operations

C. Standard Terminal Automation Replacement System (STARS) – Sustainment 5:

This investment will provide engineering, development and deployment activities that will enable the Federal Aviation Administration to replace key components of Standard Terminal Automation Replacement System that have reached their end of life and are no longer compatible with current commercial offerings. Continued sustainment investments for Standard Terminal Automation Replacement System are necessary to maintain system performance levels, respond to future security threats, and continued support for Terminal Radar Approach Control operations by replacing obsolete components (primarily in the Terminal Radar Approach Control Back Room) with modern technology. This investment will also address the GPS timing system (per FAA Order 1770.68).

For FY 2025, $9.4 million is requested to fund development activities associated with the next investment of sustainment activities for Standard Terminal Automation Replacement System. The program will evaluate solutions and initiate Investment Analysis activities for the following implement:

- Updates to the Standard Terminal Automation Replacement System Operating System
- New Terminal Controller Workstations for Standard Terminal Automation Replacement System Elite sites
- Redesign of Standard Terminal Automation Replacement System equipment racks to reduce hardware footprint and improve long-term sustainability
- A set of qualification activities and corresponding Bulk Buys for replacement for various End of Life Standard Terminal Automation Replacement System components including X4000 processor/ Data Recording Device, Main Display Monitor -4, and Tower Display Monitor.

D. Terminal Precipitation on the Glass

The Terminal Precipitation on the Glass program will provide a new source of precipitation information on the primary console for terminal Air Traffic Controllers, the Standard Terminal Automation Replacement Systems. Air Traffic Controllers in terminal environments do not have consistent access to accurate, reliable, and timely depictions of precipitation in relation to their areas of control responsibility. Poor precipitation depiction hinders the ability of the controller to issue accurate precipitation advisories, to maneuver traffic around weather efficiently, and to anticipate effectively changes to traffic patterns and separation strategies.

For FY 2025, $6.7 million is requested in order to complete development and initiate verification activities to mitigate shortfalls with existing precipitation information currently realized on STARS.

E. Standard Terminal Automation Replacement System (STARS) – Evolution

This investment is focused on the targeted evolution of STARS capabilities to include the potential future qualification of a wide-screen variant of the STARS Main Display Monitor (MDM), the data re-architecture for how STARS processes communication data, and the development of Approach Runway Verification (ARV) enhancements, as well as other potential improvements to support NAS operations.

Adding a wide-screen MDM into the STARS baseline would expand the options for existing facilities where slatwall consoles have been installed, as well as supporting potential future, multi-platform Air Traffic Control (ATC) rehosting solutions. The data re-architecture project will modify the remote tower communications architecture to better handle IP network characteristics. This includes modifications to separate multicast data streams for each tower, reduce status message traffic, and use smaller message packet sizes. ARV alerts Air Traffic Controllers (ATC)s when an aircraft is aligned with the wrong runway, with a closed runway or at the wrong airport. The ARV product enhancements will increase the usability and effectiveness of ARV for additional NAS operations.

For FY 2025, $4.0 million is requested to be utilized for both non-prime and prime vendor support for engineering investigations and resolution of identified issues, IGCE development, Thin Spec development and necessary updates, and development of the resolution proposals in support of above.

F. Strategic Initiatives Analysis and Validation

For FY 2025, $4.5 million is requested for technological advances and innovation opportunities in the interests of aviation improvements for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts, validation of commercial products offered to FAA for certification, as well as exploration of concepts for future aviation operational usage one to four years from now. These opportunities typically arise during the execution budget year after funding has been appropriated.

What benefits will be provided to the American public through this request and why is this program necessary?

Standard Terminal Automation Replacement System is the principal tool used by air traffic controllers in and around airport terminal facilities for controlling aircraft. Standard Terminal Automation Replacement System infrastructure will be expanded and sustained:

- To meet increased traffic demands
- Accommodate the introduction of new automation functions necessary for improved safety, efficiency, and capacity.

Detailed Justification for - 2B02 Terminal Automation Program

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Terminal Automation Program	$3,000	$5,100	$8,400

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. En Route Automation Program - Flight Data Input/Output Sustainment	---	$5,000.0
B. Terminal Improvements	---	2,000.0
C. Tower Data Link Services (TDLS) Sustainment	---	1,400.0

What is this program and what does this funding level support?

A. En Route Automation Program - Flight Data Input/Output (FDIO) Sustainment

The En Route Automation Program - Flight Data Input/Output Sustainment system provides standardized flight plan data, weather information, safety-related data, and Wake turbulence Re-categorization data to Air Traffic Controllers and terminal automation systems located at approximately 713 remote sites as well as Honolulu and San Juan Combined Control Facilities.

In addition, En Route Automation Program - Flight Data Input/Output provides flight data information to other mission-critical terminal automation systems which assists controllers in tracking aircraft, providing departure clearances, traffic metering, and anticipating the arrival of the aircraft in the sector under their control. The Flight Data Input/Output system also receives data from the Terminal Radar Approach Control facilities, Air Traffic Control Tower, and Radar Approach Control controllers and relays this information back to the En Route Automation Systems.

The En Route Automation Program - Flight Data Input/Output Sustainment program is based on a 5-year replacement cycle for end-of-life/obsolete equipment with fully compatible commercial off the shelf and modified commercial off the shelf

equipment in order to maintain system operational availability while implementing an Ethernet-based architecture in support of future En Route Automation Modernization, Flight Data Input/Output, and the Terminal Flight Data Manager requirements.

For FY 2025, $5.0 million is required to continue procurement of hardware and software as well as program management support to procure and deploy replacement system components at Federal Aviation Administration and Department of Defense Air Traffic Control facilities. The procurement of this hardware will help maintain operational availability as the older technology is replaced with newer equipment, ensuring the sustainability of the system.

B. Terminal Improvements

Support a category of requirements that address necessary and unplanned changes to various systems in the Terminal domain. These sudden needs are the result of operational changes in the field, unanticipated changes from external organizations (e.g. International Civil Aviation Organization (ICAO), third party data providers, neighboring Air Navigation Service Providers or potential cost-savings initiatives.

The scope of these improvements is limited to changes that do not require significant capital investments or involve significant systems complexity. The funding request for FY 2025 is $2.0 million. This funding will be used to improve the presentation, access, and use of terminal automation systems data by air traffic controllers and managers, resulting in more efficient, safer, and cost-effective delivery of terminal services.

C. Tower Data Link Services (TDLS) Sustainment

Tower Data Link Services Enterprise provides departure clearances and digital automatic terminal information service messages throughout the National Airspace System. The Tower Information Management System, a subset of the Tower Data Link Services Enterprise, is the interface between airline customers and the Tower Data Link Services system in the air traffic control tower. It receives the clearances and distributes them to the correct aircraft for flight operations center.

The Tower Information Management System server equipment and disk storage system are at the end of their service life. A failure of the Tower Information Management System will cause significant delays and cancellations for commercial airlines. They will not be able to receive clearance or pre-departure clearance messages from the air traffic control tower or transmit the clearances to the aircraft. Several large air traffic control towers have identified a noticeable lag in processing through the enterprise due to the age and performance of the tower equipment and the servers.

$1.4 million is requested in FY 2025 to support upgrades to reduce several critical and high security vulnerabilities, maintain technological currency, and maintain performance and

stability standards for air traffic control. These efforts include:

- Upgrading obsolete equipment affecting the mitigation of security vulnerabilities
- Upgrading the Tower Information Management System (a subset of the Tower Data Link Services Enterprise) test server and storage unit at the William J. Hughes Technical Center and one test system in Oklahoma City

What benefits will be provided to the American public through this request and why is this program necessary?

These projects reduce the operating and maintenance costs associated with maintaining aging hardware and software, extend the service life of the systems and provide the latest technology and security features.

Detailed Justification for - 2B03 Terminal Air Traffic Control Facilities - Replace

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
ATCT/TRACON- Replacement	$100,000	$5,150	$63,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. ATCT/TRACON- Replacement	---	$63,000

What is this program and what does this funding level support?

This program is included in the Air Traffic Control Facilities Replacement Portfolio. Funding the programs will improve and maintain the facility condition index rating at FAA facilities that provide the backbone for the National Airspace System.

The FAA provides air traffic control services from more than 500 Air Traffic Control Towers and Terminal Radar Approach Control facilities. Under this program, the FAA evaluates which buildings need to be replaced, sustained, or modernized to ensure an acceptable level of building conditions and to meet current and future operational requirements.

FAA has several Terminal Air Traffic Control facilities that have problems that impede Air Traffic Control operations. The facilities also may not have been built to meet today's technological needs, and while some facilities can be modernized or sustained, replacement may be the most efficient method for the FAA to meet operational needs and conform to current building codes and design standards.

Segment 1 funding of $10 million is requested for FY 2025 to support advanced requirements definition. Activities supported under Segment 1 include the evaluation of unique operational and maintenance requirements that impact the Air Traffic Control Tower and Terminal Radar Approach Control facilities. This funding supports the development of business cases, and mock-ups of the Airport Facilities Terminal Integration Laboratory to assist with the evaluation of the attributes of proposed airport sites, actual site selection, and other advanced engineering considerations.

Segment 3 funding in the amount of $53 million is requested for FY 2025 to support the construction phase of Anchorage, AK (ANC)

What benefits will be provided to the American public through this request and why is this program necessary?

The Terminal Air Traffic Control Facilities Replacement program provides the following benefits that are instrumental in providing efficiency and effectiveness, which in turn produces cost savings for taxpayers.

• Providing adequate space for all approved operational and support positions to enhance efficiency at the Air Traffic Control Tower and Terminal Radar Approach Control

• Providing adequate space and infrastructure for new modern equipment and systems

• Reducing the high cost of maintaining old and outdated buildings

• Increasing the overall Facility Condition

Detailed Justification for - 2B04 Air Traffic Control Tower (ATCT)/Terminal Radar Approach Control (TRACON) Facilities - Improve

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
ATCT/TRACON Facilities – Improve	$53,800	$15,000	$44,550

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. ATCT/TRACON Sustainment	---	$43,700.0
B. In-Service Engineering	---	$850.0

What is this program and what does this funding level support?

ATCT/TRACON Terminal Facilities Improve is one of the programs included in the FAA's Air Traffic Control Facilities Sustainment Portfolio. More than 50 percent of the Terminal Facilities in the National Airspace System infrastructure are more than 40 years of age and need improvement projects to bring Facility Condition Index scores into the "Good" range. FAA currently manages a $972.6 million backlog of Terminal Facilities projects and that increases the risk of facility outages. For FY 2025, $44.55 million is requested for the following:

A. ATCT/TRACON Sustainment

For FY 2025, $43.7 million is requested to initiate modifications, improvements, sustainment, and repairs to ATCT/TRACON facilities. Funding will also support system engineering activities, configuration management, facility planning, facility condition assessments, and program support services.

The ATCT/TRACON Terminal Facilities Improvement program includes projects that will enable facilities to maintain current operational, environmental, and safety needs in lieu of replacing or relocating the entire facility. This effort will result in a smooth and orderly transition of new equipment into the FAA's terminal facilities. It will also improve the operational efficiency and environment of equipment within ATCT/TRACON facilities. The upgrades and improvements to terminal facilities support the National Airspace System, and modernization strategy to achieve efficient aerospace systems and operations. Facility improvements must incorporate new requirements for relocated or replaced equipment with minimal impact on existing operations.

The program funds an average of 50 sustainment projects each year. Sustainment is defined as activities to continue the national airspace system/terminal service mission critical capability by modifying, repairing, replacing, and reconfiguring. Routine and ongoing maintenance activities are not funded by this program. The sustainment projects include many sites throughout the national airspace system and consist of efforts such as mechanical, electrical, elevators, and plumbing.

B. In-Service Engineering

For FY 2025, $850,000 is requested for in-service engineering to promote the improvements and allow for immediate response and tactical distribution in response to emerging solutions.

What benefits will be provided to the American public through this request and why is this program necessary?

The benefits of the ATCT/TRACON Terminal Facilities Improve program are that repairs will be made to critical infrastructure that facilitates the movement of air traffic. These repairs will increase the overall Facility Condition Index of those facilities and reduce the risk of air traffic control outages by providing safe, secure, resilient, and efficient buildings that meet modern codes. These improvements reduce the ongoing cost of operational maintenance at these facilities.

Detailed Justification for – 2B05 NAS Facilities Occupational Safety and Health Administration (OSHA) and Environmental Standards Compliance

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
National Airspace System Facilities OSHA and Environmental Standards Compliance	$24,200	$24,400	$35,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
NAS Facilities OSHA and Environmental Standards Compliance	---	$35,000.0

What is this program and what does this funding level support?

The Air Traffic Organization National Airspace System Facilities OSHA and Environmental Standards Compliance Program provides occupational safety and environmental risk management technical expertise. This work supports compliance with applicable safety and environmental protection standards and mitigate identifiable hazards in the Air Traffic operational workplace.

Air Traffic Organizations acquisitions, installations, modifications, and operations must comply with a wide variety of safety and environmental protection standards. These governing areas range from fire and life safety, electrical safety, and fall protection for our facilities through the storage and disposition of hazardous wastes and materials.

The Environmental and Occupational Safety and Health (EOSH) Services provide safety and environmental protection and risk management support management expertise through the life cycle of Air Traffic operations. EOSH professionals consult in the planning phases of retrofitted and new construction efforts to mitigate risks and even completely engineer out hazards at the earliest possible point. EOSH professionals devise, develop, and publish orders, policies, procedures, and practices that promote cultural risk management. EOSH professionals conduct job hazard analyses and facility inspections to identify actual and potential risks. Risk mitigation plans are developed and enacted. Risk mitigation methodologies include educational opportunities focused on safety and environmental risks, application of risk awareness and

mitigation techniques through modification of existing Air Traffic assets. The EOSH program performs data analyses to identify, track, and mitigate emerging or recurrent risk concerns.

EOSH program risk management efforts include:

- Protect employees and the environment
- Prevent damage and loss of FAA resources
- Promote a culture of safety and environmental responsibility

For FY 2025, $35.0 million is requested to provide technical compliance expertise to address agency, Federal, State, and local environmental and safety regulations, and binding commitments. Primary focus areas include:

- Employee Health/Industrial Hygiene
- Fire and Life Safety
- Fall Protection
- Environmental Compliance
- Occupational Safety
- Service Area Technical Implementation
- Electrical Safety Hazard Analysis
- Asbestos
- Confined Space
- Job Hazard Analysis
- Requirements and Compliance Assurance

Non-compliance with Federal, State, and local environmental, safety, health, legal, and other requirements imposes significant liabilities on the FAA. These can be in the form of personnel injury or loss, interruptions to national airspace system operations, violations of bargaining unit agreements, post-incident response actions (such as costly cleanups), and a decrease in employee morale. Failing to manage safety and environmental risks also incurs short term and long-term financial impacts for the agency. Employee injuries directly affect not only the injured worker, with lost time and productivity, but also require the cost and time commitments associated with first and second level responders, generate unplanned workload for post incident investigatory and administrative personnel, and create personnel backfill requirements to achieve the continuing mission.

What benefits will be provided to the American public through this request and why is this program necessary?

The program goal is to identify and reduce or eliminate occupational hazards and environmental liabilities present in FAA operations through a combination of compliance policies and procedures, continuous hazard identification and monitoring, targeted training, deployment of protective measures, and hazard abatement activities. These efforts reduce occupational safety and environmental risks, resulting in a safer, healthier workforce, reduced employee injuries and associated costs, a strong agency compliance posture, and reduced impacts to FAA operations. These efforts also put the FAA in compliance with several Federal and State compliance regulations.

Detailed Justification for - 2B06 Integrated Display System (IDS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Integrated Display System (IDS)	$52,000	$52,250	$45,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Enterprise Information Display System (E-IDS) Phase 1	---	$40,500
B. Enterprise Information Display System (E-IDS) Phase 2	---	5,000

What is this program and what does this funding level support?

E. Enterprise Information Display System (E-IDS) Phase 1

In the National Airspace System (NAS), Information Display Systems (IDS) are used operationally in facilities that include En Route Air Route Traffic Control Centers, Terminal Radar Approach Control facilities, Center Radar Approach Control facilities, and Airport Traffic Control Towers. These systems provide air traffic controllers across the entire country with auxiliary information that complements the information provided on their primary displays (i.e. radar displays). External entities (e.g. Department of Defense, airlines, airport authorities) also use or interface with these systems.

Information displayed on IDS consists of dynamic information like weather observations from airport surface weather sensors, airport runway status, visibility information, and static information such as airport diagrams, approach charts, and facility directives. The FAA plans to address obsolescence and end-of-life issues of older IDS systems and the separate maintenance, sustainment, and logistics pipelines for each system. The work under this program will allow the new IDS system to interface and integrate with NAS Enterprise Services and System Wide Information Management-enabled information services and comply with existing and future national airspace security policies.

Enterprise-IDS will replace five legacy IDS currently in use at just over 450 facilities, namely:

- Information Display System Model 4, Automated Surface Observing System Controller Equipment-IDS, and National Airspace System Information Display System that are all used in the Terminal Environment

- En Route Informational Display Systems are used at Air Route Traffic Control Centers

- Air Traffic Control Specialist Auxiliary Information Display used in the Anchorage, Alaska Air Route Traffic Control Center

This program will replace legacy IDS with an enterprise system consisting of a common hardware and software platform. The approach provides a standardized configuration that simplifies the logistics pipeline, reduces training needs, and provides national configuration management. The new Enterprise-IDS will allow users to work efficiently by providing timely display and correlation of relevant operational information simultaneously on an integrated geospatial display.

Enterprise-IDS will provide each user access to information coupled with accurate data filtering, easy-to-use sorting and searching capabilities, and quick reference information. Information managed and displayed will include Notices to Air Missions, Special Activity Airspace schedule information, weather products, Pilot Reports, and facility-specific information entered by users.

For FY 2025, $40.5 million is requested to support multiple prime contractor and program office activities: prime software development; completion of development test and operational test activities; development of training and technical manuals; and the start of Phase 1 implementation (site surveys, local static data collection) for multiple facilities. The funding will also provide contractors for program support including budget, scheduling, earned value management, risk management, testing, implementation, systems engineering, and logistics. Enterprise-IDS plans to achieve the Development Test and Operational Test milestones in FY 2025.

B. Enterprise Information Display System Phase 2

A phased strategy for system development and deployment with budget constraints was presented to the FAA's Capital Investment Team in August 2018 to address end-of-life issues for the Information Display System-4, Automated Surface Observing System Controller Equipment Information Display System, NAS Information Display System, and En Route Information Display System. The Joint Resource Council approved the Final Investment Decision for E-IDS Phase 1 on June 17, 2020, and the Enterprise-IDS prime contract was awarded on July 3, 2020. The E-IDS phased strategy will partition the previously defined Enterprise-IDS program into multiple

deployments with specific objectives to be completed for each phase.

For FY25, $5 million is requested for investment analysis work to develop all JRC checklist deliverables to support E-IDS Phase 2 Final Investment Decision planned for November 2026. Enterprise-IDS Phase 2 planned scope also includes deployment of an additional approximate 400 facilities.

What benefits will be provided to the American public through this request and why is this program necessary?

Enterprise-IDS will provide multiple safety benefits to the American public. It will provide increased productivity, user efficiency, and national airspace system safety by displaying, entering, and distributing Notices to Air Missions, and access to Special Activity Airspace schedule and status. This system will also enhance safety in the national airspace system with Pilot Reports collection and distribution across the system enterprise and to other national airspace system users. Improving national airspace system resiliency by supporting faster recovery during adverse events and providing required operational position information to any other properly configured position in the national airspace system will support Air Traffic Management service providers in maintaining continuity of operations.

By replacing multiple legacy IDS that are approaching obsolescence, Enterprise-IDS, as a single system, will reduce sustainment costs and increase program oversight efficiencies compared to the cost of maintaining multiple legacy systems.

Detailed Justification for - 2B07 Terminal Flight Data Manager (TFDM)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Terminal Flight Data Manager (TFDM)	$61,800	$45,200	$59,100

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Terminal Flight Data Manager (TFDM)	---	54,700.0
B. Strategic Initiatives Analysis and Validation	---	$4,000.0
C. Independent Operational Assessment	---	$400.0

What is this program and what does this funding level support?

The Terminal Flight Data Manager (TFDM) program will provide the equipment and software for the collection, distribution, and update of electronic flight data information in the terminal area and will improve access to information for the safe and efficient control of air traffic. Terminal Flight Data Manager decision support tools will improve system efficiency by developing runway-specific departure schedules, predicting capacity-demand imbalances, and allowing for the implementation of metering programs that reduce congestion on the airport surface. Terminal Flight Data Manager will automate manual flight data processes to enable enhanced data sharing between the Tower, En Route, Approach Control, Traffic Flow Management and Flight/Airline Operations Centers.

A key component of the Terminal Flight Data Manager system is the transition from paper flight strips to electronic flight data representation and exchange. This will facilitate enhanced flight data exchange between controllers within the tower, those in other air traffic control facilities, and those overseeing traffic flow management systems. This will also facilitate data exchange with key stakeholders such as the airlines' flight operations centers and airport operators to share real-time updates on expected departure times, gate changes and runway assignment requests. Providing flight data in electronic format eliminates the necessity of the physical exchange of flight data, reduces telephone call volume between facilities and reduces the manual re-entry of data among multiple air traffic control systems. Air traffic controllers will have more heads-up time, looking out the window to focus on the surface traffic, therefore, increasing safety.

Another key component of the Terminal Flight Data Manager system is the introduction of a surface scheduler/metering capability. Terminal Flight Data Manager will provide the basis for efficient management of traffic flows on the surface at United States airports. It will transition airport surface operations from a "first come, first served" model (all planes lining up on the taxiway with engines running waiting to take off). Terminal Flight Data Manager will create a strategic model that allocates taxi clearances to minimize taxi time (planes are given a specific time slot for departure and they start engines and leave the gate at that precise time to taxi and take off). This will reduce fuel burn and carbon dioxide (CO_2) emissions.

Final Investment Decision was approved in June 2016 to proceed to contract award and begin solution development and implementation. The prime contract was awarded in June 2016. Originally, the program's implementation plan was based on a two software build approach and deployment to 89 airports from FY 2020 to FY 2028. The pandemic and budget cuts have necessitated the creation a new strategic plan. The plan was presented to the JRC and approved August 2022. The JRC approval of the TFDM Strategic Plan includes the reduction of 40 sites from the TFDM waterfall (89 sites to 49 sites) and a slowdown of the yearly deployment rate. The TFDM program anticipates the revised strategy brings the last site ORD back in by 24 months to February 2030. The Build 1 software provides the electronic flight data capabilities, while the Build 2 software provides the decision support capabilities to enable Terminal Flight Data Manager surface scheduling and metering. Terminal Flight Data Manager is currently active at six Air Traffic Control Towers (Cleveland, Indianapolis, Phoenix, and Raleigh-Durham, Columbus (OH), and Las Vegas).

A. Terminal Flight Data Manager

For FY 2025, $54.7 million is requested to complete implementation of Build 1 and to achieve In-Service Decision of Terminal Flight Data Manager Build 2. In addition, the program will be upgrading all of Build 1 sites to Build 2. The Prime Contract costs for FY 2025 will cover the anticipated key milestones outlined below. The requested funding will also provide Program Management and Technical Support resources to support the Terminal Flight Data Manager Program Office in the planning, oversight, and management of the Prime Contractor.

Terminal Flight Data Manager has integrated into the National Airspace System at four sites and has program interdependencies for data exchanges with numerous other Federal Aviation Administration systems. The costs associated with other system interfaces and modifications required to deliver Terminal Flight Data Manager capabilities is included in the Terminal Flight Data Manager cost baseline. In FY 2025, Terminal Flight Data Manager will continue to fund maintenance of these interfacing systems until Ops funding is available.

Anticipated key milestones for FY 2025 are summarized below:

- Complete site surveys at seven sites
- Complete hardware installations at five sites
- Achieve Build 2 Independent Operational Assessment (APB Milestone)
- Achieve Build 2 In-Service Decision (APB Milestone)
- Achieve Build 2 First Site Operational Readiness Decision (APB Milestone)
- Complete Build 2 Initial Operational Capability at four additional sites

- Upgrade eight sites from Build 1 to Build 2 software

B. Strategic Initiatives Analysis and Validation

For FY 2025, $4.0 million is requested for technological advances and innovation opportunities for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts, validation of commercial products offered to FAA for certification, as well as exploration of concepts for future aviation operational usage one to four years from now.

C. Independent Operational Assessment

For FY 2025, $400,000 is requested for an assessment to identify any safety hazards and/or operational concerns with Build 2 activities.

What benefits will be provided to the American public through this request and why is this program necessary?

This program focuses on gaining efficient flow and management of aircraft on the surface at selected metroplex airports and the complex terminal airspaces within the national airspace system. High density airports typically see higher demand for runway capacity, operate multiple runways, and have complex airspace and ground interactions in the arrival and departure phases of flight. The surface capabilities resulting from this program are expected to improve the efficiency of individual flights while optimizing runway throughput. This system will make air travel safer for the flying public, help reduce passenger delays leading to a better traveling experience and contribute to less pollution.

Detailed Justification for - 2B08 Unmanned Aircraft System (UAS) Implementation

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Unmanned Aircraft System (UAS) Implementation	$5,000	$5,000	$10,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated ($000)
Small Unmanned Aircraft Systems (UAS) Implementation	---	$10,000.0

What is this program and what does the funding level support?

Unmanned Aircraft System (UAS) operations in the public and civil sectors have expanded exponentially since their introduction. Advances in UAS technology and new applications have increased demand for airspace accessibility and UAS integration. Considering these developments, Air Traffic products, policies, and procedures must be reviewed and refined, or developed through supporting research, to permit UAS operations and other new entrants to secure the future of the National Airspace System (NAS).

This program is used to operationalize and implement new UAS Traffic Management programs and capabilities. UAS traffic management capabilities that will be in the implementation phase in FY 2025 are Low Altitude Authorization and Notification Capability (LAANC), Drone Zone, Drone Information for Safety, Compliance, Verification, and Reporting (DISCVR), and UAS Geospatial Management System. Low Altitude Authorization and Notification Capability is a complimentary program to Drone Zone. Both systems use the FAA's Cloud Infrastructure and share a common architecture. Additional small Unmanned Aircraft Systems (sUAS) capabilities are being developed incrementally and are informed by several concurrent activities during development.

The FAA Drone Zone platform supports the backend Information Technology systems that run LAANC. Drone Zone supports the UAS Traffic Management operating environment by allowing registered UAS to be identified to stakeholders. Drone Information for Safety, Compliance, Verification, and Reporting offers data correlation service across multiple data sets aimed to improve searching, sorting, and viewing FAA Drone Zone and LAANC data in real-

time. The program is working with stakeholders outside of the Air Traffic Organization expand user access while maintaining security protocols. UAS Geospatial Management System provides an authoritative central resource for geospatial information to support all NAS operations. It is a foundational infrastructure element for current and upcoming UAS integration efforts, facilitating FAA UAS Data Exchange and ultimately enabling Unmanned Aircraft System Traffic Management.

For FY 2025, $10.0 million is requested to:

- sUAS/LAANC and UAS Services Development
- sUAS/LAANC and UAS Services System Engineering (e.g., session ID, Advanced Air Mobility, Beyond Visual Line-of-Sight network)
- Development of the UAS Geospatial Information Management System to support UAS Flight Restrictions and enhance the Geospatial Data Feed Service
- Technology transfer of Drone Zone, LAANC and DISCVR capabilities to the FAA Cloud Services
- Continued to deploy Cyber Security enhancement to support UAS ecosystem and systems interactions.

What benefits will be provided to the American public through this request and why is this program necessary?

Low Altitude Authorization and Notification Capability is expected to continue enhancements of the overall data exchange model with UAS Service Suppliers to increase access to airspace in more locations across the NAS, distribute additional flight information via machine-to-machine protocols, and other advanced features to support sUAS operations as new entrant integration continues. As new use cases emerge, LAANC will continue to evolve to meet the needs of the public and private sectors. The expansion of the DISCVR user base will also promote agency collaboration to improve security operations by incorporating new search functionality and mapping features.

The UAS programs play a critical role in enabling UAS operations in the NAS without impacting manned aircraft operations and creating disruptions or delays, and ensuring operations will be as safe as or safer than they are today. Government cost of allowing UAS operations will decrease from the reduction of "exception handling" of UAS flights. Improvements to national airspace system capabilities and operations will be made cost effective due to the integrated framework approach to addressing needs and solutions.

Detailed Justification for - 2B09 Airport Ground Surveillance Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Airport Ground Surveillance Portfolio	$18,000	$33,200	$105,200

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Airport Surface Detection Equipment – Sustainment	---	20,000.0
B. Runway Status Lights Sustainment	---	10,000.0
C. Navigation Aids Monitoring Equipment	---	6,300.0
D. Runway Incursion Device (RID)	---	12,700.0
E. Airport Surface Detection Equipment – Model 3 Surface Movement Radar Replacement	---	16,600.0
F. Surface Awareness Initiative	---	33,200.0
G. Strategic Initiatives Analysis and Validation	---	6,000.0
H. NAVAIDs Monitoring Equipment – Independent Operational Assessment (IOA)	---	400.0

What is this program and what does this funding level support?

This program maintains surface safety by ensuring continuing functionality of all surface surveillance capabilities that have led to increased runway safety, improved efficiency in air traffic, and increased airport throughput.

A. Airport Surface Detection Equipment Sustainment

The Airport Surface Detection Equipment Sustainment program will address maintainability and obsolescence issues associated with the Airport Surface Detection Equipment – Model X and Airport Surface Surveillance Capability systems. The existing Airport Surface Detection Equipment-Model X systems at airports and Airport Surface Surveillance Capability systems that are surface surveillance systems that use radar, multilateration (a surveillance technique based on measurement of the times of arrival of aircraft and vehicle transponder signals at multiple receivers), and Automatic Dependent Surveillance-Broadcast

to track aircraft and vehicles. These systems help air traffic controllers prevent surface collisions and reduce runway incursions by improving situational awareness.

The Airport Surface Detection Equipment Sustainment activity will address the following:

- Aging non-cooperative Surface Movement Radars and infrastructure
- Obsolescence, depleting inventory levels, and necessary technological updates
- Decommissioning, removing, and disposing obsolete equipment

For FY 2025, $20.0 million is requested to support multiple sustainment projects addressing component obsolescence and infrastructure repair and refurbishment. The program received its Investment Analysis Review Decision in the third quarter of FY 2020.

B. Runway Status Lights Sustainment

The Runway Status Lights Sustainment program activity will address maintainability, obsolescence, and information technology security issues associated with the Runway Status Light system. Replacing obsolete Commercial Off-the-Shelf hardware with newer generation hardware and updating the software to current technology will ensure the continued sustainable, reliable, and cost-effective operation of the system throughout its life cycle. The Runway Status Lights system integrates airport lighting equipment with surface surveillance systems to provide a visual signal to pilots and vehicle operators indicating that it is unsafe to enter, cross, or begin takeoff on the runway. The system has automated light control logic that commands in-pavement lights to illuminate red when there is traffic on or approaching the runway.

The Runway Status Light Sustainment activity will address the following:

- Aging Field Lighting System equipment
- Obsolescence, depleting inventory levels, and Information System Security deficiencies

For FY 2025, $10.0 million is requested to support testing of replacement processor and ancillary equipment including procurement of updated hardware and software, and deployment of updated field lighting system equipment. The program received its Investment Analysis Review Decision in the third quarter of FY 2020.

C. Navigation Aids Monitoring Equipment

The Navigation Aids Monitoring Equipment program will replace or upgrade legacy consolidated air traffic control and monitoring systems operating in the national airspace system. Two legacy consolidated systems are used in the national airspace; the Interlock Control and Monitoring System and the FA-30000. These systems, typically located in the tower and equipment room, are used by air traffic control specialists and airway transportation system specialists for controlling and monitoring a predefined set of Navigation Aids. These systems include Instrument Landing Systems, Airport Lighting Systems, Runway Visual Range equipment, Runway End Identifier Lights, Precision Approach Path Indicator light arrays, and other Navigation Aids located at an airport. The Navigation Aids Monitoring Equipment program will provide a common requirements baseline across all systems. The Navigation Aids Monitoring Equipment will be deployed at 32 airports across the national airspace system. The program received a Final Investment Decision in December 2020.

For FY 2025, $ 6.3 million is requested to perform the following solution implementation activities:

- Program Management Support
- Systems Engineering Support
- Integrated Logistics Support
- Implementation Planning
- Site Activation

D. Runway Incursion Device

The Runway Incursion Device program will address maintainability, obsolescence, and baseline control issues associated with Runway Incursion Devices. Replacing these devices will ensure that the devices are standardized and supportable into the future. These devices are memory aid devices used by air traffic control to augment situational awareness of occupied and closed runways. They provide a visual and aural alert to controllers when a runway is not available for departing or landing aircraft.

For FY 2025, $12.7 million is requested for procurement of Runway Incursion Device hardware, site preparation and installation activities.

E. Airport Surface Detection Equipment – Model 3 Surface Movement Radar Replacement

The Airport Surface Detection Equipment – Model 3 Surface Movement Radar Replacement program will replace aged surface movement radars with updated surface movement radars based on current technology. This will ensure non-cooperative surveillance is provided to the Airport Surface Detection Equipment – Model X and Airport Surface Surveillance Capability systems.

For FY 2025, $16.6 million is requested to support site preparation, design, development, and test of the new surface surveillance radar.

F. Surface Awareness Initiative

The Surface Awareness Initiative program will deploy surface situational aids to airports which currently do not have a surface surveillance system, and other solutions to reduce runway incursions. This may include technology that displays airport surface activity to controllers in towers as well as helps increase overall awareness for controllers in towers. For FY 2025, $33.2 million is requested to support acquisition activities, equipment procurement, and site preparation and installation activities.

G. Strategic Initiatives Analysis and Validation

For FY 2025, $6.0 million is requested for technological advances and innovation opportunities for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts, validation of commercial products offered to FAA for certification, as well as exploration of concepts for future aviation operational usage one to four years from now.

H. **NAVAIDS Monitoring Equipment – Independent Operational Assessment (IOA)**

For FY 2025, $400,000 is requested for an assessment to identify any safety hazards and/or operational concerns with the Navigation Aids Monitoring Equipment system capabilities.

What benefits will be provided to the American public through this request and why is this program necessary?

This program enhances runway safety while maximizing operational efficiency and ensuring airport capacity. The reduction of runway incursions has been identified as one of the FAA's most important safety initiatives.

Detailed Justification for - 2B10 Terminal and En Route Surveillance

Portfolio ($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Terminal and En Route Surveillance Portfolio	$113,000	$92,300	$95,650

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Air Traffic Control Beacon Interrogator Model 6 Sustainment	---	$2,800.0
B. Air Traffic Control Beacon Interrogator Model 5 Sustainment	---	400.0
C. Airport Surveillance Radar Model 9 Sustainment 3	---	3,400.0
D. Airport Surveillance Radar Model 9 Sustainment 4	---	12,000.0
E. Airport Surveillance Radar Model 8 Sustainment 1	---	4,700.0
F. Airport Surveillance Radar Model 11 Sustainment 3	---	10,000.0
G. Airspace Non-Cooperative Surveillance Radar (ANSR)	---	5,000.0
H. Mode Select Replacement Phase 1A	---	15,000.0
I. Mode Select Beacon Replacement System Phase 1B	---	29,600.0
J. Mode Select Sustainment 4	---	3,200.0
K. Airport Surveillance Radar Model 11 Sustainment 4	---	6,400.0
L. Strategic Initiatives Analysis and Validation	---	2,150.0
M. In-Service Engineering	---	1,000.0

What is this program and what does this funding level support?

The current stock of FAA non-cooperative and cooperative Surveillance Radars are aging. This inventory includes systems such as the Air Traffic Control Beacon Interrogator-5 and the Airport Surveillance Radar-8, which were both originally fielded in the 1970s, and the Airport Surveillance Radar Model 9, which was originally fielded in the mid-1980s. While many of these systems will eventually be replaced, they must be maintained until replacement systems are fully fielded to prevent gaps in radar coverage. Many of these radar systems will remain in place and require sustainment past 2035.

A. Air Traffic Control Beacon Interrogator Model 6 Sustainment

The Air Traffic Control Beacon Interrogator Model 6 is a Monopulse cooperative Surveillance Radar with selective interrogation capability that significantly improves the accuracy of aircraft position and altitude data provided to air traffic control automation systems. The original Air Traffic Control Beacon Interrogator Model 6 project commissioned the first system in FY 2002 and the last system in FY 2013. This sustainment project will determine the retrofit requirement for the 132 operational and seven (7) support systems, to ensure sustainment until divested or replaced. The project plans to procure form, fit, and function and/or redesign replacements, as required. For FY 2025, $2.8 million is requested for contractor support, program management, second level engineering analysis, portfolio acquisition activities, and procurement activities supporting components that include:

- Windows Control and Monitoring Computer
- Global Positioning System Time Source
- Video and Timing Board
- Position Adjustable Range Reference Orientation Transponder Site Monitoring Hardware
- Common Plot Extractor/Backplane

B. Air Traffic Control Beacon Interrogator Model 5 Sustainment 1

The Air Traffic Control Beacon Interrogator Model 5 is a Cooperative Surveillance Radar System that provides aircraft data for air traffic controllers in En route and Terminal Airspace. These systems are currently installed at 54 airports and five (5) Department of Defense (DoD) facilities where they are co-located with Airport Surveillance Radar Model 8s and Model 9s. Additionally, there are four (4) support systems at the Mike Monroney Aeronautical Center and the William J. Hughes Technical Center. The Air Traffic Control Beacon Interrogator Model 5 was originally commissioned in 1973. The system is currently over 40 years old and has significantly exceeded the expected 20-year lifecycle. This technology refresh project will sustain the entire system of obsolete Air Traffic Control Beacon Interrogator Model 5 equipment, including original, manufacturer peculiar, and commercial off-the-shelf hardware and software. This will ensure the continued reliable and cost-effective operation of the Air Traffic Control Beacon Interrogator Model 5 until divested or replaced. For FY 2025, $400,000 is requested for contractor support, program management support, Modulator and Exciter Assembly and portfolio acquisition activities.

C. Airport Surveillance Radar Model 9 Sustainment 3

The Airport Surveillance Radar Model 9 system was procured in the mid-1980s, fielded between 1989 and 1994, and has significantly exceeded the expected 20-year lifecycle. This Sustainment project continues the phased strategy to extend the service life of the Airport Surveillance Radar Model 9 systems, implementing modifications to sustain non-cooperative radar surveillance in terminal airspace. The Airport Surveillance Radar Model 9 uses hardware and software architectures that are becoming obsolete. Without modifications, the radar system will experience decreasing reliability, lowering availability, and increasing supportability risks due to the limited commercial availability of some critical components. Airport Surveillance Radar Model 9 Sustainment 3 achieved a successful Final Investment Decision in March 2018, to keep the systems operational. For FY 2025, $3.4 million is requested for implementation of data communication equipment, program management, second level engineering support and FAA Enterprise Network Services.

D. Airport Surveillance Radar Model 9 Sustainment 4

The Airport Surveillance Radar Model 9 system was procured in the mid-1980s, fielded between 1989 and 1994, and has significantly exceeded the expected 20-year lifecycle. The Airport Surveillance Radar Model 9 Sustainment 4 project will continue to address and conduct an in-depth analysis of alternatives to determine the optimal sustainment strategy for these radar systems to ensure the availability of critical terminal surveillance services until divested or replaced. For FY 2025, $12.0 million is requested for contractor support, program management, second level engineering analysis, and Terminal En Route Surveillance (TES) Technical Refresh Portfolio (TRP acquisition activities. This work will include support for the following projects:

- Antenna Control Box Replacement
- Multi-Voltage Power Supply
- Remote Maintenance Subsystem Computer Replacement
- 9- Processor Augmentation Card
- Critical Fan Monitoring
- Waveguide Pressurization System Monitoring
- Delay Line
- Directional Couplers Refresh
- Centrifugal Blower
- Data Collect / Select CCA
- System Timing Units (STU) B
- Power Supply Module J Redesign
- Power Supply Module L1 Redesign
- Vacuum Pump Power Supply Redesign

- Clutter Map Memory
- Transmitter RMS Interface

E. Airport Surveillance Radar Model 8 Sustainment 1

The Airport Surveillance Radar Model 8 systems were fielded between 1975 and 1980 to provide non-cooperative surveillance radar data to air traffic controllers at low and medium-activity airports. The system is currently over 40 years old and has significantly exceeded the expected 20-year lifecycle. There are currently 40 operational and four support systems in the National Airspace System. The Airport Surveillance Radar Model 8 sustainment project will replace or redesign obsolete hardware and software to sustain these non-cooperative surveillance radar systems until divested or replaced. The receiver portion of the system is being modernized by the Common Terminal Digitizer to enable the analog data to interface to the new Standard Terminal Automation Systems. For FY 2025, $4.7 million is requested for contractor support, program management, second level engineering design, development and test, portfolio acquisition activities and procurement activities supporting projects that include:

- Radio Frequency Input Redesign
- ASR-8 Replace Processor and Sensitivity Time Control
- A2 Cabinet Modernization
- Transmitter Improvement
- Antenna Encoder and Positioning Upgrade
- High Voltage Oil Inspection

F. Airport Surveillance Radar Model 11 Sustainment 3

The Airport Surveillance Radar Model 11 system was procured in the early 2000s, fielded between 2003 and 2013, and has exceeded the expected 20-year lifecycle. There are currently 69 operational and 3 support systems in the national airspace system. The Airport Surveillance Radar Model 11 Sustainment 4 project will continue to address parts obsolescence maintenance issues, and current national airspace system requirements to ensure continued reliable and cost-effective operation of the radar systems until divested or replaced. The program plans to procure form, fit and function and/or redesign replacements, as required. For FY 2025, $10.0 million is requested for design and development, test, initial hardware procurements, integrated logistics support and program management.

G. Airspace Non-Cooperative Surveillance Radar (ANSR)

The Airspace Non-Cooperative Surveillance Radar project will identify, quantify and implement a cost-effective long-term obsolescence solution for Airport Surveillance Radar Models 8, 9 and 11. Existing sustainment projects are only addressing urgent obsolescence projects and do not improve the long-term sustainment posture of these

Airport Surveillance Radar Systems. The ASR-R strategic initiative project will work across the agency and within the Portfolio to develop either a full system or a phased subsystem replacement strategy (receiver/processor, transmitter, and antenna) that can be retrofitted in the existing 230+ Airport Surveillance Radars, to continue supporting the non-cooperative surveillance air traffic service within the National Airspace System. The solutions developed for the FAA Airport Surveillance Radars will also address emerging windfarm radar interference and will be available to the additional 100+ Department of Defense Airport Surveillance Radars. For FY 2025, $5.0 million is requested for contractor support to assist investment analysis activities to reach Final Investment Decision in FY 2027. Budget request directly supports program management, engineering, and acquisition actions that include Integrated Master Schedule development/sustainment, requirements gathering, engineering analysis, logistics, cyber security and prototype, test, and demonstration activities.

H. Mode Select Replacement System Phase 1A

The legacy Mode Select System is a Cooperative Surveillance Radar that supports Air Traffic Control in Terminal and En Route airspaces. The Mode Select also interrogates and receives aircraft identification and altitude information from equipped aircraft. There are currently 137 operational and 11 support systems in the national airspace system. The legacy system is more than 25 years old and suffers from a shortage of replacement parts and/or repair capabilities. The Mode Select Beacon Replacement System Project will replace unsustainable portions of the legacy Mode Select system with a design that incorporates modern surveillance interfaces, defends and mitigates cyber security threats, and provides modifications needed to ensure supportability and sustainment. Phase 1 of this Project will address critical obsolescence and end of service life issues for terminal Cooperative Surveillance Radar systems that will remain in the national airspace system for the foreseeable future. Phase 1 is divided into two parts. Phase 1A will include design, development and test, and limited production with a total number of nine systems. The project will replace the legacy Mode Select system, with a procurement of a Mode Select Beacon System; the existing antenna, encoder, and rotary joint will be retained.

For FY 2025, $15.0 million is requested for finalizing first article systems, program management support, System Security Services, configuration management, procurement of limited production sites, implementation activities, Interim Contractor Depot Logistic Support, site survey, and training course conduct.

I. Mode S Beacon Replacement Phase 1B

Mode S Beacon Replacement Phase 1B will procure and deploy Mode S Beacon Replacement Systems to replace a select combination of Mode S, Air Traffic Control Beacon Interrogator Model 5, Air Traffic Control Beacon Interrogator Model 6, and Air Traffic Control Beacon interrogator Model 6M systems to meet the critical sustainment needs of each cooperative system configuration. For FY 2025, $29.6 million is requested to start the procurement of systems, associated spares, training,

implementation activities and program management support. The Mode S Beacon Replacement Systems program is planning to return to the JRC in FY 2024 for Phase 1B approval. Funding for investment analysis has been provided within Phase 1A.

J. Mode S Sustainment 4

The Mode Select (Mode S) system has been in operations since 1989, the systems are over 30 years and has significantly exceeded the expected 20-year lifecycle. Mode S is being replaced with the Mode Select Beacon Replacement System. The Legacy Mode S systems will continue to address and conduct an in-depth analysis of alternatives to determine the optimal sustainment strategy for these radar systems until replaced by the Mode Select Beacon Replacement System. For FY 2025, $3.2 million is requested for contractor support, program management, second level engineering analysis, portfolio acquisition activities and procurement activities supporting the following projects:

- Blower assembly
- Radio Frequency Test Target Generator Printed Wiring Assembly
- Radio Frequency Test Target Generator Attenuator
- Monopulse Diplexer
- Common Digitizer 2 System Monitor Redesign
- Video Trigger Driver

K. ASR-11 Sustainment 4

The Airport Surveillance Radar Model 11 system was procured in the early 2000s, fielded between 2003 and 2013, and has exceeded the expected 20-year lifecycle. There are currently 69 operational and three support systems in the National Airspace System. The Airport Surveillance Radar Model 11 Sustainment 4 project will continue to address parts obsolescence maintenance issues, and current National Airspace System requirements to ensure continued reliable and cost-effective operation of the radar systems until divested or replaced. The program plans to procure form, fit and function and/or redesign replacements, as required. For FY 2025, $6.4 million is requested for design and development, test, and hardware procurements.

L. Strategic Initiatives Analysis and Validation

For FY 2025, $2.15 million is requested for technological advances and innovation opportunities in the interests of aviation improvements for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts, validation of commercial products offered to FAA for certification, as well as exploration of concepts for future aviation operational usage one to four years from now.

M. In-Service Engineering

In addition, $1.0 million is requested to allow immediate response and tactical distribution of in-service engineering resources to emerging technology solutions across the entire surveillance portfolio.

What benefits will be provided to the American public through this request and why is this program necessary?

We are committed to our mission and moving forward to sustain radar surveillance services by implementing safety, security, and technological enhancements to bridge critical system capabilities until replaced or divested. Any outage disruptions increase risk to the safety, efficiency, capacity, and infrastructure of the National Airspace System.

These systems provide critical non-cooperative and cooperative target data as well as weather information. The potential loss of these radars can have a ripple effect on air traffic operations by creating operational inefficiencies in the National Airspace System such as an increase in aircraft separation, loss of real-time weather data, and loss of aircraft identification information. This can lead to loss of separation, increased fuel burn and cost to airlines, increased emissions and environmental impact, and negative impact on the passenger value of time. Impacts vary greatly based on the type of failure and site location.

Outages of non-cooperative and cooperative surveillance systems impact the availability of FAA layered surveillance architecture throughout the United States. The sustainment work under this portfolio will increase equipment and service availability. Expected outcomes from the work will be to:

- Reduce outages
- Decrease system maintenance
- Decrease operating costs
- Increase service availability
- Extend the service life of the surveillance systems by addressing aging system and sensor obsolescence issues and implementing necessary technological updates
- Increase equipment availability

Detailed Justification for - 2B11 Terminal and En Route Voice Switch and Recorder Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Terminal and En Route Voice Switch Recorder Portfolio	$40,100	$60,050	$120,050

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost
A. Voice Switching and Control System (VSCS) - Sustainment 4	---	25,900.0
B. Terminal Voice Switch – Legacy Voice Switch Sustain	---	11,000.0
C. NAS Voice Recorder	---	5,000.0
D. Voice Communication Systems – Phase 1 a Air to Ground Protocol Converter (APC) Qualification	---	18,000.0
E. Voice Communication Systems – Phase 1a Air to Ground Protocol Converter (APC) Deployment	---	43,900.0
F. Voice Communication Systems – Phase 1b Ground to Ground Protocol Converter (GPC)	---	10,000.0
G. Voice Communication Systems – Phase 2	---	4,100.0
H. Strategic Initiatives Analysis and Validation	---	2,150.0

What is this program and what does the funding level support?

Voice Switches and Recorders are integral parts of the FAA's air traffic control system. The reliability of communications from controller to pilots and controller to controllers is critical to a safe air traffic control system.

A. Voice Switch and Control System - Sustainment 4

Involves sustaining the aging, obsolete voice switches and associated training and back-up systems located in the Air Route Traffic Control Centers throughout the national airspace system. The Voice Switching and Control System (VSCS) equipment provides safety critical voice communication services that enable En Route air traffic controllers to communicate with pilots, other controllers, and other ground personnel while separating, managing, and directing air traffic. The Sustainment 4 project replaces and upgrades obsolete components that are no longer supportable and will focus on the components that pose the greatest risk to affecting the operational availability to the FAA's En Route voice communications.

For FY 2025, $25.9 million is requested for sustainment of subsystems and components that pose a risk to affecting operational availability to the FAA's voice communications, including various power supplies and electronic circuit card assemblies. Funding will also be used for contract program management and engineering analysis, which identifies the Voice Switch and Control System or Training and Back-up System components with the greatest risk of affecting operational availability.

B. Terminal Voice Switch – Legacy Voice Switch Sustain

Involves sustaining the aging, obsolete voice switches in Air Traffic Control Tower and Terminal Radar Approach Control facilities. Terminal voice switches provide safety critical voice communication services to air traffic controllers in the airport towers and Terminal Radar Approach Control facilities. This allows terminal air traffic controllers to communicate with pilots, other controllers, and other ground personnel while separating, managing, and directing air traffic.

The Terminal Voice Switch – Legacy Voice Switch Sustain program covers various types of terminal voice switches, including Small Tower Voice Switch, Enhanced Terminal Voice Switch, Rapid Deployment Voice Switch, Voice Switch By-Pass, and Interim Voice Switch Replacement systems. This project will focus on the sustainment of components of the existing voice switches that pose the greatest risk to affecting operational availability to the FAA's Terminal voice communications.

For FY 2025, $16.0 million is requested for sustainment of systems and components that pose the greatest risk to affecting operational availability to the FAA's terminal voice communications, including the continued installation of the Small Tower Voice Switch Technology Refresh retrofit kits. Funding will also be used for contract program management, and engineering analysis, and end of life hardware procurements for parts no longer manufactured and/or refurbishment of other high-risk components to extend the service life of the existing equipment.

C. National Air Space (NAS) Voice Recorder

Will replace the legacy Digital Audio Legal Recorders and provide enhanced digital voice recording functionality to meet new requirements. The replacement of aging voice recorders will reduce operational costs and address the increasing demand for more expeditious audio access and capabilities such as increased recording capacity, recording of Voice Over Internet Protocol telephones using secure intranet services, and connection to FAA telecommunications system.

As voice recorder technology and voice recorder requirements have evolved, earlier digital voice recorders are experiencing obsolescence and supportability issues. There are currently over 460 recorders in operation today, which were deployed between 2007 and 2015; they began to reach their end of service life starting in 2017. Full implementation of this program will result in the replacement of the legacy voice recorders, Digital Audio Legal Recorders, which do not meet

current Safety Requirements. Additionally, it will decrease the risk of Diminishing Manufacturing Sources and Material Shortages issues to maintain Operational Availability.

For FY 2025, $10.0 million is requested to procure, deliver, and install approximately 24 systems, including site preparation and telecommunication services. In addition, funding will be used for prime vendor program management and other technical support services contracts.

D. Voice Communication Systems (VCS) – Phase 1a – Air To Ground Protocol Converter (APC) Qualification

Will develop, test and qualify new Air-to-Ground Protocol Converters (APCs) in order to ~~resolve~~ replace obsolete and end of life Radio Control Equipment obsolescence issues as well as add the capability to convert analog signals transmitted from existing legacy voice switch equipment into the approved international Voice over Internet Protocol standard (ED-137C). APCs can operate in Voice over Internet Protocol or in legacy analog mode. The APC equipment will also simplify the planned replacement of some of the legacy voice switches with VoIP voice switches in VCS Phase 2 and using protocol converters to communicate with FAA analog interfaces.

For FY 2025, $18.0 million is requested for continued funding of the new APC contract, to include contract management, systems engineering, systems development, training development and integrated logistics support.

E. Voice Communication Systems – Phase 1a Air to Ground Protocol Converter (APC) Deployment

Will focus on the procurement and installation of the APC equipment after In Service Decision. For FY 2025, $43.9 million is requested to procure hardware, fund site preparation activities, and install the new Air-to-Ground Protocol Converters (APC) equipment. Funding will also be used for prime vendor and program contract program management.

F. Voice Communication Systems – Phase 1b Ground to Ground Protocol Converter (GPC)

Will focus on the procurement of the new Ground-to-Ground Protocol Converter (GPC) equipment. For FY 2025, $10 million is requested to award a new contract for the Ground-to-Ground Protocol Converters (GPC). Funding will also be used for prime vendor and program contract program management.

G. Voice Communication Systems – Phase 2 Internet Protocol Voice Switches

Will focus on the procurement of Internet Protocol-based voice switches. For FY 2025, $4.1 million is requested to continue investment analysis activities. Additionally, the Program Office will also be developing a Screening Information Request package for competitive procurements.

H. Strategic Initiatives Analysis and Validation

For FY 2025, $2.15 million is requested for technological advances and innovation opportunities in the interests of aviation improvements for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts, validation of commercial products offered to FAA for certification, as well as exploration of concepts for future aviation operational usage one to four years from now. These opportunities typically arise during the execution budget year after funding has been appropriated.

What benefits will be provided to the American public through this request and why is this program necessary?

Direct voice communication between the air traffic controllers and pilots is critical to safe air traffic control operations throughout the national airspace system. The projects in this budget line item ensure existing and future voice communication systems continue to provide safe and reliable safety critical voice communication services. The sustainment projects focus on reducing obsolescence and maintaining operational availability, until such time that there is a new Internet Protocol-based voice communication system available for deployment to the national airspace system. The replacement program will enable the FAA to transition to Internet Protocol-based voice communication services; thus, allowing the FAA to gain the inherent benefits of Internet Protocol-based voice communication services, such as asset sharing and load sharing. Overall, these projects promote continued operational availability, which ensures critical safety communications and helps reduce flight delays.

Voice recorders are used by the FAA for recording voice conversations between air traffic controllers, pilots, and ground-based personnel. Recorded conversations are mission essential and used in the investigation of accidents, incidents, search and rescue, and in the routine evaluation of air traffic operations. The National Airspace Voice Recorder program reduces costs associated with current voice recorder models that have obsolescence, supportability, and information security concerns.

Detailed Justification for - 2B12 Enterprise Information Platform

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Enterprise Information Platform	$9,000	$11,000	$9,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Common Support Services – Flight Data	---	$6,000.0
B. Enterprise Information Management Platform	---	3,000.0

What is this program and what does the funding level support?

A. Common Support Services – Flight Data

This investment leverages the FAA's previous investments in System-Wide Information Management to advance flight information management across the air traffic management system and stakeholders (e.g. flight planning service providers, airlines, and other airspace users). In addition to recognizing the need to improve flight data management and exchange within the NAS, implementing the International Civil Aviation Organization (ICAO) standards for, Flight and Flow Information for a Collaborative Environment (FF-ICE) provides a path towards improving current flight planning across air navigation service providers (ANSPs). This project will develop the following capabilities to meet the FAA's growing need for coordinated strategic flight planning and distribution of standardized flight information:

- **Flight Planning and Filing:** A standards-based flight planning and filing environment to be used by flight operators and the FAA to negotiate preliminary and filed flight plans. Constraint sharing/feedback will enable the flight operator to receive and address constraints early in the planning phase.

- **Flight Data Management (FDM):** Transform, reconcile, and manage data to be information ready by handling conflicts and managing updates. The right data will get to the right user and at the right time through secure environment.

Flight Data Publication (FDP): Provide a single common reference, facilitating operational flight data sharing/exchanges across NAS ecosystems in accordance with centralized and managed business.

For FY 2025, $6.0 million will be used to complete Phase 1 solution implementation work that includes development of subsystem and software requirements, preliminary and detailed design analyses.

B. Enterprise Information Management

This is a cloud-based big data platform, which unifies and secures agency-wide data. This capability provides FAA systems and users with the ability to rapidly find and exploit relevant data from across the FAA, to support faster and more comprehensive analysis, synthesis, and decision-making. This will overcome current data access and processing challenges and existing limitations of the legacy infrastructure. The build out of the Enterprise Information Management Platform will enable the integration of existing and future systems and will bring in additional data sources to maximize the operational impact of these systems.

For FY 2025, $3.0 million is requested for the development of staging and production environments, as well as continued systems development life cycle work that includes system design, implementation, and deployment. Planned activities include:

- Provide an Enterprise Information Management Platform hosted development environment to support the pre-production design integration needs of the Visualization, Analytics and Dashboards for Efficiency Reporting program, and other national airspace acquisition programs.

- Complete the integration of 10 additional data sources: i.e., Air Traffic Control voice data, imagery, technical operations logistics information and an additional information line of business domain, such as human resources, finance, etc.

- Integrate 5 additional data processing capabilities that transform the data to add value or enhance usability.

- Provide 3 additional common service tools and four additional advanced analytic capabilities.

What benefits will be provided to the American public through this request and why is this program necessary?

This program reduces the need to build and maintain redundant data management capabilities that support individual programs and systems. Benefits include alignment of existing and future data requirements into an efficient and effective information-sharing environment. This program standardizes flight information sharing that integrates information from multiple systems, consolidates redundant services, and reliably associates information to the appropriate flight.

Detailed Justification for - 2B13 Remote Towers

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Remote Towers	$3,000	$3,000	$3,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Remote Towers	---	$3,000.0

What is this program and what does this funding level support?

Many airports cannot afford and/or justify the establishment and maintenance of a traditional Air Traffic Control Tower to provide air traffic services because of initial implementation and lifecycle costs of a physical, brick and mortar facility. While some airports can subsidize personnel costs via the FAA Contract Tower program, a significant amount of airports cannot afford the cost of tower construction and recurring maintenance. Remote tower demonstrations were previously conducted at low and medium density airports in Class D and Class E airspace to evaluate proposed technologies, identify system criteria and develop a process to approve the use of these technologies to provide air traffic services remotely.

In order to meet the same intent of the Remote Tower Pilot Program, described in the 2018 Reauthorization Act, Sec 161-Remote Tower Pilot Program for Rural and Small Communities, the FAA will continue with the System Design Approval (SDA) and evaluation process, of the current system installation at the Northern Colorado Regional Airport (FNL) and future systems at the new Remote Tower Testbed at William J. Hughes Technical Center (WJHTC).Evaluations and System Design Approval (SDA) reviews will continue to determine if vendor systems can meet FAA standards for approval and to inform standards for systems approved for use at airports with higher density traffic and/or more complex environments. Additionally, the FAA will initiate research to evaluate the optimal location of remote tower technologies at specific airports.

For FY 2025, $3.0 million is requested to support the following activities:

- Maintain the FAA Remote Tower Pilot Program testbed at the William J. Hughes Technical Center and Atlantic City International Airport (ACY), including the National Aviation Research Technology Park (NARTP) that houses the remote tower center where the controller equipment is located.
- Conduct air traffic and technical operational evaluations, and begin System Design Review activities (e.g., hardware/software audits) for the Raytheon/Frequentis system to be installed at the ACY testbed.
- Maintain operation and maintenance of the Mobile Air Traffic Control Tower (MATCT) and remote tower center at Northern Colorado Regional Airport (FNL) to support operational evaluations of the Searidge Remote Tower system.
- Support other System Design Review activities for the Searidge system.

What benefits will be provided to the American public through this request and why is this program necessary?

The Remote Tower demonstration activities will allow technologically advanced methods and systems that can be used to monitor aircraft at non-brick and mortar towered airports. This will ultimately improve safety at these airports and prevent operational costs associated with the upkeep and maintenance of physical structures.

Detailed Justification for - 2C01 Future Flight Services Program (FFSP)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Future Flight Services Program (FFSP)	$1,500	$1,500	$3,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Future Flight Services Program – Alaska Automation Capability	---	$3,000.0

What is this program and what does this funding level support?

Currently, a combination of entities and platforms provide Flight Services to the General Aviation community. These services include pre-flight and in-flight flight planning, advisory services, weather briefings, pilot weather report processing, and Search and Rescue coordination. Flight Services also provides Visual Flight Rules coordination, orientation support to lost aircraft, maintain continuous weather broadcasts on selected Navigational Aids, and issues Notices to Air Missions. General Aviation pilots access flight service information directly through web portals, thus reducing the need for pilots to talk to a flight service specialist.

Segment 1 focused on providing these self-assisted services in the Continental United States, Puerto Rico, and Hawaii. Future Flight Services Alaska Automation Capability extends these services to Alaska where General Aviation is a primary method of transportation.

The Alaska Flight Service legacy automation service needs to be replaced along with the obsolete Alaska voice switch system. The OASIS service was last fielded in 1997, and the OASIS II contract extension ends in 2024 In addition, the Legacy Integrated Communications Switching Systems (ICSS) and Small Tower Voice Switch (STVS) were last fielded in 1994. The ICSS' chief peripheral, the Automatic Call Director / Voice Retrieval System (ACD/VRS), was last fielded in 2000.

Future Flight Services Program (FFSP) – Alaska Automation Capability will leverage the Air-to-Ground Media Gateway architecture to deliver inflight services to General Aviation pilots in standardized Voice over Intranet Protocol mode using secure intranet services for the Flight

Service Provider's voice switch. For FY 2025, $3.0 million is requested for Future Flight Services Program (FFSP) – Alaska Automation Capability.

What benefits will be provided to the American public through this request and why is this program necessary?

The American Public, as well as the General Aviation community, will benefit from technology enhancements and cost savings gained by elimination and reduction of services which are redundant, obsolete and/or do not align with Flight Service Core Services. A replacement for Hub and Satellite facility systems will allow FAA Certified Professional Controllers (CPCs) to better prioritize and manage Flight Service operations. Access for Alaska Flight Service CPCs to enhanced Flight Service functions and capabilities currently supporting the CONUS, and additional functions necessary to support operations specific to Alaska.

Detailed Justification for - 2C02 Alaska Flight Service Facility Modernization (AFSFM)

($000)

Activity/Component	FY 2023 Enacted	FY 202 Annualized CR	FY 2025 Request
Alaska Flight Service Facility Modernization (AFSFM)	$2,700	$2,700	$2,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Alaska Flight Service Facility Modernization (AFSFM)	---	$2,000.0
B. In-Service Engineering	---	700.0

What is this program and what does the funding level support?

The AFSFM program is a multi-year facility modernization, improvement and sustainment program that addresses FAA Flight Service Stations in Alaska. Thirty-three percent of the Alaska Flight Service facilities were constructed in the 1970's and require extensive renovations. Several facilities have degraded heating or cooling systems that could disrupt flight service operations by reducing the reliability of flight service automation systems. The goal of this program is to update and modernize the facility and equipment to ensure continuity and reliability of Flight Service operations. Specifically, 17 Flight Service Station facilities will be updated and improved to meet current environmental, safety and accessibility requirements.

For FY 2025, $2.0 million is requested to refurbish architectural deficiencies at Sitka and Homer Flight Service Stations, modernize structural systems at Barrow Flight Service Station; and replace the boilers at Northway Flight Service Station. Also requested is $700,000 for in-service engineering that allows for immediate response and tactical distribution of resources to emerging technology solutions in support of Flight Service Facilities.

What benefits will be provided to the American public through this request and why is this program necessary?

This program efficiently uses funds to correct safety and infrastructure deficiencies in older Flight Service Station facilities to bring them up to date with current building and safety codes and optimize infrastructure to meet Flight Service Operational needs. Project schedules are developed at least two years in advance, which allows opportunities to reduce costs through efficient use of engineering and technical resources. Additionally, this program allows the FAA to avoid hefty expenses and costs associated with unscheduled and emergency upgrades to Flight

Service Facilities. Effectively managing this program to ensure costs for upgrades are within project scope provides cost savings to the American public.

Detailed Justification for - 2C03 Weather Camera Program

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Weather Camera Program	$1,200	$3,000	$6,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Weather Camera Enhancement 1	---	$5,000.0
B. Visual Weather Observation System (VWOS)	---	$1,500.0

What is this program and what does the funding level support?

A. Weather Camera Enhancement 1

The Weather Camera Program's overall mission is to improve aviation safety and efficiencies by reducing weather-related aviation accidents and flight interruptions, improving aviation flight decision making, and enhancing flight service operations. The program provides pilots, dispatchers, Flight Service Specialists, and National Weather Service Forecasters with near real-time weather images at airports, mountain passes, and other strategic in-route locations. When combined with available textual weather products, weather camera images become a powerful supplemental tool to aid in flight decision making. Weather camera images are available free to the aviation community on a public website https://weathercams.faa.gov. The Weather Camera Program intends to build upon the successes of the baselined program by expanding the operationally deployed system by an additional 160 camera locations in Alaska and the continental United States.

In FY 2025, $5.0 million is requested for the expansion of camera systems in Alaska and the continental United States. The program will conduct site surveys and complete implementation for 27 new weather camera systems. The Weather Camera Program Office will be working with State Department of Transportation Offices, local governments, and private parties to assist in the selection of site locations.

B. Visual Weather Observation System (VWOS)

The Visual Weather Observation System (VWOS) is an advanced weather observation system that pairs a 360-degree view camera system with a full suite of weather sensors to give users both visual and textual weather information. The 360-degree camera provides current real-time images of the surrounding area to included critical topography and obstructions, while the weather sensors observe and report critical winds, cloud height, visibility, present weather, temperature, dew point, and pressure using the existing FAA Weather Camera website platform. Pairing these two aspects will provide FAA Flight Service, aviation pilots, and other aviation users with both visual and textual weather observations to aid in flight decision making. The system is a low cost, self-validating advisory weather system that uses automated processes to regularly self-check and confirm the accuracy of its operations and data outputs. The VWOS is intended for implementation in areas that lack adequate weather information such as mountain passes, airports, and en-route locations where other navigational aids and weather reporting do not exist.

In FY 2025, $1.5 million is requested for VWOS which will fund the business case development as the Weather Camera Program seeks a Final Investment Decision to begin implementation. The VWOS concept system will provide guidance to commercial operators for the use of non-certified weather information to make flight decisions.

What benefits will be provided to the American public through this request and why is this program necessary?

The Weather Camera Program is an established program with proven aviation safety and efficiency benefits. The Weather Camera Program and its service continues to facilitate measurable reductions in weather-related aviation accidents, fatalities, and weather-related flight interruptions and deviations. Actual accident statistics associated with this program in Alaska were reduced from .28 accidents per 100,000 hours of operation in 2007 to .04 accidents per 100,000 hours of operation in 2014 over a prior 8-year implementation period. With the expansion of camera services in Alaska and the continental United States, it is expected that the aviation community throughout the National Airspace will see increases in safety and efficiencies consistent with those achieved during the original Weather Camera implementation in Alaska.

Visual Weather Observation System (VWOS)

The Visual Weather Observance System (VWOS) will reduce weather-related aviation accidents, fatalities, and flight interruptions by providing visual and textual weather data to pilots and supporting aviation stakeholders is areas where limited or no other weather information exists. The intent of the VWOS system would be to provide pilots with visual and textual confirmation of weather conditions at unattended airports and along flight routes where the lack of weather information was the cause of accidents and/or flight interruptions. VWOS will enhance situational awareness, preflight planning, and en-route weather briefings.

The VWOS system is a cost-effective solution that can be affordably installed and sustainably operated to improve aviation safety and will expand the availability of weather observations and weather forecasts throughout Alaska, Hawaii, and the contiguous United States. VWOS utilizes

self-contained eco-friendly power generation methods like solar and wind, as well as new innovative non-hazardous energy storage units (alternative to batteries).

Detailed Justification for - 2C04 Weather Systems Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Weather Systems Portfolio	$0	$25,300	$30,100

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Aviation Surface Weather Observation Network Sustainment 2	---	$22,400.0
B. Juneau Airport Wind System (JAWS) Sustainment	---	1,500.0
C. Terminal Doppler Weather Radar (TDWR) Sustainment 3	---	4,000.0
D. Wind Shear Detection System (WSDS) Sustainment 2	---	2,200.0

What is this program and what does this funding level support?

The current FAA ground-based weather sensors and radar systems are aging. Many of these systems have been installed for over 25 years. While some of these systems will eventually be replaced, they must be maintained until replacement systems are fully fielded, preventing gaps in coverage. The Weather Sensors Technology Refresh Portfolio is being developed to consolidate, prioritize, and manage sustainment activities for the following weather sensors programs:

A. Aviation Surface Weather Observation Network (ASWON) Sustainment 2

The Aviation Surface Observation System, also known as the Aviation Surface Weather Observation Network (ASWON), is a portfolio program that consists of multiple subsystems in the National Airspace System that detect and report surface weather conditions required to conduct aircraft operations. Air Traffic Control, Part 91, 121, and 135 Operators, and National Weather Service rely on the data provided by ASWON. This program will address obsolescence of hardware components no longer manufactured or supported by the vendor coupled with insufficient inventory of sub-systems and parts.

For FY 2025, $22.4 million is requested for the implementation of the ASWON Sustainment 2 projects. The projects will award contracts to acquire replacement sensors and hardware components for Automated Surface Observing System (ASOS), Automated Weather

Observation System (AWOS), Stand Alone Weather Sensor (SAWS), and Surface Weather System (SWS), required to sustain operational capabilities provided by this network.

Funding will also be used for the FENS acquisition of IP Services for initial ASOS/AWOS-C sites and to fund the National Weather Service to for ASOS Sensor Upgrades.

B. Juneau Airport Wind System (JAWS) Sustainment

JAWS measures and transmits wind information to the Juneau Automated Flight Service Station, Alaska Airlines, and the National Weather Service for weather forecasting. Other Alaskan aviation users access JAWS data via the Internet. This data provides terrain induced wind and turbulence data that addresses safety of flight and decreases the probability of experiencing unnecessary weather-related delays in and out of the Juneau International Airport, Alaska. Although JAWS data is advisory, it is essential for pilots to be aware of wind conditions that affect approach and departure paths because of the restrictive geographical features on both sides of the corridor in and out of the Juneau Airport.

Periodic replacement of commercial off-the-shelf system components is necessary because of the weather condition on the mountains where the wind sensors are located. Updating these sensors assures continued supportability of the system through an indefinite service life. This program will include the replacement of computers and controllers, radios, firmware and software, anemometers, profilers, and may include National Center for Atmospheric Research consulting support.

For FY 2025, $1.5 million is requested to acquire and install replacement wind profiler subsystems. Timely replacement of the wind profilers is critical to ensure sustainment of the JAWS turbulence alerting capabilities.

C. Terminal Doppler Weather Radar (TDWR) Sustainment 3

The Terminal Doppler Weather Radar (TDWR) is a Doppler weather radar system used by Air Traffic Controllers to increase the safety of the National Airspace System and provide vital information and warnings regarding hazardous wind shear conditions to air traffic controllers managing arriving and departing flights in the terminal area. The current system is facing serious obsolescence issues and has been in service since 1994. This program will extend the service life of the system and replace TDWR components not addressed in previous efforts that have deteriorated due to aging or have otherwise become obsolete or unsupportable. This sustainment program will enable these systems to continue to provide safety and traffic management services throughout the national airspace system.

For FY 2025, $4.0 million is requested to address critical TDWR components. Funding will be used to execute contracts for the projects planned to address obsolescence issues. These funds will support the following projects:

- Prototyping, Operational Testing and Procurement of Production units for Spectrum

analyzer, RF power meters, and Servo Amplifiers projects.
- Massachusetts Institute of Technology (MIT) / Lincoln Labs Technical Support for Radar Data Acquisition and Radar Product Generator upgrades.
- Funding for Second Level Engineering Experts for software testing and integration, prototype design and testing, and specification development of DSP computers and TDM-IP Conversion equipment. Operational Testing and production units of RF Filter Amplifier components, NARDA Power Calibrator, and Simplex Panels.
- NAS security concerns and advancements.

D. Wind Shear Detection System (WSDS) Sustainment 2

This WSDS provides automated windshear and microburst alerts used by Air Traffic Controllers to warn pilots of immediate hazards to approach, landing, and departure at eighty-three large and moderate sized airports. WSDS Sustainment 2 provides a nationwide technical refresh effort to keep legacy windshear detection systems working after they exceed their planned 20-year service lives. This program will address all obsolescence and supportability problems of the Low-Level Windshear Alert Systems and Weather Systems Processors.

- These systems automatically detect hazardous microbursts and wind shear activity near runways and along approach/departure corridors
- Sustainment of these systems will allow Air Traffic Controllers to continue providing warnings to aircraft of hazardous wind shear and microburst conditions as they happen

For FY 2025, $2.2 million is requested to continue design, development, and prototyping of the technology refresh solutions for sustainment and to address immediate service life extension issues. Funding will also be used for the procurement and testing of hardware components required to replace obsolete and unsupportable legacy hardware to include:

- Low-Level Windshear Alert System (LLWAS) Tech Refresh tasks - Continue LLWAS Master Station and Common LLWAS Remote Station development and testing and Hardware Acquisition
- Weather Systems Processor (WSP) Tech Refresh tasks - Includes: rehost of GSD computer, Router replacement, Processor HW replacement, testing and Hardware Acquisition

E. Light Detection And Ranging (LIDAR)

The LIDAR system is an infrared Doppler radar designed to improve flight safety and airport operational efficiency in dry climates by providing advanced warning of wind hazards and wind shifts in the terminal environment. There is one system operational at Las Vegas, NV. The LIDAR system uses pulses of infrared light and receives data when the light reflects off naturally occurring dust particles in the air to measure wind speed and direction. LIDAR continuously scans airport approach and departure corridors, enabling air

traffic control personnel to offer precise, timely direction to pilots during their most critical phase of flight. The system will become unsupportable at the end of FY24. Replacement solutions will be evaluated and a decision made over the next year. LIDAR will be added to the Weather Systems Portfolio and funding may be transferred within this BLI to support the solution to maintain an equivalent service.

What benefits will be provided to the American public through this request and why is this program necessary?

The Weather Sensors Technology Refresh Portfolio programs enhances aviation safety through the continuation of automated detection and alerting services for Air Traffic Controllers. This includes providing official airport weather information that is required to conduct Part 91, 121, and 135 aircraft operations.
The sustainment work under this portfolio will increase equipment and service availability. Expected outcomes from the work will be to:

- Extend the service life of the systems
- Decrease system maintenance and operating cost
- Reduce outages
- Increase equipment and service availability

Detailed Justification for - 2D01 Very High Frequency (VHF) Omnidirectional Radio Range (VOR) Minimum Operational Network (MON)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Very High Frequency (VHF) Omnidirectional Radio Range (VOR) Minimum Operational Network (MON)	$7,100	$1,000	$7,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
VOR Minimum Operational Network (MON) Program Phase 2	---	$7,000.0

What is this program and what does the funding level support?

The Very High Frequency Omnidirectional Range Minimum Operational Network program is repurposing the Very High Frequency Omnidirectional Range network in the Contiguous United States to serve as a backup navigation service during Global Positioning System outages. The scope of the program includes the following:

- Implementation of new Very High Frequency Omnidirectional Range Standard Service Volumes
- Very High Frequency Omnidirectional Range frequency changes
- Amendment, cancelation, and replacement of instrument flight procedures
- Flight inspections of procedures and Very High Frequency Omnidirectional Range Standard Service Volumes
- Discontinue Very High Frequency Omnidirectional Ranges not required for backup service

The program will transition the legacy network of 896 Very High Frequency Omnidirectional Ranges in the Contiguous United States to a Minimum Operational Network of approximately 590 by FY 2030. The Minimum Operational Network will allow aircraft to navigate and land under Instrument Flight Rules in the event of disruption in a Global Positioning System signal.

As the need for Very High Frequency Omnidirectional Range based routes decreases due to the transition to Performance Based Navigation, resources that are currently being spent in sustaining and operating the conventional airspace can be shifted for more efficient use.

For FY 2025, $7.0 million is requested to continue Phase 2 activities. With this budget, the program plans to publish sixteen (16) new Very High Frequency Omnidirectional Range Standard Service Volumes and discontinue up to twenty (20) Very High Frequency Omnidirectional Ranges.

What benefits will be provided to the American public through this request and why is this program necessary?

The FAA is transitioning the National Airspace System to more efficient Performance Based Navigation routes, therefore fewer Very High Frequency Omnidirectional Ranges are needed. This program will result in a more optimized National Airspace System, where the more efficient Performance Based Navigation operations will be primary, and a Minimum Operational Network of Very High Frequency Omnidirectional Ranges will be retained to serve as a backup in the event of a Global Positioning System outage or interference. Additionally, there are qualitative benefits of reducing Very High Frequency Omnidirectional Ranges including opportunities for reduced operations and maintenance costs of instrument flight procedures, flight inspection, and opportunities to avoid potential recapitalization costs.

Detailed Justification for – 2D02 Wide Area Augmentation System (WAAS) for Global Positioning System (GPS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Wide Area Augmentation System (WAAS) for Global Positioning System (GPS)	$91,800	$92,100	$73,200

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Wide Area Augmentation System Phase 4B	---	$73,200.0

What is this program and what does this funding level support?

The WAAS is a system with the mission to augment GPS to enable the safe use of satellite navigation for all phases of flight, including a precision approach. A network of 38 precisely located ground reference stations distributed across the United States, Canada and Mexico monitor the GPS satellite signals. GPS errors generated by the GPS satellite or caused by ionospheric distortion must be corrected or alerted within seconds to provide the accuracy and integrity required for a precision approach. Three master stations receive reference station data and calculate corrections and integrity messages for each GPS and WAAS Geostationary satellite. These corrections are sent from the master stations to uplink stations that provide the WAAS messages for transmission to three leased Geostationary communications satellites. The satellites receive and subsequently rebroadcast the messages to user receivers across the National Airspace System. User receivers process the messages to obtain a precise navigation position suitable to precision approach operations.

The Federal Aviation Administration (FAA) will continue to work collaboratively with the Department of Defense to assure GPS aviation safety and security, and to make sure changes to GPS don't adversely affect aviation, while supporting changes that improve GPS.

In 2025, the Program Office will be in the third year of WAAS Phase 4B. The program will finish its initial acquisition planning work, to include the update of the Statement of Work and Spec, prior to developing the Screening Information Request to obtain the next WAAS GEO satellite (GEO 8). WAAS will also complete the development of the Dual Frequency (DF) Limited Operational Capability (LOC) Installation Kits. Additionally, it is expected that the new Geostationary Uplink Station (GUS) Receivers will be integrated completing one of two major upgrades to the hardware during Phase 4B (the other being the integration of new level D processors). WAAS will continue development of replacement legacy IBM Advanced Interactive eXecutive-based processors, with new Linux-based processors, along with automated testing capabilities to reduce release deployment time to support open security requirements. The prime contractor will also begin the development of DF Initial Operational Capability (IOC). The Program Office will also initiate architectural analysis for the transition from existing communications services to use FAA Enterprise Network Services (FENS) Operational IP-based services.

WAAS Phase 4B

For FY 2025, $73.2 million is requested to execute planned tasks that include:

- Complete GUS Receiver Update Fielding
- Complete development of the WAAS Processor Update and Transition to Linux release
- Initiate Dual Frequency Operations (DFO) IOC hardware construction and conversion of DFO software baseline to Linux
- Complete WAAS Automated Testing Capability implementation
- Complete Safety Computer Critical Design Review and commence development phase
- Support agency-wide initiative to transition to Performance Based Navigation through the development and publication of WAAS approach procedures to Localizer Performance with Vertical Guidance minima
- Complete assessment of Advanced Receiver Autonomous Integrity Monitoring performance
- Maintain the existing WAAS threat model reports and ionospheric effects analysis
- Monitor global Satellite Based Augmentation System (SBAS) signals and continue development of SBAS resiliency
- Complete Hazardously Misleading Information analysis efforts, Radio Frequency

Interference investigation and mitigation, system security assessments, and system performance assessments.

- Provide System Engineering support, Software development oversight support, Software Assurance (DO-178B) audit support, finance, logistics, training, test and evaluation, Reliability-Maintainability-Availability analysis, quality assurance, human factors, Earned Value Management, security, safety engineering, program management, planning and specialty engineering.

- Support aviation safety assurance review of Next Generation Operational Control System development builds in support of GPS Modernization

- Provide technical oversight for civil changes to GPS

- Support development of civil signal monitoring implementation

- Support Department of Transportation interference detection and mitigation capability phased implementation

Funding for WAAS satellite leases is requested in the ATO Operations account for FY 2025.

What benefits will be provided to the American public through this request and why is this program necessary?

WAAS directly supports national air space modernization by supporting the Performance-Based Navigation framework and providing additional precision approach services.

It reduces the impact of constrained aircraft navigation that is tied to the location of ground-based Navigation Aids (NAVAIDs); which restrict aircraft paths and available airspace. GPS operations remove the requirement for a direct link between aircraft navigation and a NAVAID, thereby allowing aircraft better access and permitting flexibility of point-to-point operations.

The program also supports operations by providing over 4,800 satellite-based low visibility landing procedures for aircraft to a Decision Altitude as low as 200 feet above the runway and is available on an estimated 162,000 aircraft. Equipage is expected to continue to grow until Instrument Flight Rules operators outside of major airports commonly use these procedures. Performance-Based Navigation framework is supported by the program in the enabling of technology that transmits precision position, navigation, and timing services that supports Automatic Dependent Surveillance-Broadcast.

Dual Frequency allows for greater safety as well as a higher chance of completing an approach under solar activity. For many paved public airports without a precision approach, the use of a satellite-based approach with minima of ½ mile visibility can

be achieved without requiring significant airport improvements. The program will continue to publish procedures until all qualified runways are equipped with a WAAS approach-based capability.

Detailed Justification for - 2D03 Instrument Flight Procedure Automation (IFPA)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Instrument Flight Procedure Automation (IFPA)	$3,600	$2,000	$4,100

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Instrument Flight Procedure Sustainment 3	---	$4,100.0

What is this program and what does the funding level support?

Much like on-ramps, off-ramps, and highways in the sky, Instrument Flight Procedures provide commercial airline and general aviation pilots with approach and departure paths into and out of airports that are clear of obstacles such as cell towers, buildings, and trees. The IFPA suite of Information Technology systems are used in the design/development, documentation, and tracking/reporting of Instrument Flight Procedures in the FAA.

For FY 2025, $4.1 million is requested to complete IFPA commercial off-the-shelf Personal Computer hardware technology replacement, continue the modular development and testing of Terminal Area Route Generation, Evaluation and Traffic Simulation (TARGETS) system for Performance Based Navigation (satellite) and ground based (conventional) Instrument Flight Procedure design/development capabilities, enhance IFPA Documentation systems to include Standard Terminal Arrival procedures, and begin the technological modernization of the IFPA Program system architecture (transition to FAA Cloud Services).

What benefits will be provided to the American public through this request and why is this program necessary?

The IFPA suite provides productivity gains for all Aeronautical Information Services' major work products. Since the program's inception, the development time required for new and amended Instrument Flight Procedures, Notices to Air Missions (NOTAM) generation time, and

obstacle evaluation time have all been reduced. These efficiency gains are multiplied by the hundreds and thousands of products produced and maintained on an annual basis and reduce the costs for these activities to the American public.

In addition, IFPA enables the efficient design, documentation, and publication of new and revised Instrument Flight Procedures, increasing the airport capacity for the nation's busiest airports and metropolitan areas. IFPA increases automated capabilities for all types of precision and non-precision flight procedures including Performance Based Navigation and conventional navigation.

Detailed Justification for - 2D04 Runway Safety Areas (RSA) – Navigational Mitigation

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Runway Safety Areas (RSA) – Navigational Mitigation	$2,500	$1,000	$1,800

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Runway Safety Areas (RSA) Phase 2	8	1,800

What is this program and what does this funding level support?

For FY 2025, $1.8 million is requested to supply the RSA Phase II Program with additional funds. This amount will fully fund approximately eight (8) projects across three service areas and to be completed in FY 2025.

The scope of the work will range from the installation of frangible connections on identified structures to the relocation of facilities within and outside the RSA. These facilities or structures are classified as: 1) fixed by function and 2) not fixed by function. Objects that are fixed by function are permitted within the RSA as long as it meets the frangibility requirements. The RSA must be free of all objects that are three inches above the grade and are not frangible, do not break apart into fragments. Objects that are not considered fixed by function will be moved outside the RSA to extent practical.

What benefits will be provided to the American public through this request and why is this program necessary?

Compliance with the RSA standards provide a measure of safety in the event of an aircraft's excursion from the runway by significantly reducing the extent of personal injury or aircraft damage during overruns, undershoots and veer-offs. Thus, the primary benefit of the RSA Phase II program is the prevention of loss of life from aircraft striking non-compliant Navigational Aids located in designated safety areas.

Detailed Justification for - 2D05 Landing and Lighting Portfolio

($000)

Activity/Component	FY2023 Enacted	FY2024 President's Budget	FY2025 Request
Landing and Lighting Portfolio	$72,900	$41,760	$57,750

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Very High Frequency Omni Directional Range collocated with Tactical Air Navigation	---	4,400.0
B. Instrument Landing System Sustainment	---	5,300.0
C. Distance Measuring Equipment Sustainment	---	5,400.0
D. Navigational Aids Sustainment	---	14,900.0
E. Visual Navigation Aids for New Qualifiers	---	1,400.0
F. Runway Visual Range Sustainment	---	8,600.0
G. Approach Lighting System Safety Enhancement	---	6,900.0
H. Replace Visual Approach Slope Indicator with Precision Path Approach Indicator	---	4,900.0
I. Replace Incandescent Lamps with Light Emitting Diode (LED) Lamps in Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)	---	3,800.0
J. In-Service Engineering	---	2,150.0

What is this Program and what does the funding level support?

The Landing and Lighting Portfolio contains critical ground infrastructure that collectively enables all aircraft to navigate the established aircraft routes in the sky as well as the ability to safely descend and land on the airport runway. The work under this portfolio includes assessment of the systems to determine the need for system relocations, operational modifications, sustainment work to maintain and/or improve system performance, and to procure and install systems as needed.

A. Very High Frequency Omni Directional Range Collocated with Tactical Air Navigation:

Relocates and refreshes technology at Very High Frequency Omni Directional Range facilities as well as Very High Frequency Omni Directional Range that are collocated with Tactical Air

Navigation facilities. This project improves Very High Frequency Omni Directional Range operational performance by procuring and installing Doppler electronic kits and Doppler antenna hardware kits to upgrade the conventional systems. Numerous systems have radial restrictions because of encroachment by obstacles that block the transmission of the signals. Doppler upgrades eliminate signal reflection restrictions caused by newly constructed tall buildings, nearby industrial parks with a high concentration of metallic buildings, overhead transmission lines, radio, television and cellphone towers, and wind farm stations. The Very High Frequency Omni Directional Range and Very High Omni Directional Range Collocated with Tactical Air Navigation systems provide navigational guidance for civilian and military aircraft in both the en route and terminal areas. For FY 2025, $4.4 million is requested for engineering and technical services/support, complete twelve (12) TACAN to DME Conversion, and complete one (1) on-going Doppler Very High Frequency Omni Range (DVOR) project.

B. Instrument Landing Systems:

Supports the establishment and sustainment of Instrument Landing Systems and/or the associated runway approach lighting systems that support all categories of instrument landing approaches. An Instrument Landing System precision approach is comprised of a grouping of electronic devices that include:

- Localizer
- Glide Slope
- Marker Beacons
- Ancillary aids such as Distance Measuring Equipment, Approach Lighting Systems, and Runway Visual Range.

These systems provide landing aircraft with both electronic guidance and visual landing aids. These systems allow properly equipped aircraft to land safely in adverse weather conditions. The Instrument Landing System provides both vertical and lateral guidance information for the pilot to allow safe landing to touchdown and rollout. The components of an Instrument Landing System sends information to the cockpit so that the pilot can maintain a predetermined flight path to the runway even in low visibility conditions. The Instrument Landing Systems also provides a backup landing capability in the event of a loss of Global Navigation Satellite System service. For FY2025, $5.3 million is requested for engineering and technical services/support, and to complete two (2) Carryover Projects.

C. Distance Measuring Equipment:

Pilots use this radio navigation aid to determine the aircraft slant distance from the Distance Measuring Equipment location. The program is procuring and installing state-of-the-art Distance Measuring Equipment systems to:

- Support replacement of systems that have exceeded their service life expectancy
- Establish new systems at qualifying airports
- Relocate Distance Measuring Equipment (DME) facilities

- Establish Distance Measuring Equipment systems in lieu of Instrument Landing System marker beacons

Distance Measuring Equipment reduces the need for less desirable step-down non-precision approach procedures in which a pilot descends to the minimum allowable altitude to locate the runway visually. These systems lead to better specification and control over the vertical descent profile as well as reducing controlled-flight-into-terrain risk. For FY2025, $5.4 million will be used procure ten (10) DME systems, complete four (4) DME projects in the NAS and other engineering and technical service-related activities.

D. Navigational Aids Sustainment:

Renovates or replaces airport approach lighting systems at sites where there is a high risk for failure and where that failure would result in loss of the primary precision approach. Navigational Aids include:

- Medium Approach Lighting System with Runway Alignment Indicator Lights for Category I approaches
- High Intensity Approach Lighting System with Sequencing Flashing Lights systems for Category II/III approaches
- Runway End Identifier Lights
- Lead-In Lights
- Precision Approach Path Indicator

For FY 2025, $14.9 million is requested for engineering and technical services support, to procure ancillary and Semi-Flush equipment for two (2) Approach Lighting Systems, development of the High Intensity Approach Lighting System with Sequenced Flashing Lights (ALSF-2) Service Life Extension Program (SLEP), and to complete four (4) Medium Approach Lighting System with Runway Alignment Indicator Lights replacement projects.

E. Visual Navigational Aids for New Qualifiers:

These systems facilitate the transition from cockpit instruments to external visual references during the final landing phase. Different categories and types of approaches require different visual Navigation Aid equipment. This program supports the procurement, installation, and commissioning of Precision Approach Path Indicator systems and Runway End Identifier Lights systems. The Precision Approach Path Indicator provides visual glide slope information on approach to pilots and enables them to make a stabilized descent with a safe margin of approach clearance over obstructions. The system projects a pattern of red and white lights along the desired glide slope so a pilot can tell whether they are on the glide slope and how to correct their glide slope if they are above or below it.

Runway End Identifier Lights are a visual aid that provides the pilot with a rapid and positive identification of the runway end in use during approach. The system consists of two simultaneously flashing white lights, one on each side of the runway-landing threshold. For FY

2025, $1.4 million is requested for engineering and technical services support, to establish one (1) new Precision Approach Path Indicator site.

F. Runway Visual Range Sustainment:

Allows airports to conduct takeoff and landing operations during conditions of low visibility. Replaces older equipment with Personal Computer Based equipment as well as equipment for sites that have qualified for an upgrade from a Category I to a Category II/III precision approach. Runway Visual Range provides air traffic controllers with a measurement of the visibility at key points along a runway that is used to decide whether it is safe to take off or land during limited visibility conditions. During reduced visibility weather conditions, Runway Visual Range system measurements are used by Air Traffic to establish airport operating categories; thus, properly equipped aircraft with a trained crew may continue operations under reduced visibility (Category I, Category II and Category III) conditions.

Runway Visual Range (RVR) decreases diversions and delays at an airport by providing an accurate measure of the runway visibility. This information affects airline scheduling decisions and air traffic decisions regarding whether flight plans should be approved for an aircraft to fly to or take off from an airport with low visibility. For FY 2025, $8.60 million is requested for engineering and technical services support, to fund 18 carryover projects, to procure additional Runway Visual Range ancillary equipment, complete installation of 20 RVR systems and procure RVR Controller Displays (CDs).

G. Approach Lighting System Safety Enhancement:

Upgrades and enhances aging approach lighting systems in the National Airspace System. The project upgrades the equipment to current standards and reduces the potential severity of take-off and landing accidents by replacing rigid structures with lightweight and low-impact resistant structures that collapse or break apart upon impact. The entire approach lighting system is replaced when rigid structures are replaced. The High Intensity Approach Lighting System with Sequencing Flashing Lights provides visual information on whether the pilot is aligned with the runway centerline, the aircraft's height above the runway plane, roll guidance, and horizontal reference for Category II and III Precision Approaches.

The Medium Approach Lighting System with Runway Alignment Indicator Lights (MALSR) provides visual information on runway alignment, height perception, roll guidance, horizontal references for Category I Precision, and Special Authorization Category II Approaches. For FY 2025, $6.9 million is requested for engineering and technical services/support, to procure and install MALSR SLEP and ancillary equipment, and to complete one (1) Medium Approach Lighting System with Runway Alignment Indicator Lights replacement project.

H. Replace Visual Approach Slope Indicator with Precision Approach Path Indicator:

The International Civil Aviation Organization has recommended that all international airports replace the Visual Approach Slope Indicator lights with Precision Approach Path Indicator (PAPI) lights. This standardizes the equipment used to allow pilots to determine visually that they are on the proper glideslope for landing. The program supports the procurement,

installation, and commissioning of Precision Approach Path Indicator systems in order to comply with this recommendation. For FY 2025, $4.9 million is requested for engineering and technical services support, to award a PAPI contract, and replace the VASI system with PAPI systems at five (5) locations.

I. Replace Incandescent Lamps with Light Emitting Diode Lamps in Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights:

There are approximately 960 Medium-Intensity Approach Lighting Systems with Runway Alignment Indicator Lights in the National Airspace System, which all utilize Parabolic Aluminized Reflector-38 and Parabolic Aluminized Reflector-56 incandescent lamps. Following the Energy Independence and Security Act of 2007, incandescent lamps are being phased out, causing a rapid decline in availability of high candela incandescent lamps. Currently, only one manufacturer produces incandescent lamps for this system, and this poses a single point of failure, which is a documented FAA risk. The program supports the expedited transition to Light Emitting Diode lamps. For FY 2025, $3.8 million is requested for the Light Emitting Diode (LED) Lamp Production Contract to support commissioning at192 MALSR sites.

J. In-Service Engineering

For FY 2025, $2.15 million is requested for ongoing engineering support of the Landing and Lighting Portfolio

What benefits will be provided to the American Public through this request and why is the program necessary?

The FAA has transitioned the national airspace system to more efficient Performance Based Navigation routes and procedures that rely on satellite technology. In support of the transition, FAA continues to support the sustainment of the ground-based navigation infrastructure to ensure resiliency. Visual Guidance and Lighting Systems will continue to be required to support flight operations.

Ground Based Navigation Aids will continue to provide a primary and backup function, as required. In the event of a Global Positioning System outage, ground based navigation will be used to ensure consistent and reliable landing operations and provide resiliency in the navigation domain.

Visual Guidance and Lighting Systems must continue to identify runway parameters, provide visual landing cues, and identify visibility constraints to commercial and general aviation pilots.

These visual systems provide enhanced safety of operations for landing aircraft and the American public.

Detailed Justification for- 2D06 Distance Measuring Equipment (DME), Very High Frequency (VHF) Omnidirectional Radio Range (VOR), Tactical Air Navigation (TACAN) (DVT) Sustainment Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
DVT Sustainment Portfolio	$10,000	$10,000	$4,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations / Quantity	Estimated Cost ($000)
DVT Sustainment Portfolio	---	$4,000.0

What is this program and what does this funding level support?

The DVT Sustainment Portfolio will provide long-term sustainment and modernization of Distance Measure Equipment (DME), Very High Frequency Omnidirectional Radio Range (VOR), and Tactical Air Navigation (TACAN) Systems, also known as DVT Systems, to support resilient navigation service. There are over 1,500 systems across more than 1,000 sites, and many of the existing systems in service in the National Airspace are over 30 years old. These systems must be replaced to provide resiliency during any Global Positioning System (GPS) service interruptions.

The DVT Sustainment Portfolio will be implemented in phases:

- Phase 1 (FY 2024 – FY 2034) will provide the design, development, testing, qualification, and deployment of TACAN Antenna Systems. TACAN Antenna Systems are the most significant operational need.
- Phase 2 (FY 2027 – FY 2034) will provide the design, development, testing, and qualification of DME, VOR, and TACAN Transponder Systems.
- Phases 3 and beyond (FY 2034 –) will provide deployments of all DVT Systems to sites.

The FY 2025, $4.0 million is requested to support the following Phase 1 activities:

- Program management and contract management support activities
- Completion of Critical Design Review (CDR) for TACAN Antenna
- Development of first article TACAN Antenna Systems for use in testing
- Completion of Development Tests for Qualification, Reliability, Maintainability, and Failsafe Demonstration for TACAN Antenna
- Plans for shipping and deployment of TACAN Antenna first articles to key sites
- Plans for Phase 2 and the release of the Phase 2 DVT Sustainment Contract

What benefits will be provided to the American public through this request and why is this program necessary?

The DVT Sustainment Portfolio will ensure this resilient navigational backup infrastructure is available for the foreseeable future by providing effective, cost-efficient operations and maintenance solutions to improve Navigation Aid reliability and availability, and to address long term sustainment challenges.

Detailed Justification for - 2E01 Fuel Storage Tank Replacement and Management

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Fuel Storage Tank Replacement and Management	$26,200	$10,000	$10,600

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Fuel Storage Tank Replacement and Management	6	$10,600.0

What is this program and what does this funding level support?

The Air Traffic active tank system inventory includes over 3,700 units that support communication, navigation, weather, and surveillance missions. Fuel storage tank (FST) systems store and supply electrical generator fuel, lubricating oil, building heater and boiler system fuel, service vehicle fuel, liquid waste, and similar bulk liquids.

FST system manufacture, installation, operation, and disposal is regulated under Federal, State and local statutes, including the Clean Water Act, the Oil Pollution Act, and the Resource Conservation and Recovery Act, among others, with significant penalties for compliance failures. The FST program operates to attain three primary objectives:

- Sustain national airspace system operational readiness - A loss of integrity on any storage tank component can negatively affect the operational capacity of the supported systems and may ultimately result in a total air traffic control facility outage

- Mitigate environmental damage and regulatory non-compliance - Fiscal impacts include costly cleanup activities, fines, and unplanned retrofit costs

- Conduct effective in-service management and lifecycle replacement - As fuel tanks age beyond their service life, there is an escalating risk of failure and associated leakage with attendant operational impacts and environmental damage

For FY 2025, per the latest Capital Investment Plan, Detailed Financial Baseline, the Program was cut to $10.6 million to fund tank unit replacements, modernizations, and upgrades at approximately six General National Airspace System locations across the national airspace system. The FST Program prioritizes planned allocations based on the lifecycle and condition of the fielded FST systems.

To create efficiencies and align schedules across dependent programs for FST and power systems implementation work at the same facilities, in coordination with the Power Systems Sustain and Support budget line item, the FST program will perform power system replacements including Fuel Storage Tanks (FST), Engine Generators (EG), Battery Systems, Uninterrupted Power Supplies (UPS) and Environmental Remote Monitoring Systems (ERMS).

What benefits will be provided to the American public through this request and why is this program necessary?

Executing an FST lifecycle sustainment program achieves the cost benefit of sustaining availability of the systems for national airspace operations, reducing the risk of leaking FST systems, minimizing adverse impact to personal and environmental safety, and preventing regulatory fines of up to $32,500 per day per unit for failing to comply with regulatory standards.

Monthly tracking confirms fuel systems continually achieve the goal of 99.7 percent sustained operational availability. Operating modern equipment, sustainable, and regulatory-compliant fuel systems mitigate damage and associated costs resulting from incidental release of hazardous, toxic, or dangerous materials and assures the travelling public and aviation stakeholders a reliable and safe transit experience.

Detailed Justification for – 2E02 Unstaffed Infrastructure Sustainment (UIS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Unstaffed Infrastructure Sustainment (UIS)	$45,300	$49,904	$63,300

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Unstaffed Infrastructure Sustainment (UIS)	---	$60,000.0
B. Employee Housing/Life Safety Shelter System Services	---	$1,000.0
C. In-Service Engineering	---	$2,300.0

What is this program and what does this funding level support?

The UIS program sustains national airspace supporting infrastructure at approximately 12,000 sites in the national airspace system which enable the reliable and continuous operations of surveillance, navigation, communication, and weather equipment. Unstaffed infrastructure protects electronic equipment from weather hazards and unauthorized entry. UIS sustainment include major repairs to and replacement of real property assets and structures that are normally not staffed, such as:

- Major repair, refurbishment, and replacement of national airspace system antenna and equipment towers such as those at Remote Transmitter Receiver and Remote Communications Air/Ground sites

- Major repair, refurbishment, and replacement of buildings; shelters; roofs; radomes; Heating Ventilation and Air Conditioning equipment; electrical panels and distribution wiring; locks and alarm sensors; lighting; access roads; grounds; and fencing

- The National Airspace System radio tower assessment program

- The small HVAC system technical refresh program, which will replace beyond life cycle window and split unit HVAC systems.

A. Unstaffed Infrastructure Sustainment (UIS)

For FY 2025, $60.0 million is requested to complete 74 unstaffed infrastructure sustainment projects, which are spread across the United States and adjacent countries/US territories. The UIS Program sustains the buildings, broadcast towers, air conditioning systems, roads, fences, and other related infrastructure at approximately 12,000 unstaffed sites. This infrastructure, which houses and enables essentially all of the FAA's Communications, Surveillance, Weather, and Navigation systems, is past its service life and requires a comprehensive sustainment effort to ensure the integrity of the National Airspace System.

B. FAA Employee Housing/Life Safety Shelter System Services

For FY 2025, $1.0 million is requested to complete Employee Housing and Life Safety Shelter projects. The FAA owns housing units for FAA employees at remote locations (e.g., islands in the Bering Sea) and owns a network of life safety emergency shelters in harsh environments (e.g., remote arctic and mountaintop locations). Employees who use these facilities provide air traffic control services and/or National Airspace System facilities maintenance services.

C. In-Service Engineering

For FY 2025, $2.3 million is requested for in-service engineering activities that provide an immediate response to emerging technology issues.

What benefits will be provided to the American public through this request and why is this program necessary?

The American public will benefit from the National Airspace System infrastructure sustained by this program. This program will extend the operational service life of National Airspace System remote facilities that protect and enable critical Communications, Surveillance, Weather, and Navigation systems.

The UIS Program has the second largest backlog in the Facilities Infrastructure Portfolio at approximately $1.3 billion. A significant portion of this backlog is associated with the 7,700 radio towers.

Detailed Justification for - 2E03 Aircraft Replacement and Related Equipment Program ($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Aircraft Replacement and Related Equipment Program	$46,200	$53,000	$113,100

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Aircraft Related Equipment Sustainment	---	$6,500.0
B. Flight Program Fleet Modernization Phase 2	---	106,600.0

What is this program and what does the funding level support?

This program requests funding for the FAA Flight Program Operations Fleet Modernization Strategy. The strategy incorporates all aspects of FAA flight program safety, administration, operations, training, and sustainment. Flight Program Operations conducts multiple missions in FAA aircraft (owned, leased, rented, unmanned aircraft systems). The FAA is currently in the process of reducing the fleet from twelve different makes and models to two makes and models. In addition to supporting the purchase of new aircraft, this program will continue to sustain and modernize the current fleet, improve flight operations infrastructure, and reduce aircraft downtime and maintenance costs.

A. Aircraft Related Equipment Sustainment:

This project ensures FAA owned and operated aircraft continue to meet regulatory and sustainment requirements while avoiding obsolescence. For FY 2025, $6.5 million is requested for ongoing operational sustainment, modifications and upgrades to aircraft, avionics, mission equipment, and operational infrastructure.

B. Flight Program Fleet Modernization Phase 2:

This project requests funding to procure replacement aircraft that will continue to meet all aspects of the FAA's flight program responsibilities. Additionally, these aircraft will require equipage and modification to achieve that mission. The aircraft will enable the service unit's core business of safe and efficient flight operations in support of four primary missions:

- **Aviation Safety Training:** Provide training and currency/proficiency services to Office of Aviation Safety personnel, including aviation safety inspectors and flight test personnel.

- **Flight Inspection:** Ensure the integrity of instrument approaches and airway procedures that constitute the National Airspace System infrastructure. Flight inspection also upholds the agency's international commitments, including airborne inspection of all space and ground-based instrument flight procedures and the validation of electronic signals in space transmitted from ground navigation systems. Flight procedures and surveillance systems are evaluated for accuracy, aeronautical data, human factors fly-ability, and obstacle clearance. Flight Program Operations also performs inspections of Department of Defense navigational facilities.

- **Research, Development, Test and Evaluation Support**: Conduct flights supporting agency research, development, test and evaluation of new electronic aids, air traffic procedures, and aircraft improvements, under approved agency projects.

- **Critical Event Response/Transportation:** Provide transportation required to accomplish official FAA responsibilities in times of emergency or disaster such as hurricane response, as well as support the National Transportation Safety Board in carrying out its duties.

For FY 2025, $106.6 million is requested for procurement and modification of six aircraft in accordance with the Flight Program Operations fleet modernization strategy.

What benefits will be provided to the American public through this request and why is this program necessary?

Safe, supportable, and regulatory compliant aircraft are necessary for the continued successful performance of the Flight Program Operations missions. This request provides the means to support standardization and sustainment of the FAA aircraft fleet and provides the infrastructure to manage the flight program and process mission results. This program will save taxpayer dollars through the replacement of obsolete and unsupportable aircraft and components. In addition, standardization of the FAA fleet will improve the long-term efficiency of fleet sustainment and provide improved continuity of service.

Detailed Justification for - 2E04 Airport Cable Loop Systems – Sustained Support

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Airport Cable Loop Systems – Sustained Support	$10,000	$10,000	$10,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Airport Cable Loop Systems Sustained Support	---	$10,000.0

What is this program and what does the funding level support?

For FY 2025, $10.0 million is requested for advanced engineering, construction activities, Fiber Optic Transmission Systems equipment installations, and procuring Dedicated Network Telecommunications System (DNTS) equipment. The Airport Cable Loop Systems Sustainment program replaces underground telecommunications cable infrastructure systems that are essential to the safe and efficient operation of FAA's navigation, surveillance, and communication systems. The Airport Cable Loop Systems Sustainment program is committed to continue with five large-scale Airport Cable Loop projects and complete four small scale sites as determined by the Air to Ground Communications Integrated Requirements Team.

The program replaces existing on-airport, copper-based, signal/control cable lines that have deteriorated. A portion of the FY 2025 budget will be used to procure equipment to replace obsolete underground telecommunications cable infrastructure systems that are vulnerable to failure and have caused flight delays related to these cable outages. The primary focus will be on projects at airports with high traffic counts and enplanements. These lines feed airport surveillance radar, air/ground communications, landing systems data and information to the Air Traffic Control Tower, and operational and maintenance information to FAA-staffed facilities. Where cost effective, the program will install fiber optic cable in a ring configuration to provide communications diversity.

The program reduces the number of unplanned outages due to deteriorated copper lines, and improves signaling and communications, which allows for increased operational availability of infrastructure, such as navigation, surveillance, and communication systems. There have been

1,498 delays and outages associated with on- airport cable loop from 2004 to 2015 for airports in the national airspace system, which the Airport Cable Loop program will reduce overtime.

This program, along with multiple other programs, has mutual dependencies on the telecommunications infrastructure. More than 15 FAA programs rely on Airport Cable Loop to provide connectivity to and from control facilities.

What benefits will be provided to the American public through this request and why is this program necessary?

Airport Cable Loop Systems Sustainment is presently reducing on-airport telecommunication infrastructure related delays of core airports by approximately three percent (3%) annually. System reliability and safety will be enhanced due to increased system performance from redundant or diverse pathways provided by the cable loop system. Standardizing equipment will simplify and reduce operational requirements for logistics, configuration management, training, procurement, and depot support, which saves taxpayer dollars.

Detailed Justification for -2E05 Real Property Disposition

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Real Property Disposition	$4,500	$3,000	$9,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Real Property Disposition	90	$9,000.0

What is this program and what does this funding level support?

The Real Property Disposition program works with other FAA program offices to identify and plan for the timely disposition of real property assets that are no longer required by the agency. When the FAA decommissions a site or system, this program assesses the property to determine the best course of action for disposal. Planning for the orderly disposition of property at multiple locations across the country is prioritized considering cost, available technical resources, and potential environmental or safety impacts if disposition is delayed. Demand for disposal of real property is increasing as the FAA continues to transition some of its services to satellite-based technology.

The program provides services to:

- Identify, verify, and schedule candidate sites and structures
- Investigate and document the structures to be removed, environmental conditions, and site restorations required to develop project scopes and schedules
- Preserve and protect environmental resources
- Abate and remediate hazardous materials
- Demolish and restore sites
- Develop environmental due diligence reports for the transfer of government-owned and leased properties

- Support the Acquisitions Office in the sale of property and the termination of leases

For FY 2025, $9.0 million is requested to fund the final disposition of decommissioned infrastructure at approximately 90 sites.

What benefits will be provided to the American public through this request and why is this program necessary?

The program provides cost savings by reducing operations and maintenance costs (e.g., grass cutting, snow removal, utility fees, etc.) and cost avoidance by eliminating lease costs. The final disposal of the FAA's unneeded real property assets supports effective financial management by optimizing maintenance costs and disposing of excess assets. Between FY 2008 and FY 2022, the Real Property Disposition Program disposed of over 2,000 assets and generated $6.4 million from land and asset sales.

Detailed Justification for - 2E06 Child Care Center Sustainment

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Child Care Center Sustainment	$1,200	$1,600	$1,200

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Child Care Center Sustainment	12	$1,200.0

What is this program and what does this funding level support?

This project was implemented to respond to stakeholder-identified inefficiencies in FAA-owned childcare centers. The scope of these sustainment activities is limited to operational changes that do not require significant capital investments nor involve significant systems complexity, interdependencies, or National Airspace System operational changes. The FAA-owned centers are reaching a facility age of 20 to 25 years. Many are in need of roof replacements, Heating Ventilation and Air Conditioning system upgrades, and modernization to meet safety and building code requirements. This program is a multi-year sustainment program that will address facility requirements for the 12 FAA Operated Child Care Centers. The childcare centers are located in the following ARTCC locations, Atlanta, Boston, Denver, Kansas, Los Angeles, Memphis, Miami, Minneapolis, Salt Lake City and includes the San Diego TRACON, William J Hughes Technical Center and the Mike Monroney Aeronautical Center. The Child Care Centers provide FAA personnel with priority enrollment and flexibility to meet the unique schedule needs of the FAA workforce; i.e. air traffic personnel. FAA is responsible for maintaining the safety of the buildings. The program is necessary to ensure that the Centers are properly maintained according to local building codes and regulations and are safe and secure.

For FY 2025, $1.2 million is requested to modernize the 12 FAA Operated Centers that are in need of major projects and other expenses unique to a childcare center. Examples of current projects include childcare roof replacements, fire suppression system repairs, parking lot repairs, security camera installation and playground replacement and repairs. Outdoor playground equipment located at FAA Child Care Centers is considered real property, permanent structures, and an integral part of the childcare center facility.

What benefits will be provided to the American public through this request and why is this program necessary?

The 12 FAA Operated Centers offer a benefit to the American public by serving families and children from the local communities. A significant number of community children are enrolled in the FAA's high quality learning programs. Safety is the cornerstone of our mission, and these needed improvements ensure a safe, comfortable aesthetically pleasing environment for the children to learn, grow and thrive. The required funding will ensure safety, reduce the risk of injury, and the possibility of liability and overall decrease deferred maintenance, which is the cost of rebuilding or replacing components whose service life has exceeded their scheduled lifetime. It will increase the employee retention rate, loyalty, and decrease job vacancies. Employee satisfaction and peace of mind leads to a more productive mission-critical workforce that benefits the American public by making government more efficient.

Detailed Justification for - 2E07 Electrical Power System – Sustain/Support

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Electrical Power Systems Sustain/Support	$110,000	$27,020	$120,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Power Systems Sustainment 3	260	$120,500.0

What is this program and what does this funding level support?

For FY 2025, $120.5 million is requested to sustain components of the FAA's power system infrastructure necessary to operate the national airspace system. This program sustains components of the FAA's power system infrastructure to ensure air traffic operational needs are met with high quality electrical power. The Power Services Group manages this program by sustaining and supporting the existing electrical power components and systems, to include power conditioning, power regulation, power distribution, standby power, onsite prime power, lightning protection, grounding, monitoring, and electrical power cable infrastructure. Power systems' performance is critical to National Airspace System operations and any power disruptions are briefed daily to the administrator and senior management. This program will address a large backlog and systemic problems by replacing obsolete equipment and electrical systems that power all national airspace systems. New training technologies such as Virtual Reality and Augmented Reality will allow PSG to improve techniques for required training when deploying new and revised NAS equipment. Additionally, migration of NAS electronic equipment and communication systems to digital microprocessor technologies has increased the sensitivity of these systems to power quality issues.

Installing nationally supported and sustained Direct Current Backup Systems (DC BUS) will address this sensitivity, align FAA with industry digital and communication equipment standards, improve Reliability/Maintainability/Availability, facilitate operational support, and reduce safety risks. Alternative Energy Systems (AES) support a broad range of clean energy technologies to meet NAS operational demands. These systems reduce fossil fuel dependencies and include solar energy, wind energy, fuel cell, and geothermal. To create efficiencies and align schedules across dependent programs for power systems and Fuel Storage Tank (FST) implementation work at the same facilities, in coordination with the FST budget line item, PSG will perform power system replacements including FST projects, as reflected in the corresponding narrative for FST.

The Electrical Power program sustains the following electrical power systems areas:

Program Management and System Engineering provides system engineering to define and document customer requirements for national airspace power systems. It administers requirements from inception to the end of the system operational life. This effort includes identifying alternatives, preparing drawings, administering training, and completing power projects in support of the specific power programs listed below.

ARTCC Critical and Essential Power Systems (ACEPS) provides high-quality and high-reliability power to 21 En Route Air Route Traffic Control Center (ARTCC) facilities and three large Terminal Radar Approach Control (TRACON) facilities. The ACEPS are undergoing major upgrades due to technologically obsolescent design and equipment. The upgrades provide a highly reliable power system with no single-point failures due to multiple bypass points and physically independent alternative power paths. Existing ACEPS systems are obsolete, out of production, and unsupportable. Under ACEPS II, Phase I, the critical buses and their severely out-of-date uninterruptible power supplies (UPS) are being replaced and upgraded. ACEPS II, Phase II replaces the essential bus, including its obsolete and high-maintenance engine generators (EG), which have ages exceeding 50 years. ACEPS represent the largest portion of the Power Systems sustainment backlog.

Critical Power Distribution Systems (CPDS) supports FAA mission critical Terminal facilities such as Combined Control Facilities, large TRACON facilities and, most significant, Air Traffic Control Towers. It provides a highly reliable power system with multiple by-pass points and physically independent alternative power paths. This improves maintenance, operability, and personal safety. The program addresses obsolescence and ensures effective national training and timely logistics. This system consists of electrical distribution equipment, transfer switches, EGs, UPS, and batteries. The CPDS Program maintains design and configuration control for these systems throughout the NAS.

Electrical Line Distribution (ELD) consists of underground distribution cables, transformers, and switchgear at airports and off-airport facilities that distribute utility level electrical power to national airspace facilities. To reduce the impact to airfield operations and to promote work economies, ELD will occasionally sustain underground cables supporting on-airport Approach Lighting System (ALS). Power cables within the ALS can increase visibility requirements thus reducing airport operational capacity during poor weather conditions.

Direct Current Backup Systems (DC BUS) provides reliable conditioned power with battery backup to smaller critical NAS facilities and systems that require DC and AC voltages and four hours or more of backup. DC BUS are replaced when obsolete or at approximately 15 years of service. The batteries of the DC BUS are replaced at 10 years of service. Where approved by PSG management, other power systems sustainment projects may install a DC BUS or similar on a case-by-case basis to ensure adequate NAS electrical power per FAA Order JO 6950.2.

Power Conditioning System and Uninterruptible Power Supply (UPS) provides a high-quality AC power source to NAS equipment that keeps commercial power disruptions, short utility power outages, and voltage surges and sags from adversely affecting critical national airspace services. This equipment has an expected system operation life of up to 15 years. Power Services Group plans improvements to NAS reliability and economics by replacing traditional power system technologies such as EGs, UPS, and DC BUS with Battery Energy Storage Systems (BESS). BESS systems have newer battery technology that provides substantially increased run times and can eliminate the need for backup EGs in selected applications.

Engine Generators (EG) provides backup power when commercial power is unavailable or becomes unreliable. EGs have a 20-year expected system operational life. To improve economics, the EG Service Life Extension Program (SLEP) extends service life from 20 to 30 years for low-use and low-criticality engines. To further reduce project funding and impact to NAS operations, EG Program coordinates its work schedules with Fuel Storage Tank Program at common sites. In some applications, DC BUS or other innovative solutions can be installed instead of an engine generator and their associated fuel storage tanks. This exchange will eliminate the possibility of fossil fuel leaking into groundwater and will provide a cleaner source of energy with a lower overall carbon footprint for the NAS. Projects crossing these PSG budget line items must have specific approval by PSG management.

Lightning Protection, Grounding, Bonding and Shielding (LPGBS) minimizes electrical hazards to personnel, facilities, and electronic equipment caused by lightning, voltage surges, electrostatic discharge, and power faults at national airspace facilities. Sites are protected to minimize or preclude outages.

National Airspace System Batteries provides replacement of physically large (up to 10 tons) industrial battery banks (termed "Stationary") that are F&E/BIL funded. These systems supply local battery power to Power Conditioning Systems (PCS/UPS), CPDS control power, and DC BUS. The battery program also supports Very High Frequency Omnidirectional Range, Remote Center Air/Ground communication, Backup Emergency Communication, and selected Surveillance, General National Airspace Systems, Communications, and Navigation equipment. The program sustains these large stationary battery banks because they have very different overall service lives, require specialized bulk replacement/recycling at end of life, and have different degradation factors than the equipment they support.

Environmental Remote Monitoring System (ERMS) provides power system sensors and interfaces to the ERMS network, which reports power system status to the operations control centers. The information provides the FAA with real-time data on the status of the systems, allowing a prompt response to system-related issues that might otherwise go undetected. ERMS installations provide facility monitoring at sites to allow a significant reduction in FAA maintenance, ensure that facilities stay operational, and meet FAA's RMA requirements. PSG's ERMS project installation work is only included at sites that do not have ERMS power interface equipment already installed.

What benefits will be provided to the American public through this request and why is this program necessary?

The Power program funds the replacement, refurbishment, purchase, and installation of components to sustain national airspace electrical power infrastructure valued at approximately $2.0 billion, which in turn sustains billions of dollars' worth of national airspace services to the American public. Commercial power disruption can result in flights being kept on the ground, placed in airborne holding patterns, or re-routed to other airports.

This program prevents expensive damage to Air Traffic Control electronic equipment and enhances the safety of national airspace operations. The FAA's independent Investment Planning and Analysis Office determined that a single ARTCC Critical and Essential Power Systems outage results in an economic impact to national airspace users of approximately $2.0 million per hour based on an August 2016 estimate of En Route Automation Aircraft Direct Operating Costs and Passenger Value of Time savings. This Power program is vital to maintaining and increasing national airspace capacity, reliability, and availability through sustainment of power equipment so that systems and electronics can deliver their required availability.

Detailed Justification for - 2E08 Energy Management and Compliance (EMC)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Energy Maintenance and Compliance	$6,900	$5,355	$4,800

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Energy Management and Compliance	7	$4,800.0

What is this program and what does this funding level support?

The EMC program orchestrates cost-effective reductions of energy and water use at air traffic facilities by coordinating policies, technical support, targeted infrastructure investments, and data analysis and reporting. By upgrading older facility infrastructure, such as mechanical and electrical systems, the program will not only reduce operational costs but will increase reliability of the national airspace system by reducing the likelihood of facility outages and disruptions that can be caused by out-of-service building systems. The EMC program promotes energy and water-use efficiency and the use of off-grid power and non-polluting energy sources for all activities and acquisitions.

For FY 2025, $4.8 million is requested to support the following:

- Perform energy and water improvements at seven high energy using facilities
- Develop and implement performance-based contracts to maximize third-party investments in air traffic infrastructure
- Provide required quarterly and annual reports on progress against legislative and executive order mandates to the Department of Transportation, the Department of Energy, and the Office of Management and Budget

The EMC program has identified 332 facilities that comprise 75 percent of the Air Traffic Organizations energy usage. The mandates of the Energy Independence and Security Act and the Energy Policy Act require the agency to identify and implement recommended energy and water improvements to reduce utility usage and associated costs at these facilities. The program

has already identified more than $200 million in recommended improvements to lower energy usage at air traffic facilities, many of which would pay back in fewer than 10 years.

What benefits will be provided to the American public through this request and why is this program necessary?

The EMC program is necessary to provide a coordinated approach for identifying and implementing cost-effective investments in the FAA infrastructure to reduce ongoing utility expenses. The American public benefits from reduced energy consumption at FAA facilities as well as resultant cost savings.

Detailed Justification for – 2E09 FAA Telecommunications Infrastructure

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
FAA Telecommunications Infrastructure	$69,000	$340,800	$419,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. FAA Enterprise Network Services	---	140,000.0
B. FAA Telecommunications Infrastructure Sustainment 2	---	33,500.0
C. Time Division Multiplexing – to – Internet Protocol Migration	---	246,000.0

What is this program and what does this funding level support?

A. FAA Enterprise Network Services (FENS)

This project is the successor to the existing FAA Telecommunications Infrastructure program, which provides most of the telecommunications services required by the FAA. Telecommunications services are essential to the operations of the national airspace system and the FAA. As the FAA Telecommunications Infrastructure program comes to an end, this new project is necessary to ensure there is no interruption to the National Airspace System and FAA operations. The current FAA Telecommunications Infrastructure project is providing services today with its contract ending in 2022. FAA Enterprise Network Services will provide high-availability, low latency telecommunications services for national airspace systems and a separate mission support network that serves as the FAA's Intranet for secure connectivity to FAA internal administrative applications as well as the public Internet.

FAA Enterprise Network Services will be responsible for establishing a modern infrastructure that can meet the FAA's future demands for telecommunications services through 2037. This project will provide a robust competitive environment for meeting the FAA's future telecommunications needs.

The new network infrastructure will support the connectivity requirements of programs such as System Wide Information Management and Data Communications.

For FY 2025, $140.0 million is requested to fund the necessary resources, program, and contract support to:

A. Develop FAA Enterprise Network Services enterprise-level networking functions.

B. Establish prime tools and FAA tools for network management and operations, service ordering and invoicing tracking.

C. Support communications network planning and engineering, security management and operations.

D. Support implementation activities, including implementation management, site surveys, site preparation, facility access special construction, installation, joint acceptance inspection, commissioning, cutover support, and decommissioning surveys.

B. FAA Telecommunications Infrastructure Sustainment 2 (FTI Sustainment 2)

As the implementation of the FAA Enterprise Network Services project progresses, the FAA Telecommunications Infrastructure Sustainment 2 program will replace telecommunications components to extend the life of the current infrastructure through the contract bridge period and until the transition to FAA Enterprise Network Services is complete. The FAA Telecommunications Infrastructure program currently has several critical hardware components approaching their End of Support date. This poses a substantial risk to the FAA's security, boundary protection and intrusion detection capabilities.

For FY 2025, $33.5 million is requested to mitigate the network backbone from equipment failures and target the replacement of network security elements, obsolete transport network components, and critical last mile microwave and satellite equipment to avoid vulnerabilities that may put air traffic operations at risk.

C. Time Division Multiplexing – to – Internet Protocol Migration (TDM-to-IP)

Time Division Multiplexing is a lower bandwidth, 1960s technology that is reliant on copper infrastructure, and increasingly outdated, unsupportable equipment that is labor intensive and costly to sustain. Commercial telecommunications providers are moving to modern broadband internet-based technology and the pace of providers no longer offering or supporting TDM services has increased. This forces the FAA to invest in new technology for both FAA Systems and Networks to sustain NAS Operations and capitalize on an all-ethernet FAA Enterprise Network Services network. To achieve this, the FAA has developed a Time Division Multiplexing – to – Internet Protocol Migration strategy that will:

- Reduce dependence on obsolete low speed Time Division Multiplexing infrastructure that is being discontinued by commercial telecommunication providers nationwide.
- Replace communication provider copper with fiber, wireless, or alternate solution.

- Reduce the risk to National Airspace System operations related to the sun setting of Time Division Multiplexing.

For FY 2025, $246.0 million is requested to address near-term Time Division Multiplexing discontinuances and implement solutions that will enable Internet Protocol communication across the National Airspace System.

What benefits will be provided to the American public through this request and why is this program necessary?

The FAA Telecommunications Infrastructure program will benefit the American Public directly and indirectly by:

- Ensuring continuity of the telecommunications services required for the operation of the United States Air Traffic Control system as the existing telecommunications services contract reaches the end of its period of performance.

- Reducing telecommunications service delivery timeframes so that new capabilities can be put into operation more quickly to support the flying public and air carriers.

- Providing enhanced network service monitoring, control, and security capabilities that improve visibility in outage impacts and reduce restoration times.

- Providing the enhanced security capabilities needed to ensure secure communications with internal and external stakeholders that depend upon the FAA's wide area networks and System Wide Information Management enterprise messaging services.

The work under this program supports FAA initiatives to improve the resiliency of the National Airspace System through a robust infrastructure that can auto-recover during outages in a manner that is transparent to FAA end user systems and reduces air traffic delays.

Detailed Justification for - 3A01 Hazardous Materials (HAZMAT) Management

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Hazardous Materials (HAZMAT) Management	$24,300	$30,629	$23,600

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Hazardous Materials (HAZMAT) Management	34	$23,600

What is this program and what does this funding level support?

The FAA operates the hazardous materials, or HAZMAT management program, to clean up approximately 535 contaminated areas of concern that require investigation, remediation, and closure activities. Investigations at the identified sites have revealed that toxic contamination resulted from a variety of hazardous substances, including petroleum cleaning solvents, degreasing agents, pesticides, asbestos, polychlorinated biphenyls, and heavy metals.

The FAA has identified cleanup schedules as part of enforcement agreements with regulatory agencies. These agreements require the FAA to remediate contaminated soil, surface water, sediments, and groundwater. Extensive contamination at the William J. Hughes Technical Center in Atlantic City, New Jersey prompted the Environmental Protection Agency to place the site on its National Priority List or "Superfund" as one of the nation's most environmentally dangerous sites. Other contaminated sites (many of which are located in Alaska) encompass the requirements of the HAZMAT management program that account for a large portion of unfunded environmental liabilities documented in the FAA's annual financial statements.

For FY 2025, $23.6 million is requested to continue the management and remediation of 535 contaminated areas of concern, as of October 2024. During FY 2023, the HAZMAT program both removed 48 areas of concern and added 38 more to the program.

To achieve compliance with Federal, State, and local environmental cleanup statutes, including the Resource Conservation and Recovery Act of 1976, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and the Superfund Amendments and Reauthorization Act of 1986, the FAA must continue mandated program activities. Highlight activities include:

- Continue remediation activities at the Superfund site at the William J. Hughes Technical Center.

Move the status of sites listed on the Environmental Protection Agency Federal Hazardous Waste Compliance Docket (Docket) to "No Further Remedial Action Planned" status. The majority of non- "No Further Remedial Action Planned" status sites remaining on the Docket have significant technical challenges to obtaining closure (e.g., long timeframe for site remediation, Superfund site, and ownership liability issues). The three remaining FAA Docket sites include the Mike Monroney Aeronautical Center, Ronald Reagan Washington National Airport, and William J. Hughes Technical Center.

- Continue investigations and remediation projects at all other identified contaminated sites under Federal, State, and local mandates to limit future liability to the agency and foster environmental stewardship.

Postponing remedial activities at these contaminated areas of concern can lead to noncompliance with the Federal, State, and local environmental cleanup statues. Noncompliance with these statues includes maximum penalty amounts that range from $1,000 (Bahamas) to $100,000 (Alaska) for the first day of violation, and that range from $1,000 (Bahamas and Idaho) to $50,000 (Hawaii, New Hampshire, and New Jersey) for each day after the first day of violation.

What benefits will be provided to the American public through this request and why is this program necessary?

The direct outcome of closing these contaminated areas of concern leads to overall decreased environmental remediation liability to the FAA. Investigating, remediating, and obtaining site closure at the FAA's contaminated areas of concern also increases employee and public safety by minimizing exposure to toxic and hazardous substances at these sites. From FY 2009 through FY 2023, the HAZMAT management program has closed 1,449 areas of concern.

The FAA is currently analyzing alternate remedial technology that optimizes remediation and cost efficiency. A new remediation procedure at the William J. Hughes Technical Center's Superfund Site reduced the status quo operation of the existing treatment system by 141 years yielding a cost avoidance of $280 million.

Detailed Justification for - 3A02 Aviation Safety Analysis System (ASAS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Aviation Safety Analysis System (ASAS)	$28,200	$28,000	$29,900

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Regulation and Certification Infrastructure for System Safety Sustainment 4	---	$20,900.0
B. FAA Critical Infrastructure for System Safety	---	8,000.0
C. Regulation and Certification Infrastructure for System Safety (RCISS) Sustainment 5	---	1,000.0

What is this program and what does this funding level support?

The FAA workforce must have a modern information technology infrastructure and tools to effectively perform its data-driven analytical safety work and collaborate with both internal FAA and external aviation stakeholders. At regular lifecycle intervals, information technology infrastructure components must be modernized in order to maintain safety operations without disruption due to failure or information technology security vulnerabilities. Funding is required in order to deploy modern commercial-off-the-shelf information technology products and services in the following areas:

- Mobile Technologies and End User Devices: Notebook computers, tablet computers, and peripherals used by the workforce.
- Network Infrastructure and Data Services: Telecommunications switching devices and bandwidth services at FAA facilities.
- Remote Connectivity Telecommunications: Mobile device telecommunications services for the safety workforce.
- Consolidated Server/Data Storage Systems: Hardware infrastructure where critical mission and safety data is stored/accessed.

- Safety and Business Application Hosting Services: Hardware infrastructure, as well as cloud services, that are used to host business applications and associated data.
- Enterprise commercial-off-the-shelf software and services.
- Management Tools: Software and tools used to support the workforce and efficiently/securely manage the information technology infrastructure.
- Disaster Recovery: Disaster recovery solutions required to ensure business applications and data are not lost if a catastrophic event occurs.
- Implementation and Planning Support Services: Vendor services required to plan and implement information technology infrastructure enhancements across the enterprise.
- End User Technology Training: Developing training courses and instructional aides to support the use of hardware and software solutions deployed by the investment.

These products and services ensure continuity of operations for critical and non-critical Mission Support safety and business systems. Additionally, these services ensure that critical safety data is safeguarded against loss by providing a secure, reliable and timely back up of data.

A. Regulation and Certification Infrastructure for System Safety Sustainment 4

For FY 2025, $20.9 million is requested for Regulation and Certification Infrastructure for System Safety in order to provide all the information technology infrastructure components that support the Office of Aviation Safety's 6,600-person safety workforce and ensure standard and reliable accessibility to safety data. This program provides safety data to the Aviation Safety workforce while they are mobile and conducting safety inspections and investigations of airlines, manufacturers, pilots, accidents, etc. It also provides methods to access all of Aviation Safety's national safety applications developed by System Approach for Safety Oversight and Aviation Safety Knowledge Management Environment. It will also allow access to all other Aviation Safety national safety programs including Civil Aviation Registry Electronic Services, Pilot Records Database, and Medical Support Systems.

Regulation and Certification Infrastructure for System Safety also supports the coming integration of Aviation Safety's disparate safety data, where individual stove-piped applications' data sets are combined into an enterprise level data store that isolates the data from the applications. In this new environment, safety workers assemble data as needed from various data sources to support new business processes.

The program supports the Aviation Safety workforce in their effort to reduce aviation accidents by making real-time safety data immediately accessible to and from all related parties, e.g., inspectors, engineers, investigators, and medical examiners. By enabling the Aviation Safety workforce with the ability to perform its work from nearly any virtual workplace, the Regulation and Certification Infrastructure for System Safety infrastructure facilitates increases to workload capacity and performance without additional staffing requirements.

B. FAA Critical Infrastructure for System Safety

For FY 2025, $8.0 million is requested for technology refresh of the legacy Mission Support information technology infrastructure. FAA Critical Infrastructure for System Safety will provide similar infrastructure products, services, and benefits as Regulation and Certification Infrastructure for System Safety to the nearly 50,000-person FAA workforce not included under the Regulation and Certification Infrastructure for System Safety program. Currently, there are over 600 legacy FAA Mission Support business applications and several Capital Investment Programs, such as Unmanned Aircraft Systems; Traffic Analysis and Review Program; Knowledge Services Network; Data Visualization, Analysis, and Reporting System; and Operations Network Replacement, that will utilize this infrastructure.

Personnel at both national airspace system and Mission Support sites will utilize the infrastructure provided by this project to access applications and data vital to the health of the national airspace system, including weather-related data and services. For example, national airspace system facilities management uses the Mission Support network for logging maintenance tasks and certification status of equipment, tracking outages, and dispatching technicians for maintenance/repair assignments.

Unlike Regulation and Certification Infrastructure for System Safety, the infrastructure this project seeks to modernize has not been proactively replaced in accordance with prescribed technology life cycles. As a result, the infrastructure is becoming increasingly less reliable, unsecure, and more prone to failures that can cause disruption to operations and the possible loss of critical data and applications used by the FAA workforce. Proactive planning and modernization of the FAA Critical Infrastructure for System Safety infrastructure will result in fewer operational disruptions, increased security, and more efficient utilization of fiscal and personnel resources.

C. Regulation and Certification Infrastructure for System Safety Sustainment 5

For FY 2025, $1.0 million is requested Acquisition Management System for the next phase of Regulation and Certification Infrastructure for System Safety.

What benefits will be provided to the American public through this request and why is this program necessary?

A proactive technology refresh and modernization approach will positively affect the reliability, maintainability, and availability of the information technology infrastructure components supporting the critical applications and data systems utilized by the FAA Safety and Mission Support workforce. Operational disruptions caused by out-of-lifecycle infrastructure components will be minimized and the security of vital systems and data will be enhanced. Further, proactive technology refreshment, modernization, and standardization of the infrastructure will reduce unplanned remediation expenditures and allow greater scalability and flexibility for the infrastructure to meet evolving business needs, including mitigation of events that could adversely affect the flying public and aviation industry revenue.

Detailed Justification for – 3A03 National Air Space Recovery Communications (RCOM) Sustainment 2

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
National Air Space Recovery Communications (RCOM) Sustainment 2	$12,000	$12,000	$12,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
National Air Space Recovery Communication (RCOM) Sustainment 2	---	$12,000

What is this program and what does this funding level support?

This program supports the Office of Security and Hazardous Material Safety's Command and Control Communications Division. The Command and Control Communications/RCOM program has Presidential and Congressional mandated responsibilities to provide reliable communications support to the White House, DOT, FAA, and other government agencies during national security events, disaster recovery efforts, accident investigations, government exercises, and special invitational events. The RCOM program provides survivable, secure, and redundant communications and facilities that enables the FAA to respond to emergencies, assist in restoration of the National Airspace System (NAS), protect national security, and enable the continuity of FAA operations. Facilities, equipment, and services provided by the RCOM program fulfill this mission, as well as Presidential and Congressional mandates to include, but are not limited to:

- Maintaining Continuity of Operations (COOP)/Continuity of Government (COG) facilities for FAA COOP Cadre member use in all-hazard situations, per Federal Continuity Directive-1 (FCD-1).

- Equipping air traffic technical operations and emergency response personnel with very high frequency/frequency modulated radios, satellite communications, and satellite fly-away kits to assist with command and control communications in emergencies and data/network connectivity, such as the restoration of air traffic operations at Lake Charles Airport, LA, in the aftermath of Hurricane Laura.

- Equipping fixed-based satellite communication terminals in critical air traffic control facilities for use during interruptions in communication services caused either by damage to commercial communications infrastructure or by a surge in demand exceeding the capacity of that infrastructure.

- Maintaining a microwave radio/data network for use by FAA and other Federal Agencies and Departments in the National Capital Region (NCR) as a physically diverse data network as required by Office of Science and Technology Policy (OSTP) and Office of Management and Budget Directive (OMB) D-16-1 (OSTP/OMB D-16-1).

- Maintaining a secure high frequency radio system at COOP facilities per OSTP/OMB D-16-1.

- Maintaining national security systems to enable the appropriate handling of classified information and communications agency-wide to help ensure the safety and security of the NAS, per OSTP/OMB D-16-1.

For FY 2025, $12.0 million is requested to support the RCOM program. The funding requested meets the minimum support necessary to refresh, maintain and improve the infrastructure mandated by mission needs and Federal continuity directives.

What benefits will be provided to the American public through this request and why is this program necessary?

The FAA's RCOM program ensures the FAA can reliably and continuously communicate to exchange information, including during times of crisis and natural disaster, to maintain the timely flow of information to support agency-wide decision making. Investments made by the RCOM program enable the FAA to bypass disrupted common carrier communication circuits and systems to coordinate NAS restoration when disrupted by natural disasters, wartime events, terrorist activities, or other catastrophic events. The RCOM program provides the resiliency needed for the FAA to maintain mission essential functions, such as air navigation services. Maintaining these services minimizes impacts to air travel and supports continued national defense and law enforcement operations during times of crisis, to safety and benefit of the American people.

Detailed Justification for – 3A04 Facility Security Risk Management (FSRM)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Facility Security Risk Management (FSRM)	$14,000	$18,000	$15,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Facility Security Risk Management	49	$15,000.0

What is this program and what does this funding level support?

In 1999, the FAA established the FSRM program, which implements standardized facility protective measures at all FAA-staffed facilities. These measures include personnel access control (via card readers, fencing, gates, and security guards), surveillance (cameras), vehicle access control (barriers), visibility enhancements (lighting), and X-ray machines. The FSRM program participates in the construction of facilities that secure FAA personnel and assets, such as guardhouses, and facility retrofitting to protect against blast or explosive attacks.

The FSRM program manages contracts that install security systems, and that provide maintenance services to installed security systems regardless of age, manufacturer, or condition. In addition to the protection of FAA personnel and assets, another program goal is one of standardization across the national airspace system. The standardization of security equipment and processes will result in a substantial cost savings to the FAA. The FSRM Sustainment program is instrumental in ensuring that FAA efficiently and cost effectively implements all issued Presidential Directives aimed at securing Federal facilities and personnel. For FY 2025, $15.0 million is requested to support the following efforts that will result in increased security at FAA-staffed facilities.

- Construction/Installation for security upgrades
- Engineering design and equipment installation for the Eastern and Western Pacific regional offices

- Security Personal Identification Verification upgrades at Facility Security Level 2 and 3 facilities

- Technology refresh of security systems at Facility Security Level 2, 3, and 4 facilities to replace outdated security equipment

- Continued installation of cameras and Personal Identification Verification card readers at all access points to areas housing critical national airspace systems in all Air Route Traffic Control Centers, Airport Traffic Control Towers and Terminal Radar Approach Control facilities that support the busiest United State terminal areas

What benefits will be provided to the American public through this request and why is this program necessary?

The FSRM program has contributed to obtaining security accreditations at over 980 FAA facilities. This continues to be accomplished through the program's management of national contracts that assess and upgrade security measures such as X-ray machines, cameras, card readers, gates, and vehicle barriers at FAA-staffed facilities. This program is necessary in order to continue the assessment and upgrade of obsolete and unsupportable security systems, reducing the risk of intrusion and unauthorized entry to FAA-staffed facilities nationwide.

Detailed Justification for - 3A05 Information Security

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Information Security	$23,000	$32,000	$38,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Information Systems Security Enhancements	---	$12,000.0
B. National Airspace System Critical Infrastructure Cyber Enhancements	---	$26,700.0

What is this program and what does this funding level support?

The FAA must ensure the security, integrity, confidentiality, and availability of all critical information, systems, networks, and infrastructure under conditions of increased threat from cyber terrorism and malicious activities by hackers and other unauthorized personnel. Under the Federal Information Security Management Act of 2014, FAA must identify and provide information security protection commensurate with the risk and magnitude of potential harm that could result from unauthorized access, use, disclosure, disruption, modification, or destruction of information that supports the agency, aviation safety and security, and the national airspace system (NAS). The FAA Security Operations Center, a 24x7x365 operation, is the central reporting point for all cyber events occurring within the FAA and DOT.

The transition of the national airspace system to a fully Internet Protocol based infrastructure increases the threat of damage from cyber-attacks. Damage to FAA systems and aviation safety related information such as Air Traffic, Airway, and Airport Information Systems; or Pilot and Airman Medical processing and Certifications data, can have potentially serious consequences for the entire aviation community and the American public.

A. Information Systems Security Enhancement

For FY 2025, $12.0 million is requested to ensure the Information Systems Security Enhancement Program continues to operate at peak efficiency, leveraging modern technologies

and platforms, to continue security architecture, research, and development efforts. This program will enhance the cybersecurity posture across the FAA and strengthen the security of the aviation domain through collaboration with public and private entities, and the intelligence community. Specific plans for FY25 include:

- Zero Trust Architecture (ZTA): adopt the Cybersecurity and Infrastructure Security Agency (CISA) Zero Trust maturity model through distinct pillars to transition towards a ZTA architecture.

- Cybersecurity Operations (includes FAA Security Operation Center): implement new technologies that will allow cybersecurity analysts to conduct threat analysis, remediation processes and incident response activities via automated workflows and network monitoring tools.

- Aviation Cyber Initiative (ACI): engage with global stakeholders across government and industry to raise awareness of cybersecurity issues and support initiatives to address threats and vulnerabilities in a coordinated and collaborative manner.

- FAA's Cybersecurity Test Facility (CyTF) and Secure Enterprise CyberTest Range (SECTR): provide systems engineering to research, test and evaluate security controls and capabilities for FAA operating domains.

B. National Airspace System Critical Infrastructure Cybersecurity Enhancement

For FY 2025, $26.7 million is requested to support the National Airspace System Critical Infrastructure Cybersecurity Program in providing services and capabilities to enhance Air Traffic Control and ensure the national airspace system remains secure and resilient. The Air Traffic Organizations strategy is to invest in enterprise capabilities that provide infrastructure protection, cyber monitoring and management tools, and defense against the evolving threat environment. National Airspace System Critical Infrastructure Cybersecurity Program security investments include:

- Network and Access Controls: provide the enterprise services that prevent unauthorized access to the National Airspace System infrastructure and secure connection paths to limit communications to only those required for National Airspace System operations.
- Enterprise Common Tools: provide centralized capabilities that support the monitoring of National Airspace System networking and computing environments to identify potential malicious activity and provide management of National Airspace System assets to maintain secure configurations.
- Evolving Threat Protection: provide zero-trust segmentation, authentication and monitoring for critical infrastructure assets, centralized cybersecurity intelligence collection and analysis, and automated cybersecurity event detection and response activity workflow.
- Secure Remote Access Solutions: provide a secure, highly available and continuously

monitored architecture to support the remote access needs for both system-to-system and user-to-system transactions to maintain the National Airspace System.

What benefits will be provided to the American Public through this request and why is this program necessary?

The continuing mission of the FAA is to provide the safest, most efficient aerospace system in the world. Such efforts include satellite communications, navigation, weather, and aircraft worthiness to prevent aviation related fatality, injury or significant property loss. The FAA is undertaking multiple strategic and tactical initiatives in the development of a comprehensive and strategic framework to reduce cybersecurity risks to the national airspace system, civil aviation, and agency information systems.

The enhanced national airspace system Cybersecurity protection, detection and response capabilities identified above would significantly limit the likelihood of a major cyber-attack against the national airspace system being successful and, thereby, protect the American public from severe economic disruption and threats to safety. Implementing the initiatives at an enterprise level, rather than on a system-by-system basis, provides the agency with economies of scale and reduces or eliminates redundant costs derived from the use of mission-centric mitigation methods.

The enhanced national airspace system Cybersecurity protection, detection and response capabilities identified above would significantly limit the likelihood of a major cyber-attack against the national airspace system being successful and, thereby, protect the American public from severe economic disruption and threats to safety. Implementing the initiatives at an enterprise level, rather than on a system-by-system basis, provides the agency with economies of scale and reduces or eliminates redundant costs derived from the use of mission-centric mitigation methods.

Detailed Justification for - 3A06 System Approach for Safety Oversight (SASO)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
System Approach for Safety Oversight (SASO)	$26,700	$21,000	$13,200

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. System Approach for Safety Oversight (SASO) Phase 4	---	$13,200

What is this program and what does this funding level support?

A. System Approach for Safety Oversight (SASO) Phase 4

The program increases aviation safety and controls cost by adopting the International Civil Aviation Organization mandate to revise Safety Programs to incorporate Safety Management System principles. The program also supports the FAA Administrator's transition to risk-based decision-making and incorporates integrated oversight philosophy. The scope of the System Approach for Safety Oversight program investment includes reengineering Flight Standards Service business processes and partially integrating Flight Standards Service systems. The program serves approximately 5,900 FAA Aviation Safety employees across headquarters and approximately 100 field offices, who are managing over 31,000 certificates and more than 25,000 additional aviation industry professionals managing aviation safety throughout the United States.

Flight Standards Service is responsible for oversight of nearly the entire civil aviation industry using the National Airspace System. Its legacy safety oversight system is stove piped, reactive in nature, and "regulatory compliance-based." While many technical and human factors problems contributing to accident rates have been resolved, more complex organizational factors remain which requires additional systems-based, data-supported analysis and assessment for their resolution. The program closes the performance gap between a "regulatory compliance-based" approach and the reengineered system safety-based approach to safety oversight.

Increases in technical and operational complexity of aviation operations and introduction of new technologies further stress today's oversight system. The program implements a more structured

data-supported risk-based oversight system for the Flight Standards Service aviation safety inspector workforce and the Office of Hazardous Materials Safety (AXH) aviation safety inspector workforce. The primary product is the Safety Assurance System. Flight Standards Service and AXH use this system to more efficiently manage their statutory responsibility to oversee National Airspace System certificate holders, and as a hazard identification and risk assessment tool to formulate surveillance plans and target aviation safety inspector resources to the highest risk areas in the National Airspace System. The Safety Assurance System is being implemented in phases due to its complexity.

During FY 2025, the program continues its fourth full year in Phase 4. Phase 4 will improve aviation safety oversight by improving the Safety Assurance System functionality; by exchanging safety information with other lines of business and programs who are responsible for aviation safety oversight; and by expanding the Safety Assurance System to the aerospace system level to leverage a larger pool of safety information. Phase 4 will complete the requirements for the System Approach for Safety Oversight program. The success of the System Approach for Safety Oversight program depends upon continued funding for development through FY 2028 to achieve and sustain full benefits.

For FY 2025, the System Approach for Safety Oversight program requests a total of $13.2 million for continued development of the Safety Assurance System. The required funding supports automation development, engineering, policy updates, training, and system implementation to achieve the full oversight capabilities and benefits as envisioned in the program concept of operations and business case.

What benefits will be provided to the American public through this request and why is this program necessary?

The primary benefit of the System Approach for Safety Oversight program to the American public is its contribution to the reduction of aviation accidents and fatalities. By implementing the system safety principles, FAA oversight of the aviation industry results in fewer accidents attributable to FAA oversight gaps or failures. The new processes and tools developed under this program allow Flight Standards Service and AXH to focus their resources on the highest risk areas in the National Airspace System.

Detailed Justification for - 3A07 Aerospace Medical Equipment Needs (AMEN)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Aerospace Medical Equipment Needs (AMEN)	$0	$0	$1,500

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Wind and Wave Evacuation/Survival Facility Phase 1	---	$1,500.0

What is this program and what does this funding level support?

Civil Aerospace Medical Institute (CAMI) research and training personnel discover methods and recommend strategies to enhance the safety, security, health, and performance of the most important aspect of the National Airspace System (NAS), the human operator and the public that she/he serves. CAMI is the only federal entity that performs this work on behalf of the U.S. The AMEN investment supports research that includes assessments of human performance under various conditions of impairment, human error analysis and remediation, and agency workforce optimization. To perform their missions, CAMI's personnel require sophisticated, highly technical, and specialized equipment. Much of the laboratory equipment used by CAMI's scientists, physicians, and engineers is old and becoming obsolete.

A. Wind and Wave Evacuation Survival Facility (WiWAVES)

For FY 2025, $1.5 million is requested for the 1st Level Engineering/Preventative and corrective maintenance (contractor support), recurring training, integrated logistics support and physical infrastructure support to maintain the operation and maintenance of the new Wind and Wave Evacuation and Survival (WiWAVES) facility. The funding will support the first year of the operation and maintenance of the new facility that include:

- Facility Operations & Maintenance/Physical Infrastructure Support Contract
- Water Survival Research Tank
- Waves Generation System
- Wind Generation System (Deck Fans)

- Bridge Crane
- Utilities (Gas, Electric, Water)

Once the construction of facility is completed, the Operations and Maintenance (O&M) costs are paid for through the F&E appropriation for a period that is usually up to two years after commissioning. This allows FAA to identify the needs and formulate the requirements in the Operations appropriation during budget formulation. The identified O&M costs must then be transition to the Operations Appropriation. This is known as Transition to Operations and Maintenance (TOM).

The construction of the new WiWAVES Facility is scheduled to be completed March 2024. The WiWAVES facility will be approximately a 45,000 sq. ft. building that houses a water survival tank and a dry test area comprising a wind and wave chamber for escape and survival systems equipment studies, wind studies, research, education, and testing. The tank and dry test area will be surrounded by structural and mechanical apparatus necessary to support: fuselage placements; aircraft attachments for multiple escape slides; deployment of water survival inflatables; wind machines to emulate high-fidelity windstorm operating environments; and wave generating capability necessary to challenge the design and function of water safety and survival equipment and procedures. These upgrades are designed to facilitate the FAA's research and education activities that ensure aircraft passengers have the knowledge and equipment necessary for water survival during emergencies. No other such capability currently exists within the civil aviation industry.

WiWAVES team is replacing the current WSRF, which was installed in 1967 and is deteriorating to the point of potential structural failure. The current WSRF failed structurally in 2012 and was out of service for several months. All activities involving the use of overhead cranes, aircraft escape slide attachments, fuselage dunking equipment, and emergency equipment repair/reconfiguration were not conducted during this period. The antiquated WSRF was repaired but is continuously being monitored for potential structural failure. The tank's structural failure could severely damage the adjacent surrounding infrastructure and resources, e.g., the newly installed impact sled, computer systems, aircraft simulators, multimedia equipment, classrooms, auditorium, and medical certification records.

What benefits will be provided to the American public through this request and why is this program necessary?

These investments will allow for the continued performance aerospace medical and cabin safety research. This research serves as the knowledge base for Physicians, Physiologists, Human Factors Experts, Engineers, Psychologists, Educators, Flight Attendants, Aircrew, and numerous other academia, industry, and government personnel in the U.S. and abroad who are concerned with the safety of humans in aerospace operations. Identifying survival factors in simulated studies is essential to prevent death and injury.

The beneficiaries of the research resulting from the use of the facility and equipment sought by AMEN and WiWAVES include: the General Public, Aeromedical Scientific and Engineering Communities, Aeromedical Education/Training Communities, Aeromedical Certification, including FAA AAM Regional Flight Surgeons and Aviation Medical Examiners (AMEs), Aircraft Accident Prevention and Investigation, Aircraft Certification, Flight Standards, Legal Counsel, Space Transportation, Quality Management, Aviation Operations Personnel and their organizations, Aircraft manufacturers, and Industry/Government Accreditation/Standards development organizations.

Detailed Justification for - 3A08 NextGen – System Safety Management Portfolio

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
System Safety Management Portfolio	$17,000	$6,000	$15,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Aviation Safety Information Analysis and Sharing	---	$15,000.0

What is this program and what does this funding level support?

This portfolio contains activities that ensure that changes introduced with NextGen enhance and do not degrade safety while delivering benefits. The work under this program will enable development of a limited number of analytical tools to convert text, digital radar, weather, and other data into safety information to support safety analyses. It will also support existing anomaly detection and visualization capabilities for causal/contributing factor analyses and risk assessments.

A. Aviation Safety Information Analysis and Sharing

The mission of Aviation Safety Information Analysis and Sharing is to provide a global resource to identify and analyze emerging, systemic aviation safety hazards affecting the National Airspace System and the global air transportation system. This includes direct support as a key element for the *FAA Safety Call to Action* aviation safety analysis initiative. The program is a collaborative government/industry initiative to analyze data and share aviation safety analysis, to discover safety concerns before accidents/incidents occur. Aviation Safety Information Analysis and Sharing participation includes more than 200 stakeholder organizations across the aviation community (including commercial and corporate aviation, general aviation and rotorcraft, trade associations, government agencies, aviation training entities, universities, and others) who contribute data for use in safety analyses. This funding includes efforts to address risks in collaboration with the aviation community.

For FY 2025, $15.0 million is requested to:

- Deliver predictive capabilities through enhancements to ASIAS, including improvements to safety metrics for operational flight data, analytical tools for aviation safety reports, and the fusion of multiple data sources for improved assessments of risks.
- Leverage advanced technologies including machine learning capabilities, large language models, and natural language processing to address safety topics prioritized by the Commercial Aviation Safety Team, the General Aviation Joint Safety Team, and the United States Helicopter Safety Team.
- Expand ASIAS information-sharing initiatives; collaborate with international entities to share aviation safety analyses and analytical tools; address risk for the general aviation community with enhanced safety metrics.
- Integrate existing ASIAS technical components, deliver improved data quality, and increase processing speeds for new and existing data to produce more rapid safety analyses; leverage ASIAS interfaces and data enclaves to analyze new data sources.
- Produce safety metrics to support the study of key priorities for the ASIAS stakeholders to include commercial passenger, cargo, corporate and general aviation, rotorcraft, and safety collaborators. Deploy tools to identify risk and vulnerabilities in the National Airspace System.
- Conduct investment analysis and procurement activities for the next generation ASIAS system.

What benefits will be provided to the American public through this request and why is this program necessary?

The planned growth and complexity in the air transportation system requires a fundamental change in the way the air transportation community manages safety. System safety management development provides a shared, proactive approach to identifying, assessing and mitigating risk, enabling all stakeholders to be more effective in their approach to managing safety. The primary benefit of this program is the development of safety analysis to proactively reduce aviation incidents, accidents, and fatalities.

Detailed Justification for – 3A09 National Test Equipment Program (NTEP)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
National Test Equipment Program (NTEP)	$3,000	$3,000	$3,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
National Test Equipment Sustainment	---	$3,000.0

What is this program and what does this funding level support?

The National Test Equipment Sustainment program manages the modernization, distribution, calibration, and inventory of test equipment. The equipment is required to perform preventive and corrective maintenance, equipment installations, modifications, and service certifications in support of numerous National Airspace System Platforms. Failure to achieve certification of critical National Airspace System systems (at any of the 27,000 FAA facilities) will result in the restriction of air traffic in the facility's air space and potentially cause major flight delays.

A large portion of the test equipment is either damaged or rife with supportability and maintenance issues. The problem affects Mean-Time-To-Restore, safety, maintenance cost, and inventory management for every system within the National Airspace System. No other FAA program office or initiative currently addresses this problem.

For FY 2025, $3.0 million is requested to replace obsolete test equipment. The program will finalize the prioritization of test equipment requirements based on the facility need and equipment availability. Current requirements reflect critical need for oscilloscopes, universal data test sets, vector network analyzers, and reducing the test equipment backlog. The majority of test equipment has reached the end-of-life cycle and can no longer be maintained or repaired.

What benefits will be provided to the American public through this request and why is this program necessary?

The National Test Equipment Sustainment program's mission is to support the restoration of Air Traffic services by procuring and delivering functioning test equipment throughout the National

Airspace System. Technicians need up to date calibrated test equipment in order to make necessary adjustments and alignments to major National Airspace Systems. The lack of up-to-date test equipment poses a serious risk that will result in delaying the restoration of critical Air Traffic systems that are crucial for the protection of the flying public.

Detailed Justification for – 3A10 Mobile Assets Management Program

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Mobile Assets Management Program	$1,900	$2,400	$4,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Mobile Assets Sustainment	---	$4,000

What is this program and what does this funding level support?

The Mobile Assets Sustainment Project provides transportable National Airspace System equipment to restore certain operations during periods of extended equipment outages. The FAA's mobile assets deploy to support relief efforts during natural disasters such as earthquakes, forest fires, and hurricanes and ensures continuity of National Airspace System operations. The Mobile Assets Sustainment Project provides mobile assets that function as air traffic control towers and terminal radar approach control facilities, remote transmitter/receiver sites, remote communications air/ground sites, and other facilities/systems that experience unexpected outages or planned system downtime for non-routine maintenance, modernization, or upgrade.

This mobile equipment provides for the continuity or restoral of air traffic control when an Air Traffic Control Tower or other National Airspace System equipment is out of service due to a disaster or an extensive repair, modernization, or upgrade. The Mobile Assets Sustainment Project provides assets needed to augment air traffic control in support of major public events such as NASCAR and the NFL Super Bowl.

For FY 2025, $4.0 million is requested to ensure that a sufficient number of the FAA's mobile assets are available to restore continuity of aviation operations by procuring mobile assets and equipment upgrades/technology refreshes.

What benefits will be provided to the American public through this request and why is this program necessary?

The American public will benefit from the efficient restoration of air traffic control operations in emergencies or natural disasters within hours of the mobile assets arriving on site. The program will be working to ensure the availability and readiness of mobile assets to maintain or re-establish continuity of air traffic operations in response to emergencies and natural disasters.

Detailed Justification for - 3A11 Configuration, Logistics, and Maintenance Resource Solutions (CLMRS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Configuration, Logistics, and Maintenance Resource Solutions (CLMRS)	$19,700	$26,800	$17,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Logistics Support Systems & Facilities (LLSF) - Logistics Center Support System (LCSS) - Enhancement 2	---	$8,000.0
B. Automated Maintenance Management System (AMMS)	---	5,500.0
C. Configurations Management Automation (CMA) Phase 1	---	1,000.0
D. National Remote Maintenance Monitoring (RMM) Network (NRN) Sustainment	---	2,500.0

What is this program and what does the funding level support?

A. Logistics Support Systems & Facilities (LLSF) - Logistics Center Support System (LCSS) - Enhancement 2

The FAA Logistics Center (FAALC) manages the central National Airspace System inventory and warehouses and distribution facilities for the FAA. It provides logistics support for more than 48,000 systems nationwide, routine and emergency logistics products and services to 8,091 FAA customers, as well as additional customers in the Department of Defense (DoD), state agencies, and foreign countries. The Logistics Support Systems & Facilities - Logistics Center Support System Enhancement 2 program will address business process inefficiencies by incorporating inventory planning and warehouse modules and migrating logistics data. For FY 2025, $8.0 million is requested to address the FAALC top priorities. The program is targeting a Final Investment Decision (FID) in FY24 to determine affordability for PRISM, DoD Logistics Management System (DLMS), DELPHI, and upgrade to IFS, as approved by the Joint Resource Council (JRC) in May 2023.

B. Automated Maintenance Management System (AMMS)

The Automated Maintenance Management System (AMMS) will modernize and further automate existing maintenance logging systems so that maintenance activities can be performed

as efficiently as possible. This is done by streamlining access to obtain the necessary data needed to maintain the National Air Space and reducing redundant tasks and duplication of data entry. The system will also collect critical demand data that enables future predictive maintenance and reliability-centered maintenance capabilities. For FY 2025, $5.5 million is requested to perform software and hardware engineering activities to continue solution implementation.

C. Configuration Management Automation (CMA) Phase 1

The goal of FAA's Configuration Management is to record technical information, including system specifications and installation data, of all systems installed in FAA facilities. The primary tool currently used to support Configuration Management has become obsolete. The investment will utilize a phased approach to replace the legacy tool and establish lifecycle traceability and enhanced interfaces (Phase 2) with updated functionality. This will align the FAA with industry best practices and lifecycle management of agency assets and restructure interfaces to meet industry standards that support emerging transfer technology. Configuration Management Automation will have the ability to effectively manage business rules, trace, predict, and manage an asset's status, opportunities, and risks during any phase of the lifecycle. For FY 2025, $1.0 million is requested for production support and sustainment.

D. National Remote Maintenance Monitoring (RMM) Network (NRN) Sustainment

The FAA's Remote Maintenance Logging System (RMLS) system processes and stores data from National Airspace Systems (NAS) equipment by monitoring key systems and components and recording their performance characteristics. The NRN portion of RMLS provides the "control" capability, or the ability to remotely send a command from RMLS to the equipment in the field. This is a critical service provided by the FAA to ensure the safety and operability of the NAS. The National Remote Maintenance Monitoring Network Sustainment investment increases the capacity and efficiency of the NRN system to allow for equipment health notifications and timely responses to equipment outages. For FY 2025, $2.5 million is requested to perform software and hardware engineering activities for continued Investment Analysis (IA).

What benefits will be provided to the American public through this request and why is this program necessary?

The elements included under this program will meet the demands of sustaining the National Airspace System in a more efficient and cost-effective manner by managing inventory levels, optimizing delivery channels to meet National Airspace System availability requirements, and reducing cycle time of parts acquisition, ensuring and documenting standardized configurations. This program will enhance existing systems that support all of FAA sustainment and inventory supply chain management, support the restoration of National Airspace System sooner, and support remote monitoring of equipment to ensure airspace availability.

Detailed Justification for - 3A12 Tower Simulation System (TSS)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Tower Simulation System (TSS)[1]	$15,400	$2,000	$5,100

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Tower Simulation System (TSS) Tower - Training Simulator Enhancement 1	111	$300.0
Expand TSS Footprint		$4,800.0

What is this program and what does this funding level support?

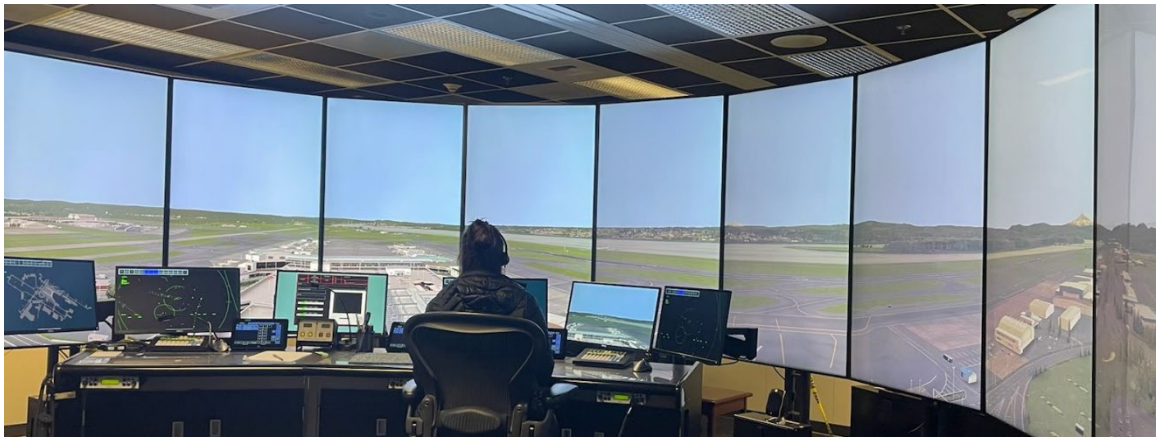

Figure 1: This is a Large Permanent TSS located in the Western Pacific Regional Office. The Visual Database shown in the simulation is of Camarillo Airport in Camarillo, California

The TSS Program provides immersive, realistic tower simulators to meet the training needs of the FAA. It enables an interactive environment for Controllers to learn, practice, and perfect their skills. The TSS can be employed in a wide array of training: initial qualification, skill enhancement, refresher, and more. The complete Program footprint is 59 large, permanent simulators and 52 portable simulators deployed throughout the country.

[1] FY 2022 and FY 2023 funding was enacted under the distance learning BLI 3B02

Training tower controllers is a complicated process. It is comprised of classroom, simulator, and live-position training. Each step is essential to trainee success. Newly hired controllers (i.e. individuals with little-to-no experience in air traffic) will complete their initial training at the Academy in Oklahoma City. Seventy percent (24 days) of the training is conducted in the simulator. Controllers who are moving from a smaller tower to a larger one will train a minimum of ten days in a simulator.

For FY 2025, $5.1 million is requested to complete the baseline of Enhancement 1, add capability to the TSSs to reduce overall maintenance costs, and acquire additional simulators to expand the program's current footprint. Adding network connectivity to each simulator will allow the program office to centralize future software updates and support. Currently, the only way to support the TSSs is by manually updating each individual system where one of the contractor Field Service Representatives must be in the physical location of the TSS. Manual updates are costly as it requires a person to physically visit each location and use travel funds to update the software. Manual updates can also lead to inconsistencies in the software versions across different computers and locations which can cause compatibility issues.

Of the 263 total Air Traffic Control Towers (ATCT) in the NAS, the TSS resides at only 95. The TSS program office will acquire and implement a viable portable TSS solution at each ATCT that is without an existing permanent TSS. Expanding the TSS footprint allows the program office to further support the controller hiring surge that will lead to an influx of new hire trainees in FY 2025 and FY 2026.

What benefits will be provided to the American public through this request and why is this program necessary?

The TSS Program is essential because it increases safety and reduces training costs. Every controller completes yearly training programs to refresh their skills; the TSS Simulator is the perfect place to do so. Controllers will be exposed to life-threatening emergency situations in a simulated environment will be prepared in real life situations.

The TSS systems are stand-alone; they are not connected to any network. All programming and maintenance to a TSS must be accomplished in person. The simulators are physically located at 96 separate facilities scattered throughout the country. Updates to the software will continue to be costly and time-consuming unless automation is introduced via network connectivity. If update needs are frequent, travel and labor will increase the operational cost. Another risk is the downtime required for the manual maintenance which may stall the training pipeline. The added capability of network connectivity will allow significant cost savings.

A 2021 Ernst and Young Investment study concluded that simulators reduce cost to train a controller by $55,000 per new-hire and $25,000 per transferring controller. This translates into a positive Return-on-Investment of $3,000,000 per year for the program.

Detailed Justification for - Replacement: 3B01 Aeronautical Center Infrastructure Sustainment

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Aeronautical Center Infrastructure Sustainment	$20,000	$20,000	$41,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Aeronautical Center Infrastructure Sustainment	---	$20,000.0
B. Thomas Road Warehouse Building Replacement	---	21,000.0

What is this program and what does the funding level support?

The Mike Monroney Aeronautical Center is an aging facility of 137 leased and FAA-owned buildings. The ages of the buildings vary from a few months to 73 years. Missions are accomplished in Mike Monroney Aeronautical Center facilities whose personnel train controllers to direct air traffic across the country and at airports and train technicians to maintain National Airspace Systems. Parts and repair services are provided by logistics personnel in these facilities and comprise the FAA's centralized National Airspace System inventory, sharing support of some systems with Department of Defense and foreign countries having common systems. There are $50.0 million of requirements to replace heating, ventilation, air conditioning, boilers/chillers, electrical/lighting, plumbing, interior finishes, exterior enclosures, roofs, interior construction, elevators, and stairs to prevent deterioration of building conditions. Seismic, wind bracing, and added fire protection is needed in many buildings. The requirements can be addressed with systematic funding to improve conditions and assure the aging infrastructure remains viable in future years.

For FY 2025, $20.0 million is requested for the following:

- Award design and renovation construction for replacement of building systems that include: heating, ventilation, air conditioning, electrical, plumbing, roofs, energy systems (lighting, insulation), electronic security system upgrades and building automation systems

- Provide technology replacement of telecommunications at the Aeronautical Center.
- Provide National Airspace System Integration Support Services and Technical Support Services Construction inspectors.
- Award contracts for building recommissioning and building sustainment projects.
- Award contract for the Solar Panel Phase 2 construction.
- Award contract for TPS mechanical systems upgrades.
- Award construction contract for ARB Envelope & HVAC upgrades.

The FAA's Logistics System Support Center (the Logistics Center) is located on the campus of the Mike Monroney Aeronautical Center (MMAC) in Oklahoma City, Oklahoma and is comprised of a complex system of warehouses, repair facilities, and engineering capabilities that collectively provide 24/7/365 supply chain management and logistics support for the more than $735 million inventory of NAS systems and parts. The Thomas Road Warehouse is included among the complex system of facilities and capabilities that the Logistics Center relies upon to achieve its supply chain and logistics support services. The Logistics Center maintains, repairs, and overhauls equipment for the National Airspace System (NAS). The Logistics Center is the FAA's only centralized distribution center for NAS inventory. Each year, it ships and receives approximately 200,000 parts to FAA field offices and other domestic and international customers.

In December 2022, a five (5) year lease was signed for the current Thomas Road Warehouse location with the expectation from both the property owner and the FAA that a follow-on lease will not be granted. The requested funding level will allow the FAA to construct a warehouse on MMAC campus to ensure the Logistics Center can continue their mission of maintaining, repairing, and overhauling equipment for the NAS. The Logistics Center is the FAA's only centralized distribution center for NAS inventory. Each year, it ships and receives approximately 200,000 parts to FAA field offices and other domestic and international customers.

For FY 2025, $21.0 million is requested for the following:

- Award construction contract for new warehouse built on MMAC campus to replace the 240,000 square foot lease at the Thomas Road Warehouse facility.

What benefits will be provided to the American public through this request and why is this program necessary?

Renovation improves facility space and energy utilization, reduces maintenance costs of major systems within renovated buildings, provides for incremental upgrades of telecommunications infrastructure, and improves productivity of personnel using renovated facilities through space efficiencies and improved environmental controls. It extends the useful life of the buildings, 25 to 30 years, for current and future generations of the FAA work force.

The Logistics Center has the responsibility to maintain, repair and overhaul equipment for the NAS. To meet this requirement, the complex system of warehouses is an integral part of their operations to provide 24/7/365 supply chain management and logistics support services for domestic and international customers. The Thomas Road Warehouse Building Replacement program is necessary as to fund the construction of the warehouse to replace the 240,000 square foot leased warehouse that will expire in November 2027.

Detailed Justification for - 3B02 Distance Learning

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Distance Learning[2]	$17,200	$1,000	$1,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Distance Learning	---	$1,000.0

What is this program and what does the funding level support?

Training has a direct impact on safety and competency in the National Airspace System and the international community. This program delivers state-of-the-art quality distance course delivery and enhancement of training infrastructure for geographically dispersed students. This capability reduces, and in some cases eliminates, the need for resident-based training.

The Distance Learning Program provides funding for the FAA transitioning to infrastructure support of Virtual Training Technologies, blended learning, and a virtual/augmented reality environment. This Program provides the infrastructure to deliver simulations and training to all personnel at the FAA, U.S. Customs and Border Protection, Commercial Space Transportation, and to international students. The requested Distance Learning funding of $1.0 million, will provide resources for a necessary technology refresh of the Distance Learning Platforms and Virtual Training Studios infrastructure equipment located at every Air Traffic, Federal Contract Tower, and Airway Transportation Systems Specialist facility in the National Airspace System. The Distance Learning Platforms need a technology refresh to support high-performance media/simulation requirements and to replace the obsolete parts of current platforms.

What benefits will be provided to the American public through this request and why is this program necessary?

This project allows air traffic controllers and technicians to build and maintain competencies within their areas of expertise. A major cost savings benefit of distance learning is the substantial reduction in time, travel, and per diem costs associated with resident-based training.

In addition, distance learning delivery methods increase training relevance and effectiveness across the FAA workforce while also providing flexibility in training schedules through local management control.

Detailed Justification for - 4A01 System Engineering and Development Support

($38,000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
System Engineering and Development Support	$38,000	$36,500	$38,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. System Engineering Support	---	$35,000.0
B. ATC/AFN Systems Support Program Evaluation	---	3,000.0

What is this program and what does the funding level support?

The System Engineering and Development Support budget line item provides for future enhancements to the Air Traffic System by maintaining the FAA's Enterprise Architecture requirements. The Enterprise Architecture is the blueprint for the future air transportation system and must be documented clearly and accurately. This program assists in developing, delivering, and implementing guidance and support tools to advance the engineering and prototyping effort for the Info-Centric National Air Space System. In addition, contract support services have ensured sound systems engineering practices and business case development processes. The contract also provides support to the FAA's planning and budgetary processes and for contract administration, ensuring consistent application of the Acquisition Management System policy.

The research of emerging procedures and technologies will help to determine the best way to develop and deploy critical future National Airspace System initiatives. These activities include demonstrating that future National Airspace System procedures and operational changes will work on a large scale within the current and evolving air traffic system. In addition, automated data processing and information resource support is required to promote the development and/or enhancement of computer simulation models, miscellaneous software upgrades, databases, and program management tools. Program management, financial management and investment analysis support are provided to assist with planning, decision-making, and budgetary oversight

of the activities involved in implementing newly acquired systems, components, and equipment in existing operational National Airspace System facilities.

A. System Engineering Support:

- Provides for continuous critical support activities that assist in the advancement and modernization of the National Airspace System including Configuration Management, Infrastructure Roadmaps, Operations Planning, Requirements Engineering, Verification and Validation, Systems Engineering Analyses, System Engineering Services, Enterprise Integration Services, Forecast Analysis and Investment Planning Analysis.

- Supports critical programs such as the National Airspace System Enterprise Architecture (integrate and align the Enterprise Architecture portal), Segment Implementation Plan, and Safety Process Improvement.

- Supports the oversight and administration of contract portfolios consisting of multiple prime contractors with large subcontracting teams who provide support services across a broad range of Research and Mission Analysis and System Engineering requirements thus reducing the need for new standalone contracts and contract vehicles, which reduces overall costs and promotes efficiency.

- Supports investment analysis and business case development and analyses conducted by the Office of Investment Planning and Analysis. Investment analysis is conducted in the context of the FAA National Airspace System Enterprise Architecture and strategic goals and objectives. This work provides decision makers with a clear picture of investment opportunities, risks and value.

- Supports the integration and development of corporate tools and processes to strengthen the integration New Entrant Programs into the National Airspace System.

- Funds data warehouse enhancements that expand upon existing financial management, accounting analytics and reporting capabilities.

- Provides cost estimating, cost benefit analysis, operations research, risk and schedule analysis, market surveys, and business case analysis and development in support of investment analyses for the modernization of the National Airspace System.

- Supports application and upgrades to program management financial tools. Supports the design, development, maintenance, training, and reporting on all aspects of Simplified Program Information Reporting and Evaluation, FAA Acquisition System Toolset, Financial Management System, and other management tools.

For FY 2025, $35.0 million is requested to provide technical contract support services, which will ensure sound systems engineering practices.

B. Air Traffic Control/Finance and Management Systems Support:

Supports technical analysis and oversight of acquisition programs goals and performance reporting.

For FY 2025, $3.0 million is requested to provide technical contract support services, which will aide in business case development processes that are instrumental to the safety, efficiency, and security of the National Airspace System.

What benefits will be provided to the American public through this request and why is this program necessary?

This request will support the agency's goals of improving aviation safety, security, and efficiency while increasing capacity and productivity by providing technical assistance through cost effective support services contracts for various programs. The technical assistance will provide support for enhancing software tools, integrating and aligning the Enterprise Architecture portal, along with updating infrastructure roadmaps annually. The economies of scale created by the contracts under this project will allow for a reduction in the award timeline of new tasks and a shorter cycle time for product implementation into the National Airspace System. It also increases agility in response to stakeholder requirements and serves to track funding, costs, and resources efficiently and effectively.

Detailed Justification for - 4A02 Program Support Leases

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Program Support Leases	$45,000	$45,000	$45,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Program Support Leases	---	$45,000.0

What is this program and what does this funding level support?

For FY 2025 $45.0 million is requested to pay rents on approximately 2,800 real estate leases for land and space required for facilities that are components of the National Airspace System. Funds are also required to provide the necessary real property rights for land, tower space, aerial easements, and technical operational space. These leases and property rights directly support air traffic control. Requirements include:

- Payment of rents for land and space leases that directly support navigation, communication, weather observation and reporting, air traffic control, maintenance of equipment and other functions that support the National Airspace System
- Funds for conversion of existing leases to fee ownership or perpetual easements
- Payments for condemnation (leasehold or fee) of real property interests
- Costs for land surveys, real estate appraisals, market surveys, title reports, environmental due diligence audits and other costs associated with the acquisition and management of real property assets
- Costs to record land leases for public record
- Funds for all costs associated with the relocation of offices, facilities, personnel, and equipment (e.g. move, furniture, IT/Telco, finishes)

- Funds for the downsizing, consolidation, or combination of multiple offices when technically feasible and economically advantageous

- Funds for the development of technical and administrative space lease evaluation tools to enhance real estate acquisition and management activities and for implementing program efficiency practices

- Funding for costs associated with real property lease terminations and equipment disposals

- Funding for testing and studies (environmental, suitability, sustainability, cost-effectiveness, etc.) in connection with the leasing, purchasing, usage, management, and disposal of real property

- Funding for real property costs associated with the transition to Next Generation (NextGen) facilities

What benefits will be provided to the American public through this request and why is this program necessary?

Maintaining operational ground based navigational aids, towers, facilities, and equipment is paramount to the safety of the flying public. Accurate management will prevent FAA from incurring significant costs associated with defaults on leases. Funding for the implementation of co-location, consolidation, and oversight measures are an integral part of this program in order to achieve long-term savings and effective use of taxpayer dollars.

Detailed Justification for - 4A03 Logistics and Acquisition Support Services

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Logistics and Acquisition Support Services	$12,000	$12,000	$12,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Logistics and Acquisition Support Services	---	$12,000.0

What is this program and what does this funding level support?

For FY 2025, $12.0 million is requested to fund property and acquisition support services. This program provides contractor support services in planning, documentation, and oversight required to establish new facilities or upgrade existing facilities; audit functions; and capitalization of FAA assets. Facilities requiring support range from Airport Traffic Control Towers to Terminal Radar Approach Control facilities across the nation. The funds are required to obtain contract resources to provide acquisition support, improve real estate processes, and execute capitalization activities. These funds support drawing/design support for the space management at the three FAA Logistics Service Areas located in Atlanta, Ft. Worth, and Seattle: the William J. Hughes Technical Center in Atlantic City, New England Region (Boston); Great Lakes Region (Chicago); and the Mike Monroney Aeronautical Center in Oklahoma City. Contract resources are also used to support the Defense Contract Audit Agency program. The Program is required by the FAA Acquisition Management System (AMS), to audit 100 percent of all cost-reimbursement contracts greater than $100 million and a minimum of 15 percent of all cost-reimbursement contracts not expected to exceed $100 million. These contracts include support for National Airspace System capability development and critical services.

This support provides:

- Contract management and support of activities supporting the National Airspace System
- Asset tracking and documenting of capitalized assets

- Performance of contract activities in support of FAA Capital Investment Plan projects, including contract oversight and audits that ensure that no unallowable or unreasonable costs are being paid

What benefits will be provided to the American public through this request and why is this program necessary?

Maintaining appropriate oversight of the acquisition and management of these assets will ensure that taxpayer dollars are utilized in the most prudent and transparent manner.

Detailed Justification for - 4A04 Mike Monroney Aeronautical Center (MMAC) Lease

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Mike Monroney Aeronautical Center (MMAC) Lease	$16,000	$16,400	$16,900

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Mike Monroney Aeronautical Center (MMAC) Lease	1	$16,900.0

What is this program and what does the funding level support?

The MMAC leases provide leased land/building rent and insurance that comprise approximately 80 percent of Aeronautical Center space. 2.7 million square feet of leased space and 1,067 acres of land, having a leased facility replacement value of $804 million. The MMAC provides facilities that support the work of 6,300 employees, students, and contractors on a daily basis and is the largest concentration of FAA personnel outside of Washington D.C. Approximately 11,000 visitors come to the Aeronautical Center annually.

The MMAC requires large parcels of land as National Airspace System test sites for surveillance radar, communications, weather, and navigation/landing systems, as well as warehouse, administrative office space, and training facilities. It is a Level IV security site based on numbers of employees, facility square footage, sensitivity of records, volume of public contact, and mission essential facilities whose loss, damage, or destruction would have serious impact on the National Airspace System. For FY 2025, $16.9 million is requested to pay rent under the long-term lease agreement. These facilities support missions that include:

- Aviation training for 90,000 FAA and international students per year in resident and distance learning, including approximately 1,000,000 hours of distance learning delivered annually
- Logistics services and supply support to the operational National Airspace Systems to all FAA Airway Facility locations, Air Traffic, and approximately 70 Department of Defense and international organizations

- Engineering services for National Airspace Systems modification and repair

- Aviation research of medical and human factors impacting aviation personnel

- Regulation certification of safety related positions and equipment, airmen and aircraft records and registration

What benefits will be provided to the American public through this request and why is this program necessary?

This program benefits the American Public and National Airspace System by leasing cost effective space in the Oklahoma City, Oklahoma market, which has one of the lowest lease and utility rates in the nation. Facilities allow flexibility and growth to support National Airspace System operations and maintenance support. Investments made at the MMAC decrease energy consumption and operations costs by replacing old equipment with more efficient systems.

Detailed Justification for - 4A05 Transition Engineering Support

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Transition Engineering Support	$19,000	$17,000	$19,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
NAS Integration Support Contract	---	$19,000.0

What is this program and what does this funding level support?

The National Airspace Integration Support Contract program provides engineering and technical resources to the FAA organizations responsible for National Airspace Systems transition and implementation. The National Airspace Integration Support Contract team, working in partnership with these organizations, ensures that capital investments and regional projects are implemented most effectively to support the National Airspace System mission. This program provides technical support to assist the FAA's technical workforce in handling a surge in demand for short-term programs and projects that are vital to managing the volume of diverse systems and equipment associated with National Airspace System modernization.

For FY 2025, $19.0 million is requested to support the modernization schedules for National Airspace System programs. The requested level is necessary to provide continual National Airspace Integration Support contract management and infrastructure support for the prime contractor for the National Airspace Integration Support Contract IV contract valued at $1.8 billion. In addition, these funds will be used for program acquisition management, financial management, administrative support services, continued operation and Information Technology support services for the National Airspace Integration Support contract tracking system and reporting system, other indirect contractor costs, and other program management support.

What benefits will be provided to the American public through this request and why is this program necessary?

It affords the FAA the flexibility in obtaining the technical expertise required to meet demand surges with minimal lead-time and without the need for long-term commitments. The National Airspace Integration Support Contract program provides the FAA with rapid access to highly qualified and experienced professional engineering and technical support where and when determined necessary by the incumbent Federal workforce. This program facilitates other national programs in defining, securing and administering the utilization of hard to capture professional labor categories once deemed necessary by those program offices.

Detailed Justification for - 4A06 Technical Support Services Contract (TSSC)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Technical Support Services Contract (TSSC)	$28,000	$28,000	$28,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Technical Support Services Contract (TSSC)	---	$28,000.0

What is this program and what does this funding level support?

For FY 2025, $28.0 million is requested to continue the TSSC infrastructure. Funding the TSSC infrastructure sustains the FAA's national capability to supplement and leverage Federal workforce skills during site-specific National Airspace System implementation efforts. TSSC is the agency's primary installation support service vehicle and is used by a myriad of capital budget improvement program customers to achieve timely and cost-effective National Airspace System modernization. The TSSC program is the agency's vehicle to provide a workforce multiplier that installs equipment and supports the capital budget improvements to the National Airspace System in a timely, cost-effective manner. These activities include work planning, quality control, subcontracting, the contractor safety program, and award fee paid under the contract, as well as the usual rent, telecommunications, and utility costs incurred under the contract.

Significant work is required to install, modify, and relocate equipment by personnel with electronic, mechanical, and civil engineering skills. Often the engineering and technician support is of short duration and requires skills that the FAA government employee workforce does not have or that exist in insufficient numbers. The TSSC program allows the FAA to avoid hiring additional employees for a limited duration to handle a surge in demand, such as when new equipment is installed at multiple locations and during compressed schedule periods. TSSC infrastructure funding pays for the following:

- Project implementation safety, security, and quality control efforts

- The prime contractor's costs to award and administer subcontracts to accomplish $88 million of annual public works efforts on behalf of the FAA
- Contractor management of its personnel, office rent, communications, and utilities
- Award and transition from the present contract to the next support contract.

What benefits will be provided to the American public through this request and why is this program necessary?

The TSSC program has an award fee for the performance-based acquisition contract vehicle to promote efficiency and FAA customer satisfaction. The TSSC customer award fee evaluation survey participation return rate is typically greater than 90 percent. Direct FAA customer award fee feedback rated contractor performance greater than 90 percent in the excellent and good range across several hundred individual contractor performance evaluations in the past years of TSSC performance.

Detailed Justification for - 4A07 Resource Tracking Program (RTP)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Resource Tracking Program (RTP)	$8,000	$8,000	$11,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Resource Tracking Program (RTP)	---	$11,000.0

What is this program and what does this funding level support?

The RTP is a computer management system (including hardware, software, development, training, and support) used by the FAA Service Centers, the William J. Hughes Technical Center, and the Mike Monroney Aeronautical Center for identifying requirements, internal budget preparation, implementation planning, resource estimating, project tracking, and measuring performance of projects. The Corporate Work Plan process is the Air Traffic Organizations method to implement approved projects and to standardize National Processes in support of the National Airspace System. The Corporate Work Plan system, which falls under the RTP program, enables users to share FAA's project data during the various stages of implementation (e.g., planning, scheduling, budgeting, execution, and closeout). Corporate Work Plan and its supporting data are continuously used for reporting project metrics to project managers, responsible engineers, program offices, and various other customers.

For FY 2025, $11.0 million is requested to continue to keep hardware and software licenses current, program/project management support for the National Airspace Systems, upgrade training documentation, and continue to provide training to users and data administrators. In addition, hardware and software licenses will be maintained to keep the cost of upgrades to a minimum. The hardware and software for the Corporate Work Plan must be constantly maintained and upgraded, to support FAA and the processes that will be impacted as it continues to evolve. The Corporate Work Plan is used to track all Air Traffic Organization capital projects from cradle to grave. This system is also used to develop the Corporate Work Plan and work releases for the Technical Support Services Contract.

This system interfaces with DELPHI and Fund Control Module and various other systems. The Corporate Work Plan is a centralized system with load-balanced servers residing in Oklahoma City, Oklahoma.

What benefits will be provided to the American public through this request and why is this program necessary?

The Corporate Work Plan contributes to improving the efficiency of the FAA and enhances program management of FAA capital programs. This project provides cost and schedule assistance for major acquisition programs by providing enhanced program/project management capabilities with reliable data on cost accounting of capital expenses for FAA Managers and engineers through the Corporate Work Plan. This product improves productivity (on time completion of projects in the field) when a standardized project management process is supported by the toolset and emulates current operating procedures.

Detailed Justification for - 4A08 Center for Advanced Aviation System Development (CAASD)

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Center for Advanced Aviation System Development (CAASD)	$57,000	$50,000	$57,000

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Center for Advanced Aviation System Development (CAASD)	---	$57,000.0

What is this program and what does this funding level support?

CAASD is an FAA-sponsored Federally Funded Research and Development Center operated under a Sponsoring Agreement with the MITRE Corporation since 1990. CAASD provides independent advanced research and development required by the FAA to obtain technical analyses, prototypes and operational concepts needed to fulfill the agency's Strategic Initiatives, under the Capital Investment Plan. CAASD provides support and guidance in an environment aligned with the FAA and free of competitive pressures because a Federally Funded Research and Development Center neither competes with private industry nor manufactures hardware products or software.

CAASD provides the FAA with key operational and technological concepts, analysis, and inputs, including the transfer of technology, capabilities, and investigatory prototypes based on years of research, systems engineering, and technical and operational expertise and analysis to meet and advance FAA and industry milestones. CAASD is uniquely positioned with its significant knowledge of the FAA and a profound perspective of the National Airspace System as well as global challenges through its international work encouraged by the FAA. CAASD understands the challenges across the aerospace and transportation landscape; has strong relationships across the aviation community; this offers a unique vantage point and an objective and independent view.

The support provided by CAASD is critical for the continuing development for the future of National Airspace Systems and the Enterprise Architecture. CAASD provides a unique system-

wide integrated understanding, tools, labs, and other capabilities that are fundamental to FAA's ability to address its challenges. The required development of system architecture and comprehensive research, development, and system engineering services can only be provided by a Federally Funded Research and Development Center whose charter permits special access to sensitive Agency and Aviation Industry information and data, not normally available to support contractors. Numerous elements of the CAASD work program are highly specialized research and systems engineering activities that require extensive knowledge of the present and planned National Airspace Systems.

For FY 2025, $57.0 million is requested to fund technical, engineering, as well as research and development support for the CAASD program. The FY 2025 funding will support core MITRE research and systems engineering work as well as technical and operational analyses. Efforts to be supported in FY 2025 include:

- Research and Analysis of new innovations evolving National Airspace System capabilities and their accelerated implementation under a service-based approach that solicits and encourages industry to provide early insights into new innovations.

- Safe and efficient integration of Uncrewed Aircraft Systems (UAS's) and Advanced Air Mobility (AAM) programs into non-segregated airspace.

- Cyber and operational security research and operational resiliency analysis for aviation and other transportation systems including the Global Navigation Satellite System.

- Safety operational risk approach analysis and assessments, applied under real-time safety concepts.

- Research optimizing National Airspace System services leveraging emerging technologies and practices including data analytics, artificial intelligence, and machine learning.

- Automation evolution research of problems that require simulation and modeling; innovation; and investigatory prototyping to include follow-on prototype requirements analysis and definition. Affordability assessments with long-term economic implications of National Airspace System investments, and proposed FAA Policies.

- Analyses of United States and International Air Traffic Management Enhancements.

- Advancement of Safety Analytics' and the identification and assessment of advance capabilities and standards mitigating Safety issues in the National Airspace System.

- Assessment of Industry equipage (inventories and capabilities) alignments with proposed National Airspace System operational improvements.

What benefits will be provided to the American public through this request and why is this program necessary?

This is a critical time for the Agency and the evolution of the National Airspace System beyond NextGen. FAA's development of Trajectory Based Operations is underway, and CAASD provides key research and infrastructure support to those efforts across the FAA. MITRE, under a sponsoring agreement and contract with the FAA, manages the CAASD FFRDC. MITRE leverages commercial aviation industry data (such as fleet equipage, pilot incident information, and airline operations planning) to directly assist FAA in its decision-making; acting as a "trusted partner" for both the FAA and the commercial airline industry. Finally, MITRE's long-term experience provides crucial support to agency rule making activities from an Aviation Safety standpoint. Specific immediate benefits to the American public include:

- Improvements in Airport Operations through demand analysis and modeling
- Improvements to Arrival/Departure Scheduling through Time Based Flow Management under the Traffic Flow Management System
- Flight Safety improvements through Trajectory Based Operations, Procedure Design improvements
- Operations Integration with Performance Based Navigation
- Improvements to the National Airspace System Cybersecurity Operations and Resiliency; and security of our Global Navigation Satellite Systems

Airspace Policy and Rulemaking improvements focused on integration of Unmanned Aircraft Systems and Commercial Space Operations into the National Airspace System.

Detailed Justification for – 4A09 Aeronautical Information Management Program

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Aeronautical Information Management Program	$29,350	$19,550	$53,700

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
A. Federal Notices to Air Missions System Sustainment	---	$2,400.0
B. Aeronautical Information Management Modernization Enhancement 1	---	16,000.0
C. Aeronautical Information Management Modernization Enhancement 2	---	1,000.0
D. NOTAMS Replacement	---	30,000.0
E. Strategic Initiatives Analysis and Validation	---	4,000.0
F. Independent Operational Assessment	---	300.0

What is this program and what does this funding level support?

A. Federal Notices to Air Missions System Sustainment

Notices to Air Missions provide important information describing temporary changes to components of the National Airspace System such as Airport Configuration, Obstacles, and Procedures. These notices help the aviation community identify where to fly, any issues with departure and arrival airports, and other crucial aviation safety information.

The purpose of this investment is the migration of the current United States Notices to Air Missions System to the new system, creating a sole Notices to Air Missions repository and accomplishing one of the requirements of the 2018 Reauthorization Act 394 (H.R.302). Federal Notices to Air Missions System Sustainment will continue fulfilling the Agency's Top 5 Safety Priorities by providing a single consolidated and baselined notification platform. This migration activity will address issues with failing "vintage" hardware and software modules associated with the current United States Notices to Air Missions System.

For FY 2025, $2.4 million is requested to ensure completion of a sole Notices to Air Missions repository achieved through migration of the old system functionality onto the new. Funding will support completion of prime vendor software code development, technically refreshing vintage hardware and software that can no longer be updated, the conduct of testing activities including operational testing and User Acceptance Testing by Second Level Engineering, and training.

Federal Notices to Air Missions System Sustainment will ensure a safe transition during the planned cutover. This requires substantial coordination with key stakeholders. Users will be notified and redirected to a website to access Notices to Air Missions during this time period.

As the sole repository for Notices to Air Missions data, the Federal Notices to Air Missions System will take over all functionality. To enable sun setting of the legacy system, the new system will process (number and validate) all US domestic, Flight Data Center, and Department of Defense Notices to Air Missions for origination. Legacy users will still be supported.

Increased automation will reduce the workload for Notices to Air Missions stakeholders by reducing or eliminating many data management and communications tasks that were done manually. This automation will support increased collaboration and communication between stakeholders; reduce time that users spend originating, validating, and coordinating Notices to Air Missions. A reduction in multiple (mostly redundant) systems will result in lower costs to the FAA for system maintenance and training. Consolidation of Notices to Air Missions processing into a single core system with input and output interfaces customized to user needs will provide computational efficiencies, fewer delays in data exchange, a simpler more stable system/network architecture, and reduced maintenance.

B. Aeronautical Information Management Modernization Enhancement 1

This project will develop and integrate information flows for the management and maintenance of aeronautical information in a digital format for machine-to-machine exchange with National Airspace automation systems. The digital format is essential for enabling National Airspace System automation integration and information distribution to consumers involved in National Airspace System decision support, flight planning, and pilot briefing. Program work is focused on three areas: Notices to Air Missions International Civil Aviation Organization compliance, consolidation of Enterprise Airspace Tools, and Aeronautical Common Service enhancements.

- Complete the transition to an International Civil Aviation Organization approved format. This migration will bring the Federal Notices to Air Missions System in line with international standards. This work will enable advanced filtering and sorting by aviation systems and pilots to deliver the most relevant and timely information needed for safe flight.

- Provide an enterprise airspace tool that consolidates legacy tools. This capability will

improve the origination, management, and dissemination of airspace data for Air Traffic Management Service Providers, mission and national airspace personnel, and other users. This work will consolidate redundant legacy systems used to manage airspace descriptions.

- Enhance the Aeronautical Common Services by creating a flexible data source ingestion module and onboarding new authoritative data sources, support additional web service standards, enable conversion and distribution of a variety of industry standard data formats.

For FY 2025, $16.0 million is requested to initiate design and development activities to include preliminary and critical design reviews, software requirements specification, software design document development, and contract support. Aeronautical Information Management Modernization Enhancement 1 will complete the remaining 2018 Reauthorization mandates; achieve FAA commitments to stakeholders and aviation industry; and address one of FAA's Top Five Safety Priorities.

C. Aeronautical Information Management Modernization Enhancement 2

Aeronautical information is the foundation on which the FAA will implement the Info-Centric National Airspace System. Aeronautical Information Management Modernization Enhancement 2 will support further improvements in authoritative data access, integration, and sharing.

Enhancement 2 will focus on leveraging advanced methods, such as data analytics and machine learning, to continue to evolve the information sharing environment. A data driven enterprise approach to efficient information dissemination and exchange would further enable consumers (including new entrants) to identify Notices to Air Missions relevant to their operations with accuracy, speed, and reduced human intervention. Improving automation support for NOTAM origination and cancellation would ensure the information reaches the consumer quickly. Advances in technology, such as machine learning, will be leveraged to better predict future states for operational planning using historical data and common tools that are tailorable to the users' needs.

These data analytic techniques will also be applied to creating structure, machine readable constraint and restriction information data sets from legacy formats. Advanced techniques will be used to disseminate data from both Letters of Agreement (LOA) and Standard Operating Procedures (SOPs) to produce constraints in a standardized exchange model format.

Enhancement 2 improvements include:

- Enhance Enterprise Airspace Tool (EAST) to support new entries such as Upper Class E and commercial space users by being able to design airspaces with altitudes greater than 100,000 feet MSL / FL1000 to include ALTRVs and TFRs. This will require changes to policies, standards, and systems that consume data, such as En Route Automation Modernization (ERAM) where the maximum altitude supported is 99,999 feet MSL.

- Support the implementation of Trajectory Based Operations (TBO) by developing the capability to design Special Activity Airspace whereby all or a portion could be returned to use by civilian aviation during periods of inactivity on a real-time basis.
- Incorporate distribution of Instrument Flight Procedures through ACS.
- Incorporate digital SOP & LOA preparation and dissemination into the context of AIMM. This would be a two-phased effort: first converting over 20,000 SOP/LOA PDF documents into machine useable format; and second, establishing an enterprise tool for preparation of digital SOP/LOAs.
- There are currently thirteen aeronautical information systems. Enhancement 2 will analyze the benefits of consolidating additional systems into an enterprise approach to increase efficiency and reduce costs.
- Investigate areas where machine learning can be incorporate to improve processes and increase efficiencies.

For FY 2025, $1.0 million is requested to initiate Investment Analysis activities for Enhancement 2.

D. NOTAMS Replacement

Notices to Air Missions provides critical information essential for safe flight operations that are not known far in advance. They provide the abnormal status of a component of the National Airspace System (NAS). NOTAMs are time-sensitive and mandatory to be reviewed before takeoff per CFR 91.103(a)(1), which states that pilots must become familiar with all available information concerning the flight, including NOTAMs that could affect the safety of the flight. Lack of this information in a timely manner could disrupt NAS operations.

Digital NOTAMs eliminate the limitations of the text-based NOTAMs by encoding the temporary change being captured by a NOTAM into a digital model allowing standardization and transformation into different formats, including geospatial representation. The latest versions of the Aeronautical Information Exchange Model (AIXM), starting at 5.0, were built to support digital NOTAM representation and dissemination to enable machine interpretation of this critical information.

For FY 2025, $30.0 million will enable the development of an end-to-end digital NOTAM platform that supports the lifecycle management of NOTAMs, including origination/collection, management, and distribution and provides flexibility and scalability for future growth of new entrants into the airspace.

E. Strategic Initiatives Analysis and Validation

For FY 2025, $4.0 million is requested for technological advances and innovation opportunities for air traffic, regulation/certification and all lines of business that cannot be anticipated two years prior to budget submission. Examples include demonstrations and modeling concepts,

validation of commercial products offered to FAA for certification, as well as exploration of concepts for future aviation operational usage one to four years from now.

F. Independent Operational Assessment

For FY 2025, $300,000 is requested for Independent Operational Assessment to identify any safety hazards and/or operational concerns with Aeronautical Information Management Modernization capabilities.

What benefits will be provided to the American public through this request and why is this program necessary?

The Aeronautical Information Management Modernization Program will provide safety benefits due to reduction in accidents attributable to pilot briefing errors, missing information, or accidents caused by violation of National Airspace System flow constraints and restrictions. The program will help the aviation community identify where to fly, departure and arrival airport issues, and other aviation safety information. Flight efficiency and reduction in delays will improve as airplane operators realize savings from better information leading to improved flight planning and pilot briefing.

Investment in an overhaul of the NOTAMs system will benefit the American public by reducing the risk of outages that disrupt the flying public and cost taxpayers millions of dollars.

The Federal Aviation Administration will realize cost benefits through infrastructure consolidation and enhancement and System Wide Information Management connectivity as well as reduced cost of aeronautical information gathering, management, and utilization across the National Airspace System enterprise.

Detailed Justification for – 5A01 Personnel and Related Expenses

($000)

Activity/Component	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Benefits	$524,435	$558,969	$608,791
Non-Pay	$45,565	$58,031	$81,209
Total	**$570,000**	**$617,000**	**$690,000**
Total FTE	**2,709**	**2,724**	**2,912**

What is this program and what does this funding level support?

This request provides funding for the personnel, travel and related expenses for the Facilities and Equipment (F&E) workforce performing work essential to FAA's efforts to sustain and modernize the National Airspace System (NAS) and FAA Telecommunications Infrastructure. These employees are assigned to all phases of managing and implementing major capital acquisitions including site engineering, installation and implementation, and oversight of capital programs.

The F&E workforce includes electronic, civil and mechanical engineers; electronics technicians; quality control and contract specialists; operations research analysts, and safety inspector personnel. The F&E workforce resides in Air Traffic, Aviation Safety, Finance and Management, NextGen, and Security and Hazardous Materials Safety offices. Approximately, seventy-five percent are located in the field.

F&E personnel and related expenses are distributed across FAA Organizations as follows:

($000)

Organization	FY 2023 Enacted	FY 2024 Annaualized CR	FY 2025 Request
ATO	$406,580	$444,880	$510,832
AVS	$11,215	$12,125	$12,454
AFN	$46,260	$49,999	$52,853
ANG	$105,205	$109,256	$113,104
ASH	$740	$740	$757
Total	**$570,000**	**$617,000**	**$690,000**

F&E employees perform essential services in managing the acquisition and installation of new systems into the NAS. Major capital programs can take over a decade to implement from proof of concept to final implementation, which requires a sustained engagement. Civil, mechanical and electrical engineers, along with technicians, provide technical support for design reviews, perform site preparation and installation, conduct technical evaluations, and provide systems integration and in-service management. Operations research analysts and cost estimators conduct investment analyses for new capital projects. Contracting officers provide acquisition services, and safety inspectors conduct the necessary regulatory and safety oversight functions for new services and operational capabilities being installed in the NAS.

On average, the FAA has over 8,000 active projects and completes approximately 2,500 every year. This requires long-term program management and oversight capabilities to ensure continuity and to get best value for the government's investment in new systems and technology. This budget line item provides FAA personnel with the long-term technical expertise necessary to oversee the design and implementation of new NAS systems as well as provide for the sustainment of core NAS Infrastructure such as radar, communication, automation, facilities, and navigation systems.

Program Increases:

The FY 2025 budget request for Activity 5 includes additional funding for the following programmatic initiatives.

Programmatic Increase	Amount ($000)	FTP	FTE
Staffing Increase	9,034	105	53
Non-Pay Requirements	14,820	-	-
Activity 5 Total	**$23,854**	**105**	**53**

Staffing Increase:
The FY 2025 staff increase directly correlates with the programmatic increases which includes $294.5 million investments for enhancements and new functionality. The FAA needs a skilled workforce to develop and operate advance technologies and ensure safety and efficiency. Additionally, the budget includes $2.3 billion for sustainment and modernization programs which require a diverse workforce with a variety of perspectives.

Non-Pay Requirements:
An increase in non-pay is requested for travel, training, and supplies to support the additional staff required to support the F&E Activity 1-4 programs.

What benefits will be provided to the American public through this request and why is this program necessary?

The FAA's Facilities and Equipment capital program invests in developing and implementing new technologies to meet future demand and to sustain the current NAS.

The FAA continues to recognize operational benefits from the transformation of America's air traffic control system from a ground-based system to a satellite-based system. GPS technology is being used to shorten routes, save time and fuel, reduce traffic delays, increase capacity, and permit controllers to monitor and manage aircraft with greater safety margins. Planes are able to take more direct routes and avoid delays. The FAA requires a stable workforce to sustain the current systems and services of staffed and unstaffed air traffic control facilities.

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RESEARCH, ENGINEERING, AND DEVELOPMENT

(AIRPORT AND AIRWAY TRUST FUND)

For necessary expenses, not otherwise provided for, for research, engineering, and development, as authorized under part A of subtitle VII of title 49, United States Code, including construction of experimental facilities and acquisition of necessary sites by lease or grant, $250,000,000, to be derived from the Airport and Airway Trust Fund and to remain available until September 30, 2027: Provided, that there may be credited to this appropriation as offsetting collections, funds received from States, counties, municipalities, other public authorities, and private sources, which shall be available for expenses incurred for research, engineering, and development.

EXHIBIT III-1
Research, Engineering and Development
Summary by Program Activity
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Research, Engineering and Development	$ 255,000	$ 255,000	$ 250,000
TOTAL BASE	$ 255,000	$ 255,000	$ 250,000
FTEs	198	232	234
Direct Funded			
Reimbursable, allocated, other			
Supplemental Funding			
COVID-19 Supplementals			
CRRSA			
Relief for Airports (ARPA)			
Employee Leave Fund (ARPA)			
IIJA Supplemental (Division J)			
Faclities & Equipment			
Airport Infrastructure Grants			
Airport Terminal Program			
TOTAL, Base appropriations	$ -	$ -	$ -
FTEs			
Direct Funded			
Reimbursable, allocated, other			
Research, Engineering & Development	$ 255,000	$ 255,000	$ 250,000

Program and Performance Statement

The FY 2025 Budget requests $250 million for the Federal Aviation Administration (FAA) Research, Engineering and Development account. This account provides funding to improve the national airspace system's capacity and safety, as well as the ability to meet environmental needs. The request includes funding for several research and development activities of the Next Generation Air Transportation System (NextGen), as well as activities related to unmanned aircraft systems.

In FY 2023, the FAA continued to mature new aircraft technologies that improve fuel efficiency and reduce emissions via the Continuous Lower Energy, Emissions, and Noise (CLEEN) program. FAA's CLEEN program also promotes acceleration of quieter and cleaner technologies to help achieve NextGen goals to increase airspace system capacity by reducing significant community noise and air quality emissions impacts in absolute terms, and reducing aviation greenhouse gas emissions impacts on the global climate. In FY 2023, under CLEEN Phase III program, the industry partners completed preliminary design activities for these new environmental technologies.

EXHIBIT III-1a
Research, Engineering and Development
SUMMARY ANALYSIS OF CHANGE FROM FY 2023 TO FY 2025
Appropriations, Obligations, Limitations, and Exempt Obligations
($000)

	$000		FTE
FY 2023 ENACTED	$255,000		198
ADJUSTMENTS TO BASE:			
FY 2024 Adjustments	130		34
Annualization of FY 2024 FTE	109		1
Annualization of Prior Pay Raise(s)	659		
FY 2025 Pay Raise	770		
Adjustment for Compensable Days	0		
GSA Rent	0		
Working Capital Fund	0		
FERS Increase in FY 2024	0		
Non-Pay Inflation	2,707		
etc.			
SUBTOTAL, ADJUSTMENTS TO BASE	**4,375**		**233**
PROGRAM REDUCTIONS			
Research, Engineering and Development	-9,593		
SUBTOTAL, PROGRAM REDUCTIONS	**-9,593**		**0**
PROGRAM INCREASES			
New Positions in FY 2025	218		1
SUBTOTAL, PROGRAM INCREASES	**218**		**1**
FY 2025 REQUEST	**250,000**		**234**

		FY 2025 REQUEST	Page
A11.	**Research, Engineering and Development**	**250,000**	
a.	Fire Research and Safety	8,750	5
b.	Propulsion and Fuel Systems	5,174	8
c.	Advanced Materials/Structural Safety	2,548	11
d.	Aircraft Icing	3,064	14
e.	Digital System Safety	6,312	17
f.	Continued Airworthiness	10,339	19
g.	Flight Deck/Maintenance/System Integration Human Factors	16,382	23
h.	System Safety Management/Terminal Area Safety	15,000	26
i.	Air Traffic Control Technical Operations Human Factors	5,993	29
j.	Aeromedical Research	12,186	31
k.	Weather Program	19,843	33
l.	Unmanned Aircraft Systems Research	15,567	36
m.	Alternative Fuels for General Aviation	8,411	39
n.	Commercial Space Transportation Safety	5,350	42
o.	NextGen Wake Turbulence	4,243	45
p.	Information/Cyber Security	5,943	48
q.	Environment and Energy	21,194	51
r.	NextGen Environmental Research: Aircraft Technologies and Fuels	70,994	54
s.	System Planning and Resource Management	5,088	57
t.	Aviation Grant Management	2,125	60
u.	William J. Hughes Technical Center Laboratory Facility	5,494	62

Detailed Justification for A11.a Fire Research and Safety

FY 2025 – A11.a Fire Research and Safety – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	4,663	4,850	5,087
Program Costs	2,473	2,742	3,663
Total	**7,136**	**7,592**	**8,750**
FTE (if applicable)	**24**	**24**	**24**

What is this program and what does this funding level support?

The Fire Research and Safety Program focuses on prevention of in-flight fire accidents and survivability improvement during post-crash fires. The catastrophic consequences of an uncontrollable fire, including loss of life and destruction of aircraft, make this program essential. Program research is conducted to understand the fire safety implications of new technologies and materials introduced by the aviation industry to decrease aircraft weight and increase operating efficiency. This research is used to develop effective mitigation procedures and update existing regulations, which often do not address the unique behavior of these new technologies. Research is also conducted to better understand and mitigate the threat of lithium batteries and other hazardous materials in cargo fires. These fires continue to cause concern due to the increasing number, size, and energy densities of batteries being shipped, and the unusual and severe hazards associated with lithium battery fires. This funding supports the fire safety laboratories at the FAA's William J. Hughes Technical Center (WJHTC) where most of the program research is conducted.

The Fire Research and Safety Program supports the Administration's principle of Safety and seeks to protect aircraft occupants through the prevention or mitigation of in-flight fires and the improvement of survivability in the event of a post-crash fire. This program is essential to ensure that the innovative technologies and materials emerging in the aerospace industry can be safely integrated into the aircraft environment.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Aircraft and Occupant Survivability	To prevent or minimize the effects of inflight or post-crash fire on occupant survivability given evolving aircraft technology	Reports and datasets that describe: - New and updated fire test methods - Evaluations of non-Halon handheld and lavatory fire extinguishers - Methods for safe extinguishment of portable electronic devices - Methods for detecting changes in material formulation that practically impact flammability performance	Reduction in the occurrence of inflight fire accidents and improved post-crash survivability	Third year of an ongoing five-year activity
Cargo Safety	Reduce the risks associated with cargo fires by testing to support development of new fire detection standards, containment, and suppression in cargo containers. Tests will also evaluate new fire suppression agents and systems for aircraft cargo compartments and identification of hazards posed by various cargo commodities	Reports and datasets that describe: - The relative hazard of hazardous materials and various lithium batteries - Effectiveness of non-Halon fire suppression agents for cargo fire applications - Effectiveness of fire-resistant cargo containers and covers - Container-based fire detection and suppression systems - Information for public education on the hazards associated with the shipment of lithium batteries and hazardous materials	Reduce hazards and risks of in-flight fires in large cargo and passenger transport aircraft	Third year of an ongoing five-year activity

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Propulsion, Fuels, and the Environment	Evaluation to ensure the safe flight of passengers and cargo given changes in the means of aircraft propulsion, fuels used, and environmental impact on design	- Development of consensus-based fire test standards for engine components - Evaluation of non-Halon engine fire suppression agents - Evaluation of in-flight and post-crash fire threats posed by on-board power sources, including hydrogen and lithium batteries	Maintained or improved aircraft safety level for aircraft incorporating novel or hybrid propulsion systems	Third year of an ongoing five-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

Program research forms the basis for the regulations, policy, guidance, and standards that aim to mitigate the likelihood and severity of aircraft fires and to improve occupant survivability in the event of post-crash fires. This benefits the American public by significantly reducing the chances of injury or fatality due to aircraft fires. This program is necessary to maintain the current level of aircraft safety as technology, materials, and construction methods evolve. The research conducted in this program seeks to evaluate potential fire threats associated with the integration of emerging technologies into current and future aircraft designs. The increasing energetics and power densities of lithium batteries presents a threat of fires that can exceed cargo compartment fire containment and suppression design criteria as mandated by regulation. Testing conducted in this program will assess the fire threats of new battery technologies and develop methods and standards for containing, mitigating, and suppressing lithium battery fires.

The fire laboratories at the WJHTC are a core competency of the FAA, enabling the agency to quickly assess the impact of fire threats on the safety of the American public. This rapid response capability requires that the fire laboratories be maintained in a state of operational readiness – staffed with skilled technical personnel and equipped with the instrumentation and supplies necessary for emergent safety concerns that require an immediate evaluation in the laboratory.

Detailed Justification for A11.b Propulsion and Fuel Systems

FY 2025 – A11.b Propulsion and Fuel Systems – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	2,295	2,386	2,504
Program Costs	705	3,988	2,670
Total	**3,000**	**6,374**	**5,174**
FTE (if applicable)	**11**	**12**	**12**

What is this program and what does this funding level support?

The Propulsion and Fuel Systems Program supports the Administration's principles regarding Safety, and Climate and Resilience. The program conducts research on new and legacy aircraft propulsion systems to develop the technical basis for rules, policy, and guidance used for certification and continued airworthiness. A major focus of the current research program is to reduce the threat of uncontained jet engine failures, which occur when high energy rotating components break into fragments that escape the engine case and impact other parts of the aircraft – posing a serious safety threat to passengers and the continued aircraft operation. Since 2016, nearly two dozen such uncontained events have occurred, with one instance attributable to a fractured fan blade resulting in the first fatality on a major U.S. commercial flight in nearly a decade. This program is also developing data and means of compliance methods to ensure the safety of new technology propulsion systems, including blade release vulnerability assessments of open rotor (unducted) turbine engines as well as the durability, endurance, and reliability of electric engines.

Additional research conducted by the program includes advanced damage tolerance design methods, improved manufacturing practices, and nondestructive evaluation (NDE) methods to reduce and eliminate safety hazards presented by uncontained aircraft turbine engine failures. Specific focus is on development of (a) improved NDE techniques and (b) the probabilistic design code called DARWIN®, and data to account for the presence of anomalies in nickel and titanium alloy rotor materials. This program also develops advanced analysis methods and modeling tools to evaluate engine containment systems and vulnerability analysis tools necessary to protect the aircraft from uncontained engine debris. Finally, this program supports electric propulsion by developing means of compliance methods for the durability, endurance, and reliability of electric engines.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Advanced Damage Tolerance and Risk Assessment Methods for Engine Life Limited Parts	To better predict how material flaws affect the integrity of critical jet engine parts	- Enhanced version of the DARWIN® engine design code to address nickel and titanium material anomalies - Advisory materials to guide critical engine part life limits	Program outputs will provide a standardized, publicly available means to accurately predict the safe service life of critical engine parts	Ongoing project: final year of research anticipated for FY 2026.
Improved Nondestructive Evaluation (NDE) to Prevent Uncontained Engine Failures	Reduce the risk of in-service critical jet engine part failures	– Inspection methods and industry standards for nickel alloy and titanium materials in both the billet and forged product state with increased sensitivity over conventional methods	Program output will ensure the integrity of critical engine parts by enabling more sensitive inspections to detect hidden flaws prior to failure	Ongoing, research planned to continue through FY 2028
Advanced Analysis Methods for Impact of Aircraft Materials from Rotor Burst and Blade Release	Evaluate engine fragment impacts and minimize catastrophic risk	LS-DYNA® impact models - Metal and composite material data - User guidance, test cases, and technical reports Uncontained Engine Debris Damage Assessment Model support - Engine debris fragment model updates	Program outputs provide industry with FAA certification standards with publicly available tools, data, and methods to advance engine fragment analysis capability	Final year
Electric Motor Research for the Safe Implementation of Electric Propulsion	To test electric motors under various environmental conditions (such as altitude and temperature) to evaluate performance and failure modes	- Data and reports to inform standards development and guidance material for the safe implementation of electric propulsion aircraft systems	Research output supports the DOT priority to develop performance-based safety rules and the priority to reduce greenhouse gas and work towards a sustainable aviation energy source	Third year of a four-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The American public will benefit from the prevention of catastrophic aircraft accidents caused by engine component failures and an associated reduction of injuries, fatalities, and property damage. This research will reduce or eliminate aircraft uncontained engine failures and in-flight engine shutdowns attributable to rotor design, manufacturing, and service-induced defects.

Program safety benefits are derived from the publicly available, damage-tolerance-based engine design code called DARWIN® used to meet the enhanced safety requirements for critical engine components. DARWIN® is currently used by all major engine manufacturers. Additional research will enhance the code to allow for analysis of other detrimental material conditions. Benefits from the Advanced Analysis Methods for Impact of Aircraft Materials from Rotor Burst and Blade Release activity come from improved publicly available analysis tools and methods to aid in the design and certification of safer engine containment and shielding systems to protect the aircraft from engine fragments. Benefits from the Electric Propulsion activity will aid in electric engine design and certification.

As civil aviation is continuously changing, so must the analytical tools and research data used to certify new engine technologies such as electric propulsion systems and open rotor designs. Continuing program efforts are necessary to advance scientific understanding of the failures of aviation engines and to develop tools to reduce the likelihood of such failures and thereby sustain or enhance air transportation safety.

Detailed Justification for A11.c Advanced Materials/Structural Safety

FY 2025 – A11.c Advanced Materials/Structural Safety – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,086	1,129	1,213
Program Costs	13,634	1,397	1,335
Total	**14,720**	**2,526**	**2,548**
FTE (if applicable)	**6**	**6**	**6**

What is this program and what does this funding level support?

The Advanced Materials and Structural Safety Program conducts research to support FAA safety and regulatory activities in the technical areas of composites and other advanced materials and processes, in order to gauge their impact on flight safety. The overall program goal is to support development of standardized certification protocols and safe manufacturing and maintenance practices for advanced materials and structural applications. This program must keep up with industry advances to support standards that ensure safe and efficient practices for the future.

The program focuses on potential issues with material and structural performance, manufacturing quality control and quality assurance, and operational support/maintenance needs. Research results are used by FAA personnel, in combination with certification experiences and industry interface, to develop policy, guidance, and training. As materials and structures are a common technology across all product types and new applications, this program supports multiple FAA strategic focus areas, including continued passenger transport operations, emerging aircraft certification, and emerging materials standards.

This level of funding will support administration of the FAA Joint Centers of Excellence for Advanced Materials as required by the FAA Reauthorization Act of 2018 (P.L. 115-254).[1]

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Evaluate Long-Term Aging Behavior of Advanced Materials and Associated	Investigate in-service aging behaviors of adhesively bonded structure in composite helicopter rotor blades	- Industry best practices for estimating the effect of long-term service on composite and metal bonded structures	Facilitate development of industry standards and guidance and promote associated performance-based safety rules	Fourth year of ongoing seven-year activity

[1] https://www.faa.gov/about/reauthorization

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Maintenance Practices		- Test standards for estimating helicopter rotor blade design life		
Evaluate Fatigue and Damage Tolerance Behavior of Bonded Composite Structure and Associated Maintenance Practices	Conduct research to support development of best practices and acceptable methods to substantiate bonded composite structures and repairs	Public test data and findings documented in technical reports and published by the FAA-sponsored Composite Materials Handbook -17	Facilitate improved safety, increased efficiency, and provide validated procedures to implement bonded composite structure design and repair technology in a safe and efficient manner	Final year of ongoing five-year activity
Develop Guidelines to Characterize New Material Forms and Assess Manufacturing Maturity	Understand new materials introduced into aviation products and prepare for their certification and safe incorporation into the aerospace system	- Public databases for new materials and technical reports documenting the process of generating the data - Test data to establish acceptable minimum criteria	Develop a standardized approach to generate material property databases for new materials that industry can follow	Fourth year of ongoing seven-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The use of advanced materials is central to a vibrant U.S. aviation industry. While traditional composites (generally, continuous fiber epoxy material systems) have been used in non-critical aircraft structure for some time, that use is changing rapidly and now includes critical structure. Additionally, other advanced materials and processes are increasingly being used in aviation products, such as non-traditional composites (discontinuous fibers or thermoplastics) and additive manufacturing (metals and polymers).

As the methods of structural verification are being extended to new components and aircraft applications, it is important to understand acceptable design limits that have not been explored with composite materials and structures. This program addresses this gap in knowledge and supports industry practice standardization. This makes the certification process both more effective in ensuring the safety of these technologies and more efficient by shortening the time and reducing costs to introduce new structures made with advanced materials.

A National Transportation Safety Board review of accidents provides additional impetus to understand advanced materials as new technologies emerge. The research performed by this program has identified and investigated many issues that were either unknown or poorly understood. By taking a proactive approach, the program will ensure civil aircraft manufactured

with these materials are safe and reliable. Without this program, some issues would almost certainly cause fatal crashes. This program saves lives by preventing accidents.

This program collaborates with industry to assist the FAA in its responsibility to ensure the safe adoption of new technologies without being excessively burdensome. The work is essential for FAA personnel as it helps them develop policies, provide guidance and training, engage industry groups, and conduct ongoing safety evaluations. Since materials and structures are widely used in various product types and emerging applications like urban air mobility, this program aligns with multiple FAA strategic plan objectives, such as promoting a systemic safety approach, enabling innovation development and deployment, and implementing regulatory reforms.

Detailed Justification for A11.d - Aircraft Icing

FY 2025 – A11.d Aircraft Icing – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,191	1,238	1,300
Program Costs	1,281	2,722	1,764
Total	**2,472**	**3,960**	**3,064**
FTE (if applicable)	**6**	**6**	**6**

What is this program and what does this funding level support?

The FAA's Aircraft Icing Program focuses on research to increase safety and reduce accidents due to icing effects on all aircraft types. This research supports improved safety through the development and deployment of icing compliance guidance for all types of aircraft including new, innovative aircraft such as advanced air mobility (AAM) vehicles. Program research supports the FAA's role as an international leader in aircraft icing research.

Ground icing focuses on aircraft deicing and anti-icing methods prior to takeoff. The ground icing program conducts research to maintain safe winter ground operations, evaluates the effects of changing ground operations, develops testing and analysis methods to support these changes, and address the effects of innovative aircraft design. Inflight icing focuses on aerodynamic and operational effects of icing on all types of aircraft, rotorcraft, urban air mobility (UAM)/AAM, and engines. The inflight Aircraft Icing program conducts research on the effects of icing and mitigation techniques and innovative methods to assure safe operations and compliance with applicable airworthiness standards. The research also includes an evaluation of existing analytical methods and their use as a complementary tool in certification to support future certification by analysis efforts.

Funding will support research to address power loss safety issues by defining altitude-scale effects for icing in turbine engines at high altitudes; the development of determination methods of holdover and allowance times for identified mixed phase conditions; to perform snow machine repeatability testing in a cold room and evaluate results; to conduct UAM/AAM icing and freezing precipitation detection testing; for testing and analysis of vertical stabilizer ice contamination to determine if current procedures provide sufficient protection; to evaluate the use of analytical tools in the prediction of ice build-up and its associated performance penalties; and to develop, validate, and transition to terminal area icing weather products.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Anti-Icing / Deicing Fluid Protection Time for Mixed Phase Ground Icing Conditions	Determine mixed phase conditions that are sufficiently common and suitable for simulation to be included in hold over timetables	- Frequency of mixed phase conditions in order to determine which are candidates for inclusion in hold over timetables - Methods of simulation for these conditions	Facilitate formation of policy and guidance relative to the modification of holdover timetables	Fourth year of a five-year activity
Ice Protection of Aircraft Vertical Stabilizer Prior to Takeoff	Determine whether application of anti-icing fluids provides sufficient protection of the vertical stabilizer, or if other protection methods are needed	- Test results of a model vertical stabilizer in an icing wind tunnel with and without fluid protection - Risk assessment through data analysis	Facilitate formation of policy and guidance relative to protection of the vertical stabilizer	Ongoing; research planned to continue through FY 2026
Identify and Study Parameters that Cause Ice Accretion Formations Within Engines in Ice Crystal Icing Environments	Understand ice accretion within the warm compressor of a turbine engine due to Ice Crystal Icing (ICI) in order to develop and validate analytical tools, and provide policy and guidance relative to ICI	- Results of rotating rig testing to study parameters that contribute to ice buildup in a physical engine model - Validated analytical tools - Expanded knowledge of ice accretion and shed parameters	Policy and guidance relative to ICI environments	Ongoing; research planned to continue through FY 2026
Terminal Area Icing Diagnostic Forecast	Address winter weather terminal area operational needs in response to new icing regulations	- Data validation and verification activities to develop software code, updated to address shortfalls and errors identified in development and evaluation activities - Development of activity transitions to an operational activity	High resolution weather product capability for the aviation community that can support safe operations in terminal area icing conditions	Ongoing; research planned to continue through FY 2028

What benefits will be provided to the American public through this request and why is this program necessary?

This safety-critical program is necessary because icing events and accidents continue to occur. The Aircraft Icing Program enables research to help prevent future aircraft icing incidents and accidents and to ultimately reduce icing risk to all aircraft, including remotely piloted aircraft. The American public benefits from this program with its goal is to improve safe operations in all icing conditions, from take-off to landing. Aircraft icing can occur at any phase of flight highlighting the need for research of the various icing environments, from the ground to high altitudes. Through addressing the icing threat for all phases of flight, the FAA increases safety for the American public.

Detailed Justification for A11.e Digital System Safety

FY 2025 – A11.e Digital System Safety – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,836	1,909	1,993
Program Costs	1,853	5,200	4,319
Total	**3,689**	**7,109**	**6,312**
FTE (if applicable)	**8**	**8**	**8**

What is this program and what does this funding level support?

Advanced digital technologies provide significant potential improvements to aviation operations and enable accurate measurement of aircraft position, navigation, and timing (PNT). However, these new technologies challenge the current state of the art of software assurance and must be protected against growing cyber threats.

The Digital System Safety Program is conducting research on the safety and assurance of advanced technologies in safety-critical digital systems. This includes systems design, development, and operation with artificial intelligence/machine learning (AI/ML) functionality and Position, Navigation, and Timing (PNT) cyber safety resilience. The research will identify ways to ensure the safety of systems containing newer technologies and mitigate cyber threats to aircraft operations.

The FAA has a need to identify the safety issues in new technologies with respect to system certification, validation, and gaps in the assurance techniques proposed by industry. This research provides FAA's Office of Aviation Safety with data and reports needed to support the safe implementation of these technologies by identifying new software assurance approaches. The application of advanced digital technologies such as AI/ML in safety-critical airborne systems will enable increasingly efficient and safe flight management, ultimately leading to safer air travel and predictability.

The FAA is also researching ways to protect aircraft operations from the use of counterfeit radio frequency signals and digital data messages that can be used by bad actors to alter aircraft PNT data. The research will enable mitigations for internationally recognized, and U.S. government acknowledged, threats to the continued operational safety of aircraft operations using global positioning systems (GPS) or GPS/satellite-based augmentation system (SBAS) services.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Complex Digital Systems: Assurance Criteria for Emerging Technologies	Conduct studies to assess the risks associated with the application of AI/ML technologies in safety-critical digital airborne systems and develop appropriate mitigations measures and assurance criteria	Technical Reports: - Risk Assessment - Mitigation Measures Assurance Criteria	Program outputs will facilitate safe implementation of AI/ML in safety-critical digital airborne systems	Final year of ongoing four-year activity
Complex Digital Systems: Assurance Approaches	Conduct case studies on new assurance approaches and assess the feasibility of these approaches to certify AI/ML applications	Technical Report: New assurance approaches and application guidance	Program outputs will equip aircraft certification staff with effective assurance methods to facilitate safe application of AI/ML in safety-critical airborne digital systems	Final year of ongoing four-year activity
Aircraft Performance, Navigation, and Timing Cyber Safety: Assessment and Prototyping	Perform initial assessment of Global Navigation Satellite System (GNSS) multi-element, civil anti-spoof antenna, for conformity, suitability, intended function, and aircraft installation	Initial prototype of authentication scheme for dual-frequency GPS/Galileo Satellite Based Augmentation System (SBAS) avionics receiver	Program outputs ensure all commercial, general aviation, helicopters, Unmanned Aerial Vehicle (UAV) and Urban Air Mobility (UAM) are resilient in their use of GNSS data for their positioning (i.e., ADS-B), navigation (i.e., Performance Based Navigation), timing (e.g., DataCom) and aircraft safety systems	Third year of ongoing six-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

Digital System Safety Program research is necessary to ensure advanced technologies are used safely and securely in aircraft for the continued safety of the flying public. Program research is essential to realizing the full benefits of AI and ML technologies without impacting the safety of the National Airspace System. Additionally, this research will seek to find novel methods to protect aircraft operations from the use of counterfeit radio frequency signals and digital data messages which could be used by bad actors to create a catastrophic incident.

Detailed Justification for A11.f Continued Airworthiness

FY 2025 – A11.f Continued Airworthiness – Budget Request

($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	3,685	3,832	4,030
Program Costs	5,144	4,593	6,309
Total	**8,829**	**8,425**	**10,339**
FTE (if applicable)	**15**	**15**	**15**

What is this program and what does this funding level support?

The Continued Airworthiness research program supports the FAA's aviation safety oversight responsibility to ensure that aircraft maintain operational safety as they age and as new technologies are introduced. FAA's ability to expect the unexpected and remain on guard is informed, in part, by stakeholder oversight activities. The Continued Airworthiness research program contributes by uncovering potential aging issues so that the certification process can ensure that risks are adequately addressed in operations, maintenance, and inspection and oversight protocols. The agency also monitors in-service data as it accumulates, identifying concerns at the earliest possible point, and communicates potential risks through advisories, directives, regulations, or other guidance.

The program considers the aging of all aircraft systems. In FY 2025, the FAA will research: the structural integrity, fatigue, and damage tolerance of new metallic technologies including additive manufacturing and novel materials; structural health monitoring and advanced inspection technology to detect problems in the very early stages of deterioration; applicability of current flight load requirements to eVTOL systems; free play requirement for control surfaces of transport category aircraft; improved certification efficiency for small aircraft; aircraft electrical systems including: research in large energy storage systems and high voltage propulsion systems; flight controls and mechanical systems; rotorcraft systems; applicability of current crashworthiness requirements for new airframe designs like eVTOL and supersonic airframes; and, certification efficiency or crashworthiness of general aviation seats.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Identify state-of-the-art oversight methods and tools	Identification of digital tools that enable improved Oversight engagements and yield additional safety hazard and precursor events for analysis.	Proof of concept evaluation of identified oversight methods and tools	Improved Oversight engagements by 1) the review and monitoring of system safety assessments for specific systems yield additional safety hazard and precursor events for analysis, and 2) near-real-time operational safety assessments.	Third year of a 4-year research activity
Evaluate the Certification and Continued Airworthiness Issues Associated with Emerging Technologies	In collaboration with industry and academia, conduct research to address potential certification and continued airworthiness issues arising from the implementation of emerging technologies used in critical applications	Data and methodologies that can be used to develop guidance, policy and support certification compliance for emerging technologies	Data to enable development of performance-based safety rules necessary for policy and industry standards	Second year of a four-year activity

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Large Energy Electrical System Research and Testing	Understand the impacts of the more complex, increased voltage, and highly integrated systems proposed for modern aircraft	Data and reports that will be used as the basis for: - Developing FAA regulatory standards, associated guidance and policy material - Industry standards for the safe integration of large energy storage systems on aircraft	Development of performance-based safety rules by providing the data necessary for policy and industry standards	Final year of ongoing four-year activity
Develop a Method of Compliance to Support Certification of Advanced Flight Controls in General Aviation and Hybrid Vehicles	Support the FAA in the certification of new and novel advanced flight controls in General Aviation (GA) and hybrid vehicles	Performance-based standards for novel cockpit pilot interfaces for General Aviation aircraft and/or optionally piloted aircraft capable of vertical or short takeoff and landing	The activity will enable critical Automation Policy development	Final year of a five-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The Continued Airworthiness Research program is crucial to the FAA's ability to maintain the safety of the flying public and ensures the safety of new aircraft technologies as they are deployed. After 80 years of relatively slow evolution, aircraft technologies have begun to change rapidly in the last few years with: the introduction of the first radically new materials such as composites, additive manufacturing, and new metallic alloys; new joining techniques such as friction stir welding and chemical bonding to replace rivets; and, the rapidly expanding role of computers and use of commercial off the shelf hardware and software. These new technologies and the risks they pose as they age are not as well understood as the traditional systems they replace. They lack service history data to guide certification and continued operational safety decisions. This research and the understanding that it provides are crucial to FAA's ability to respond in a timely fashion to industry certification applications for new technologies.

The Continued Airworthiness program ensures the safety of the flying public and the efficiency of the certification, and the oversight processes as new technologies are integrated by

anticipating and resolving potential safety issues before implementation, thereby reducing aviation accidents.

The program takes a proactive approach by creating a common understanding of the key failure mechanisms and processes that can occur while aircraft are in service. The program will also ensure new technologies are safely introduced to certified aircraft and help streamline certification efforts, ensuring continued airworthiness within the aerospace industry.

Detailed Justification for A11.g Flight Deck/Maintenance/System Integration Human Factors Program

FY 2025 – A11.g Flight Deck/Maintenance/System Integration Human Factors Program – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	5,446	6,227	6,531
Program Costs	8,855	9,419	9,851
Total	**14,301**	**15,646**	**16,382**
FTE (if applicable)	**28**	**28**	**28**

What is this program and what does this funding level support?

The Flight Deck/Maintenance/System Integration Human Factors Program addresses RE&D requirements defined by technical sponsors in the FAA's AVS organization. These requirements are driven by the human factors needs of personnel who are responsible for the certification and approval of equipment and continued airworthiness of aircraft, certification of pilots and mechanics, and approval of certain flight operations. This human-centered approach will address issues associated with the regulatory aspects of design, training, operations, maintenance, and oversight, including complex systems and human-system integration, and it will provide strategic solutions to improve aviation safety.

Recent FAA regulation revisions for Safety Management Systems (SMS), proposed for designers, manufacturers, and operators (Part 5) and adopted for airports (Part 139) focus on evolving FAA and industry to more proactive safety management. Human factors / Human performance research supports this transition.

Additionally, FY 2025 funding will support human factors research related to the Aircraft Certification Safety and Accountability Act (ACSAA),[2] and safe integration of new technologies and procedures in National Airspace System (NAS) operations. This includes next level NAS oversight; improving pilot training, operations, and procedures; advances and innovation in new technology and operations; aviation maintenance improvements; integration of human factors into Aircraft Certification and Flight Standards policies and processes; air/ground integration of technology, systems, operations, and trajectory-based operations procedures; and human factors considerations and emerging trends in helicopter air ambulance operations.

[2] https://www.faa.gov/sites/faa.gov/files/IAWG_CPR_recommendations.pdf

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Identify state-of-the-art oversight methods and tools needed to improve upon the workforce skills adapting SMS requirements	Review existing oversight methods and digital tools, identify gaps, and improve upon the experts' capabilities to effectively oversee the requirements for SMS	Review and improve workforce skills needed by: Reporting on existing oversight systems and gaps Recommending Next Level of Oversight System for SMS Establishing and evaluating Proof of Concept	This research will improve upon the workforce skills overseeing SMS by establishing the Next Level of Oversight through an efficient and effective system	New Start FY25-FY29
Human Factors Design Standards for New and Advanced Flight Deck Alerting Systems – Aircraft Certification Safety and Accountability Act (ACSAA)-Related	Analyze research data, industry studies, and current FAA guidance on flight deck alerting systems to understand changes and identify potential gaps	- Flight deck alerting systems changes and gaps - Technical Report	Integration of human factors in design, evaluation, and certification of modern aircraft, operations, procedures, and training	Second year of a three-year activity
Advances and Innovation in Equipment, Technology, Systems, and Operations (ACSAA-Related)	Establish a baseline of planned changes to control automation systems, information automation systems, and related equipment needed to enable and/or support future flight operations	- Planned changes to control and information automation - Technical Report	Integration of human factors in design, evaluation, and certification of modern aircraft, operations, procedures, and training	Final year of a three-year activity
Research Human Factors Data to Address Policy Guidance and Evaluation of Aviation Maintenance Training (ACSAA-Related)	This project will provide research and operational data to support the human factors needs of FAA personnel who evaluate, approve/accept, and oversee aviation maintenance related procedures, operations, and training	- Technical reports to inform evidence-based decisions	Evidence-based decisions on aviation maintenance training and operational procedures	Ongoing; research to continue through FY 2026

What benefits will be provided to the American public through this request and why is this program necessary?

The American flying public depends on the FAA to ensure the safety of flight operations. The Flight Deck/Maintenance/System Integration Human Factors Program provides scientific and technical data to FAA personnel t responsible for human factors-related regulations, guidance material, and other aviation safety documentation. The program addresses critical areas of flight safety that are directly relevant to the flying public. This includes research related to the Aircraft Certification, Safety, and Accountability Act of 2020,[3] which provided the FAA with recommendations to better integrate human factors throughout aircraft design and certification.

[3] https://www.congress.gov/bill/116th-congress/house-bill/8408

Detailed Justification for A11.h System Safety Management/Terminal Area Safety

FY 2025 – A11.h System Safety Management/Terminal Area Safety – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	2,769	2,879	3,037
Program Costs	6,483	6,470	11,963
Total	**9,252**	**9,349**	**15,000**
FTE (if applicable)	**13**	**13**	**13**

What is this program and what does this funding level support?

The System Safety Management (SSM) Program addresses emerging systematic safety risks and issues across all aviation operations. The program develops data collection methods, advances data and risk analysis techniques, and creates prototypes for risk-based decision-making capabilities to identify and analyze emerging safety issues in cooperation with aviation stakeholders.

Digital technologies applied to data and information management have revolutionized industries, transformed operational performance, and delivered on stakeholder needs and expectations. Research conducted for the Next Level of Oversight will analyze strategies and experiences, and determine gaps, of these other industries to provide the FAA with insights for applying digital tools and analysis needed to transform aviation oversight activities. Results will focus on enabling nearer-real-time operational safety assessments and providing more informed oversight results for Safety Management Systems. These research results will complement research conducted as part of the Continued Airworthiness and the Human Factors topics.

The Terminal Area Safety (TAS) Program develops training and technology solutions to mitigate key causes of aircraft accidents, the majority of which occur during takeoff, approach, and landing phases of flight. Examples of such accidents are loss of control, runway excursions, runway overruns, and low altitude operations, which are the leading causes of fatalities in the worldwide commercial jet fleet, general aviation, and rotorcraft communities. Additionally, the program fills aviation safety research gaps identified in NTSB's Safety Recommendations,[4] such as A-07-0035, A-04-626, A-07-0647, and A-01-0698.

Both programs enable safety trend analysis across the aviation community and the relative strength and interaction of safety functions. A system-wide view of safety informs the urgency of response, the priority of resources, and the uniform management of safety functions. These

[4] https://www.ntsb.gov/investigations/Pages/safety-recommendations.aspx

programs complement traditional safety analyses, which only examine hazards made known by severe events, by identifying emerging risks and the precursors that can lead to severe events.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value statement	Timeframe
Identify and prototype methods and digital tools used for oversight activities that will support System Safety Management (SMS), predictive safety management, and model-based systems engineering and safety risk management.	Review existing oversight methods and digital tools, identify gaps, and improve upon the oversight requirements for SMS by delivering timely and actionable safety intelligence	Report on existing oversight systems and gaps Recommend novel digital tools for the Next Level of Oversight System for SMS Establish and evaluate Proof of Concept through digitizing and artificial intelligence (AI).	This research will improve upon the FAA's SMS by establishing the Next Level of Oversight through an efficient and effective system established through digitization and AI	New Start FY25-FY29
Evaluation of Tools and Techniques to Support Pilot Training	Assess the strengths and weaknesses of a simulated Air Traffic Control (ATC) system using artificial intelligence (AI) and virtual reality goggles, and develop flight simulation scenarios to show pilots that typical human failings can apply to well-trained pilots	Technical Reports: - Evaluation of simulated ATC systems and virtual reality flight simulators products under a variety of experimental conditions - Comprehensive analysis of biases that affect pilot performance from interviews with academia and training practitioners	Define acceptable use of simulated ATC technologies and shorten implementation time into the field, leading to more effective pilot training and an expected reduction in the fatal accident rate. Pilot errors could be significantly reduced by a broad understanding and mitigation of human biases	First year of a three-to-four-year activity
Implement and Improve Integrated Safety Assessment Model (ISAM) Capability Management Techniques	Enhance ISAM with the capability of system-wide risk analysis, safety monitoring, and decision-making support, improve communication between air traffic controllers and	Technical Report: - Detailing the prototype implementation and testing - Safety event detection models	Facilitate FAA's safety risk analysis and NAS safety monitoring/safety event detection	Fourth year of a five-year activity

Major Activities	Objective	Expected Outputs	Value statement	Timeframe
	pilots, detect safety events, implement AI/ML for effective safety studies, improve terminal operations safety			
Assess Helicopter Enhanced Flight Vision Systems, Flight Data Monitoring, and Improve Helicopter Simulation Models	Assess new operational concepts for the use of vision systems in all-weather conditions and critical phases of flight; and develop analysis tools, metrics, and capabilities used by industry and government safety teams to reduce the helicopter fatal accident rate	- Simulation and flight test data from experimental studies - Safety analysis tools, metrics, and capabilities for analyzing helicopter safety data - Conditions of interest list and models along with physics-based updates	- Facilitate the development of operational specifications and best practices/guidance for operators using vision systems technology - Provide tools to identify unknown hazards/risks, enhance data analytics, and expand safety analysis capabilities within the helicopter community - Facilitate development of FAA policy	Sixth year of an eight-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The SSM and TAS research projects benefit the public through a reduction in the risk of aviation incidents and accidents throughout the national airspace system, including the airspace near and around airports. They support improved risk-based decision-making, which allows the FAA to (a) identify system-level vulnerabilities through evaluating and developing aggregate level data and metrics, (b) determine indicators of performance (safety metrics) and processes to reliably identify potential risk, and (c) identify and assess risks associated with anticipated changes in procedures or technologies. These research projects also benefit the public by reducing the risk of incidents or accidents through developing training solutions and identifying effective technologies to mitigate key causes of fatal accidents such as the loss of control, runway excursions, runway overruns, and low altitude helicopter operations.

Detailed Justification for A11.i Air Traffic Control/Technical Operations Human Factors

FY 2025 – A11.i Air Traffic Control Technical Operations Human Factors – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	3,676	3,823	4,033
Program Costs	2,235	2,566	1,960
Total	**5,911**	**6,389**	**5,993**
FTE (if applicable)	**22**	**22**	**22**

What is this program and what does this funding level support?

The Air Traffic Control/Technical Operations Human Factors Program supports the Administration's Safety principle and provides timely human factors products and consultation services to improve the safety and efficiency of complex air traffic control (ATC) systems. Research addresses Air Traffic Organization (ATO) challenges in five human factors research and development focus areas: (1) Improved safety, reduced hazards, and error mitigation in ATC; (2) Automation effects and controller performance; (3) Improved design and operation of ATC systems; (4) Improved controller selection and training; and (5) Controller and technical operations workforce optimization.

The program provides near to mid-term research to ATO concept development, systems development, and implementation decision-makers with guidance needed to leverage human capabilities and mitigating human limitations to maximize human performance, in accordance with FAA Order 9550.8 *Human Factors Policy:*[5] *"Human factors shall be systematically integrated into the planning and execution of the functions of all FAA elements and activities associated with system acquisitions and system operations. FAA endeavors shall emphasize human factors considerations to enhance system performance and capitalize upon the relative strengths of people and machines."*

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Stress and Performance Training	Introduce stress training to improve performance and safety	Improved training to enhance controller resilience and minimize stress	Improve human performance within the system	First year of a three-year activity

[5] https://www.faa.gov/documentLibrary/media/Order/9550.8.pdf

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Controller Job Performance Standards	Controller performance standards that consistently measure progress in training and to support job placement decisions	Improved controller performance standards to help bridge the gap of controller training and pass out rate and improve overall controller retention	Improve human performance within the system	Ongoing five-year activity
Human Factors Research to Support Adoption and Implementation of Virtual and Augmented Reality Applications	Reduce training costs and time required to achieve full performance levels in these critical aviation occupations	Human factors suitability evaluation of virtual and augmented reality applications to support ATC and Technical Operations personnel training and remote maintenance technical support services	Improve training to help reduce training costs	Ongoing five-year activity
Continued Exploration of Automation Impacts on Controller Performance and Development of Mitigations	Minimize negative impacts of increased automation on controller performance	Alternative procedures and other mitigations to address increases in system automation and a less frequent need for coordination among adjacent control positions	Improve controller and controller team performance	Three-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The public will benefit from this mandatory research (49 USC Section 445)[6] that enables improvements to air traffic safety and efficiency. Since the NAS is a human-centered enterprise, human performance is a key factor in total system performance, and this research will enhance the system's performance by reducing errors and life cycle ownership costs. The FAA's Human Factors Research Program contributes scientific data to the Air Traffic Organization to inform policies and system design decisions that will prevent and reduce transportation-related fatalities and serious injuries across the NAS. The program provides the human factors expertise upon which FAA system development programs rely to ensure that FAA ATC/Technical Operations systems are accepted by the user community and utilized to achieve maximum operational benefit. This research also identifies and develops recommended mitigations for human factors challenges in the design of new and enhanced NAS systems and capabilities.

[6] https://uscode.house.gov/view.xhtml?req=granuleid%3AUSC-prelim-title49-chapter445&edition=prelim

Detailed Justification for A11.j Aeromedical Research

FY 2025 – A11.j Aeromedical Research – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	4,899	5,094	5,376
Program Costs	4,101	7,111	6,810
Total	**9,000**	**12,205**	**12,186**
FTE (if applicable)	**30**	**30**	**30**

What is this program and what does this funding level support?

The Aeromedical Research program is scoped to focus on safety sensitive personnel and airline passenger health, safety, and performance in current and forecasted future civilian aerospace operations. It performs aerospace-relevant applied research in the biomedical, biodynamics, and survivability/cabin safety sciences. This research culminates in the transition of knowledge and technology to enable innovation in aerospace operations and mitigation and prevention of aeromedical hazards associated with aerospace mishaps.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Fatigue Biomarker Panel: Identify a Metric for Performance Impairment Due to Sleep Loss	Develop a biomarker panel metric for performance impairment from sleep-loss related fatigue for application to forensic analysis. End result will be a biomarker sleep analyzer for downstream use in accident investigation and prevention	Technical Reports: - RNA biomarker fatigue impairment panel - DNA biomarkers for individual fatigue susceptibility -	Program outputs will facilitate increased detection of fatigue and improved FAA forensic accident reports	Sixth year of ongoing nine-year activity
Cabin Health Safety During an Epi/Pandemic	Define an analysis framework for cabin health safety hazards: – Conduct a survey of existing Modeling, Simulation and Analysis (MS&A) tools, data sources, and non-destructive testing methods	– Summary Technical Report – Datasets – Model/Simulation – Model/Simulation documentation – Risk management framework	Program outputs will be transitioned to support development and updating of the Congressionally-directed National Aviation Preparedness Plan, and for use in airline safety	Fourth year of ongoing five-year activity

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
	suitable for studying pathogen movement in transport aircraft cabins – Select the preferred MS&A tool set and testing methods – Plan and conduct MS&A validation and analysis studies		management systems	
Develop Omnidirectional Seat Safety Standards to Support Advanced Air Mobility	Develop injury criteria and test methods to evaluate the crash safety of the range of potential impact scenarios, seat orientations, occupant sizes, and restraint configurations	Technical Report: - Injury criteria - Test method(s)	Project outputs will facilitate the rightsizing of crashworthiness standards, including passenger seat design	Second year of ongoing three-year activity
Modeling and Simulation Guidance to Support Performance Based Rules for Aircraft Seating Systems	Evaluate existing model credibility standards and develop new standards focusing on individual aircraft structural design features	Technical Report: - Analytical data - Proposed updates to certification standards and guidance	Project outputs will equip airworthiness certification with analytical data to determine compliance with dynamic impact test standards	Second year of ongoing three-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The public will benefit from better protection and survivability in the event of an aircraft accident or incident. Simultaneously, the aerospace industry will benefit from evidence-based regulations and standards, which are right-sized according to the evidence, but designed to be as inclusive as possible, while ensuring continued operational safety.

DOT goals for safety and innovation will be realized only if the FAA can keep pace with emerging health and safety issues brought on by technological innovations and changes in the population characteristics of aerospace operations participants. The research efforts supported by this program will position the FAA to develop the requisite regulations and certification processes to ensure the continued safety, health, and survival of those involved in current and future aerospace operations.

Detailed Justification for A11.k Weather Program

FY 2025 – A11.k Weather Program – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,136	2,491	2,573
Program Costs	12,650	16,729	17,270
Total	**13,786**	**19,220**	**19,843**
FTE (if applicable)	**4**	**9**	**9**

What is this program and what does this funding level support?

The Weather Program consists of the Aviation Weather Research Program (AWRP) and the Weather Technology in the Cockpit (WTIC) program. These research programs perform applied research to enhance safety and operational efficiency in adverse weather conditions in the National Airspace System (NAS), as well as in oceanic and remote regions. The Weather Program supports the FAA Strategic Plan's Pillar of Safety[7] and the Department of Transportation's Strategic Plan FY 2022-2026[8] to reduce weather impacts on aviation and enhance flight safety. Weather is the primary cause of delays in the NAS, levying high costs on airlines and the travelling public. Forecast improvements and weather mitigation techniques developed by the program directly contribute to the reduction of air carrier delays and avoidable delay costs. In addition, flight into hazardous weather poses a significant safety risk for both manned and unmanned flight. For example, according to the National Transportation Safety Board, from 2009-2022,[9] there were 163 serious turbulence injuries (129 to passengers and 34 to crew members). Weather is also a contributing factor in 35 percent of all General Aviation (GA) accidents with 75 percent of these accidents having fatalities. Avoiding such hazards requires timely, accurate, and effective presentation of current and predicted weather to pilots, controllers, and airline operations personnel.

AWRP develops capabilities to improve observations, diagnoses, and forecasts of weather information to support operational planning and decision making by users including Air Traffic Management (ATM), flight dispatchers, and pilots. AWRP provides research, analyses, development, and demonstrations to advance capabilities to observe and predict the onset of weather conditions that affect aviation operations. AWRP leverages advances in meteorological science to enhance observation methods, improve weather prediction models, and produce increasingly accurate forecasts of convection, turbulence, icing, and low ceiling and visibility

[7] https://www.faa.gov/general/flight-plan-21
[8] https://www.transportation.gov/sites/dot.gov/files/2022-04/US_DOT_FY2022-26_Strategic_Plan.pdf
[9] https://www.faa.gov/newsroom/turbulence

conditions. Timely dissemination and presentation provide decision support input to enable Traffic Flow Management, controllers, pilots, and airline operations personnel to implement tactical and strategic Traffic Management Initiatives to avoid encounters with severe weather, reduce delays, and mitigate safety risks. WTIC addresses the need for enhanced cockpit weather technology, information, and human factors principles to achieve objectives of improved operational efficiency and safety, reduced flight delays, and gaseous emissions in adverse weather. It is focused on integrating AWRP advancements into cockpits to maximize operational benefits, minimize weather standards, and enhance pilot education (GA emphasis).

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Improve Convective Weather Forecasts for Aviation	Increase the accuracy of convective weather forecasts, particularly in the NAS sensitive/high demand regions and integrate these enhancements into cockpits for intuitive and effective use by pilots	- Onset, duration, dissipation, and location assessments of convective weather hazards in specific regions - Effective integration into cockpit weather displays and decision support tools for ease of use by pilots and ATM	Improving the accuracy of convective weather forecasts will increase NAS efficiency, enhance aircrew and passenger safety, and minimize environmental impacts through reduced fuel burn	Final year of a five-year activity
Improve Inflight Icing Diagnosis and Forecasts to align with Aircraft Certification Criteria	Add output to inflight icing diagnosis and forecasts to include liquid drop size information associated with aircraft certification criteria	- Enroute diagnosis and forecasts of small drop and large drop icing environments with the latter including differentiation of freezing drizzle and freezing rain	Tailoring of inflight icing diagnosis and forecasts to aircraft certification criteria will increase NAS safety through avoidance of hazardous areas	Second year of a four-year activity
Develop Probabilistic Forecasts for Turbulence Severity in support of International Civil Aviation Organization (ICAO) World Area Forecast System Requirements	Replace turbulence potential forecasts with severity forecasts, at higher temporal, vertical, and horizontal resolutions	- Probabilistic forecasts for turbulence severity, via ICAO standard Eddy Dissipation Rate outputs	Probabilistic forecasts of turbulence severity will enable operators and flight crews to select routes that avoid turbulence at specific severity levels	Fifth year of a ten-year activity

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Resolving Cockpit Weather Information Gaps - Automatic Dependent Surveillance-Broadcast (ADS-B) and Hands-Free Pilot Report (PIREP) Submittals	Expand the current PIREP system to include other types of weather information that provide utility to pilots in efficiently avoiding adverse weather	- Complete end-to-end demonstration and final report of a cockpit interface to ADS-B - Hands-free/minimized entry technology to downlink PIREPs from general aviation aircraft	A hands-free pilot interface for producing PIREPs will improve the quality and quantity of pilot reports, enhancing safety by increasing situational awareness of adverse weather	Fourth year of a five-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The Weather Program is the only FAA program tasked with developing standards and guidelines for the quality and delivery of weather data to cockpits for pilot use and integration with cockpit decision-support tools. The Weather Program works closely with RTCA special committees, FAA Flight Standards, and other standards development committees to further program objectives, and globally harmonize industry and government minimum systems standards. These capabilities will support and inform dispatcher, pilot, and air traffic management decisions resulting in adverse weather avoidance, reduced air traffic delays, increased air travel predictability for the flying public, and reduced CO_2 emissions. The improvement of weather diagnosis and forecasting capabilities, and establishment of tangible standards and guidelines for providing weather support to Unmanned Aircraft Systems/Advanced Air Mobility (UAS/AAM) operations will significantly enhance the economic benefit expected from this aviation sector. Focused efforts to analyze the impact of climate change on aviation-related turbulence and global air route traffic patterns, coupled with incorporation of new technologies for on-aircraft turbulence detection, will result in enhanced passenger safety and comfort.

The U.S. commercial airline industry has not suffered a weather-related fatality in almost 15 years. Weather Program research is vital to continuing this level of safety. The aviation industry, including UAS/AAM and Commercial Space, continues to innovate to meet the requirements for more efficient, safe, and climate-friendly travel. This request will enable the Weather Program to continue to develop and enhance capabilities to observe, predict, diagnose, and disseminate information about aviation-related weather conditions with increasing accuracy, timeliness, and effectiveness. Furthermore, the Weather Program's strong partnership and collaboration with the National Weather Service and the commercial weather industry provides effective pathways for operational delivery of successful research results and are foundational program elements.

Detailed Justification for A11.l Unmanned Aircraft Systems Research

FY 2025 – A11.l Unmanned Aircraft Systems Research – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,667	1,733	1,901
Program Costs	20,410	19,395	13,666
Total	**22,077**	**21,128**	**15,567**
FTE (if applicable)	**7**	**7**	**7**

What is this program and what does this funding level support?

The FAA's data, analysis, and research needs for Unmanned Aircraft Systems (UAS) and Advanced Air Mobility (AAM) integration are supported by this RE&D budget line item (BLI) and other appropriations. The program supports a unified FAA approach to safe, secure, and efficient integration of UAS and AAM into the NAS. Research funded under this BLI is the foundation of the FAA's UAS and AAM integration activities informs the development of rules, policies, procedures, standards, decisions, and other outcomes needed to integrate safe and secure UAS and AAM operations into the NAS.

The FAA's strategic outlook for UAS and AAM integration research is progressing towards beyond visual line of sight operations and an increasing tempo of Advanced Air Mobility operations. Near term research must address key focus areas to enable these operational advancements.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Conduct Science, Technology, Engineering, and Math (STEM) Outreach to Minority K-12 Students Using UAS as a Learning Platform	Ensure that underrepresented communities are engaged in STEM to support development of a future aviation workforce	Research to promote safe UAS operations and to increase student interest in the UAS/STEM field	Research facilitates future workforce development by encouraging and exposing students to aviation and UAS careers	Sixth year of a seven-year activity

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Evaluate UAS Disaster Preparedness and Emergency Response Operations	Advance the safe integration of UAS into the NAS through the expansion of disaster preparedness and emergency response	Coordination procedures: - UAS operators from within federal agencies - Local and state disaster preparedness and emergency response organizations	Program outputs will accelerate use of UAS during disasters and emergency response operations	Final year of a five-year activity
Analyze UAS Traffic and Collision Risks	Enhance the safety, security, and performance of the U.S. transportation system by monitoring the effectiveness of existing regulations	An assessment of UAS traffic, UAS collision risks, UAS traffic forecasts, and information useful for policy development	Program outputs will inform FAA policy decisions on UAS operations	One-year activity
Derive Safety Requirements for Beyond Visual Line of Sight (BVLOS) System Mode Transitions	Propose requirements for safely transitioning between Detect and Avoid modes of operation and navigational modes of operation	- Potential future industry standards applicable to AAM/UAM - Initial risk assessment and proposed mode transition requirements to mitigate safety risks for a chosen subset of larger UAS operations	Program outputs will inform BVLOS industry standards, as well as FAA policy	One-year activity
Derive Requirements for Multi-vehicle Architectures	Identify and assess the risks unique to multi-vehicle systems	- Enhance the completion of the UAS/UAM Risk Assessment Automated Tool (URAAT) - Provide risk assessment, proposed mitigation requirements, general guidance, proposed updates to FAA risk assessment processes and recommendations for standards development organizations	Program outputs will inform BVLOS operational approvals for multi-vehicle systems	One-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The safe integration of unmanned aircraft and advanced air mobility into the NAS is a significant challenge. These research efforts significantly contribute to addressing the challenges of UAS integration into the NAS by informing FAA decisions related to operational approvals, rulemaking, standards, policy, guidance, and procedures.

This research will also inform development of UAS training, technology, and procedures that increase the safety of UAS operations and increase the confidence of the American public that UAS flights can be safely, securely, and efficiently integrated into national airspace.

Detailed Justification for A11.m Alternative Fuels for General Aviation

FY 2025 – A11.m Alternative Fuels for General Aviation – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	0	0	0
Program Costs	10,000	11,201	8,411
Total	**10,000**	**11,201**	**8,411**
FTE (if applicable)	**0**	**0**	**0**

What is this program and what does this funding level support?

The Alternative Fuels for General Aviation (GA) Program supports the Administration's principles of Safety, Climate, Resilience, and Executive Order 14008 *Tackling the Climate Crisis at Home and Abroad* by conducting research to mitigate climate pollution using multiple clean alternatives. In addition, this program supports the FAA Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative to eliminate the use of leaded aviation fuel by the end of 2030 without adversely affecting the safety of the existing piston-engine fleet.

Research under this program supports addressing current and historical environmental injustices from aviation, particularly lead emissions. There is no known safe exposure level of lead, and multiple studies have documented the health impacts of lead exposure on urban and other disadvantaged communities. Leaded aviation gasoline (avgas) is the only remaining transportation fuel in the U.S. that contains lead additives. These additives protect piston engines against damaging detonation, or engine 'knock.' The Environmental Protection Agency (EPA) reports that General Aviation aircraft contribute approximately 70 percent of total airborne lead emissions.[10] A combination of environmental regulations and market forces will eliminate the availability of leaded avgas in the near future; alternatives that maintain safety of the fleet must be in place.

This level of funding will support the completion of multiple, primary research activities into unleaded fuels. Program research will generate the remaining data required by the Aircraft Certification service to issue fleet authorizations of unleaded fuel(s) in accordance with Section 565 of the FAA Reauthorization Act of 2018. Additionally, the program will support the accelerated development of fuel efficient, low-emissions aircraft technologies, including electric, and electric hybrid propulsion, and support collaborative research on technologies that reduce harmful emissions. A key element of the FAA's role in this effort is the testing of fuels, engines, components, and energy sources at the William J. Hughes Technical Center. Research enabled by this program will be coordinated with air transportation stakeholders in industry, academia,

[10] https://www.federalregister.gov/documents/2022/10/17/2022-22223/proposed-finding-that-lead-emissions-from-aircraft-engines-that-operate-on-leaded-fuel-cause-or

and partner federal agencies under the EAGLE initiative to include the broadest selection of air transportation stakeholders.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Engine Testing of Prospective Fuels in Fleet Representative Models	Validate that proposed unleaded fuel meets the engine operational and safety criteria required for FAA fleet authorization under PAFI (Piston Aviation Fuel Initiative)	Technical reports on test outcomes - Engine performance - Engine detonation - Engine durability characteristics - Laboratory fuel performance properties	Support Aircraft Certification for fuel safety	Final year of a five-year activity
Flight-Testing on Final Candidate Fuel Formulas in Fleet Representative Aircraft Models	Validate each of the proposed fuels against engine operational and safety criteria in differing weather conditions required for FAA fleet authorization under PAFI and EAGLE efforts	Technical reports of comparative testing between unleaded fuels and current leaded fuels - Normal day - Hot day - Cold day - Ground handling	Support Aircraft Certification for fuel safety	Final year of a three-year activity
Research and Test Emission-Reducing Technologies, and Sustainable Fuels and Components for General Aviation	Evaluate sustainable and renewable aviation fuels and fuel components, as well as aircraft and engine technologies, that could be used to safely reduce fuel burn, allow broader use of unleaded fuels, and reduce harmful emissions	Research reports demonstrating: - The safety of engine technologies and sustainable or renewable fuels - Components that can be used in the GA fleet	Enable general aviation to reduce fuel burn and emissions through the use of safe technologies and alternative fuels	Final year of a three-year activity

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Evaluate Key Certification Considerations for Electric Propulsion and Hybrid-Electric Systems, Including Development of Energy Reserve Requirements, Environmental Effects, and Other Requirements	Evaluate technical and safety criteria for high-voltage electric engine controls, fault protection features, and equipment physical limitations associated with electric, hybrid electric, and fuel cell technologies	- Research reports to establish, determine, or verify reliability rates for safety-critical features and functions of electric propulsion systems	Establish standardized testing criteria to evaluate safety of electric engines and fuel cells that are used for propulsion in electric and electric-hybrid aircraft	Third year of a five-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The General Aviation fleet of aircraft is a significant and integral element of the national airspace system (NAS) and the U.S. economy. Directly or indirectly, general aviation supported 1.2 million jobs and contributed over $247 billion to the U.S. economy with a positive impact on the U.S. balance of trade ($75.0 billion).[11] GA, its economic contributions, and other benefits are at risk unless the fleet can transition to unleaded fuels before market and/or regulatory forces eliminate the availability of leaded fuel. The availability of well-vetted, unleaded replacement fuels will eliminate the need for operators to seek less safe alternative fuels that would cause safety of flight issues in the NAS. Additionally, the GA community has access to 16,000+ public and private airports and landing facilities nationwide. Reductions in lead and other emissions from this research, will improve the environment for at-risk children and all Americans. Lastly, research into electrical propulsion technologies will accelerate the development of highly efficient, environmentally friendly, next generation aircraft, as well as enhance U.S. competitiveness in the global aviation industry.

[11] General Aviation Manufacturers Association (GAMA) study conducted in 2020 (https://gama.aero/wp-content/uploads/GAMA_2019Databook_Final-2020-03-20.pdf)

Detailed Justification for A11.n Commercial Space Transportation Safety

FY 2025 – A11.n Commercial Space Transportation Safety – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	0	0	0
Program Costs	4,708	6,157	5,350
Total	**4,708**	**6,157**	**5,350**
FTE (if applicable)	**0**	**0**	**0**

What is this program and what does this funding level support?

The Commercial Space Transportation (CST) program focuses on public safety research of all commercial space operations, including integration into the NAS and spaceports, incorporating systemic safety initiatives and regulatory reform, maximizing the diversity of research performers through less restrictive acquisition instruments, and regulatory reform. CST research focuses on specific research needs in different industry segments. by (1) maintaining focus on priorities mentioned above and executed through research contracts addressing near–term needs of the FAA Office of Commercial Space Transportation (AST), and (2) addressing mid-term research questions of common interest to FAA AST and industry and executed within a newly-formed research consortium structure using Other Transaction Agreements as practicable.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Explosive Yield Research Project (LOX/Methane)	Improve the FAA's ability to predict public risk due to an explosion from vehicle impact when loaded with methane fuel	- Results from drop tests of propellant tanks under a variety of test conditions - Analysis improvements of explosive yield	Increased safety to the uninvolved public	Second year of a three-to-five-year activity

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Human Spaceflight Participant Research	Identify optimal test data collection methods and storage architectures for spaceflight participant biometric data	- Guidance for data collection methods, specific data elements, and a database architecture - Develop standards and methodologies that can be used as a data-driven basis to create rules and guidance on Human Spaceflight.	Increased safety, for spaceflight crew and participants	First year of a two-to-four-year activity
Research Alliance	Create a place where government, industry, and academia can coordinate and support CST R&D.	- Provide the organization and infrastructure to allow for the free flow of information and resources across government, industry, and academia. - Leverage AST R&D budget for projects that would normally be beyond current resources.	Increased safety for the industry and public.	Second year of a multi-year endeavor.

What benefits will be provided to the American public through this request and why is this program necessary?

The Lox Methane Testing improves engine performance. Engine performance is a metric of how efficiently a rocket engine uses propellants to create thrust. It is measured in a term known as "specific impulse." The higher the specific impulse, the less propellant is needed to produce a given thrust for a given time. This means that the launch vehicle using a higher specific impulse propellant combination can more efficiently gain altitude and velocity. It increases ease of operation in fuel/oxidizer selection for a launch vehicle. Decreased launch vehicle sizing resulting from the smaller tanks and associated structures needed for LCH4-propelled launches (vs. LH2 fuel) has a direct impact upon the cost of constructing the launch vehicle, and the numerous design-cost tradeoffs.

The Human Spaceflight Research addresses both public- and occupant safety by developing voluntary consensus standards for commercial human spaceflight and by developing a safety framework that will update the recommended practices for Human Space Flight Occupant Safety.

The Research Alliance is a consortium that replaces the Community of Excellence which concluded in August 2022. The main purpose of the consortium will be to solve the "big" problems through a centralized clearing house with FAA approval. The FAA will invite representatives from multiple government organizations to join AST in a cross-agency joint research group (JRG). Potential members include the National Aeronautics and Space Administration, Space Force, Air Force, other Department of Transportation agencies, Health and Human Services agencies, and Department of Commerce sub-agencies, among others.

Research Alliance benefits will include identifying a 30-year vision for the Commercial Space industry ecosystem. Research Alliance activities will provide collaboration platforms among and within the greater space industry communities, as well as support both the FAA's safety mission and industry facilitation goals. The visioning and road mapping activities will include topics of global competitiveness, safety, security, workforce development and readiness, infrastructure resilience and modernization, and environmental and climate implications.

Detailed Justification for A11.o NextGen - Wake Turbulence

FY 2025 – A11.o NextGen - Wake Turbulence – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	880	915	1,031
Program Costs	2,848	3,765	3,212
Total	**3,728**	**4,680**	**4,243**
FTE (if applicable)	**4**	**4**	**4**

What is this program and what does this funding level support?

The Wake Turbulence Program supports the Department of Transportation's Priority Performance Based Safety Rules[13] by providing safe, flight capacity enabling, wake hazard mitigating air traffic control (ATC) aircraft-to-aircraft separation recommendations for new and currently operating aircraft (both piloted and large unpiloted aircraft systems) in the National Airspace System (NAS). The program further improves NAS operating performance by producing ATC procedural and technology-based wake hazard mitigating solutions that increase NAS throughput capacity. The program operates wake turbulence data collection sites near the San Francisco International (SFO) and John F. Kennedy (JFK) International airports and uses the site data to develop assessments of hazardous wake encounter risk. The assessments are an essential part of the FAA's Safety Risk Management Program's review of proposed changes to ATC's aircraft-to-aircraft separation procedures and associated changes to ATC automation systems. Additionally, analysis of this data, having been collected under varying weather conditions, provides insight for the development of dynamic flight capacity increasing wake hazard mitigating ATC procedures and supporting ATC automation systems upgrades.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Time frame
Wake Hazard Mitigation Separation Recommendations	Provide wake hazard mitigation recommendations for aircraft types.	Aircraft type wake hazard mitigation recommendations for use by the ATC Aircraft Separation Service	Allow for safe maximum flight capacity for major hub airports and air corridors resulting in fewer flight delays	One-year activity

[13] https://www.transportation.gov/priorities

Major Activities	Objective	Expected Outputs	Value Statement	Time frame
Wake Track Data Collections, Modeling and Analyses	Provide aircraft wake data, analyses, and modeling required for wake hazard mitigations	- Assess 160K aircraft wake tracks at SFO and JFK and another capacity constrained airport - Airport/ airspace specific wake hazard mitigations	Assure wake hazard mitigation recommendations allow for safe maximum flight capacity for major hub airports and air corridors resulting in fewer flight delays	One-year activity
Absolute Wake Generation and Resistance to Wake Encounter Metrics	Metrics to allow development of flight capacity efficient ATC wake mitigations for new aircraft types prior to operation in the NAS	- Absolute metric driven models for aircraft type wake generation and aircraft type response to a wake encounter - Pilot response to wake encounter data collections using flight simulators and random inputs of a simulated wake encounter	Models will provide analysis of the wake generation and response to a wake encounter for new aircraft types without requiring extensive and costly wake data collection campaigns	First year of three-year activity
Wake Hazard Mitigation Concepts Research and Analysis	Develop wake hazard mitigation concepts that will safely allow for increased airport and air corridor flight capacity	Evaluation of algorithm that uses HRRR forecast data and ADS-B Wx real-time aircraft data to predict location of generating aircraft wake hazard zone	Allow for safe, increased airport and air corridor flight capacity resulting in fewer flight delays	First year of four-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The Wake Turbulence Program provides the necessary data, modeling, and analysis to advance capacity-efficient ATC wake mitigation solutions that will safely allow more flights during peak demand periods in the NAS.

The program's research products, when implemented either directly into ATC operations or through follow-on engineering development programs, provide the American flying public with:

- Reduced flight delays for passenger and air cargo flights when weather or other conditions occur during rush periods at an airport.

- Decreased time in the air for passengers during heavy travel periods due to more ATC flight capacity on heavily used air traffic routes.

- Reduced risk of aircraft operators having a hazardous wake encounter.

Detailed Justification for A11.p Information/Cybersecurity

FY 2025 – A11.p Information/Cybersecurity – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	0	701	804
Program Costs	4,769	5,714	5,139
Total	**4,769**	**6,415**	**5,943**
FTE (if applicable)	**0**	**2**	**3**

What is this program and what does this funding level support?

The Information Cybersecurity R&D program conducts research, analysis, demonstration, evaluation, and prototype development of Cybersecurity Data Science (CSDS) tools, technologies, and methods to detect, prevent, and mitigate the effects of cyber-attacks on elements of the aviation ecosystem.

The program explores CSDS concepts with a focus on use of Artificial Intelligence & Machine Learning (AI/ML). The research is conducted collaboratively with aviation industry stakeholders for the primary purpose of addressing specific areas of stakeholder cybersecurity concern. Application of CSDS with AI/ML concepts to individual industry challenges, through prototyping and demonstration, will enable greater collaboration and assist industry in CSDS implementation decisions. The research goal is to accelerate aviation industry adoption and adaptation of novel CSDS and AI/ML technologies to enhance cybersecurity for the airline, airport, and aircraft elements of the national aviation ecosystem, increasing safety and resiliency (availability and reliability).

CSDS research supports FAA objectives associated with technology advancement, outreach and partnership, and core technology exploration. In addition to these FAA objectives, the CSDS program also addresses two of the Critical Research Topics identified in the U.S. Department of Transportation (DOT) Transformation Grand Challenge, which are Cybersecurity and Machine Learning. In support of these FAA and DOT objectives, the program considers multiple aspects of the cybersecurity chain, including data, sensors, analyzers, collectors, curation, and advanced analytics. The core research focuses on establishment of an overarching CSDS framework and evaluation of innovative concepts by topic area. Topic areas to be explored include predictive analytics and context-aware behavioral AI.

Concepts are then applied to specific aviation industry stakeholder concerns to accelerate industry adoption of CSDS technologies, enhancing cybersecurity for the aviation ecosystem. This target level funding will support bottom-up analysis collaboration with only a limited number (4) of stakeholders. Collaboration with these stakeholders (representing airline, airport, and aircraft elements of the aviation ecosystem) will be conducted, resulting in information and

guidance products that will influence aviation ecosystem cybersecurity technology advancements.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Predictive Analytics and Context Aware Behavioral AI Research	Improve cyber analyst performance by correlating cyber events with other data and network activities	Specific guidance for: - Industry cybersecurity standardization - Architecture/system designs - Cybersecurity best practices	Provide enhanced capabilities for a more resilient, safe, and secure aviation ecosystem security landscape. Establish core CSDS capabilities for application to specific industry areas of interest	Second and third years of ongoing research
Continue Applied Research through evaluation of four industry specific use cases (Aircraft Log Analysis, Supply Chain Induced Threats, Factory Automation, and Airport Automation)	Mature research through industry data and operational environments to create industry-specific cybersecurity capabilities	Specific guidance for: - Industry cybersecurity standardization - Architecture/system designs - Cybersecurity best practices to accelerate the adoption and adaptation of CSDS AI/ML	Rapid transformation of cyber security threat detection and mitigation strategies through algorithms, standards, processes, and best practices	Third and fourth years of ongoing research
Finalize Aviation Architecture Framework (AAF)	Complete validation and verification of multiple versions of the AAF	AAF documentation and guidance that can be used by industry to transform cyber security solutions	The AAF will provide a guide for analysis of current threats and future strategy validation	Final year of a four-year activity

What benefits will be provided to the American public through this request and why is this program necessary?

The National Strategy for Aviation Security (2018)[14] broadened the scope of potential threats to, or disruption of, the aviation ecosystem with emphasis on cybersecurity to include emerging threats such as malicious cyber actors. The National Strategy directs a holistic and adaptive approach to securing the aviation ecosystem.

[14] www.hsdl.org/?view&did=821736

OMB Memorandum M-22-15 (2022)[15] highly prioritizes artificial intelligence/machine learning (AI/ML) research. It includes these two Presidential priorities:

1. "Agencies should collaborate to prioritize world-leading research and innovation in critical and emerging technologies, including: trustworthy artificial intelligence (AI)…."
2. "Investments should prioritize resilient and secure… communications and should defend critical infrastructure and sensitive networks against cyberattacks and supply chain attacks. This includes funding research in… security and resilience of embedded systems, anomaly detection for critical infrastructure, software security, and intrusion detection."

The March 2023 National Aeronautics Science and Technology Priorities[16] released by the White House Office of Science and Technology Policy identifies several guiding principles including Accelerating Innovation (#4) and Strengthening National Security (#5), as well as outlining the role of the US Government. Acceleration involves prioritizing "long-term and applied R&D," drawing on "expertise at academic institutions" and emphasizing AI and ML technologies. Regarding national security, it states that "Modern information technology systems with clear cybersecurity standards… are critical to aviation operations." Regarding the Federal government's role, "The U.S. Government programs will aid the private sector in transforming the aeronautics enterprise." Furthermore, the "The U.S. Government will disseminate research results, consistent with national security, domestic, and foreign policy guidelines, to support the development and commercial adoption of the resulting technologies. It will provide the data needed to inform new standards…" for adoption of new cybersecurity technologies.

Also in March 2023, the White House released its National Cybersecurity Strategy,[17] stating that "This strategy recognizes that robust collaboration, particularly between public and private sectors, is essential to securing cyberspace." Strategic Objective 4.2 emphasizes that the federal government will identify, prioritize, and catalyze the research, development, and demonstration (RD&D) community to proactively prevent and mitigate cybersecurity risks…. Departments and agencies will direct RD&D projects to advance cybersecurity and resilience in areas such as artificial intelligence, operational technologies… and data analytics used in critical infrastructure. These efforts will be supported by… Federally funded research and development centers), and through partnerships with academia, manufacturers, technology companies and owners and operators."

The CSDS program acknowledges U.S. leadership concerns relative to cybersecurity and is conducting critical research and development in response to each of these cited Presidential and national priorities. Research results are expected to accelerate industry adoption of CSDS and AI/ML technologies to strengthen aviation industry cybersecurity and lead to a more resilient and safe aviation ecosystem.

[15] https://www.whitehouse.gov/wp-content/uploads/2022/07/M-22-15.pdf
[16] https://www.whitehouse.gov/wp-content/uploads/2023/03/032023-National-Aeronautics-ST-Priorities.pdf
[17] https://www.hsdl.org/c/2023-national-cybersecurity-strategy/

Detailed Justification for A11.q Environment & Energy

FY 2025 – A11.q Environment & Energy – Budget Request

($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	2,906	3,022	3,228
Program Costs	18,094	18,283	17,966
Total	**21,000**	**21,305**	**21,194**
FTE (if applicable)	**12**	**12**	**12**

What is this program and what does this funding level support?

The Environment and Energy Program supports the Administration's principles of Safety, Climate and Resilience and is a key element in the FAA's plan to reduce greenhouse gas emissions from aviation in support of the U.S. Aviation Climate Action Plan.[18]

The FAA's long-term vision is to achieve quiet, clean, and efficient air transportation with no environmental constraints on aviation growth. This program supports this vision by advancing an understanding of civil aviation noise and emissions at their source, how noise and emissions propagate and are modified in the atmosphere, and their ultimate health and welfare impacts. A central part of the program is the continued development of an integrated aviation environmental tools suite that can be used to evaluate a wide range of environmental mitigation solutions. The suite is built upon a sound scientific understanding of aviation noise and emissions as well as their environmental, health, and welfare impacts. The tools analyze and inform decision-making on technology development, operational procedures, regulatory compliance, and international and domestic standards and policies relating to civil aviation's energy use and environmental impacts. This Program supports work done by ASCENT - the FAA Center of Excellence (COE) for Alternative Jet Fuels - and the Volpe Center.

Aviation noise and emissions are a considerable challenge to the continued growth of aviation. Despite the technological advancements achieved during the last four decades, the impact of aircraft noise demands considerable federal resources and is a constraint on aviation growth. Environmental impacts, especially aircraft noise, are often the number one cause of opposition to airport capacity expansion and airspace redesign. Concerns about the impacts of aircraft emissions on climate change could limit the growth of international aviation. Program research also addresses the impacts of aviation emissions on local air quality as well as the need for environmental justice. The implementation of precision navigation over the last few years has

[18] https://www.faa.gov/sustainability/aviation-climate-action-plan

contributed to increased airport community concerns regarding noise. This challenge is anticipated to worsen with new entrants such as unmanned aerial systems, urban air mobility, civil supersonic aircraft, and commercial space vehicles. The growth of these new entrants will partly depend on the extent to which the effects of noise and emissions are addressed.

Technologies that reduce noise and emissions are regulated at the vehicle level as a part of airworthiness certification. These environmental standards are harmonized internationally through the International Civil Aviation Organization's (ICAO) Committee on Aviation Environmental Protection (CAEP).[19] A significant portion of this program is devoted to informing decision making at ICAO CAEP. Finally, the program will coordinate efforts with federal and international partners to ensure that knowledge is shared broadly.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Decision Making on Standard Setting, Certification, and Policy	Provide the data and analysis necessary to support the development of appropriate certification procedures, standards, and policies for conventional aircraft, drones, advanced air mobility vehicles and supersonic aircraft	Analyses and data to support decision making	Synthesize the data and information needed to support decision making on both domestic policy and international environmental standards at ICAO CAEP	First year of an ongoing three-year activity
Aviation Environmental Design Tool (AEDT) Development	Continue expanding the AEDT capabilities of integrated assessment of noise, fuel burn, and emissions impacts from commercial aviation by integrating the latest scientific knowledge	Public release of a new version of the AEDT software	Provide the analytical capabilities needed for environmental reviews and standards development	Ongoing activity with annual AEDT releases
Advance Scientific Understanding of Environmental Impacts of Noise and Emissions	Expand the scientific understanding of the impacts of noise and emissions on people, the environment, and climate	Knowledge and data on the environmental impacts of noise and emissions to support solution development	Provide an understanding of the issues on which technological and operational solutions can be developed	Ongoing activity

[19] https://www.icao.int/ENVIRONMENTAL-PROTECTION/Pages/CAEP.aspx

What benefits will be provided to the American public through this request and why is this program necessary?

Civil aviation is evolving continuously and so must the thinking about its environmental consequences. This request would continue efforts to advance scientific understanding of the environmental impacts of civil aviation, develop tools to quantify these impacts, and use the tools to inform decision making to ensure that cost-effective solutions are developed to address the noise, air quality, climate, and energy issues confronting global aviation.

This program supports AEDT, FAA's standard noise and emissions model. It is used by academia, industry, and manufacturers in over 45 countries and in the environmental decision making of ICAO CAEP. Its global use furthers international leadership by the U.S. This program also ensures U.S. leadership in the development of standards for existing aircraft and new entrants in ICAO CAEP. These decisions impact the health and welfare of the American public and have multi-billion dollar impacts on the aviation industry, including enabling the introduction of supersonic civil aircraft. Finally, much of the research in this program is carried out via ASCENT. The universities in ASCENT not only produce world-class research but are also developing a workforce that will help overcome challenges posed by aviation.

Detailed Justification for A11.r NextGen – Environmental Research – Aircraft Technologies and Fuels

FY 2025 – A11.r NextGen – Environmental Research – Aircraft Technologies and Fuels – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	2,130	2,995	3,102
Program Costs	65,870	67,779	67,892
Total	**68,000**	**70,774**	**70,994**
FTE (if applicable)	**9**	**12**	**12**

What is this program and what does this funding level support?

The NextGen - Environmental Research – Aircraft Technologies and Fuels Program supports the Administration's principles of Safety, Climate and Resilience and is a key element in the FAA's plan to reduce greenhouse gas emissions from aviation in support of the U.S. Aviation Climate Action Plan.[20]

In partnership with industry through the Continuous Lower Energy, Emissions and Noise (CLEEN) program and universities through the Aviation Sustainability Center (ASCENT, the FAA Center of Excellence for Alternative Jet Fuels and Environment), the program develops aircraft and engine technologies as well as Sustainable Aviation Fuels (SAF) to support a quiet, clean, and efficient air transportation system. Technologies developed by this program will result in a fleet of aircraft that have lower noise, use less fuel, and produce fewer emissions. This program also provides test data, analyses, and methodologies to ensure that sustainable aviation fuels are safe for use and appropriately credited under the International Civil Aviation Organization (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Additionally, program efforts are expediting the certification of new types of SAF and supporting the certification of fuels beyond the current 50% blending limit. It is also using supply chain analysis to help industry establish domestic SAF supply chains and identify means to cost effectively reduce the lifecycle greenhouse gas emissions from SAF production and use.

Through the public-private partnership of CLEEN, the FAA and industry are working together through a cost share agreement to accelerate the development and entry into service of technologies with relatively large risk that will lower noise and emissions while also improving fuel efficiency. This funding also provides for alternative jet fuel and technology innovation efforts under ASCENT, which also has a cost share requirement. In addition, the program supports the Commercial Aviation Alternative Fuels Initiative (CAAFI) in engaging with both

[20] https://www.faa.gov/sustainability/aviation-climate-action-plan

the commercial aviation and emerging alternative fuels industries. CLEEN, CAAFI and ASCENT support the development of sustainable aviation fuels via fuel testing, integrated analysis, and coordination to help ensure that aviation has a wide range of energy options in the future. All three are conducted in partnership with a wide range of aviation stakeholders, leverage private sector resources, and enable the FAA to support the interagency efforts under the SAF Grand Challenge Roadmap.[21]

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
CLEEN Program	Support the maturation of airframe and engine technologies to reduce civil aviation fuel burn, emissions, and noise impacts via one-to-one cost share partnerships with manufacturers	Accelerated maturation of new technologies to reduce noise, emissions, and fuel burn	CLEEN technologies will produce noise, fuel burn, and emissions benefits throughout the fleet over many years	Final year of CLEEN Phase III activity and continuation of CLEEN Phase IV activity
ASCENT Technology and Fuels Innovation	Examine the use of novel technologies and other forms of innovation to reduce noise, emissions, and fuel burn in commercial aircraft	Improved methods and data to enable the development of technologies and innovative solutions to lower noise, emissions, and fuel burn from subsonic and supersonic commercial aircraft	The knowledge provided by ASCENT will aid industry in developing solutions to enable quiet, clean, and efficient air transportation	Ongoing activity
Ensure Novel Jet Fuels are Safe for Use and Enable 100% SAF Use	Support the approval of novel jet fuel pathways by ASTM International and develop and test SAF that could be safely used without blending with conventional petroleum-based jet fuel	– Certification by ASTM of novel jet fuel pathways – Streamlined ASTM certification process – Research reports demonstrating SAF pathways safe for unblended use	The development and approval of new fuel pathways will expand the opportunities to move towards cost-effective environmental sustainability	Ongoing activity
Maximize Environmental Benefits of SAF	Perform economic, environmental, and supply chain	– Enable cost-effective production of SAF with	Understanding and international standards enable the	Ongoing activity

[21] https://biomassboard.gov/sustainable-aviation-fuel-grand-challenge-roadmap

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
and Support Global Use	optimization analyses within ASCENT and support SAF in the ICAO CORSIA framework	minimal life cycle greenhouse gas emissions – Develop robust lifecycle greenhouse gas emissions values and methods and sustainability criteria for use in ICAO CORSIA	aviation industry to cost effectively reach net zero CO_2 emissions through the use of SAF	

What benefits will be provided to the American public through this request and why is this program necessary?

The CLEEN program aids industry in developing the analytical tools needed to design aircraft for lower noise, emissions, and fuel use. Cumulatively, CLEEN Phase I and II are estimated to save 36 billion gallons of fuel by 2050, resulting in CO_2 reductions that are equivalent to removing three million cars from the road from 2020 to 2050. The technologies from the first phase of CLEEN are estimated to decrease land area exposed to noise by 14 percent. These technologies in conjunction with the development and production scaling of sustainable aviation fuels (SAF) will be critical elements in meeting the U.S. aviation climate goal of reaching net-zero GHG emissions by 2050. SAF will also support the development of a new industry and provide considerable economic development across rural America where the feedstocks would be produced and where industrial infrastructure could be leveraged. Continued funding will also ensure U.S. global leadership on how sustainable aviation fuels are counted within CORSIA ensuring that these fuels are contributing to meaningful CO_2 reductions across the globe.

Historically, advances in aircraft technology have been the main factor in reducing aviation's environmental impacts. Due to technology advancements, there has been a 95 percent reduction in the number of people exposed to significant noise and more than a 70 percent improvement in fuel efficiency. However, because of the growth in the number of operations and the implementation of new flight procedures, community concerns about noise remain a considerable issue. Additionally, the increased urgency on addressing the climate crisis and the need for U.S. aviation to meet the climate goal of reaching net-zero GHG emissions by 2050 present a very significant challenge to the aviation industry. As such, there is a pressing need for R&D investments in aircraft and engine technologies as well as sustainable aviation fuels to address the environmental challenges facing the aviation industry.

Detailed Justification for A11.s System Planning and Resource Management

FY 2025 – A11.s System Planning and Resource Management – Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	1,728	1,797	1,897
Program Costs	2,413	3,300	3,191
Total	**4,141**	**5,097**	**5,088**
FTE (if applicable)	**7**	**7**	**7**

What is this program and what does this funding level support?

The System Planning and Resource Management Program leads the planning, coordination, development, presentation, and review of the FAA's Research and Development (R&D) portfolio. The program facilitates and coordinates the FAA's R&D Executive Board (REB), a group of senior executives representing the major FAA R&D sponsors. The REB ensures research priorities meet the FAA's strategic goals and objectives while optimizing the overall R&D portfolio.

This process helps ensure that the FAA's research meets the president's criteria for R&D, increases program efficiency, sustains and maintains management of the program within operating cost targets, and enables effective program review by the Research, Engineering and Development Advisory Committee (REDAC), and DOT's Office of the Assistant Secretary for Research and Technology.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Annual Statutory Deliverables to Congress	Ensure that research enables and safely advances aviation	Development of reports: - National Aviation Research Plan (NARP) - R&D Annual Review - RE&D Budget Narratives	Program outputs are required, as specified in U.S. Code 49 (Section 44505(c))[22]	Ongoing

[22] https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title49-section44505&num=0&edition=prelim

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Departmental (OST) R&D Program Planning and Performance Reporting Requirements	Reduce the overlap of research areas with other Departmental modes and facilitate government and private sector partnerships to help develop and commercialize aviation ideas, concepts, and products	Development of reports: - Annual Modal Research Plan - OST Spend Plan - OST Quarterly PMR - RD&T Annual Funding Report - RD&T Annual Performance Plan	Program outputs are required, as specified in the Fixing America's Surface Transportation Act (Pub. L. No. 114-94)[23]	Ongoing
Development and Submission of the FAA's R&D Investment Portfolio	Administer the congressionally mandated (P.L. 100-591 Section 6 Advisory Committee)[24] REDAC and maximize the impact of federally funded R&D by accelerating the transfer of innovative technologies to the commercial marketplace	– Reports – Guidance – Transmittals	To ensure the understanding of industry trends and technology advancements	Ongoing

What benefits will be provided to the American public through this request and why is this program necessary?

This program provides the administrative support for the FAA to formulate its annual R&D portfolio and submit the mandatory R&D planning documents to Congress each year. Through the management of the REDAC, this program facilitates an independent, expert review of the FAA's R&D portfolio that provides meaningful recommendations for the agency to refine and improve research focus areas. This results in a more effective research program that will benefit

[23] https://www.fhwa.dot.gov/fastact/legislation.cfm
[24] https://uscode.house.gov/statutes/pl/100/591.pdf

the public by making aviation safer and smarter while enhancing U.S. global leadership in aviation.

Detailed Justification for A11.t Aviation Grant Management

FY 2025 – A11.t Aviation Grant Management – Budget Request

($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	704	732	747
Program Costs	14,296	1,269	1,378
Total	**15,000**	**2,001**	**2,125**
FTE (if applicable)	**3**	**3**	**4**

What is this program and what does this funding level support?

The Aviation Grant Management Program supports grant lifecycle administration and management including pre-award, post-award, closeout, records management, and program management and information technology. The program will aid in building and sustaining an infrastructure that encompasses the entire lifecycle of grant management. Program priorities support FAA strategic goals by ensuring a comprehensive approach to award grants to the next generation of aviation professionals, while supporting aviation-related research.

The Program enables collaboration and coordination between government, academia, and industry to advance aviation technologies, expand FAA research capabilities, support professional development of aircraft pilots, and increase interest in aviation maintenance careers.

The Aviation Grant Management Program will provide support to administer grants for eligible projects that educate, develop, and recruit aviation professionals, as directed by Congress in Section 625 of the FAA Reauthorization Act of 2018 (P.L. 115-254).[25] The Aviation Grant Management Program will assist with conducting research that focuses on a broad range of aviation technologies. Funding will be used for program management support to include a grants management system and associated resources.

[25] https://www.faa.gov/about/reauthorization

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Aviation Research and Workforce Grants	Award research and workforce development grants and provide grant program administration to equip the next generation of aviation technology and professionals	- Implementation of the aviation grant management program	This program provides an opportunity to build a robust infrastructure for managing pre-award, post-award, closeout, and record management activities	Second year of on-going activity

What benefits will be provided to the American public through this request and why is this program necessary?

The Aviation Grant Management Program benefits the flying public by increasing the number of grant awards to create a pipeline of aviation professionals and by conducting research to enhance the NAS and to support the next generation of aviation technologies. The Aviation Grant Management Program is necessary to meet the congressional mandate of the FAA Reauthorization Act of 2018.

Detailed Justification for A11.u William J. Hughes Technical Center Laboratory Facilities

FY 2025 – A11.u William J. Hughes Technical Center Laboratory Facilities – Budget Request
($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	2,723	2,841	2,973
Program Costs	2,758	2,606	2,521
Total	**5,481**	**5,447**	**5,494**
FTE (if applicable)	**12**	**12**	**12**

What is this program and what does this funding level support?

The FAA's Research and Development (R&D) programs require specialized facilities that provide flexible, high-fidelity environments to conduct research and perform Human-In-the-Loop (HITL) simulations that evaluate advanced air traffic concepts. This program sustains the specialized research facilities located at the William J. Hughes Technical Center (WJHTC) that support R&D program goals and objectives.

The WJHTC R&D laboratories are fully integrated with other WJHTC, FAA, and partner capabilities, which provide researchers an extremely high-fidelity environment, including the ability to emulate and evaluate field conditions. The WJHTC R&D laboratories are comprised of the Cockpit Simulation Facility, Target Generation Facility, Research Development and Human Factors Laboratory, the FAA Research and Development Network [NextGen Prototyping Network], and FAA laboratory space located within the National Aerospace Research and Technology Park.

This program's funding provides researchers with the specialized laboratories and infrastructure required to achieve R&D program goals and objectives. Having an efficient and flexible platform to evaluate current and future air transportation system concepts and technologies enhances the safety and efficiency of air travel for the American public. Performing research in simulation rather than with live aircraft generates cost savings, is intrinsically safer, and allows the study of the extremes that would not be possible in live flight conditions. The implementation of new technologies, such as the intelligent agent-based capability, allows for a reduction in the number of test subject participants needed for a given study; again, maximizing cost savings and efficiencies. Modernization of the FAA R&D network infrastructure and further extensibility into the Mike Monroney Aeronautical Center (MMAC) laboratories will directly support exploration of NAS capabilities. Finally, human factors-related issues resolved prior to implementation result in cost savings and ensure that the FAA's safety standards for air traffic control operations are met.

Cybersecurity research is also being conducted to meet agency goals aligning with Cyber Hygiene, Zero Trust, Cloud based services. These activities are also being investigated to ensure seamless integration with future FAA Enterprise Network Services (FENS) capabilities.

Major Activities Planned:

Major Activities	Objective	Expected Outputs	Value Statement	Timeframe
Research Development and Human Factors Laboratory Enhancements	Enhance simulation and data reduction software to capitalize on new advances in biometric data collection (i.e., smart watches and eye tracking)	- Less intrusive data collection techniques that decrease impact on human study participant's performance - Improved validity and more accurate data collected	Better data provides for simplified analysis and increased probability of finding human and computer/systems interaction correlation	Ongoing activity
Network Infrastructure	Provide network platform to facilitate integration of FAA and partner networks and facilities to expand collaborative capabilities and position the FAA to best support internal research within the FAA, other government agencies, industry, and academic partners	- Further mature the existing FAA Research and Development Network Domain participants to include additional FAA resources from the WJHTC and the MMAC - Establish/update secure network connections with Department of Defense for joint Cyber Security activities - Research Cyber Hygiene, Zero Trust, and cloud-based services to align with agency goals and ensure integration with FENS services	Provide a cost-effective common network capability to support FAA and partner research and development goals	Ongoing activity

What benefits will be provided to the American public through this request and why is this program necessary?

This program is necessary to provide researchers with the specialized laboratories and infrastructure required to achieve R&D program goals and objectives. An efficient and flexible platform to evaluate current and future air transportation system concepts and technologies enhances the safety and efficiency of air travel for the American public. Performing research in simulation rather than with live aircraft generates cost savings, is intrinsically safer, and allows the study of the extremes that would not be possible in live flight conditions. The ability to partner and collaborate with government, academia, and industry fosters aviation innovation. The implementation of new technologies, such as the intelligent agent-based capability, allow for a reduction in the number of test subject participants needed for a given study; again, maximizing cost savings and efficiencies. Human factors-related issues resolved prior to implementation result in cost savings and ensure that the FAA's safety standards for air traffic control operations are met. Finally, exploration of proper cybersecurity initiatives benefits both the research and air traffic control.

GRANTS-IN-AID FOR AIRPORTS

(LIQUIDATION OF CONTRACT AUTHORIZATION)

(LIMITATION ON OBLIGATIONS)

(AIRPORT AND AIRWAY TRUST FUND)

For liquidation of obligations incurred for grants-in-aid for airport planning and development, and noise compatibility planning and programs as authorized under subchapter I of chapter 471 and subchapter I of chapter 475 of title 49, United States Code, and under other law authorizing such obligations; for procurement, installation, and commissioning of runway incursion prevention devices and systems at airports of such title; for grants authorized under section 41743 of title 49, United States Code; and for inspection activities and administration of airport safety programs, including those related to airport operating certificates under section 44706 of title 49, United States Code, $3,350,000,000, to be derived from the Airport and Airway Trust Fund and to remain available until expended: Provided, That none of the amounts made available under this heading shall be available for the planning or execution of programs the obligations for which are in excess of $3,350,000,000, in fiscal year 2025, notwithstanding section 47117(g) of title 49, United States Code: Provided further, That none of the amounts made available under this heading shall be available for the replacement of baggage conveyor systems, reconfiguration of terminal baggage areas, or other airport improvements that are necessary to install bulk explosive detection systems: Provided further, That notwithstanding any other provision of law, of amounts limited under this heading, not less than $163,624,000 shall be available for administration, $15,000,000 shall be available for the Airport Cooperative Research Program, $43,360,000 shall be available for Airport Technology Research.

EXHIBIT III-1
GRANTS-IN-AID FOR AIRPORTS
Summary by Program Activity
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Grants-in-Aid for Airports	$ 3,705,355	$ 3,705,355	$ 3,128,016
Personnel & Related Expenses	$ 137,372	$ 137,372	$ 163,624
Airport Technology Research	$ 40,828	$ 40,828	$ 43,360
Airport Cooperative Research	$ 15,000	$ 15,000	$ 15,000
Small Community Air Service	$ 10,000	$ 10,000	$ -
TOTAL, Base appropriations	$ 3,908,555	$ 3,908,555	$ 3,350,000
FTEs			
Direct Funded	565	637	712
Reimbursable, allocated, other	2	2	5
IIJA Supplemental (Division J and Advance Appropriation)			
Airport Infrastructure Grants			
Airport Terminal Program			
TOTAL, Base appropriations	$ -	$ -	$ -
FTEs			
Direct Funded CARES Act*	1		
Relief for Airports (ARPA)*	3		
Account	$ 3,908,555	$ 3,908,555	$ 3,350,000

*Per P.L. 1118-5, Fiscal Responsibility Act of 2023, the unobligated funds for CARES and ARPA have been rescinded, and the personnel have been moved to vacancies in other ongoing projects.

Program and Performance Statement

The FY 2025 Budget requests $3.35 billion for the Federal Aviation Administration (FAA) Grants-in-Aid for Airports account. The Airport Improvement Program (AIP) provides grants to local and state airport authorities to help ensure the safety, capacity, and efficiency of U.S, airports. Through the AIP, the agency funds a range of activities to assist in airport development, including preservation and development of transportation infrastructure. In addition to airport grants, this account funds airport research programs and the administrative costs of the FAA's Office of Airports.

In FY 2023 the agency accomplished its performance metric of ensuring that runway pavement is kept in a safe and serviceable condition. The FAA has exceeded this goal for several years, with over 97% of eligible paved runways maintained in excellent, good, or fair condition.

EXHIBIT III-1a

GRANTS-IN-AID FOR AIRPORTS
SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025
Appropriations, Obligations, Limitations, and Exempt Obligations
($000)

	$000	FTE
FY 2023 ENACTED	$3,908,555	565
ADJUSTMENTS TO BASE:		
FY 2024 Adjustments	-558,555	119
Annualization of Prior Pay Raise(s)	1,679	
Annualization of FY 2024 FTE	2,310	24
FY 2025 Pay Raise	1,937	
Adjustment for Compensable Days	0	
Non-Pay Inflation	1,287	
Adjustment in Working Capital Fund	99	
SUBTOTAL, ADJUSTMENTS TO BASE	**-551,243**	**143**
PROGRAM REDUCTIONS		
Adjustment to offset the uncontrollable increases	-7,312	
Reduction to Grants to offset new positions in ATR	-698	
SUBTOTAL, PROGRAM REDUCTIONS	**-8,010**	**0**
PROGRAM INCREASES		
7 new positions in ATR	698	4
SUBTOTAL, PROGRAM INCREASES	**698**	**4**
FY 2025 REQUEST	**3,350,000**	**712**
Supplemental Appropriations	**0**	**0**
TOTAL	**3,350,000**	**712**

Executive Summary

What Is the Request and What Funds are Currently Spent on the Program?

For FY 2025, the Budget requests $3.35 billion to fund the Grants-in-Aid for Airports program, also known as the Airport Improvement Program (AIP). The Infrastructure Investment and Jobs Act (Public Law 117-58), also referred to as the Bipartisan Infrastructure Law (BIL), established the Airport Terminal Program (ATP) program with an annual advance appropriation of $1.0 billion and the Airport Infrastructure Grants (AIG) program with an annual advance appropriation of $3.0 billion, starting in FY 2022. These are separate and distinct programs from AIP. Combined, the $3.35 billion of the base budget, the $1.0 billion in ATP, and the $3.0 billion in AIG would make available $7.35 billion in FY 2025 for our Nation's airports.

The Budget request will enable the FAA to continue providing capital funding to help airports preserve and maintain critical airport infrastructure. The Grants-in-Aid program enables FAA to advance important safety, capacity, and efficiency projects at more than 500 airports supporting commercial service and more than 2,800 general aviation airports that provide critical functions at the national, regional, and local level. The AIP also helps airports address environmental concerns for neighboring communities. It provides direct, on-going grant support for residential sound-insulation near airports with significant noise. The AIP requires grantees to procure goods, products and equipment according to statutory Buy American provisions.

What Is this Program and Why is it Necessary?

The AIP provides grants to local and state airport authorities to help ensure the safety, capacity, and efficiency of U.S. airports. Through the AIP, the agency funds a range of activities to assist in airport development, including preservation and development of critical transportation infrastructure.

The FAA identifies public-use airports for the national transportation system and the National Plan of Integrated Airport Systems (NPIAS). These public-use airports support scheduled air carrier service at more than 500 commercial service airports. In addition to the scheduled passenger and cargo service, the airport system serves a diverse range of functions at approximately 2,800 general aviation airports that support remote communities, emergency medical services and disaster response, flight training, law enforcement support, agricultural activities, and business/corporate activities.

Why Do We Want/Need To Fund The Program At The Requested Level?

Every two years, as required by statute, the FAA publishes the NPIAS that looks five years into the future, identifying AIP-eligible development needs for the NPIAS airports. The latest NPIAS, which was published on September 30, 2022, identified approximately $62.4 billion in capital needs over 2023-2027, an increase of 43 percent. The FAA funds capital projects that support system safety, capacity, and environmental projects and the highest priority needs in the NPIAS. The AIP statutorily sets aside a percentage of the overall funding level for

environmental projects, including residential sound insulation and projects that reduce emissions to improve air quality and lower greenhouse gas emissions. Thusly, the AIP promotes environmental stewardship and equity.

What Benefits will be Provided to the American Public Through This Request?

The investment of AIP funds in the national system of airports is critical to helping maintain and improve the safety, efficiency, capacity, equity, and environmental stewardship of U.S. airports. The FAA works closely with airports and state aeronautical agencies to monitor the condition of critical airfield infrastructure. These efforts can be directly linked to improving airfield safety and standards, ensuring airport infrastructure meets the needs of all airport users, enhancing public access to the airport, mitigating aircraft noise impacts, and reducing greenhouse gas emissions in surrounding communities.

Through the AIP, the FAA helps ensure there is a safe and reliable system of airports to support the needs of the traveling public, including accommodations for persons with disabilities; the airlines; other aeronautical users (including businesses that depend upon aviation for time-critical delivery of goods and communications); and other airport stakeholders, including non-aeronautical employers and workers in airport terminals. The AIP also contributes to efforts ensuring access to remote communities with critical community needs such as emergency medical services and disaster response, flight training, law enforcement support, agricultural activities, and business/corporate activities.

Detailed Justification for Grants-in-Aid for Airports

FY 2025 Grants-in-Aid for Airports Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses			
Program Costs	3,705,355	3,705,355	3,128,016
Total	**$ 3,705,355**	**$ 3,705,355**	**$ 3,128,016**
FTE	0	0	0

What is this program and what does this funding level support?

For FY 2025, the Budget requests $3.13 billion to fund the Grants-in-Aid for Airports program, known as AIP.

Through the AIP, the agency funds a broad range of capital projects at eligible U.S. airports. As required by statute (49 U.S.C. 47103), the FAA maintains the NPIAS, which identifies airports eligible for AIP funding as well as the kind and estimated costs of eligible airport development projects under the AIP. Currently, there are over 3,300 public use airports in the NPIAS, of which approximately 520 support scheduled air carrier service. In addition to the commercial service airports supporting scheduled passenger and cargo service, approximately 2,800 eligible airports in the NPIAS provide critical community access, support emergency medical services and disaster response, provide flight training, and support law enforcement, agricultural activities, and business/corporate activities.

With this funding request, the FAA will continue to award AIP grants for eligible, well-justified projects at NPIAS airports within four key focus areas:

Safety: Among the agency's long-term safety activities are to provide AIP funds to projects that protect public safety eliminating outmoded airport conditions that contribute to accidents and to ensure that airport safety standards projects receive the highest funding priorities. This includes projects that will help improve pilot awareness and reduce the risk of runway incursions or wrong-surface landings or departures, eliminate or mitigate obstructions, reduce risks associated with wildlife hazards, and other categories of safety enhancements - all focused on reducing fatalities, injuries, and property damage ensuring the safe movements of the public, pilots and aviation industry support personnel.

Capacity/Efficiency/Access: The FAA will continue its focus on improvements throughout the system that will enhance capacity, increase efficiency, and ensure equitable access for everyone. The FAA achieves these goals by providing financial and technical support to regional and metropolitan system plans, airport master plans, and environmental reviews, as well as by directing funding toward the preservation, construction, and expansion of terminals, runways, and other airfield infrastructure, such as access roads and intermodal connections.

Environmental Stewardship/Climate Change/Climate Resilience: The FAA will continue to tackle the climate crisis, which is a high priority for the Administration, by ensuring that transportation plays a central role in the solution. The FAA will seek opportunities to reduce greenhouse gas emissions and transportation-related pollution. The FAA will achieve this objective using all its grant authorities that can support improving air quality, promoting energy efficiency, fostering energy resilience, and encouraging greater use of renewable energy sources. In addition, the FAA will continue to work with airport sponsors to address environmental issues and community concerns that allow airport infrastructure improvements to proceed in a timely manner, including grants to help airport sponsors complete environmental review and permitting processes as expeditiously as possible. The FAA will continue its work on sustainability and related climate change and severe weather resiliency planning at NPIAS Airports.

Equity: The FAA will continue to promote equity in transportation by ensuring that its investments promote safe, affordable, and accessible air transportation for everyone while reducing adverse community impacts and health effects. The FAA will evaluate and ensure that Federal investments in noise compatibility projects are benefitting the communities most severely impacted by aircraft noise, which often are historically disadvantaged communities. Noise compatibility projects, which are eligible for AIP funding, include noise studies, noise impact maps and residential noise mitigation plans; residential noise mitigation improvements; and land acquisition to promote noise compatibility. Furthermore, the FAA will continue to prioritize projects for Tribal communities and in Economically Distressed Areas. Finally, the FAA will continue to emphasize AIP funding in rural communities, which provides underserved populations critical access to the national transportation system.

Security: Although not a primary FAA focus area, the AIP provides funding for specific types of security projects required by statute or regulation. These projects carry a high priority for AIP funding, particularly those related to protecting the airport's "secured area," including airport perimeter fencing, security gates, lighting, and closed-circuit television cameras as part of access control to the secured area. The FAA supports infrastructure and facility modifications that allow the Transportation Security Administration (TSA) to optimize the layout and functionality of public screening areas and works with the TSA to determine AIP funding eligibility and priority for other capital needs.

The Infrastructure Investment and Jobs Act (Public Law 117-58), also referred to as the Bipartisan Infrastructure Law (BIL), established the Airport Terminal Program with an annual appropriation of $1.0 billion and the Airport Infrastructure Grant program with an annual appropriation of $3.0 billion, starting in FY 2022 through FY 2026. These are separate and distinct programs from AIP.

The ATP will make available competitive grants for airport terminal development (including multimodal and on-airport rail access) and airport-owned air traffic control tower projects that address the aging infrastructure of the nation's airports. As set forth in the BIL, the program will prioritize grants for projects that increase capacity and passenger access; projects that replace aging infrastructure; projects that achieve compliance with the Americans with Disabilities Act (Public Law 101-336) and expand accessibility for persons with disabilities; projects that improve airport access for historically disadvantaged populations; projects that improve energy

efficiency, including upgrading environmental systems, upgrading plant facilities, and achieving Leadership in Energy and Environmental Design accreditation standards; projects that improve airfield safety through terminal relocation; and projects that encourage actual and potential competition. The FAA is embracing opportunities to address the infrastructure needs of the national airport system while maintaining focus on tackling the climate crisis and enhancing equitable access to the transportation system.

Through the AIG Program, as mandated by BIL, the agency will distribute funds primarily by formula to both primary and non-primary airports in the National Plan of Integrated Airport Systems. Airports are expected to use the funds on a broad range of planning and development projects.

What benefits will be provided to the American Public through this request and why is this program necessary?

The U.S. aviation system plays a critical role in the success, strength, and growth of the U.S. economy. Approximately 691,000 active pilots, 212,000 general aviation aircraft, and 7,500 air carrier aircraft rely on the U.S. airport system. The economic impacts of the air traffic control system are well documented in FAA's report on "The Economic Impact of Civil Aviation on the US Economy," published in January 2020.[1] It states that, in 2016, aviation accounted for 5.2 percent of our gross domestic product, contributed $1.8 trillion in total economic activity, and supported 10.9 million jobs.[2] Since 2000, the AIP has funded infrastructure projects at 23 major airports to accommodate more than 2 million additional annual operations each year.

AIP funding in FY 2025 will support the following key infrastructure projects:

- To mitigate safety risks, enhance capacity, and increase efficiency, the AIP will fund reconstruction and rehabilitation of terminals, hangars, runways, taxiways, protective surfaces, and aircraft parking areas (aprons), as well as associated data collection, to preserve the nation's critical aviation infrastructure as well as mitigate the risk of foreign object debris damage to aircraft from cracked or broken pavement surfaces.

- To reduce the risk of runway incursions, the AIP will fund projects to reconfigure taxiways, perimeter service roads and other airport facilities; and improve marking, lighting, and signage.

- To enhance safety, the AIP will fund projects to conduct wildlife hazard assessments and develop wildlife hazard management plans.

[1] The Economic Impact of Civil Aviation on the U.S. Economy – January 2020. See https://www.faa.gov/about/plans_reports/media/2020_jan_economic_impact_report.pdf
[2] The Economic Impact of Civil Aviation on the U.S. Economy – January 2020. Page 5. See https://www.faa.gov/about/plans_reports/media/2020_jan_economic_impact_report.pdf

- To modernize and enhance efficiency and capacity at airports using a safety risk model, the AIP will fund Safety Management Systems (SMS) manual and implementation plans to expand the use of SMS, either by voluntary implementation or regulated mandate across the system.

- To improve the environment, the AIP will fund a pilot program for projects that measurably reduce or mitigate aviation impacts on noise, air quality or water quality and continue to fund projects required to achieve compliance with existing noise, air quality, and water quality laws and policies, with the goals of reducing impacts and streamlining processes.

- To reduce noise impacts on communities around airports, the AIP will fund existing and new sound insulation programs. Existing programs include Burlington, Vermont, Los Angeles, San Diego, Fort Worth, Key West, and Fort Lauderdale. New program starts may include New York and Madison, Wisconsin.

The AIP is crucial to help support the FAA's mission to provide the safest and most efficient transportation system in the world. The AIP helps assure the American Public has a safe, reliable, efficient, and accessible system of airports to support and advance U.S. economic interests as well as technology, security, and safety at all levels of aviation user needs from next-day air deliveries to emergency support services.

The AIP supports the FAA's safety focus by providing funding for safety-related development at airports that benefit U.S. aviation consumers at all levels, whether commercial service and general aviation operators and passengers, or recipients of goods transported via aircraft worldwide. For example, the AIP provides funds to airports to make improvements that help reduce runway incursions caused by either vehicle/pedestrian deviations or pilot deviations due to complex or confusing geometry at runway intersections, many of which were developed before modern airport design standards were established.

The Runway Incursion Mitigation (RIM) Program is a key initiative by the Office of Airports to reduce runway incursions at runway/taxiway intersections where either at least three incursions have occurred in a year or that average at least one incursion a year over the last 10 years at towered airports throughout the country. The FAA is in the process of mitigating incursions at more than 125 locations and has completed mitigation activities more than 100 RIM locations.

The AIP also provides support to accelerate improvements to Runway Safety Areas (RSA) that do not meet current standards and other similarly high priority projects that support safety through efforts to reduce the risks of air transportation-related fatalities and injuries. RSA improvements include, but are not limited to, the installation of Engineered Materials Arresting Systems at some airports. Other projects include pavement rehabilitation and geometric improvements to avoid pilot confusion and enhance safety.

The AIP ensures maintenance of existing airport infrastructure as well as modernization of the national system of airports. The AIP also supports vital technical and financial assistance for planning, environmental analysis, engineering design, and the construction or rehabilitation of

terminals, hangars, runways, taxiways, and aprons as well as other measures to expand capacity and make more efficient use of airports.

A significant part of the FAA's safety mission also supports capacity and efficiency. For example, the AIP helps ensure that many paved runways at nearly 3,300 NPIAS airports are maintained in excellent, good, or fair condition. This reduces system delays by ensuring capacity is not compromised due to pavement safety issues.

Other AIP-funded safety projects serve to ensure system capacity and efficiency. For example, providing equipment to enable airports to keep runways and taxiways clear of snow, ice, and ponding water that can jeopardize aircraft directional control or braking action. Chemicals, plowing, and freeze-thaw cycles take a toll on runways, taxiways, and other paved areas, requiring careful environmental analysis and engineering planning to ensure adequate drainage. Additionally, AIP grants help fund professional planning, engineering, and environmental consulting services, and pavement maintenance programs to ensure airports are maintained and operated in safe and serviceable conditions as required by statute (49 U.S.C. 47107).

Every other year, the FAA is required to publish a five-year prospective analysis of AIP-eligible capital needs. The current NPIAS, published in September 2022, identified approximately $62.4 billion in capital needs over 2023-2027, an increase of 43 percent. This funding request will contribute to the immediate airport safety, capacity, efficiency, and environmental stewardship projects identified by the FAA and airport sponsors to maintain existing airport infrastructure as well as modernize it to support the air transportation needs of the public.

GRANTS-IN-AID FOR AIRPORTS

Grants-in-Aid for Airports
($ in Thousands)

Item Title	Dollars	FTP	FTE
FY 2024 Annualized CR	**3,705,355**	**0**	**0**
Adjustments to Base	**0**	**0**	**0**
Discretionary Increases/ Decreases			
1. FY 2024 Adjustments	-569,631		
1. Discretionary decrease to offset uncontrollable adjustments and increases to other programs to restore FY 2024 budget requirements	-7,010		
2. Discretionary decrease to offset 7 new positions in ATR	-698		
Total Discretionary Increases/Decreases	**-577,339**	**0**	**0**
FY 2025 Request	**3,128,016**	**0**	**0**

Detailed Justification for Personnel and Related Expenses

FY 2025 Personnel and Related Expenses Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	116,296	124,050	149,781
Program Costs	21,076	13,322	13,843
Total	**$ 137,372**	**$ 137,372**	**163,624**
FTE	609	609	680

What is this program and what does this funding level support?

For FY 2025, the Budget requests $163.6 million, 680 positions and FTE to cover the administrative expenses for the Office of Airports (ARP). The request supports ARP's legislatively directed mission of leadership to plan and develop a safe and efficient national airport system to satisfy the needs of the aviation interests of the United States, with consideration for economics, environmental compatibility, local proprietary rights, and safeguarding the public investment. (See 49 U.S.C. 47103).

Funding will complete the modernization of the Airports Data and Information Portal (ADIP) system. In accordance with the FY 2021-2025 ADIP Strategic Plan, ADIP has added and integrated tools and modules. This will finish the work and integrate the tools together. This will provide a full "one-stop" holistic system containing airport data and toolset for analysis.

These improvements are being completed so that the collection, analysis and sharing of data is streamlined and creates a more accurate and efficient process. The funding will create and enhance the toolsets and the operations and maintenance of:

- Pavement Management Tool
- Airport Planimetric Data Collection
- Enterprise Information Management (EIM) Initiative
- General ADIP Tool Enhancements

Pavement Management Tool - complete Phase Two development of the Pavement Management Tool and continue with data population activities that will allow for enhanced predictive analytics.

Airport Planimetric Data Collection - complete the Phase Two development of the airport geospatial/planimetric data collection tool and continue with the collection of geospatial data collection of identified Part 139 airports. This data will be used to support numerous internal applications within the Office of Airports and the FAA. The geospatial data collected will allow for predictive analytics to support various runway safety initiatives.

EIM Initiatives - continue to enhance ADIP in order to support the overall FAA EIM Initiatives that are being led by the Chief Data Officer (CDO) in AFN and the ARP Data Action Plan. These initiatives will help with sharing of data within the FAA and industry.

General ADIP Tool Enhancements - continual enhancements and integration of the portfolio of various ADIP applications is necessary to support Industry, the ADO's and the Regions requirements.

Additionally, the Agency is increasing the emphasis on General Aviation (GA) Safety. The FAA's commitment is to reduce the fatality rate in the GA-specific sector of the National Airspace System. This commitment extends from not just the ground training and flight training of individuals, but also to the GA airfield environment in which the GA community operates. Within ARP, future strategic objectives for general aviation airports includes prioritizing safety improvements such as runway safety areas (RSAs), non-standard geometry on airfields with an emphasis on runway safety projects, rehabilitation of failing pavements, improvements of wildlife mitigation efforts, and improvements of airfield signage, marking, lighting, fencing and cleared approach surfaces.

To improve general safety, and to boost a GA airport operator's safety oversight, starting in FY 2024, ARP staff, will begin conducting general assessments on airports. This initiative will allow field personnel to assess the overall status of an airport operator's compliance with safety standards. This approach to improving the safety conditions on an airport is expected to exponentially improve airport safety by developing a strong safety culture and engaging all ARP personnel early and often. As an example, in FY 2024 and beyond when FAA program managers visit with airport sponsors, those individuals (often planners or engineers) will also conduct an airfield review onsite, when able. Such additional focused attention at an airport, along with the potential travel time out of the office, drives an obvious need for additional increase in travel and training funding; both in the field and in support roles at HQs.

What benefits will be provided to the American Public through this request and why is this program necessary?

Congress statutorily directed the FAA to plan and develop a safe and efficient national airport system to satisfy the needs of the aviation interests of the United States, with consideration for economics, environmental permitting, local proprietary rights, and safeguarding the public investment.

The FAA's Office of Airports has responsibility for maintaining this plan and associated systems to include establishing standards for the safe planning, data collection, design, construction, operation, and maintenance of the nation's airports. This is critical because the safe operation of air transportation requires nationwide and (in certain cases) international consistency in design standards, construction standards, signage, marking, lighting, and emergency response.

ARP personnel possess expertise in many professional and technical areas, as they regularly engage in opportunities to work collaboratively across government agencies, with industry, and with affected stakeholders. It is important to have the appropriate amount and technically competent staff to perform work on behalf of the American public to maintain the existing national airport system. These staff members must also work to modernize airports and meet specific requirements to fulfill the goals of ensuring our system of airports supports the safest, most efficient aerospace system in the world.

Ensuring the quality and integrity of airport data is a top goal for the Office of Airports. In order to realize this goal, we have integrated data collection and analysis systems funded under other contract vehicles into one system called the ADIP. The integration of these disparate data collection processes and workflows into ADIP also meets the agencies EIM goals. ADIP allows for a "one stop shop" for the collection of safety critical data and associated attributes. Safety critical data includes, but is not limited to, the geospatial location and elevation of runway ends, navigational aids, potential obstructions near airports and other topographic features that are collected using geospatial technologies to enhance the safety of flight (example: wildlife attractants such as waterways, marsh areas, landfills, etc.). The system provides a user-friendly interface for airport proponents to interact with their data using geospatial data visualization tools. It also allows for better tracking, traceability and transparency for the data collection process and supports various Advisory Circulars.

Over the last few years ADIP has integrated the 7480 processes, the 5010 process, the Runway Incursion Management (RIM) system, the Runway Safety Area (RSA) Inventory and has enhanced management of obstacles through the creation of the Runway Airspace Management (RAM) tool. The integration of these modules was initiated in accordance with the FY 2021-FY 2025 ADIP Strategic Plan. In FY 2025,FAA will begin developing the Pavement Management Tool and pursue full integration of the portfolio of ADIP applications in order to provide a "one-stop" holistic system containing airport data and toolsets for geospatial data collection and analysis that meets the agencies EIM goal.

The enhancements are being completed so that the collection, analysis and sharing of data is streamlined and creates a more accurate, efficient, and transparent process. To complete this ADIP modernization, we need this additional funding in FY 2025 for the creation and enhancement of toolsets and for the operation and maintenance of the system, as described above.

Adding staff to achieve heightened oversight is a huge benefit for the entire NAS. As each airfield slowly and methodically expands or rehabilitates its surfaces and operational footprint, the entire NAS improves. An increased focus on improving safety matters first ensures the NAS is always improving in safety. While airport sponsors may still pursue projects for "efficiency", such projects may drop in priority until the airport demonstrates a strong safety posture first.

GRANTS-IN-AID FOR AIRPORTS

Personnel and Related Expenses
($ in Thousands)

Item Title	Dollars	FTP	FTE
FY 2024 Annualized CR	**137,372**	**637**	**537**
Adjustments to Base			
1. FY 2024 Adjustments	20,103		119
2. Annualization of FY 2024 Pay Raise	1,613		
3. Annualization of FY 2024 FTE	2,310		24
4. FY 2025 Pay Raise	1,861		
5. Adjustment for Number of Compensable Days	0		
6. Non-Pay Inflation	266		
7. Change in Working Capital fund	99		
Total Adjustments to Base	**26,252**	**43**	**143**
New or Expanded Programs			
	0		
Total Discretionary Increases	**0**	**0**	**0**
FY 2025 Request	**163,624**	**680**	**680**

Detailed Justification for Airport Technology Research

FY 2025 Airport Technology Research Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	4,504	4,800	6,607
Program Costs	36,324	36,028	36,753
Total	**$ 40,828**	**$ 40,828**	**$ 43,360**
FTE	**26**	**26**	**30**

What is this program and what does this funding level support?

For FY 2025, the Budget requests nearly $43.4 million to fund the Airport Technology Research (ATR) program, 33 full-time permanent positions and 30 FTEs. This program is diversified and supports several goals in safety, economic growth, equity, climate solutions and transformation. The program has 16 research program areas and close to 100 on-going complex projects.

The requested funding level will support 7 additional full-time permanent positions in FY 2025 to conduct research on the ground infrastructure required to safely integrate new and emerging entrants into airports and future vertiports, droneports and spaceports. These include Unmanned Aircraft Systems (UAS), Advanced Air Mobility (AAM), including electric Vertical Take-Off and Landing (eVTOL), Short Take-Off and Landing (STOL), hydrogen powered vehicles, commercial space vehicles and autonomous ground vehicles supporting airport operations such as grounds maintenance/lawn mowing. This includes research to provide performance-based guidance on Vertiport Design and to begin new research on Droneport design. This research will also evaluate minimum performance specifications and technical/operational considerations for Unmanned Aircraft System applications for beneficial use by an airport operator, including wildlife monitoring/dispersal, construction monitoring, Foreign Object Debris detection and Aircraft Rescue Fire Fighting monitoring.

The requested 7 additional positions in FY 2025 include:

- 1 Manager
- 1 Program Analyst
- 3 Program Managers
- 2 Project Managers

Additional research areas include the continued testing of new, environmentally friendly firefighting agents, free from perfluoroalkyl or polyfluoroalkyl substances, also known as PFAS; field performance monitoring of solar technology for runway and taxiway lights; development of smart technologies to monitor runway conditions; integrating machine learning and artificial intelligence techniques into airport safety and performance monitoring; and the continued evaluation of more resilient and environmentally friendly pavement materials. Overall, this research program focuses on continually improving safety at airports in various ways that support strong economic growth. There are several

research projects related to climate solutions and resilience. For instance, in FY 2025 research will continue in the appropriate use of solar technology. On the infrastructure side, research is ongoing on the use of more environmentally friendly pavement materials that can perform under extreme weather conditions and new research on infrastructure resiliency will help NPIAS airports plan for greater resiliency to address climate change and severe weather impacts, while helping airports and FAA better understand which airports are most vulnerable. Research will continue on improving airport pavement design tools to help airport operators choose the most cost-effective pavement materials and understand the carbon footprint of those materials.

ATR findings are used in updating Advisory Circulars, software programs, manuals, and technical specifications that airports heavily rely on to design, maintain and expand their infrastructure in the safest and most efficient manner. This includes all pavement design software, engineering standards for airport construction projects as well as specific safety guidance and requirements to assure safe aircraft and airport operations on the ground. For example, current research projects will advance ARP's ability to maintain the highest safety standards in areas with rapidly evolving technologies such as visual guidance, airport surveillance systems, pavement design, pavement testing and materials research, and airport geometry enhancements to name a few. All ATR activities are conducted to support ARP's mission to ensure the safest and most efficient airports network achievable.

The success of the research is reflected in the FAA's ability to issue updated and new program guidance. For example, based on research and evaluation, in March 2023 ARP issued a report "Evaluation of Airport Pavement Designs for Seasonal Frost and Permafrost Conditions" DOT/FAA/TC-23/11 which provides updated guidance for engineers that need to design pavements in areas that climate change is affecting the permafrost and seasonal frost depths. Additionally, ATR developed software to support ACR/PCR: FAARFIELD 2.0 (required by AC 150/5335-5D) and ICAO-ACR, which is used by airports, aircraft manufacturers and Civil Aviation Authorities worldwide, and widely used by airport consultants. Each research project is sponsored by a FAA Headquarters engineer, or other specialist, that prepares the research requirements, reviews the research plan, and approves the completed deliverable. Some research that requires large scale testing is conducted in-house using the unique and one-of-kind facilities located at the FAA Technical Center, while other research is conducted with private industry partners specializing in research. When appropriate, research is also conducted at selected academic institutions.

What benefits will be provided to the American Public through this request and why is this program necessary?

The ATR program provides extensive tangible and intangible benefits to the American Public in terms of safety, environmental concerns, and forward-thinking technological solutions.

Safety–related ATR programs provide fact-based assessments and complex analyses of safety and operational data to help the FAA and airport operators institute and maintain standard and proven practices at all NPIAS airports. To do so, the ATR program manages a few public research databases such as the Wildlife Strike Database, Foreign Object Debris Database and Airport Pavement Management Systems. This is in line with providing safety solutions that are "evidence and data" driven. In FY 2025, integration and support of the databases will continue. Databases that are capable to be moved to FAA Cloud Services will be pursued, this will ensure compliance with FAA standards.

Promotion of public access and sharing of the data as well as enhancements to programs to advance public safety will also continue.

A key safety project with an environmental benefit is ATR's work investigating ways to reduce or eliminate chemicals that may pose either health or environmental hazards. Specifically, there has been a growing concern about the potential health and environmental impacts that PFAS may cause. PFAS can be found in a broad range of products, materials, and systems, ranging from consumer and healthcare products to building materials and many other products. This includes aqueous film-forming foams used in aircraft rescue and firefighting.

This research will continue with testing the effectiveness of new firefighting extinguishing agents that do not contain PFAS. In FY 2025, ATR will continue the multi-year research effort at ATR's new Aircraft Rescue and Fire Fighting Research Facility. With the publishing of and FAA's adoption of the new Military Specification for fluorine-free foams (F3), ATR will continue testing newly developed F3 products to push for greater extinguishing performance as well as investigating whether the incorporation of compressed air foam systems can increase their firefighting performance. To aid airports in the transition process to new F3 products, ATR will also be focusing on developing guidance on the steps airports will need to take during their transition as well as new training guidance on the use of F3s.

In the area of climate solutions, in FY 2025 ATR will continue the evaluation of solar lighting systems for airports. In the past years, technological developments relating to LED lighting and solar technology have made solar powered lighting systems a practical alternative in certain airfield environments. In FY 2025, ATR will continue long-term performance analysis of prototype PV powered lighting technologies at up to five general aviation airports across the United States. These airports are in areas of the country that experience different levels of 'solar irradiance' (output of light energy from the sun), temperature, and snow conditions. Researchers will analyze data from a multi-year effort, with the goal of developing standards and performance specifications for PV systems on airports.

For FY 2025 airport safety and design research, ATR will update the annual Runway Incursion Mitigation report to include an airfield geometry assessment of all towered airports that may have airport design features that are considered at risk for incursions. ATR will geographically plot all runway incursions and surface incidents that occurred in FY 2023, as well locations that have been mitigated. Based on the addition of this data, ATR will conduct an analysis on the program's metrics, tracking runway incursions before and after mitigation efforts. In the area of safety data analysis, ATR will conduct an analysis of all available safety data to identify top occurrences at airports.

In the areas of equity, economic growth, and climate solutions, in FY 2025, ATR will continue research on the impact and needs of Advanced Air Mobility, including electric Vertical Take-Off and Landing (eVTOL), Short Take-Off and Landing and hydrogen powered vehicles on existing and future airport infrastructures. ATR also plans to carry on operational testing with various mature eVTOL aircraft and other Advanced Air Mobility vehicles at the FAA Technical Center or other appropriate locations.

In the area of transformative technologies, in FY 2025, ATR will continue to research how UAS can be utilized for airport inspection, compliance, and emergency response functions. ATR will continue with their research in following applications (use-cases): obstruction analysis, airfield pavement inspections,

wildlife hazard management, perimeter security, aircraft rescue and firefighting, and foreign object debris. ATR plans to document the findings from their research in FY 2025 and will expand their research portfolio to include new applications.

In FY 2025, ATR will continue to monitor and evaluate the development and applications of autonomous vehicles for the airport environment. This is a rapidly developing field with industry leading technological advancements in a multitude of areas. ATR's role is to research how autonomous vehicles can be safely integrated in an airport operational environment.

In FY 2025, ATR will continue supporting the FAA Office of Security and Hazardous Materials with the execution of the Unmanned Aircraft Systems (UAS) Detection and Mitigation Airport Pilot Program. As part of this support, ATR will continue working with the Department of Homeland Security and other relevant federal departments and agencies to ensure proper coordination. FY 2025 activities will include continued testing and evaluation of detection and mitigation technologies, and the development and update of performance standards and guidance material for U.S. airports to use for reference when considering installation of these types of systems.

To support core assets and climate solutions, in FY 2025, ATR will continue to use its full-scale accelerated pavement test facilities National Airport Pavement Test Facility (NAPTF) and National Airport Pavement and Materials Research Center (NAPMRC) to test and conduct research on advancing pavement design and developing specifications for new sustainable and recyclable pavement material technologies, which will provide longer life to the airport pavements. In FY 2025, ATR will use their testing laboratory to research new longer-lasting pavement materials and research the use of emerging and innovative pavement materials, used in various fields, for airports. ATR will continue to generate performance data for recycled/sustainable pavement materials under aircraft loading. This data will be used to develop standards and specifications for greater use of such materials for airport pavements.

Also in FY 2025, research will continue in the use of additives, nanoparticles, green materials, and carbon neutral materials to improve pavement materials and pavement design themselves. This research will result in increased use of locally available materials (materials modified with admixtures), quantifying material properties, improved/optimized pavement thickness designs, and provide a more durable longer-life airport pavement. This supports an overall goal of "sustainability" for the airport paving industry.

In FY 2025 ATR will continue to collect data at various airport-instrumented sites and will analyze performance data from across the country to help in determining how, environmental factors and varying load conditions play a significant role on pavement performance. ATR will continue to use test data from NAPTF and NAPMRC along with field data to improve the FAA Airport Pavement Design Software, namely "FAARFIELD 2.0". Use of Machine Learning and Artificial Intelligence techniques will help analyzing large amounts of field and testing data to evaluate performance of airport pavements and materials.

The ATR program continuously enhances the consistency and accuracy of pavement design and construction standards around the country, optimizing construction costs by enhancing competition for airport construction bids. These increases in safety and cost efficiency provide positive benefits to the American public.

In terms of equity, aircraft noise continues to be a principal obstacle to expanding and modernizing airport infrastructure due to community concerns about increases in aircraft operations and noise exposure. In FY 2025, the ATR program will continue to improve public noise communication strategies and land-use compatibility policy to reduce community noise impacts. To help the FAA better understand the relationship of aircraft noise exposure and residential sleep disturbance, previously collected data will be analyzed. Research will also continue to evaluate methods to standardize noise abatement procedure. ATR projects in these areas will provide distinct benefits to the American public, on the ground and in the air, with more efficient routes, quieter communities, and enhanced capacity.

The research initiatives supported by this funding are crucial to continued maintenance and enhancement of safety for the traveling public. Communities of every size throughout the nation benefit from increased accessibility and competitive access. Environmental quality benefits both the traveling public and neighboring communities by enabling airports to be well positioned to support critical infrastructure projects and by helping airports minimize their environmental effects on surrounding areas.

ATR's research portfolio for FY 2025 has been briefed to the FAA's Research, Engineering and Development Advisory Committee's Subcommittee on Airports (REDAC). The REDAC reviews the ATR Program every six months. The Subcommittee has members from airports, aircraft manufacturers, Air Line Pilots Association, and airport associations. The Subcommittee is briefed on both ongoing research and planned research and offers recommendations to ensure the research program is responsive to the needs of FAA and the airport community. These in-depth bi-annual reviews constitute a "Program Evaluation" of the ATR Program. The ATR portfolio is "Evidence and Data" driven and its various and diverse research projects support the goals of Safety, Climate & Sustainability, Equity, Economic Strength, and Modernization of the Nation's Infrastructure.

GRANTS-IN-AID FOR AIRPORTS

Airport Technology Research
($ in Thousands)

Item Title	Dollars	FTP	FTE
FY 2024 Annualized CR	**40,828**	**26**	**26**
Adjustments to Base			
1. FY 2024 Adjustment	973		
2. Annualization of FY 2024 Pay Raise	63		
3. FY 2025 Pay Raise	73		
4. Adjustment for compensable days	0		
5. Non-Pay Inflation	725		
Total Adjustments to Base	**1,834**	**0**	**0**
New or Expanded Programs			
1. 7 New Full-Time Permanent Positions	698	7	4
Total Discretionary Increases	**698**	**7**	**4**
FY 2025 Request	**43,360**	**33**	**30**

Detailed Justification for Airport Cooperative Research Program

FY 2025 Airport Cooperative Research Program ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses	189	189	201
Program Costs	14,811	14,811	14,799
Total	**$ 15,000**	**$ 15,000**	**$ 15,000**
FTE	**2**	**2**	**2**

What is this program and what does this funding level support?

The Airport Cooperative Research Program (ACRP) is an industry driven research program managed by the Transportation Research Board (TRB) of the National Academies of Sciences, Engineering, and Medicine. It was authorized by section 712 of Vision 100 – Century of Aviation Reauthorization Act (Pub. L. 108-176). The Secretary of Transportation maintains a Memorandum of Agreement among Department of Transportation, FAA, and National Academy of Sciences to implement the ACRP. The Secretary also appoints the 13 members of the ACRP Oversight Committee.

The ACRP's mission is to develop near-term, evidence-based, practical solutions to problems faced by airport operators. ACRP uses contractors, selected in a competitive process, to conduct the research overseen by industry experts and a designated FAA subject matter expert. The results of the research are published in the form of handbooks and best practices. To date, the vast library of publications includes areas of safety, airport management, airport financing, airport environmental quality, airport compliance, and airport planning. These publications are available to the general public on the ACRP website and for purchase in hard copy.

For FY 2025, the President's Budget requests $15.0 million for the program. Approximately 23 research topics will be funded under this request in FY 2025. ACRP is designed to address needs that are not being addressed by other federal research programs and that cannot be undertaken cost-effectively by individual airports.

What benefits will be provided to the American Public through this request and why is this program necessary?

ACRP is a national resource for the airport industry, providing valuable information, guidance, and practical tools to airport owners and operators (as well as consultants and contractors) by providing industry-driven research identified as critical or crucial by airport operators, industry, and users. This community has continually submitted over 100 topics for research each year. ACRP has engaged thousands of public and private sector airport practitioners, academia, consultants, advocates, and students to address the airport industry's most pressing challenges, including addressing climate change, promoting sustainability, addressing gaps in workforce development and diversity, ensuring equality of access and opportunity, enhancing cybersecurity, mitigating threats posed by infectious diseases, and leveraging emerging new technologies. This research program allows for initiatives, such as airport

infrastructure construction and operational practices to reduce the carbon footprint, and improved practices for greater diversity in the aviation workforce to come to fruition, from industry's perspective.

The 13-member ACRP Oversight Committee reviews the topics selected each year. This Committee, appointed by the Secretary of Transportation, meets every six months to review progress and select additional topics to fund. This ensures tax dollars are committed in the most efficient and beneficial manner, mitigating wasteful delays, unreasonable contract terms, and unneeded proposals. The ACRP Oversight Committee selects the highest rated topics and ensures that proposed studies will not duplicate another federal research. The TRB appoints expert technical panels for each selected project. The technical panels convert the topics into requests for proposals to select contractors to perform the research. The panels also monitor each project to ensure it stays on track and meets project deliverables.

ACRP's broad mission is to provide resources to support applied research on a wide variety of issues faced by airport practitioners, including all levels of professional staff within the airport community, from CEOs, airport managers, executive directors to mid-level managers, nonsupervisory technical and professional staff, trainees, students, and interns. These professionals represent airports, suppliers, public safety agencies, airlines, airport tenants, local and regional government authorities, industry associations, and many other stakeholders in the airport community. Each of these practitioners has different interests and responsibilities, and each is an integral part of this cooperative research effort.

In addition to publishing reports on industry-driven research priorities, ACRP works to ensure that these products reach those who need them most. These efforts have reached several thousand stakeholders through e-videos, webinars, workshops, speaker presentations, and publications on applied results. The benefits to the American public are a more cohesive and educated cadre of airport sponsors, armed with the knowledge and tools through ACRP's efforts, to implement the AIP more consistently and compliantly, which results in a safer and more efficient National system of airports.

GRANTS-IN-AID FOR AIRPORTS

Airport Cooperative Research
($ in Thousands)

Item Title	Dollars	FTP	FTE
FY 2024 Annualized CR	**15,000**	**2**	**2**
Adjustments to Base			
1. Annualization of FY 2024 Pay Raise	3		
2. FY 2025 Pay Raise	3		
3. Adjustment for compensable days	0		
4. Non-Pay Inflation	296		
Total Adjustments to Base	302	**0**	**0**
Discretionary Increases/ Decreases			
1. Discretionary decrease of offset uncontrollable adjustments	-302		
Total Discretionary Increases/Decreases	**-302**	**0**	**0**
FY 2025 Request	**15,000**	**2**	**2**

AIRPORT IMPROVEMENT PROGRAM

Grants-in-Aid to Airports Planned Distribution
$000

	FY 2023 Enacted	FY 2024 President's Budget	FY 2025 Request
Formula Grants			
Primary Airports	926,150	935,462	935,462 **2/**
Cargo Service Airports	110,138	110,138	109,481
Alaska	21,345	21,345	21,345
States (General Aviation)	629,360	629,360	625,603
Carryover (from Formula Grants)	912,672	967,268	793,387 **3/**
Subtotal, Formula Grants	2,599,665	2,663,573	2,485,278
Discretionary Grants			
Discretionary Set – Aside: Environmental	18,525	13,001	18,736
Discretionary Set – Aside: Reliever	350	245	353
Discretionary Set – Aside: Military Airport Program	2,117	1,486	2,141
C/S/S/N (Capacity/Safety/Security/Noise)	23,953	16,811	24,226
Discretionary – AATF	7,984	5,604	8,075
Discretionary – General Fund	558,555 **1/**	0	0
Subtotal, Discretionary Grants	611,484	37,146 **4/**	53,532 **4/**
Small Airport Fund	494,206	446,080	589,206
Total Grants	3,705,355	3,146,800 **4/**	3,128,016 **4/**

1/ FY 2023 Funding provided by the Consolidated Appropriations Act, 2023 (Pub. L. 117-328). This act provides Supplemental Discretionary funding of $558 million to Grants-in Aid for Airports. Under the Appropriations Act, up to $3.5 million is retained to reimburse financial losses due to Temporary Flight Restrictions and $2.7 million is retained for grant administration.

2/ FY 2025 Primary Entitlements reflect the same forecast activity levels for FY 2024, because we do not yet have sufficient updated information to warrant any significant change.

3/ FY 2025 carryover figures are estimated based on a five-year rolling average.

4/ Totals may not add due to rounding.

The FY 2025 Budget request assumes the Passenger Facility Charge (PFC) at current maximum allowable level of $4.50 per ticket sold, under Public Law 106-181, enacted in 2000.

Associated City	State	Airport Name	LOC ID	Hub size	Level	Start Date	Expiration Date	Total PFC Approved (by location)
Texarkana	AR	Texarkana Regional-Webb Field	TXK	N	$4.50	10/1/2019	9/1/2025	3,018,493
Pago Pago	AS	Pago Pago International	PPG	N	$3.00	7/1/1995	6/1/2000	
Pago Pago	AS	Pago Pago International	PPG	N	$4.50	9/1/2001	9/1/2005	
Pago Pago	AS	Pago Pago International	PPG	N	$4.50	6/1/2006	2/1/2026	7,563,954
Flagstaff	AZ	Flagstaff Pulliam	FLG	N	$3.00	12/1/1992	9/1/2012	
Flagstaff	AZ	Flagstaff Pulliam	FLG	N	$4.50	9/1/2012	8/1/2021	4,319,005
Peach Springs	AZ	Grand Canyon West	1G4	N	$3.00	9/1/2004	9/1/2006	
Peach Springs	AZ	Grand Canyon West	1G4	N	$3.00	6/1/2008	1/1/2024	9,922,946
Bullhead City	AZ	Laughlin/Bullhead International	IFP	N	$2.00	5/1/2008	10/1/2012	
Bullhead City	AZ	Laughlin/Bullhead International	IFP	N	$2.00	1/1/2014	1/1/2025	2,951,578
Phoenix	AZ	Phoenix Sky Harbor International	PHX	L	$3.00	4/1/1996	4/1/2002	
Phoenix	AZ	Phoenix Sky Harbor International	PHX	L	$4.50	7/1/2002	9/1/2034	2,987,194,014
Phoenix	AZ	Phoenix-Mesa Gateway	IWA	S	$4.50	11/1/2008	5/1/2035	57,398,534
Tucson	AZ	Tucson International	TUS	S	$3.00	2/1/1998	10/1/2006	
Tucson	AZ	Tucson International	TUS	S	$4.50	10/1/2006	2/1/2027	179,290,015
Yuma	AZ	Yuma MCAS/Yuma International	NYL	N	$3.00	12/1/1993	10/1/2005	
Yuma	AZ	Yuma MCAS/Yuma International	NYL	N	$4.50	10/1/2005	4/1/2007	
Yuma	AZ	Yuma MCAS/Yuma International	NYL	N	$4.50	11/1/2007	1/1/2023	7,064,659
Burbank	CA	Bob Hope	BUR	M	$3.00	9/1/1994	4/1/2003	
Burbank	CA	Bob Hope	BUR	M	$4.50	4/1/2003	8/1/2017	
Burbank	CA	Bob Hope	BUR	M	$3.00	8/1/2017	12/1/2017	
Burbank	CA	Bob Hope	BUR	M	$4.50	12/1/2017	2/1/2029	303,630,397
Arcata/Eureka	CA	California Redwood Coast-Humboldt County	ACV	N	$3.00	2/1/1993	3/1/1994	
Arcata/Eureka	CA	California Redwood Coast-Humboldt County	ACV	N	$3.00	11/1/1994	11/1/1997	
Arcata/Eureka	CA	California Redwood Coast-Humboldt County	ACV	N	$3.00	4/1/1998	6/1/2003	
Arcata/Eureka	CA	California Redwood Coast-Humboldt County	ACV	N	$4.50	6/1/2003	3/1/2005	
Arcata/Eureka	CA	California Redwood Coast-Humboldt County	ACV	N	$4.50	7/1/2005	10/1/2005	
Arcata/Eureka	CA	California Redwood Coast-Humboldt County	ACV	N	$4.50	12/1/2005	8/1/2011	
Arcata/Eureka	CA	California Redwood Coast-Humboldt County	ACV	N	$4.50	10/1/2011	5/1/2022	7,073,764
Santa Rosa	CA	Charles M Schulz - Sonoma County	STS	N	$3.00	5/1/1993	4/1/2005	
Santa Rosa	CA	Charles M Schulz - Sonoma County	STS	N	$4.50	5/1/2008	4/1/2013	
Santa Rosa	CA	Charles M Schulz - Sonoma County	STS	N	$4.50	7/1/2013	4/1/2049	21,925,017
Chico	CA	Chico Regional	CIC	GA	$3.00	12/1/1993	9/1/1998	
Chico	CA	Chico Regional	CIC	GA	$3.00	6/1/1999	2/1/2001	
Chico	CA	Chico Regional	CIC	GA	$3.00	11/1/2001	12/1/2009	
Chico	CA	Chico Regional	CIC	GA	$4.50	12/1/2010	12/1/2014	707,290
Fresno	CA	Fresno Yosemite International	FAT	S	$3.00	12/1/1996	12/1/2004	
Fresno	CA	Fresno Yosemite International	FAT	S	$4.50	12/1/2004	5/1/2022	
Fresno	CA	Fresno Yosemite International	FAT	S	$4.50	6/1/2023	6/1/2030	105,160,579
Imperial	CA	Imperial County	IPL	CS	$4.50	4/1/2003	4/1/2030	892,781
Inyokern	CA	Inyokern	IYK	GA	$3.00	3/1/1993	3/1/2003	
Inyokern	CA	Inyokern	IYK	GA	$3.00	4/1/2004	10/1/2004	
Inyokern	CA	Inyokern	IYK	GA	$4.50	3/1/2009	3/1/2019	675,899
Crescent City	CA	Jack McNamara Field	CEC	CS	$3.00	9/1/1998	6/1/2000	
Crescent City	CA	Jack McNamara Field	CEC	CS	$3.00	1/1/2001	6/1/2003	
Crescent City	CA	Jack McNamara Field	CEC	CS	$4.50	6/1/2003	10/1/2014	
Crescent City	CA	Jack McNamara Field	CEC	CS	$4.50	12/1/2014	6/1/2027	979,511
Santa Ana	CA	John Wayne/Orange County	SNA	M	$4.50	7/1/2006	10/1/2025	347,911,500
South Lake Tahoe	CA	Lake Tahoe	TVL	GA	$3.00	8/1/1992	3/1/2007	169,838
Long Beach	CA	Long Beach (Daugherty Field)	LGB	S	$3.00	8/1/2003	5/1/2008	
Long Beach	CA	Long Beach (Daugherty Field)	LGB	S	$4.50	5/1/2008	12/1/2039	251,057,570

Associated City	State	Airport Name	LOC ID	Hub size	Level	Start Date	Expiration Date	Total PFC Approved (by location)
Los Angeles	CA	Los Angeles International	LAX	L	$3.00	7/1/1993	1/1/1996	
Los Angeles	CA	Los Angeles International	LAX	L	$3.00	2/1/1998	7/1/2003	
Los Angeles	CA	Los Angeles International	LAX	L	$4.50	7/1/2003	7/1/2055	9,514,564,452
Mammoth Lakes	CA	Mammoth Yosemite	MMH	CS	$3.00	9/1/1995	9/1/2005	
Mammoth Lakes	CA	Mammoth Yosemite	MMH	CS	$4.50	11/1/2009	9/1/2019	1,063,635
Carlsbad	CA	McClellan-Palomar	CRQ	CS	$4.50	1/1/2009	2/1/2043	4,947,065
Bakersfield	CA	Meadows Field	BFL	N	$3.00	6/1/1995	5/1/2002	
Bakersfield	CA	Meadows Field	BFL	N	$4.50	5/1/2002	2/1/2024	13,781,709
Oakland	CA	Metro Oakland International	OAK	M	$3.00	9/1/1992	6/1/1999	
Oakland	CA	Metro Oakland International	OAK	M	$3.00	9/1/1999	5/1/2003	
Oakland	CA	Metro Oakland International	OAK	M	$4.50	5/1/2003	12/1/2035	892,892,621
Modesto	CA	Modesto City-County-Harry Sham Field	MOD	GA	$3.00	8/1/1994	3/1/2005	
Modesto	CA	Modesto City-County-Harry Sham Field	MOD	GA	$4.50	8/1/2008	12/1/2015	1,031,955
Monterey	CA	Monterey Regional	MRY	N	$3.00	1/1/1994	7/1/2003	
Monterey	CA	Monterey Regional	MRY	N	$4.50	7/1/2003	4/1/2006	
Monterey	CA	Monterey Regional	MRY	N	$4.50	5/1/2006	9/1/2024	23,691,288
San Jose	CA	Norman Y Mineta San Jose International	SJC	M	$3.00	9/1/1992	4/1/2001	
San Jose	CA	Norman Y Mineta San Jose International	SJC	M	$4.50	4/1/2001	1/1/2030	1,049,294,754
Ontario	CA	Ontario International	ONT	M	$3.00	7/1/1993	12/1/1996	
Ontario	CA	Ontario International	ONT	M	$3.00	7/1/1998	11/1/2007	
Ontario	CA	Ontario International	ONT	M	$4.50	11/1/2007	1/1/2013	
Ontario	CA	Ontario International	ONT	M	$2.00	1/1/2013	4/1/2016	
Ontario	CA	Ontario International	ONT	M	$4.50	4/1/2016	10/1/2028	333,596,343
Oxnard	CA	Oxnard	OXR	GA	$4.50	1/1/2002	3/1/2011	631,115
Palm Springs	CA	Palm Springs International	PSP	S	$3.00	9/1/1992	1/1/2002	
Palm Springs	CA	Palm Springs International	PSP	S	$4.50	1/1/2002	10/1/2037	140,310,796
Redding	CA	Redding Regional	RDD	N	$3.00	4/1/1997	4/1/2002	
Redding	CA	Redding Regional	RDD	N	$4.50	4/1/2002	4/1/2007	
Redding	CA	Redding Regional	RDD	N	$4.50	8/1/2007	11/1/2024	4,912,043
Sacramento	CA	Sacramento International	SMF	M	$3.00	4/1/1993	1/1/2002	
Sacramento	CA	Sacramento International	SMF	M	$4.50	1/1/2002	2/1/2003	
Sacramento	CA	Sacramento International	SMF	M	$3.00	2/1/2003	9/1/2003	
Sacramento	CA	Sacramento International	SMF	M	$4.50	9/1/2003	11/1/2034	811,546,275
San Diego	CA	San Diego International	SAN	L	$3.00	10/1/1995	8/1/2003	
San Diego	CA	San Diego International	SAN	L	$4.50	8/1/2003	5/1/2040	1,600,393,933
San Francisco	CA	San Francisco International	SFO	L	$4.50	10/1/2001	12/1/2030	2,320,316,302
San Luis Obispo	CA	Slo County	SBP	N	$3.00	2/1/1993	2/1/1995	

Associated City	State	Airport Name	LOC ID	Hub size	Level	Start Date	Expiration Date	Total PFC Approved (by location)
San Luis Obispo	CA	Slo County	SBP	N	$3.00	6/1/1995	9/1/2002	
San Luis Obispo	CA	Slo County	SBP	N	$4.50	9/1/2002	6/1/2011	
San Luis Obispo	CA	Slo County	SBP	N	$3.00	6/1/2011	6/1/2014	
San Luis Obispo	CA	Slo County	SBP	N	$4.50	6/1/2014	6/1/2024	18,693,142
Santa Barbara	CA	Santa Barbara Municipal	SBA	S	$3.00	1/1/1998	11/1/2003	
Santa Barbara	CA	Santa Barbara Municipal	SBA	S	$4.50	11/1/2003	4/1/2038	46,331,361
Santa Maria	CA	Santa Maria Public/Capt G Allan Hancock Field	SMX	N	$4.50	10/1/2007	10/1/2028	5,380,346
Stockton	CA	Stockton Metro	SCK	N	$4.50	2/1/2007	8/1/2009	
Stockton	CA	Stockton Metro	SCK	N	$4.50	9/1/2009	9/1/2012	
Stockton	CA	Stockton Metro	SCK	N	$4.50	9/1/2013	9/1/2025	6,684,435
Aspen	CO	Aspen-Pitkin County/Sardy Field	ASE	N	$3.00	7/1/1995	5/1/2003	
Aspen	CO	Aspen-Pitkin County/Sardy Field	ASE	N	$4.50	5/1/2003	8/1/2004	
Aspen	CO	Aspen-Pitkin County/Sardy Field	ASE	N	$4.50	1/1/2005	3/1/2027	23,445,286
Colorado Springs	CO	City of Colorado Springs Municipal	COS	S	$3.00	3/1/1993	8/1/2016	
Colorado Springs	CO	City of Colorado Springs Municipal	COS	S	$4.50	8/1/2016	9/1/2027	108,062,182
Cortez	CO	Cortez Municipal	CEZ	CS	$3.00	11/1/1999	3/1/2008	
Cortez	CO	Cortez Municipal	CEZ	CS	$4.50	3/1/2008	6/1/2030	701,694
Denver	CO	Denver International	DEN	L	$3.00	7/1/1992	4/1/2001	
Denver	CO	Denver International	DEN	L	$4.50	4/1/2001	10/1/2031	3,598,660,339
Durango	CO	Durango-La Plata County	DRO	N	$3.00	2/1/1995	8/1/1997	
Durango	CO	Durango-La Plata County	DRO	N	$3.00	9/1/1997	3/1/2003	
Durango	CO	Durango-La Plata County	DRO	N	$4.50	6/1/2005	4/1/2011	
Durango	CO	Durango-La Plata County	DRO	N	$4.50	11/1/2011	8/1/2012	
Durango	CO	Durango-La Plata County	DRO	N	$4.50	9/1/2013	3/1/2031	18,832,848
Eagle	CO	Eagle County Regional	EGE	N	$3.00	9/1/1993	4/1/2001	
Eagle	CO	Eagle County Regional	EGE	N	$4.50	4/1/2001	6/1/2009	
Eagle	CO	Eagle County Regional	EGE	N	$3.00	6/1/2009	7/1/2009	
Eagle	CO	Eagle County Regional	EGE	N	$4.50	7/1/2009	5/1/2036	22,869,216
Grand Junction	CO	Grand Junction Regional	GJT	N	$3.00	4/1/1993	9/1/2006	
Grand Junction	CO	Grand Junction Regional	GJT	N	$4.50	9/1/2006	10/1/2036	32,267,359
Gunnison	CO	Gunnison-Crested Butte Regional	GUC	N	$3.00	11/1/1993	4/1/2001	
Gunnison	CO	Gunnison-Crested Butte Regional	GUC	N	$4.50	4/1/2001	8/1/2023	
Gunnison	CO	Gunnison-Crested Butte Regional	GUC	N	$4.50	10/1/2023	7/1/2028	5,145,567
Montrose	CO	Montrose Regional	MTJ	N	$3.00	11/1/1993	8/1/2003	
Montrose	CO	Montrose Regional	MTJ	N	$4.50	8/1/2003	6/1/2006	
Montrose	CO	Montrose Regional	MTJ	N	$4.50	8/1/2006	8/1/2010	
Montrose	CO	Montrose Regional	MTJ	N	$4.50	11/1/2010	2/1/2024	10,205,427

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Fort Collins/Loveland	CO	Northern Colorado Regional	FNL	N	$3.00	10/1/1993	5/1/1999	
Fort Collins/Loveland	CO	Northern Colorado Regional	FNL	N	$4.50	8/1/2004	12/1/2011	
Fort Collins/Loveland	CO	Northern Colorado Regional	FNL	N	$4.50	2/1/2012	3/1/2015	1,593,522
Pueblo	CO	Pueblo Memorial	PUB	CS	$3.00	11/1/1993	12/1/2014	
Pueblo	CO	Pueblo Memorial	PUB	CS	$4.50	3/1/2015	4/1/2036	1,229,111
Alamosa	CO	San Luis Valley Regional/Bergman Field	ALS	N	$3.00	3/1/1997	7/1/2016	
Alamosa	CO	San Luis Valley Regional/Bergman Field	ALS	N	$4.50	7/1/2016	7/1/2034	714,140
Steamboat Springs	CO	Steamboat Springs/Bob Adams Field	SBS	GA	$3.00	4/1/1993	6/1/1997	159,576
Telluride	CO	Telluride Regional	TEX	N	$3.00	2/1/1993	4/1/2002	
Telluride	CO	Telluride Regional	TEX	N	$4.50	4/1/2002	1/1/2019	
Telluride	CO	Telluride Regional	TEX	N	$4.50	2/1/2020	3/1/2030	7,547,037
Hayden	CO	Yampa Valley	HDN	N	$3.00	11/1/1993	7/1/2001	
Hayden	CO	Yampa Valley	HDN	N	$4.50	7/1/2001	9/1/2039	16,063,641
Windsor Locks	CT	Bradley International	BDL	M	$3.00	10/1/1993	12/1/1995	
Windsor Locks	CT	Bradley International	BDL	M	$3.00	7/1/1996	1/1/1997	
Windsor Locks	CT	Bradley International	BDL	M	$3.00	9/1/1997	8/1/2000	
Windsor Locks	CT	Bradley International	BDL	M	$4.50	5/1/2001	10/1/2036	415,649,482
New Haven	CT	Tweed/New Haven	HVN	N	$3.00	12/1/1993	4/1/1998	
New Haven	CT	Tweed/New Haven	HVN	N	$4.50	10/1/2001	7/1/2005	
New Haven	CT	Tweed/New Haven	HVN	N	$4.50	5/1/2006	11/1/2024	10,179,087
Wilmington	DE	New Castle	ILG	CS	$4.50	7/1/2014	5/1/2025	1,810,089
Daytona Beach	FL	Daytona Beach International	DAB	N	$3.00	7/1/1993	8/1/2001	
Daytona Beach	FL	Daytona Beach International	DAB	N	$3.00	2/1/2002	11/1/2005	
Daytona Beach	FL	Daytona Beach International	DAB	N	$4.50	11/1/2005	10/1/2031	42,070,279
Valparaiso/Destin-Ft Walton Beach	FL	Eglin AFB/Destin-Ft Walton Beach	VPS	S	$3.00	1/1/2001	6/1/2002	
Valparaiso/Destin-Ft Walton Beach	FL	Eglin AFB/Destin-Ft Walton Beach	VPS	S	$4.50	6/1/2002	8/1/2022	
Valparaiso/Destin-Ft Walton Beach	FL	Eglin AFB/Destin-Ft Walton Beach	VPS	S	$3.00	8/1/2022	9/1/2025	51,778,480
Fort Lauderdale	FL	Fort Lauderdale/Hollywood International	FLL	L	$3.00	1/1/1995	10/1/2005	
Fort Lauderdale	FL	Fort Lauderdale/Hollywood International	FLL	L	$4.50	10/1/2005	4/1/2035	2,036,659,886
Gainesville	FL	Gainesville Regional	GNV	N	$3.00	7/1/2000	2/1/2002	
Gainesville	FL	Gainesville Regional	GNV	N	$4.50	1/1/2003	2/1/2013	
Gainesville	FL	Gainesville Regional	GNV	N	$4.50	1/1/2014	9/1/2015	
Gainesville	FL	Gainesville Regional	GNV	N	$4.50	3/1/2016	8/1/2026	16,944,294
Jacksonville	FL	Jacksonville International	JAX	M	$3.00	4/1/1994	5/1/2003	
Jacksonville	FL	Jacksonville International	JAX	M	$4.50	5/1/2003	6/1/2028	367,054,887
Key West	FL	Key West International	EYW	S	$3.00	3/1/1993	8/1/1996	

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Key West	FL	Key West International	EYW	S	$3.00	12/1/1997	6/1/2003	
Key West	FL	Key West International	EYW	S	$4.50	6/1/2003	7/1/2005	
Key West	FL	Key West International	EYW	S	$4.50	10/1/2005	2/1/2057	142,983,806
Melbourne	FL	Melbourne Orlando International	MLB	N	$3.00	5/1/1997	12/1/2009	
Melbourne	FL	Melbourne Orlando International	MLB	N	$4.50	12/1/2009	5/1/2018	
Melbourne	FL	Melbourne Orlando International	MLB	N	$4.50	7/1/2018	4/1/2030	25,640,518
Miami	FL	Miami International	MIA	L	$3.00	11/1/1994	1/1/2002	
Miami	FL	Miami International	MIA	L	$4.50	1/1/2002	1/1/2039	2,727,954,786
Naples	FL	Naples Municipal	APF	GA	$3.00	2/1/1995	2/1/2001	
Naples	FL	Naples Municipal	APF	GA	$3.00	2/1/2002	5/1/2004	991,336
Panama City	FL	Northwest Florida Beaches International	ECP	S	$3.00	2/1/1994	5/1/2004	
Panama City	FL	Northwest Florida Beaches International	ECP	S	$4.50	5/1/2004	4/1/2039	48,700,720
Orlando	FL	Orlando International	MCO	L	$3.00	2/1/1993	4/1/2007	
Orlando	FL	Orlando International	MCO	L	$4.50	4/1/2007	1/1/2046	5,030,693,530
Orlando	FL	Orlando Sanford International	SFB	S	$1.00	3/1/2001	12/1/2003	
Orlando	FL	Orlando Sanford International	SFB	S	$2.00	12/1/2003	9/1/2011	
Orlando	FL	Orlando Sanford International	SFB	S	$4.00	9/1/2011	6/1/2026	97,050,210
West Palm Beach	FL	Palm Beach International	PBI	M	$3.00	4/1/1994	7/1/2008	
West Palm Beach	FL	Palm Beach International	PBI	M	$4.50	7/1/2008	8/1/2022	
West Palm Beach	FL	Palm Beach International	PBI	M	$4.50	9/1/2022	7/1/2024	328,822,089
Pensacola	FL	Pensacola International	PNS	S	$3.00	2/1/1993	12/1/2002	
Pensacola	FL	Pensacola International	PNS	S	$4.50	12/1/2002	10/1/2031	144,489,392
Punta Gorda	FL	Punta Gorda	PGD	S	$2.00	8/1/2017	1/1/2019	
Punta Gorda	FL	Punta Gorda	PGD	S	$4.50	1/1/2019	1/1/2029	41,460,431
Sarasota/Bradenton	FL	Sarasota/Bradenton International	SRQ	S	$3.00	9/1/1992	5/1/2002	
Sarasota/Bradenton	FL	Sarasota/Bradenton International	SRQ	S	$4.50	5/1/2002	5/1/2029	133,581,461
Fort Myers	FL	Southwest Florida International	RSW	M	$3.00	11/1/1992	11/1/2003	
Fort Myers	FL	Southwest Florida International	RSW	M	$4.50	11/1/2003	11/1/2039	908,293,745
St Petersburg-Clearwater	FL	St Pete-Clearwater International	PIE	S	$3.00	5/1/2005	11/1/2006	
St Petersburg-Clearwater	FL	St Pete-Clearwater International	PIE	S	$4.50	11/1/2006	11/1/2026	66,955,075
Tallahassee	FL	Tallahassee International	TLH	N	$3.00	2/1/1993	10/1/2002	
Tallahassee	FL	Tallahassee International	TLH	N	$4.50	10/1/2002	6/1/2030	54,037,707
Tampa	FL	Tampa International	TPA	L	$3.00	10/1/1993	6/1/2002	
Tampa	FL	Tampa International	TPA	L	$4.50	6/1/2002	10/1/2037	1,687,075,802
Marathon	FL	The Florida Keys Marathon International	MTH	GA	$3.00	3/1/1993	6/1/1998	390,001
Athens	GA	Athens/Ben Epps	AHN	GA	$3.00	8/1/1997	1/1/2002	165,615
Augusta	GA	Augusta Regional at Bush Field	AGS	N	$3.00	9/1/1999	7/1/2001	

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Augusta	GA	Augusta Regional at Bush Field	AGS	N	$4.50	7/1/2001	1/1/2032	36,523,697
Brunswick	GA	Brunswick Golden Isles	BQK	N	$3.00	5/1/2001	11/1/2003	
Brunswick	GA	Brunswick Golden Isles	BQK	N	$4.50	11/1/2003	4/1/2017	
Brunswick	GA	Brunswick Golden Isles	BQK	N	$4.50	4/1/2018	11/1/2042	4,066,789
Columbus	GA	Columbus	CSG	N	$3.00	12/1/1993	9/1/1995	
Columbus	GA	Columbus	CSG	N	$3.00	8/1/2000	6/1/2003	
Columbus	GA	Columbus	CSG	N	$4.50	6/1/2003	11/1/2006	
Columbus	GA	Columbus	CSG	N	$4.50	2/1/2010	4/1/2012	
Columbus	GA	Columbus	CSG	N	$4.50	8/1/2012	3/1/2015	
Columbus	GA	Columbus	CSG	N	$4.50	3/1/2016	6/1/2018	
Columbus	GA	Columbus	CSG	N	$4.50	2/1/2020	4/1/2029	5,223,235
Atlanta	GA	Hartsfield - Jackson Atlanta International	ATL	L	$3.00	5/1/1997	4/1/2001	
Atlanta	GA	Hartsfield - Jackson Atlanta International	ATL	L	$4.50	4/1/2001	1/1/2040	7,785,761,593
Macon	GA	Middle Georgia Regional	MCN	N	$4.50	3/1/2002	5/1/2011	561,716
Savannah	GA	Savannah/Hilton Head International	SAV	S	$3.00	7/1/1992	4/1/2001	
Savannah	GA	Savannah/Hilton Head International	SAV	S	$4.50	4/1/2001	2/1/2010	
Savannah	GA	Savannah/Hilton Head International	SAV	S	$3.00	2/1/2010	5/1/2010	
Savannah	GA	Savannah/Hilton Head International	SAV	S	$4.50	5/1/2010	11/1/2028	145,466,284
Albany	GA	Southwest Georgia Regional	ABY	N	$3.00	9/1/1995	6/1/1998	
Albany	GA	Southwest Georgia Regional	ABY	N	$3.00	6/1/1999	2/1/2003	
Albany	GA	Southwest Georgia Regional	ABY	N	$4.50	2/1/2003	2/1/2008	
Albany	GA	Southwest Georgia Regional	ABY	N	$4.50	7/1/2008	8/1/2016	
Albany	GA	Southwest Georgia Regional	ABY	N	$4.50	10/1/2017	3/1/2020	
Albany	GA	Southwest Georgia Regional	ABY	N	$4.50	8/1/2022	5/1/2026	3,135,849
Valdosta	GA	Valdosta Regional	VLD	N	$3.00	3/1/1993	10/1/1999	
Valdosta	GA	Valdosta Regional	VLD	N	$3.00	4/1/2000	6/1/2001	
Valdosta	GA	Valdosta Regional	VLD	N	$4.50	6/1/2001	9/1/2004	
Valdosta	GA	Valdosta Regional	VLD	N	$3.00	2/1/2006	5/1/2006	
Valdosta	GA	Valdosta Regional	VLD	N	$3.00	11/1/2006	1/1/2007	
Valdosta	GA	Valdosta Regional	VLD	N	$3.00	8/1/2009	7/1/2010	
Valdosta	GA	Valdosta Regional	VLD	N	$4.50	6/1/2011	1/1/2014	
Valdosta	GA	Valdosta Regional	VLD	N	$4.50	4/1/2014	4/1/2016	
Valdosta	GA	Valdosta Regional	VLD	N	$4.50	7/1/2016	11/1/2016	
Valdosta	GA	Valdosta Regional	VLD	N	$4.50	6/1/2022	9/1/2022	2,029,119
Guam	GU	Guam International	GUM	S	$3.00	2/1/1993	11/1/2002	
Guam	GU	Guam International	GUM	S	$4.50	11/1/2002	3/1/2025	258,370,758
Honolulu	HI	Daniel K Inouye International	HNL	L	$3.00	10/1/2004	11/1/2008	

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Honolulu	HI	Daniel K Inouye International	HNL	L	$4.50	11/1/2008	7/1/2039	873,755,977
Kailua/Kona	HI	Ellison Onizuka Kona International at Keahole	KOA	S	$3.00	10/1/2004	11/1/2008	
Kailua/Kona	HI	Ellison Onizuka Kona International at Keahole	KOA	S	$4.50	11/1/2008	7/1/2039	93,246,502
Hilo	HI	Hilo International	ITO	S	$3.00	2/1/2007	11/1/2008	
Hilo	HI	Hilo International	ITO	S	$4.50	11/1/2008	1/1/2010	
Hilo	HI	Hilo International	ITO	S	$4.50	2/1/2014	7/1/2039	5,929,861
Kahului	HI	Kahului	OGG	M	$3.00	10/1/2004	11/1/2008	
Kahului	HI	Kahului	OGG	M	$4.50	11/1/2008	7/1/2039	254,205,576
Lihue	HI	Lihue	LIH	S	$3.00	10/1/2004	11/1/2008	
Lihue	HI	Lihue	LIH	S	$4.50	11/1/2008	7/1/2039	75,313,938
Des Moines	IA	Des Moines International	DSM	S	$3.00	3/1/1994	8/1/2001	
Des Moines	IA	Des Moines International	DSM	S	$4.50	8/1/2001	10/1/2037	158,478,967
Dubuque	IA	Dubuque Regional	DBQ	N	$3.00	1/1/1993	5/1/2001	
Dubuque	IA	Dubuque Regional	DBQ	N	$4.50	5/1/2001	2/1/2033	7,568,350
Fort Dodge	IA	Fort Dodge Regional	FOD	CS	$3.00	3/1/1995	9/1/2001	
Fort Dodge	IA	Fort Dodge Regional	FOD	CS	$4.50	1/1/2002	4/1/2011	414,736
Mason City	IA	Mason City Municipal	MCW	CS	$3.00	2/1/1996	10/1/2001	
Mason City	IA	Mason City Municipal	MCW	CS	$4.50	10/1/2001	4/1/2003	
Mason City	IA	Mason City Municipal	MCW	CS	$4.50	8/1/2003	5/1/2029	1,310,907
Sioux City	IA	Sioux Gateway/Brig General Bud Day Field	SUX	N	$3.00	6/1/1993	6/1/1994	
Sioux City	IA	Sioux Gateway/Brig General Bud Day Field	SUX	N	$3.00	2/1/1995	3/1/2002	
Sioux City	IA	Sioux Gateway/Brig General Bud Day Field	SUX	N	$4.50	3/1/2002	1/1/2004	
Sioux City	IA	Sioux Gateway/Brig General Bud Day Field	SUX	N	$4.50	11/1/2004	10/1/2044	8,385,459
Burlington	IA	Southeast Iowa Regional	BRL	CS	$3.00	7/1/1997	9/1/2001	
Burlington	IA	Southeast Iowa Regional	BRL	CS	$4.50	9/1/2001	11/1/2028	941,789
Spencer	IA	Spencer Municipal	SPW	GA	$3.00	9/1/1995	3/1/2006	77,638
Cedar Rapids	IA	The Eastern Iowa	CID	S	$3.00	1/1/1995	6/1/2002	
Cedar Rapids	IA	The Eastern Iowa	CID	S	$4.50	6/1/2002	3/1/2004	
Cedar Rapids	IA	The Eastern Iowa	CID	S	$4.50	5/1/2004	1/1/2042	111,533,072
Waterloo	IA	Waterloo Regional	ALO	N	$3.00	6/1/1994	6/1/1998	
Waterloo	IA	Waterloo Regional	ALO	N	$3.00	9/1/1999	7/1/2001	
Waterloo	IA	Waterloo Regional	ALO	N	$4.50	7/1/2001	4/1/2024	3,298,274
Boise	ID	Boise Air Trml/Gowen Field	BOI	M	$3.00	8/1/1994	8/1/2001	
Boise	ID	Boise Air Trml/Gowen Field	BOI	M	$4.50	8/1/2001	9/1/2015	
Boise	ID	Boise Air Trml/Gowen Field	BOI	M	$4.50	5/1/2020	5/1/2024	141,066,278
Hailey	ID	Friedman Memorial	SUN	N	$3.00	9/1/1993	10/1/1994	
Hailey	ID	Friedman Memorial	SUN	N	$3.00	3/1/1995	6/1/2005	

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Hailey	ID	Friedman Memorial	SUN	N	$4.50	6/1/2005	9/1/2024	7,590,372
Idaho Falls	ID	Idaho Falls Regional	IDA	N	$3.00	1/1/1993	1/1/1998	
Idaho Falls	ID	Idaho Falls Regional	IDA	N	$3.00	2/1/1998	4/1/2001	
Idaho Falls	ID	Idaho Falls Regional	IDA	N	$4.50	4/1/2001	1/1/2024	15,791,133
Twin Falls	ID	Joslin Field/Magic Valley Regional	TWF	N	$3.00	11/1/1992	6/1/2001	
Twin Falls	ID	Joslin Field/Magic Valley Regional	TWF	N	$4.50	6/1/2001	6/1/2007	
Twin Falls	ID	Joslin Field/Magic Valley Regional	TWF	N	$4.50	7/1/2007	1/1/2028	4,220,967
Lewiston	ID	Lewiston/Nez Perce County	LWS	N	$3.00	5/1/1994	5/1/2001	
Lewiston	ID	Lewiston/Nez Perce County	LWS	N	$4.50	5/1/2001	11/1/2018	
Lewiston	ID	Lewiston/Nez Perce County	LWS	N	$4.50	2/1/2019	7/1/2022	
Lewiston	ID	Lewiston/Nez Perce County	LWS	N	$4.50	9/1/2022	4/1/2025	6,548,528
Pocatello	ID	Pocatello Regional	PIH	N	$3.00	9/1/1994	5/1/2001	
Pocatello	ID	Pocatello Regional	PIH	N	$4.50	5/1/2001	5/1/2035	4,181,357
Springfield	IL	Abraham Lincoln Capital	SPI	N	$3.00	6/1/1992	5/1/2002	
Springfield	IL	Abraham Lincoln Capital	SPI	N	$4.50	5/1/2002	2/1/2033	13,101,409
Bloomington/Normal	IL	Central Il Regional/Bloomington-Normal	BMI	N	$3.00	11/1/1994	4/1/2001	
Bloomington/Normal	IL	Central Il Regional/Bloomington-Normal	BMI	N	$4.50	4/1/2001	11/1/2030	29,245,583
Chicago	IL	Chicago Midway International	MDW	L	$3.00	9/1/1993	1/1/2007	
Chicago	IL	Chicago Midway International	MDW	L	$4.50	1/1/2007	5/1/2056	2,477,196,685
Chicago	IL	Chicago O'Hare International	ORD	L	$3.00	9/1/1993	4/1/2001	
Chicago	IL	Chicago O'Hare International	ORD	L	$4.50	4/1/2001	7/1/2041	6,926,705,514
Chicago/Rockford	IL	Chicago/Rockford International	RFD	N	$3.00	10/1/1992	10/1/1996	
Chicago/Rockford	IL	Chicago/Rockford International	RFD	N	$3.00	5/1/1997	6/1/2007	
Chicago/Rockford	IL	Chicago/Rockford International	RFD	N	$4.50	6/1/2007	3/1/2038	16,080,225
Decatur	IL	Decatur	DEC	CS	$4.50	6/1/2006	5/1/2030	732,628
Peoria	IL	General Downing - Peoria International	PIA	N	$3.00	12/1/1994	7/1/2001	
Peoria	IL	General Downing - Peoria International	PIA	N	$4.50	7/1/2001	8/1/2008	
Peoria	IL	General Downing - Peoria International	PIA	N	$4.50	11/1/2008	3/1/2024	28,880,056
Moline	IL	Quad Cities International	MLI	N	$3.00	12/1/1994	1/1/2002	
Moline	IL	Quad Cities International	MLI	N	$4.50	1/1/2002	7/1/2037	55,435,491
Quincy	IL	Quincy Regional-Baldwin Field	UIN	CS	$3.00	10/1/1994	7/1/1997	
Quincy	IL	Quincy Regional-Baldwin Field	UIN	CS	$3.00	11/1/1997	6/1/2005	
Quincy	IL	Quincy Regional-Baldwin Field	UIN	CS	$3.00	11/1/2005	1/1/2008	
Quincy	IL	Quincy Regional-Baldwin Field	UIN	CS	$4.50	1/1/2008	6/1/2052	2,757,509
Belleville	IL	Scott AFB/Midamerica St Louis	BLV	N	$3.00	11/1/2005	3/1/2047	7,000,000
Champaign/Urbana	IL	University of Illinois/Willard	CMI	N	$3.00	12/1/1995	2/1/2004	
Champaign/Urbana	IL	University of Illinois/Willard	CMI	N	$4.50	10/1/2005	1/1/2033	11,637,507

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Marion	IL	Veterans Airport of Southern Illinois	MWA	N	$4.50	9/1/2005	4/1/2019	
Marion	IL	Veterans Airport of Southern Illinois	MWA	N	$4.50	9/1/2019	9/1/2026	804,602
Evansville	IN	Evansville Regional	EVV	N	$4.50	8/1/2007	11/1/2008	
Evansville	IN	Evansville Regional	EVV	N	$4.50	12/1/2008	4/1/2026	13,705,101
Fort Wayne	IN	Fort Wayne International	FWA	N	$3.00	7/1/1993	12/1/2005	
Fort Wayne	IN	Fort Wayne International	FWA	N	$4.50	12/1/2005	12/1/2029	44,786,287
Indianapolis	IN	Indianapolis International	IND	M	$3.00	9/1/1993	4/1/2001	
Indianapolis	IN	Indianapolis International	IND	M	$4.50	4/1/2001	8/1/2033	
Indianapolis	IN	Indianapolis International	IND	M	$3.00	8/1/2033	9/1/2033	635,875,105
South Bend	IN	South Bend International	SBN	N	$3.00	11/1/1994	7/1/2011	
South Bend	IN	South Bend International	SBN	N	$4.50	7/1/2011	10/1/2030	41,684,619
Garden City	KS	Garden City Regional	GCK	N	$4.50	10/1/2013	2/1/2026	1,336,914
Hays	KS	Hays Regional	HYS	N	$4.50	4/1/2015	5/1/2024	454,192
Manhattan	KS	Manhattan Regional	MHK	N	$3.00	10/1/1998	3/1/2002	
Manhattan	KS	Manhattan Regional	MHK	N	$4.50	3/1/2002	5/1/2025	4,499,903
Topeka	KS	Topeka Regional	FOE	GA	$4.50	8/1/2007	3/1/2033	823,720
Wichita	KS	Wichita Dwight D Eisenhower Ntl	ICT	S	$3.00	12/1/1994	5/1/2005	
Wichita	KS	Wichita Dwight D Eisenhower Ntl	ICT	S	$4.50	5/1/2005	6/1/2007	
Wichita	KS	Wichita Dwight D Eisenhower Ntl	ICT	S	$4.50	7/1/2007	9/1/2009	
Wichita	KS	Wichita Dwight D Eisenhower Ntl	ICT	S	$4.50	11/1/2010	4/1/2046	199,528,281
Paducah	KY	Barkley Regional	PAH	N	$3.00	3/1/1994	5/1/2014	
Paducah	KY	Barkley Regional	PAH	N	$4.50	5/1/2014	8/1/2024	2,107,439
Lexington	KY	Blue Grass	LEX	S	$3.00	11/1/1993	6/1/2001	
Lexington	KY	Blue Grass	LEX	S	$4.50	6/1/2001	6/1/2003	
Lexington	KY	Blue Grass	LEX	S	$3.00	8/1/2003	12/1/2003	
Lexington	KY	Blue Grass	LEX	S	$4.50	12/1/2003	8/1/2042	114,892,322
Covington	KY	Cincinnati/Northern Kentucky International	CVG	M	$3.00	6/1/1994	8/1/2000	
Covington	KY	Cincinnati/Northern Kentucky International	CVG	M	$3.00	7/1/2001	8/1/2003	
Covington	KY	Cincinnati/Northern Kentucky International	CVG	M	$4.50	8/1/2003	5/1/2009	
Covington	KY	Cincinnati/Northern Kentucky International	CVG	M	$3.00	5/1/2009	1/1/2013	
Covington	KY	Cincinnati/Northern Kentucky International	CVG	M	$4.50	1/1/2013	2/1/2025	657,480,768
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$3.00	5/1/1997	3/1/2006	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$4.50	3/1/2006	10/1/2006	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$3.00	10/1/2006	9/1/2008	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$4.50	9/1/2008	10/1/2008	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$3.00	10/1/2008	12/1/2010	

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Louisville	KY	Louisville Muhammad Ali International	SDF	S	$4.50	12/1/2010	8/1/2015	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$3.00	8/1/2015	10/1/2016	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$1.00	10/1/2016	10/1/2017	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$3.00	10/1/2017	5/1/2019	
Louisville	KY	Louisville Muhammad Ali International	SDF	S	$4.50	5/1/2019	7/1/2027	169,614,880
Alexandria	LA	Alexandria International	AEX	N	$3.00	5/1/1999	1/1/2002	
Alexandria	LA	Alexandria International	AEX	N	$4.50	1/1/2002	10/1/2032	15,500,835
Baton Rouge	LA	Baton Rouge Metro, Ryan Field	BTR	N	$3.00	12/1/1992	10/1/2005	
Baton Rouge	LA	Baton Rouge Metro, Ryan Field	BTR	N	$4.50	10/1/2005	7/1/2031	81,359,236
Lafayette	LA	Lafayette Regional/Paul Fournet Field	LFT	N	$3.00	9/1/1995	9/1/1998	
Lafayette	LA	Lafayette Regional/Paul Fournet Field	LFT	N	$3.00	4/1/2001	4/1/2002	
Lafayette	LA	Lafayette Regional/Paul Fournet Field	LFT	N	$4.50	4/1/2002	1/1/2005	
Lafayette	LA	Lafayette Regional/Paul Fournet Field	LFT	N	$4.50	5/1/2005	4/1/2008	
Lafayette	LA	Lafayette Regional/Paul Fournet Field	LFT	N	$4.50	8/1/2008	12/1/2014	
Lafayette	LA	Lafayette Regional/Paul Fournet Field	LFT	N	$4.50	10/1/2017	8/1/2029	22,685,640
Lake Charles	LA	Lake Charles Regional	LCH	N	$3.00	3/1/2001	5/1/2005	
Lake Charles	LA	Lake Charles Regional	LCH	N	$4.50	5/1/2005	5/1/2017	
Lake Charles	LA	Lake Charles Regional	LCH	N	$4.50	2/1/2018	1/1/2030	7,209,883
New Orleans	LA	Louis Armstrong New Orleans International	MSY	M	$3.00	6/1/1993	4/1/2002	
New Orleans	LA	Louis Armstrong New Orleans International	MSY	M	$4.50	4/1/2002	8/1/2034	965,553,986
Monroe	LA	Monroe Regional	MLU	N	$4.50	4/1/2003	9/1/2007	
Monroe	LA	Monroe Regional	MLU	N	$4.50	11/1/2008	6/1/2036	17,759,504
Shreveport	LA	Shreveport Regional	SHV	N	$3.00	2/1/1994	11/1/2002	
Shreveport	LA	Shreveport Regional	SHV	N	$4.50	11/1/2002	9/1/2014	
Shreveport	LA	Shreveport Regional	SHV	N	$4.50	2/1/2015	11/1/2024	35,552,645
Hyannis	MA	Cape Cod Gateway	HYA	N	$2.00	3/1/2011	7/1/2022	
Hyannis	MA	Cape Cod Gateway	HYA	N	$3.00	8/1/2022	3/1/2034	1,874,962
Boston	MA	General Edward Lawrence Logan International	BOS	L	$3.00	11/1/1993	10/1/2005	
Boston	MA	General Edward Lawrence Logan International	BOS	L	$4.50	10/1/2005	1/1/2036	2,455,832,708
Vineyard Haven	MA	Martha's Vineyard	MVY	N	$3.00	1/1/1998	2/1/1998	
Vineyard Haven	MA	Martha's Vineyard	MVY	N	$4.50	10/1/2017	3/1/2022	
Vineyard Haven	MA	Martha's Vineyard	MVY	N	$4.50	7/1/2022	4/1/2024	1,409,883
Nantucket	MA	Nantucket Memorial	ACK	N	$4.50	7/1/2014	6/1/2029	8,040,374
Worcester	MA	Worcester Regional	ORH	N	$3.00	10/1/1992	10/1/1997	
Worcester	MA	Worcester Regional	ORH	N	$3.00	9/1/1999	12/1/2011	1,782,161

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Baltimore	MD	Baltimore/Washington International Thurgood Marshall	BWI	L	$3.00	10/1/1992	6/1/2002	
Baltimore	MD	Baltimore/Washington International Thurgood Marshall	BWI	L	$4.50	6/1/2002	8/1/2037	1,518,575,848
Cumberland Heights	MD	Greater Cumberland Regional	CBE	GA	$3.00	7/1/1994	7/1/1999	
Cumberland Heights	MD	Greater Cumberland Regional	CBE	GA	$3.00	10/1/1999	6/1/2006	144,345
Hagerstown	MD	Hagerstown Regional/Richard A Henson Field	HGR	N	$3.00	8/1/1999	3/1/2002	
Hagerstown	MD	Hagerstown Regional/Richard A Henson Field	HGR	N	$4.50	3/1/2002	8/1/2007	429,244
Salisbury	MD	Salisbury-Ocean City Wicomico Regional	SBY	N	$3.00	2/1/2002	3/1/2008	
Salisbury	MD	Salisbury-Ocean City Wicomico Regional	SBY	N	$4.50	3/1/2008	9/1/2036	6,408,326
Bangor	ME	Bangor International	BGR	N	$3.00	6/1/1995	9/1/2010	
Bangor	ME	Bangor International	BGR	N	$4.50	12/1/2010	5/1/2018	
Bangor	ME	Bangor International	BGR	N	$4.50	7/1/2021	12/1/2024	20,533,329
Rockland	ME	Knox County Regional	RKD	N	$4.50	1/1/2012	8/1/2022	329,549
Portland	ME	Portland International Jetport	PWM	S	$3.00	2/1/1994	2/1/2009	
Portland	ME	Portland International Jetport	PWM	S	$4.50	2/1/2009	4/1/2040	165,807,186
Presque Isle	ME	Presque Isle International	PQI	N	$4.50	9/1/2004	6/1/2009	
Presque Isle	ME	Presque Isle International	PQI	N	$4.50	8/1/2010	6/1/2018	
Presque Isle	ME	Presque Isle International	PQI	N	$4.50	2/1/2019	8/1/2029	1,053,437
Alpena	MI	Alpena County Regional	APN	N	$3.00	8/1/2001	12/1/2005	
Alpena	MI	Alpena County Regional	APN	N	$4.50	12/1/2005	4/1/2022	
Alpena	MI	Alpena County Regional	APN	N	$4.50	5/1/2022	1/1/2027	937,617
Flint	MI	Bishop International	FNT	N	$3.00	9/1/1993	10/1/2001	
Flint	MI	Bishop International	FNT	N	$4.50	10/1/2001	7/1/2026	47,366,393
Lansing	MI	Capital Region International	LAN	N	$3.00	10/1/1993	7/1/2002	
Lansing	MI	Capital Region International	LAN	N	$4.50	7/1/2002	1/1/2032	28,349,884
Traverse City	MI	Cherry Capital	TVC	N	$3.00	1/1/1997	1/1/2002	
Traverse City	MI	Cherry Capital	TVC	N	$4.50	1/1/2002	12/1/2010	
Traverse City	MI	Cherry Capital	TVC	N	$4.50	2/1/2011	2/1/2016	
Traverse City	MI	Cherry Capital	TVC	N	$4.50	2/1/2017	4/1/2026	21,783,216
Sault Ste. Marie	MI	Chippewa County International	CIU	N	$4.50	11/1/2005	1/1/2028	1,819,032
Detroit	MI	Coleman A Young Municipal	DET	GA	$3.00	1/1/2000	3/1/2004	240,053
Escanaba	MI	Delta County	ESC	N	$3.00	2/1/1993	11/1/1997	
Escanaba	MI	Delta County	ESC	N	$3.00	8/1/1998	7/1/2000	
Escanaba	MI	Delta County	ESC	N	$3.00	10/1/2001	3/1/2004	
Escanaba	MI	Delta County	ESC	N	$4.50	3/1/2004	1/1/2006	
Escanaba	MI	Delta County	ESC	N	$4.50	4/1/2006	1/1/2016	
Escanaba	MI	Delta County	ESC	N	$4.50	6/1/2018	10/1/2020	1,075,377
Detroit	MI	Detroit Metro Wayne County	DTW	L	$3.00	1/1/1993	10/1/2001	

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Detroit	MI	Detroit Metro Wayne County	DTW	L	$4.50	10/1/2001	2/1/2034	3,134,966,084
Iron Mountain Kingsford	MI	Ford	IMT	N	$3.00	9/1/1995	6/1/2004	
Iron Mountain Kingsford	MI	Ford	IMT	N	$4.50	5/1/2019	1/1/2025	607,483
Grand Rapids	MI	Gerald R Ford International	GRR	S	$3.00	12/1/1992	11/1/2005	
Grand Rapids	MI	Gerald R Ford International	GRR	S	$4.50	11/1/2005	1/1/2026	120,165,695
Ironwood	MI	Gogebic/Iron County	IWD	CS	$3.00	8/1/1993	10/1/2006	
Ironwood	MI	Gogebic/Iron County	IWD	CS	$4.50	6/1/2007	6/1/2025	385,248
Hancock	MI	Houghton County Memorial	CMX	N	$3.00	7/1/1993	3/1/1996	
Hancock	MI	Houghton County Memorial	CMX	N	$3.00	7/1/1996	7/1/1999	
Hancock	MI	Houghton County Memorial	CMX	N	$3.00	10/1/1999	7/1/2005	
Hancock	MI	Houghton County Memorial	CMX	N	$4.50	7/1/2005	8/1/2016	
Hancock	MI	Houghton County Memorial	CMX	N	$4.50	11/1/2018	8/1/2030	2,405,690
Kalamazoo	MI	Kalamazoo/Battle Creek International	AZO	N	$3.00	4/1/1997	6/1/2000	
Kalamazoo	MI	Kalamazoo/Battle Creek International	AZO	N	$3.00	1/1/2001	1/1/2005	
Kalamazoo	MI	Kalamazoo/Battle Creek International	AZO	N	$4.50	1/1/2005	8/1/2006	
Kalamazoo	MI	Kalamazoo/Battle Creek International	AZO	N	$4.50	10/1/2006	4/1/2008	
Kalamazoo	MI	Kalamazoo/Battle Creek International	AZO	N	$4.50	9/1/2008	3/1/2019	
Kalamazoo	MI	Kalamazoo/Battle Creek International	AZO	N	$4.50	9/1/2019	5/1/2022	
Kalamazoo	MI	Kalamazoo/Battle Creek International	AZO	N	$4.50	8/1/2022	3/1/2024	14,459,687
Manistee	MI	Manistee County/Blacker	MBL	CS	$4.50	6/1/2008	11/1/2040	388,986
Saginaw	MI	MBS International	MBS	N	$3.00	2/1/1997	7/1/2007	
Saginaw	MI	MBS International	MBS	N	$4.50	7/1/2007	11/1/2029	16,480,946
Muskegon	MI	Muskegon County	MKG	N	$3.00	5/1/1994	5/1/2004	
Muskegon	MI	Muskegon County	MKG	N	$4.50	5/1/2004	11/1/2054	4,999,100
Pellston	MI	Pellston Regional/Emmet County	PLN	N	$3.00	3/1/1993	9/1/1997	
Pellston	MI	Pellston Regional/Emmet County	PLN	N	$3.00	12/1/1997	7/1/2011	
Pellston	MI	Pellston Regional/Emmet County	PLN	N	$4.50	7/1/2011	1/1/2025	2,794,669
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$3.00	12/1/1992	12/1/1996	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$3.00	4/1/1998	7/1/2002	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$4.50	7/1/2002	9/1/2006	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$4.50	10/1/2006	5/1/2008	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$4.50	8/1/2008	8/1/2011	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$4.50	3/1/2012	3/1/2015	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$4.50	5/1/2015	5/1/2017	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$4.50	5/1/2019	10/1/2022	
Marquette	MI	Marquette/Sawyer Regional	SAW	N	$4.50	2/1/2024	11/1/2028	5,265,959

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Bemidji	MN	Bemidji Regional	BJI	N	$3.00	11/1/1996	2/1/2002	
Bemidji	MN	Bemidji Regional	BJI	N	$4.50	2/1/2002	8/1/2005	
Bemidji	MN	Bemidji Regional	BJI	N	$4.50	6/1/2006	1/1/2025	2,522,884
Brainerd	MN	Brainerd Lakes Regional	BRD	N	$3.00	8/1/1993	7/1/2001	
Brainerd	MN	Brainerd Lakes Regional	BRD	N	$4.50	7/1/2001	8/1/2033	2,147,011
Duluth	MN	Duluth International	DLH	N	$3.00	10/1/1994	4/1/2002	
Duluth	MN	Duluth International	DLH	N	$4.50	4/1/2002	11/1/2004	
Duluth	MN	Duluth International	DLH	N	$4.50	4/1/2005	6/1/2025	14,332,527
International Falls	MN	Falls International/Einarson Field	INL	N	$3.00	12/1/1994	6/1/2002	
International Falls	MN	Falls International/Einarson Field	INL	N	$4.50	6/1/2002	6/1/2005	
International Falls	MN	Falls International/Einarson Field	INL	N	$4.50	11/1/2005	4/1/2048	3,111,127
Grand Rapids	MN	Grand Rapids/Itasca County-Gordon Newstrom Field	GPZ	GA	$3.00	12/1/1997	10/1/2001	
Grand Rapids	MN	Grand Rapids/Itasca County-Gordon Newstrom Field	GPZ	GA	$4.50	10/1/2001	1/1/2007	151,263
Minneapolis	MN	Minneapolis-St Paul International/Wold-Chamberlain	MSP	L	$3.00	6/1/1992	4/1/2001	
Minneapolis	MN	Minneapolis-St Paul International/Wold-Chamberlain	MSP	L	$4.50	4/1/2001	6/1/2026	2,075,669,615
Hibbing	MN	Range Regional	HIB	N	$3.00	6/1/1996	7/1/2003	
Hibbing	MN	Range Regional	HIB	N	$4.50	7/1/2003	2/1/2029	1,322,734
Rochester	MN	Rochester International	RST	N	$3.00	5/1/1996	3/1/2002	
Rochester	MN	Rochester International	RST	N	$4.50	3/1/2002	7/1/2026	14,190,621
St. Cloud	MN	St. Cloud Regional	STC	N	$3.00	2/1/2000	7/1/2002	
St. Cloud	MN	St. Cloud Regional	STC	N	$4.50	7/1/2002	3/1/2060	4,375,081
Thief River Falls	MN	Thief River Falls Regional	TVF	CS	$4.50	6/1/2003	11/1/2046	636,828
Columbia	MO	Columbia Regional	COU	N	$4.50	11/1/2002	3/1/2016	
Columbia	MO	Columbia Regional	COU	N	$4.50	6/1/2016	1/1/2034	11,314,880
Joplin	MO	Joplin Regional	JLN	N	$4.50	4/1/2003	6/1/2026	2,117,227
Kansas City	MO	Kansas City International	MCI	M	$3.00	3/1/1996	8/1/2005	
Kansas City	MO	Kansas City International	MCI	M	$4.50	8/1/2005	1/1/2057	1,709,931,938
Springfield	MO	Springfield-Branson Ntl	SGF	S	$3.00	11/1/1993	5/1/1997	
Springfield	MO	Springfield-Branson Ntl	SGF	S	$3.00	7/1/1998	5/1/2001	
Springfield	MO	Springfield-Branson Ntl	SGF	S	$4.50	5/1/2001	1/1/2004	
Springfield	MO	Springfield-Branson Ntl	SGF	S	$4.50	5/1/2004	8/1/2005	
Springfield	MO	Springfield-Branson Ntl	SGF	S	$4.50	9/1/2005	3/1/2006	
Springfield	MO	Springfield-Branson Ntl	SGF	S	$4.50	1/1/2007	1/1/2036	96,200,309
St. Louis	MO	St Louis Lambert International	STL	M	$3.00	12/1/1992	12/1/2001	
St. Louis	MO	St Louis Lambert International	STL	M	$4.50	12/1/2001	5/1/2025	
St. Louis	MO	St Louis Lambert International	STL	M	$3.00	5/1/2025	1/1/2026	
St. Louis	MO	St Louis Lambert International	STL	M	$4.50	1/1/2026	11/1/2026	1,127,481,976

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Rota Island	MP	Benjamin Taisacan Manglona International	GRO	N	$4.50	1/1/2005	5/1/2021	1,507,159
Saipan Island	MP	Francisco C Ada/Saipan International	GSN	N	$4.50	1/1/2005	5/1/2021	27,799,933
Tinian Island	MP	Francisco Manglona Borja/Tinian International	TNI	N	$4.50	1/1/2005	5/1/2021	1,676,462
Columbus/W Point/Starkville	MS	Golden Triangle Regional	GTR	N	$3.00	8/1/1992	4/1/2001	
Columbus/W Point/Starkville	MS	Golden Triangle Regional	GTR	N	$4.50	4/1/2001	10/1/2024	5,047,599
Greenville	MS	Greenville Mid-Delta	GLH	N	$3.00	10/1/1998	2/1/2003	
Greenville	MS	Greenville Mid-Delta	GLH	N	$3.00	4/1/2003	4/1/2005	
Greenville	MS	Greenville Mid-Delta	GLH	N	$4.50	4/1/2005	8/1/2011	
Greenville	MS	Greenville Mid-Delta	GLH	N	$4.50	9/1/2012	7/1/2018	
Greenville	MS	Greenville Mid-Delta	GLH	N	$4.50	7/1/2020	7/1/2030	646,503
Gulfport	MS	Gulfport-Biloxi International	GPT	N	$3.00	7/1/1992	8/1/2001	
Gulfport	MS	Gulfport-Biloxi International	GPT	N	$3.00	12/1/2001	5/1/2003	
Gulfport	MS	Gulfport-Biloxi International	GPT	N	$4.50	5/1/2003	8/1/2030	55,226,469
Hattiesburg-Laurel	MS	Hattiesburg/Laurel Regional	PIB	N	$3.00	7/1/1992	6/1/2001	
Hattiesburg-Laurel	MS	Hattiesburg/Laurel Regional	PIB	N	$4.50	6/1/2001	9/1/2022	
Hattiesburg-Laurel	MS	Hattiesburg/Laurel Regional	PIB	N	$4.50	12/1/2022	4/1/2032	2,235,943
Jackson	MS	Jackson-Medgar Wiley Evers International	JAN	S	$3.00	5/1/1993	10/1/2003	
Jackson	MS	Jackson-Medgar Wiley Evers International	JAN	S	$4.50	10/1/2003	11/1/2026	70,273,853
Meridian	MS	Key Field	MEI	N	$3.00	11/1/1992	8/1/1996	
Meridian	MS	Key Field	MEI	N	$3.00	3/1/1997	12/1/2001	
Meridian	MS	Key Field	MEI	N	$4.50	12/1/2001	5/1/2004	
Meridian	MS	Key Field	MEI	N	$4.50	10/1/2005	2/1/2032	2,770,724
Tupelo	MS	Tupelo Regional	TUP	N	$3.00	11/1/1994	4/1/2003	
Tupelo	MS	Tupelo Regional	TUP	N	$4.50	4/1/2003	11/1/2019	
Tupelo	MS	Tupelo Regional	TUP	N	$4.50	4/1/2021	5/1/2022	1,602,424
Butte	MT	Bert Mooney	BTM	N	$3.00	7/1/1994	6/1/2006	
Butte	MT	Bert Mooney	BTM	N	$3.00	7/1/2006	8/1/2007	
Butte	MT	Bert Mooney	BTM	N	$3.00	11/1/2007	3/1/2010	
Butte	MT	Bert Mooney	BTM	N	$4.50	3/1/2010	3/1/2036	4,358,765
Billings	MT	Billings Logan International	BIL	N	$3.00	4/1/1994	9/1/2014	
Billings	MT	Billings Logan International	BIL	N	$3.00	11/1/2016	10/1/2019	
Billings	MT	Billings Logan International	BIL	N	$4.50	10/1/2019	3/1/2042	61,248,003
Bozeman	MT	Bozeman Yellowstone International	BZN	S	$3.00	8/1/1993	3/1/2009	
Bozeman	MT	Bozeman Yellowstone International	BZN	S	$4.50	3/1/2009	1/1/2033	72,452,519
Kalispell	MT	Glacier Park International	GPI	N	$3.00	12/1/1993	4/1/2005	
Kalispell	MT	Glacier Park International	GPI	N	$4.50	4/1/2005	9/1/2048	67,349,481

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Great Falls	MT	Great Falls International	GTF	N	$3.00	11/1/1992	7/1/2002	
Great Falls	MT	Great Falls International	GTF	N	$4.50	7/1/2002	3/1/2025	17,754,080
Helena	MT	Helena Regional	HLN	N	$3.00	4/1/1993	8/1/2002	
Helena	MT	Helena Regional	HLN	N	$4.50	8/1/2002	4/1/2026	12,269,525
Missoula	MT	Missoula Montana	MSO	S	$3.00	9/1/1992	4/1/2001	
Missoula	MT	Missoula Montana	MSO	S	$4.50	4/1/2001	5/1/2038	59,763,526
West Yellowstone	MT	Yellowstone	WYS	CS	$4.50	6/1/2011	5/1/2032	550,862
Jacksonville	NC	Albert J Ellis	OAJ	N	$3.00	1/1/1996	10/1/1998	
Jacksonville	NC	Albert J Ellis	OAJ	N	$3.00	9/1/1999	8/1/2000	
Jacksonville	NC	Albert J Ellis	OAJ	N	$3.00	3/1/2005	1/1/2009	
Jacksonville	NC	Albert J Ellis	OAJ	N	$3.00	2/1/2009	2/1/2012	
Jacksonville	NC	Albert J Ellis	OAJ	N	$4.50	2/1/2012	11/1/2030	15,663,452
Asheville	NC	Asheville Regional	AVL	S	$3.00	12/1/1994	10/1/2002	
Asheville	NC	Asheville Regional	AVL	S	$4.50	10/1/2002	11/1/2006	
Asheville	NC	Asheville Regional	AVL	S	$4.50	4/1/2007	9/1/2007	
Asheville	NC	Asheville Regional	AVL	S	$4.50	10/1/2007	7/1/2029	61,997,136
Charlotte	NC	Charlotte/Douglas International	CLT	L	$3.00	11/1/2004	10/1/2061	4,746,920,963
New Bern	NC	Coastal Carolina Regional	EWN	N	$3.00	2/1/1997	11/1/2003	
New Bern	NC	Coastal Carolina Regional	EWN	N	$4.50	11/1/2003	10/1/2025	11,200,275
Fayetteville	NC	Fayetteville Regional/Grannis Field	FAY	N	$3.00	11/1/2000	2/1/2006	
Fayetteville	NC	Fayetteville Regional/Grannis Field	FAY	N	$4.00	7/1/2009	10/1/2012	
Fayetteville	NC	Fayetteville Regional/Grannis Field	FAY	N	$4.00	3/1/2013	6/1/2013	
Fayetteville	NC	Fayetteville Regional/Grannis Field	FAY	N	$4.00	5/1/2015	3/1/2019	
Fayetteville	NC	Fayetteville Regional/Grannis Field	FAY	N	$4.50	3/1/2019	4/1/2024	12,258,434
Greensboro	NC	Piedmont Triad International	GSO	S	$4.50	9/1/2011	1/1/2025	43,872,158
Greenville	NC	Pitt-Greenville	PGV	N	$3.00	10/1/1997	4/1/2001	
Greenville	NC	Pitt-Greenville	PGV	N	$4.50	4/1/2001	1/1/2016	
Greenville	NC	Pitt-Greenville	PGV	N	$4.50	7/1/2016	7/1/2024	5,004,753
Raleigh/Durham	NC	Raleigh-Durham International	RDU	M	$3.00	4/1/2003	10/1/2004	
Raleigh/Durham	NC	Raleigh-Durham International	RDU	M	$4.50	10/1/2004	9/1/2032	772,690,405
Wilmington	NC	Wilmington International	ILM	S	$3.00	2/1/1994	9/1/1996	
Wilmington	NC	Wilmington International	ILM	S	$3.00	6/1/1998	5/1/2003	
Wilmington	NC	Wilmington International	ILM	S	$4.50	5/1/2003	8/1/2027	47,656,145
Bismarck	ND	Bismarck Municipal	BIS	N	$3.00	7/1/1996	7/1/1997	
Bismarck	ND	Bismarck Municipal	BIS	N	$3.00	6/1/1998	4/1/2002	
Bismarck	ND	Bismarck Municipal	BIS	N	$4.50	4/1/2002	6/1/2042	46,068,291
Dickinson	ND	Dickinson/Theodore Roosevelt Regional	DIK	N	$4.50	4/1/2014	1/1/2028	1,382,746

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Grand Forks	ND	Grand Forks International	GFK	N	$3.00	2/1/1993	8/1/1996	
Grand Forks	ND	Grand Forks International	GFK	N	$3.00	5/1/1997	4/1/2001	
Grand Forks	ND	Grand Forks International	GFK	N	$4.50	4/1/2001	6/1/2003	
Grand Forks	ND	Grand Forks International	GFK	N	$4.50	5/1/2004	10/1/2008	
Grand Forks	ND	Grand Forks International	GFK	N	$4.50	1/1/2009	2/1/2027	12,044,384
Fargo	ND	Hector International	FAR	S	$3.00	1/1/1997	8/1/2002	
Fargo	ND	Hector International	FAR	S	$4.50	8/1/2002	2/1/2026	38,534,473
Jamestown	ND	Jamestown Regional	JMS	N	$4.50	8/1/2018	5/1/2034	830,000
Minot	ND	Minot International	MOT	N	$3.00	3/1/1994	7/1/1998	
Minot	ND	Minot International	MOT	N	$3.00	3/1/1999	2/1/2002	
Minot	ND	Minot International	MOT	N	$4.50	2/1/2002	12/1/2027	16,405,153
Williston	ND	Williston Basin International	XWA	N	$4.50	4/1/2013	12/1/2034	8,874,709
Grand Island	NE	Central Nebraska Regional	GRI	N	$3.00	2/1/1999	4/1/2001	
Grand Island	NE	Central Nebraska Regional	GRI	N	$4.50	5/1/2001	1/1/2030	5,248,737
Omaha	NE	Eppley Airfield	OMA	M	$4.50	2/1/2018	7/1/2044	296,323,145
Kearney	NE	Kearney Regional	EAR	N	$4.00	11/1/2005	9/1/2007	
Kearney	NE	Kearney Regional	EAR	N	$4.50	9/1/2007	7/1/2011	
Kearney	NE	Kearney Regional	EAR	N	$4.50	10/1/2011	11/1/2037	1,749,744
Lincoln	NE	Lincoln	LNK	N	$4.50	11/1/2016	11/1/2025	5,411,638
Scottsbluff	NE	Western Nebraska Regional/William B Heilig Field	BFF	N	$3.00	3/1/2000	3/1/2003	
Scottsbluff	NE	Western Nebraska Regional/William B Heilig Field	BFF	N	$4.50	7/1/2004	4/1/2034	1,299,534
Lebanon	NH	Lebanon Municipal	LEB	CS	$3.00	8/1/1995	8/1/2002	
Lebanon	NH	Lebanon Municipal	LEB	CS	$4.50	11/1/2003	5/1/2006	
Lebanon	NH	Lebanon Municipal	LEB	CS	$4.50	10/1/2007	5/1/2014	
Lebanon	NH	Lebanon Municipal	LEB	CS	$4.50	10/1/2014	6/1/2024	1,186,558
Manchester	NH	Manchester Boston Regional	MHT	S	$3.00	1/1/1993	1/1/2008	
Manchester	NH	Manchester Boston Regional	MHT	S	$4.50	1/1/2008	7/1/2036	198,491,244
Atlantic City	NJ	Atlantic City International	ACY	S	$3.00	10/1/1999	12/1/2005	
Atlantic City	NJ	Atlantic City International	ACY	S	$4.50	12/1/2005	8/1/2014	
Atlantic City	NJ	Atlantic City International	ACY	S	$4.50	9/1/2014	3/1/2025	57,765,575
Newark	NJ	Newark Liberty International	EWR	L	$3.00	10/1/1992	4/1/2006	
Newark	NJ	Newark Liberty International	EWR	L	$4.50	4/1/2006	4/1/2026	2,037,100,940
Trenton	NJ	Trenton Mercer	TTN	N	$3.00	1/1/2001	5/1/2004	
Trenton	NJ	Trenton Mercer	TTN	N	$4.50	5/1/2004	11/1/2025	18,867,971
Albuquerque	NM	Albuquerque International Sunport	ABQ	M	$3.00	7/1/1996	7/1/2011	
Albuquerque	NM	Albuquerque International Sunport	ABQ	M	$4.50	7/1/2011	7/1/2024	238,123,525
Farmington	NM	Four Corners Regional	FMN	GA	$3.00	6/1/2003	5/1/2023	643,375

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Roswell	NM	Roswell Air Center	ROW	N	$3.00	4/1/1999	2/1/2004	
Roswell	NM	Roswell Air Center	ROW	N	$4.50	2/1/2004	6/1/2004	
Roswell	NM	Roswell Air Center	ROW	N	$3.00	6/1/2004	6/1/2005	
Roswell	NM	Roswell Air Center	ROW	N	$4.50	6/1/2005	2/1/2008	
Roswell	NM	Roswell Air Center	ROW	N	$4.50	3/1/2008	9/1/2027	3,637,712
Elko	NV	Elko Regional	EKO	CS	$3.00	9/1/1998	11/1/2003	
Elko	NV	Elko Regional	EKO	CS	$4.50	11/1/2003	2/1/2021	
Elko	NV	Elko Regional	EKO	CS	$4.50	3/1/2023	5/1/2037	4,150,214
Las Vegas	NV	Harry Reid International	LAS	L	$3.00	6/1/1992	11/1/2004	
Las Vegas	NV	Harry Reid International	LAS	L	$4.50	11/1/2004	9/1/2006	
Las Vegas	NV	Harry Reid International	LAS	L	$3.00	9/1/2006	1/1/2007	
Las Vegas	NV	Harry Reid International	LAS	L	$4.00	1/1/2007	10/1/2008	
Las Vegas	NV	Harry Reid International	LAS	L	$4.50	10/1/2008	11/1/2053	4,563,146,058
Reno	NV	Reno/Tahoe International	RNO	M	$3.00	1/1/1994	2/1/2001	
Reno	NV	Reno/Tahoe International	RNO	M	$4.50	8/1/2001	6/1/2002	
Reno	NV	Reno/Tahoe International	RNO	M	$3.00	6/1/2002	2/1/2003	
Reno	NV	Reno/Tahoe International	RNO	M	$4.50	2/1/2003	10/1/2004	
Reno	NV	Reno/Tahoe International	RNO	M	$3.00	10/1/2004	4/1/2005	
Reno	NV	Reno/Tahoe International	RNO	M	$4.50	4/1/2005	7/1/2007	
Reno	NV	Reno/Tahoe International	RNO	M	$3.00	7/1/2007	12/1/2007	
Reno	NV	Reno/Tahoe International	RNO	M	$4.50	12/1/2007	4/1/2026	258,342,907
Saranac Lake	NY	Adirondack Regional	SLK	CS	$3.00	8/1/1994	9/1/2007	
Saranac Lake	NY	Adirondack Regional	SLK	CS	$4.50	2/1/2011	6/1/2033	591,574
Albany	NY	Albany International	ALB	S	$3.00	3/1/1994	9/1/2009	
Albany	NY	Albany International	ALB	S	$4.50	9/1/2009	7/1/2027	151,053,075
Buffalo	NY	Buffalo Niagara International	BUF	S	$3.00	8/1/1992	8/1/2007	
Buffalo	NY	Buffalo Niagara International	BUF	S	$4.50	8/1/2007	3/1/2026	277,465,974
Jamestown	NY	Chautauqua County/Jamestown	JHW	GA	$3.00	6/1/1993	8/1/2002	
Jamestown	NY	Chautauqua County/Jamestown	JHW	GA	$4.50	9/1/2004	3/1/2018	781,130
Elmira/Corning	NY	Elmira/Corning Regional	ELM	N	$3.00	12/1/2004	1/1/2008	
Elmira/Corning	NY	Elmira/Corning Regional	ELM	N	$4.50	5/1/2008	6/1/2037	15,795,148
Rochester	NY	Frederick Douglass/Greater Rochester International	ROC	S	$3.00	12/1/1997	9/1/2004	
Rochester	NY	Frederick Douglass/Greater Rochester International	ROC	S	$4.50	9/1/2004	4/1/2032	149,293,155
Binghamton	NY	Greater Binghamton/Edwin A Link Field	BGM	N	$3.00	11/1/1993	9/1/2002	
Binghamton	NY	Greater Binghamton/Edwin A Link Field	BGM	N	$4.50	9/1/2002	2/1/2008	
Binghamton	NY	Greater Binghamton/Edwin A Link Field	BGM	N	$4.50	5/1/2008	7/1/2030	11,007,395
Ithaca	NY	Ithaca Tompkins International	ITH	N	$3.00	1/1/1993	3/1/2009	

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Ithaca	NY	Ithaca Tompkins International	ITH	N	$4.50	3/1/2009	9/1/2026	10,950,193
New York	NY	John F Kennedy International	JFK	L	$3.00	10/1/1992	4/1/2006	
New York	NY	John F Kennedy International	JFK	L	$4.50	4/1/2006	4/1/2026	2,645,406,501
New York	NY	Laguardia	LGA	L	$3.00	10/1/1992	4/1/2006	
New York	NY	Laguardia	LGA	L	$4.50	4/1/2006	4/1/2026	1,532,745,863
New York	NY	Long Island MacArthur	ISP	S	$3.00	12/1/1994	9/1/2005	
New York	NY	Long Island MacArthur	ISP	S	$4.50	9/1/2005	9/1/2025	89,276,807
Massena	NY	Massena International-Richards Field	MSS	CS	$3.00	4/1/1996	4/1/2061	163,429
New York	NY	New York Stewart International	SWF	N	$3.00	11/1/1995	3/1/2002	
New York	NY	New York Stewart International	SWF	N	$4.50	3/1/2002	11/1/2005	
New York	NY	New York Stewart International	SWF	N	$4.50	5/1/2007	9/1/2007	
New York	NY	New York Stewart International	SWF	N	$4.50	7/1/2010	8/1/2026	22,251,900
Niagara Falls	NY	Niagara Falls International	IAG	N	$4.50	11/1/2017	10/1/2024	3,636,300
Ogdensburg	NY	Ogdensburg International	OGS	CS	$3.00	4/1/1996	7/1/2016	
Ogdensburg	NY	Ogdensburg International	OGS	CS	$4.50	7/1/2016	10/1/2032	818,080
Utica	NY	Oneida County	UCA	GA	$3.00	8/1/1997	6/1/2010	119,867
Plattsburgh	NY	Plattsburgh International	PBG	N	$3.00	7/1/1993	3/1/2001	
Plattsburgh	NY	Plattsburgh International	PBG	N	$3.00	6/1/2001	4/1/2003	
Plattsburgh	NY	Plattsburgh International	PBG	N	$4.50	1/1/2009	12/1/2044	40,092,223
Syracuse	NY	Syracuse Hancock International	SYR	S	$3.00	10/1/1995	1/1/2002	
Syracuse	NY	Syracuse Hancock International	SYR	S	$4.50	10/1/2002	8/1/2005	
Syracuse	NY	Syracuse Hancock International	SYR	S	$4.50	11/1/2005	2/1/2007	
Syracuse	NY	Syracuse Hancock International	SYR	S	$4.50	4/1/2007	3/1/2033	149,050,102
Watertown	NY	Watertown International	ART	N	$4.50	4/1/2017	4/1/2024	605,205
White Plains	NY	Westchester County	HPN	S	$3.00	2/1/1993	12/1/2001	
White Plains	NY	Westchester County	HPN	S	$4.50	12/1/2001	5/1/2014	
White Plains	NY	Westchester County	HPN	S	$4.50	8/1/2016	9/1/2026	82,548,745
Akron	OH	Akron-Canton Regional	CAK	N	$3.00	9/1/1992	9/1/2002	
Akron	OH	Akron-Canton Regional	CAK	N	$4.50	9/1/2002	8/1/2035	88,874,705
Cleveland	OH	Cleveland-Hopkins International	CLE	M	$3.00	11/1/1992	3/1/2002	
Cleveland	OH	Cleveland-Hopkins International	CLE	M	$4.50	3/1/2002	1/1/2026	619,447,532
Toledo	OH	Eugene F Kranz Toledo Express	TOL	N	$3.00	9/1/1993	9/1/1996	
Toledo	OH	Eugene F Kranz Toledo Express	TOL	N	$3.00	7/1/1997	7/1/2001	
Toledo	OH	Eugene F Kranz Toledo Express	TOL	N	$4.50	7/1/2001	11/1/2024	19,250,245
Dayton	OH	James M Cox Dayton International	DAY	S	$3.00	10/1/1994	9/1/2001	
Dayton	OH	James M Cox Dayton International	DAY	S	$4.50	9/1/2001	2/1/2027	138,930,431
Columbus	OH	John Glenn Columbus International	CMH	M	$3.00	10/1/1992	4/1/2002	

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Columbus	OH	John Glenn Columbus International	CMH	M	$4.50	4/1/2002	4/1/2025	418,441,520
Youngstown/Warren	OH	Youngstown/Warren Regional	YNG	GA	$3.00	5/1/1994	7/1/1996	
Youngstown/Warren	OH	Youngstown/Warren Regional	YNG	GA	$3.00	8/1/1997	2/1/2002	
Youngstown/Warren	OH	Youngstown/Warren Regional	YNG	GA	$4.50	4/1/2007	12/1/2027	5,467,796
Lawton	OK	Lawton-Fort Sill Regional	LAW	N	$2.00	8/1/1992	1/1/1994	
Lawton	OK	Lawton-Fort Sill Regional	LAW	N	$3.00	1/1/1994	4/1/1996	
Lawton	OK	Lawton-Fort Sill Regional	LAW	N	$3.00	1/1/1998	8/1/2000	
Lawton	OK	Lawton-Fort Sill Regional	LAW	N	$4.50	6/1/2002	3/1/2004	
Lawton	OK	Lawton-Fort Sill Regional	LAW	N	$4.50	9/1/2004	10/1/2005	
Lawton	OK	Lawton-Fort Sill Regional	LAW	N	$4.50	11/1/2007	9/1/2038	8,133,616
Stillwater	OK	Stillwater Regional	SWO	N	$4.50	10/1/2020	8/1/2026	751,098
Tulsa	OK	Tulsa International	TUL	S	$3.00	8/1/1992	3/1/1996	
Tulsa	OK	Tulsa International	TUL	S	$3.00	1/1/1997	12/1/2010	
Tulsa	OK	Tulsa International	TUL	S	$4.50	12/1/2010	6/1/2032	202,173,707
Oklahoma City	OK	Will Rogers World	OKC	S	$3.00	7/1/1997	4/1/2010	
Oklahoma City	OK	Will Rogers World	OKC	S	$4.50	4/1/2010	10/1/2035	259,264,359
Klamath Falls	OR	Crater Lake/Klamath Regional	LMT	GA	$3.00	3/1/2000	4/1/2001	
Klamath Falls	OR	Crater Lake/Klamath Regional	LMT	GA	$4.50	4/1/2001	12/1/2011	
Klamath Falls	OR	Crater Lake/Klamath Regional	LMT	GA	$4.50	4/1/2012	10/1/2023	2,132,265
Pendleton	OR	Eastern Oregon Regional at Pendleton	PDT	CS	$3.00	12/1/1995	10/1/2009	
Pendleton	OR	Eastern Oregon Regional at Pendleton	PDT	CS	$4.50	10/1/2009	5/1/2018	
Pendleton	OR	Eastern Oregon Regional at Pendleton	PDT	CS	$4.50	12/1/2018	2/1/2027	752,900
Eugene	OR	Mahlon Sweet Field	EUG	S	$3.00	11/1/1993	6/1/2001	
Eugene	OR	Mahlon Sweet Field	EUG	S	$4.50	6/1/2001	5/1/2027	53,321,807
Portland	OR	Portland International	PDX	M	$3.00	7/1/1992	10/1/2001	
Portland	OR	Portland International	PDX	M	$4.50	10/1/2001	1/1/2041	1,425,914,626
Redmond	OR	Roberts Field	RDM	S	$3.00	10/1/1993	11/1/2001	
Redmond	OR	Roberts Field	RDM	S	$4.50	11/1/2001	12/1/2006	
Redmond	OR	Roberts Field	RDM	S	$4.50	3/1/2007	7/1/2040	33,531,050
Medford	OR	Rogue Valley International - Medford	MFR	S	$3.00	7/1/1993	4/1/2001	
Medford	OR	Rogue Valley International - Medford	MFR	S	$4.50	4/1/2001	4/1/2028	43,849,018
North Bend	OR	Southwest Oregon Regional	OTH	N	$3.00	2/1/1994	8/1/2001	
North Bend	OR	Southwest Oregon Regional	OTH	N	$4.50	8/1/2001	4/1/2038	2,900,608
Altoona	PA	Altoona/Blair County	AOO	CS	$3.00	5/1/1993	2/1/1996	
Altoona	PA	Altoona/Blair County	AOO	CS	$3.00	1/1/1997	10/1/1999	
Altoona	PA	Altoona/Blair County	AOO	CS	$3.00	7/1/2000	12/1/2008	
Altoona	PA	Altoona/Blair County	AOO	CS	$4.50	12/1/2008	4/1/2021	

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Altoona	PA	Altoona/Blair County	AOO	CS	$4.50	8/1/2021	7/1/2025	791,553
Latrobe	PA	Arnold Palmer Regional	LBE	N	$3.00	3/1/1996	8/1/2012	
Latrobe	PA	Arnold Palmer Regional	LBE	N	$4.50	8/1/2012	2/1/2028	12,346,595
Bradford	PA	Bradford Regional	BFD	CS	$3.00	8/1/1995	5/1/2003	
Bradford	PA	Bradford Regional	BFD	CS	$4.50	5/1/2003	2/1/2030	620,981
DuBois	PA	Dubois Regional	DUJ	CS	$3.00	6/1/1995	4/1/2001	
DuBois	PA	Dubois Regional	DUJ	CS	$4.50	4/1/2001	11/1/2003	
DuBois	PA	Dubois Regional	DUJ	CS	$4.50	4/1/2004	12/1/2030	988,067
Erie	PA	Erie International/Tom Ridge Field	ERI	N	$3.00	10/1/1992	6/1/1997	
Erie	PA	Erie International/Tom Ridge Field	ERI	N	$3.00	12/1/1997	5/1/2001	
Erie	PA	Erie International/Tom Ridge Field	ERI	N	$4.50	8/1/2003	1/1/2005	
Erie	PA	Erie International/Tom Ridge Field	ERI	N	$4.50	7/1/2005	5/1/2031	17,707,813
Harrisburg	PA	Harrisburg International	MDT	S	$3.00	2/1/1997	1/1/2003	
Harrisburg	PA	Harrisburg International	MDT	S	$4.50	1/1/2003	7/1/2034	136,117,114
Johnstown	PA	John Murtha Johnstown/Cambria County	JST	CS	$3.00	11/1/1993	12/1/1996	
Johnstown	PA	John Murtha Johnstown/Cambria County	JST	CS	$3.00	12/1/1997	5/1/2001	
Johnstown	PA	John Murtha Johnstown/Cambria County	JST	CS	$4.50	5/1/2001	1/1/2007	
Johnstown	PA	John Murtha Johnstown/Cambria County	JST	CS	$4.50	7/1/2007	8/1/2025	1,177,764
Lancaster	PA	Lancaster	LNS	CS	$3.00	2/1/1995	2/1/2009	
Lancaster	PA	Lancaster	LNS	CS	$4.50	7/1/2013	6/1/2036	2,650,325
Allentown	PA	Lehigh Valley International	ABE	N	$3.00	11/1/1992	2/1/2001	
Allentown	PA	Lehigh Valley International	ABE	N	$3.00	6/1/2001	11/1/2001	
Allentown	PA	Lehigh Valley International	ABE	N	$4.50	11/1/2001	1/1/2003	
Allentown	PA	Lehigh Valley International	ABE	N	$4.50	9/1/2003	6/1/2033	61,856,718
Philadelphia	PA	Philadelphia International	PHL	L	$3.00	9/1/1992	4/1/2001	
Philadelphia	PA	Philadelphia International	PHL	L	$4.50	4/1/2001	2/1/2013	
Philadelphia	PA	Philadelphia International	PHL	L	$3.00	2/1/2013	3/1/2013	
Philadelphia	PA	Philadelphia International	PHL	L	$4.50	3/1/2013	12/1/2028	1,877,145,307
Pittsburgh	PA	Pittsburgh International	PIT	M	$3.00	10/1/2001	12/1/2004	
Pittsburgh	PA	Pittsburgh International	PIT	M	$4.50	12/1/2004	8/1/2061	1,121,945,574
Reading	PA	Reading Regional/Carl A Spaatz Field	RDG	GA	$3.00	12/1/1994	7/1/2008	1,006,653
State College	PA	State College Regional	UNV	N	$3.00	11/1/1992	11/1/2003	
State College	PA	State College Regional	UNV	N	$4.50	11/1/2003	10/1/2036	19,505,587
Wilkes-Barre/Scranton	PA	Wilkes-Barre/Scranton International	AVP	N	$3.00	12/1/1993	6/1/1997	
Wilkes-Barre/Scranton	PA	Wilkes-Barre/Scranton International	AVP	N	$3.00	12/1/1997	5/1/2001	
Wilkes-Barre/Scranton	PA	Wilkes-Barre/Scranton International	AVP	N	$4.50	5/1/2001	8/1/2025	25,828,727
Williamsport	PA	Williamsport Regional	IPT	GA	$3.00	5/1/1997	11/1/1998	

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Williamsport	PA	Williamsport Regional	IPT	GA	$4.50	11/1/2013	9/1/2028	1,857,488
San Juan	PR	Luis Munoz Marin International	SJU	M	$3.00	3/1/1993	12/1/2005	
San Juan	PR	Luis Munoz Marin International	SJU	M	$4.50	12/1/2005	3/1/2029	626,820,836
Ponce	PR	Mercedita	PSE	N	$3.00	3/1/1993	9/1/1998	
Ponce	PR	Mercedita	PSE	N	$4.50	9/1/2020	9/1/2028	3,997,641
Aguadilla	PR	Rafael Hernandez	BQN	N	$3.00	3/1/1993	5/1/1996	
Aguadilla	PR	Rafael Hernandez	BQN	N	$4.50	12/1/2005	4/1/2015	
Aguadilla	PR	Rafael Hernandez	BQN	N	$4.50	10/1/2020	12/1/2022	
Aguadilla	PR	Rafael Hernandez	BQN	N	$4.50	2/1/2023	7/1/2026	11,231,507
Providence	RI	Rhode Island Tf Green International	PVD	S	$3.00	2/1/1994	9/1/2006	
Providence	RI	Rhode Island Tf Green International	PVD	S	$4.50	9/1/2006	11/1/2032	281,541,253
Charleston	SC	Charleston AFB/International	CHS	M	$4.50	3/1/2010	7/1/2039	189,546,679
Columbia	SC	Columbia Metro	CAE	S	$3.00	11/1/1993	12/1/2001	
Columbia	SC	Columbia Metro	CAE	S	$4.50	12/1/2001	10/1/2028	70,528,884
Florence	SC	Florence Regional	FLO	N	$3.00	12/1/1995	11/1/1999	
Florence	SC	Florence Regional	FLO	N	$3.00	12/1/1999	2/1/2000	
Florence	SC	Florence Regional	FLO	N	$4.50	12/1/2014	6/1/2020	1,777,480
Greer	SC	Greenville Spartanburg International	GSP	S	$4.50	5/1/2020	10/1/2024	16,238,071
Hilton Head Island	SC	Hilton Head	HXD	N	$3.00	2/1/1994	6/1/2000	
Hilton Head Island	SC	Hilton Head	HXD	N	$3.00	12/1/2000	10/1/2007	
Hilton Head Island	SC	Hilton Head	HXD	N	$4.50	5/1/2012	1/1/2024	6,532,944
Myrtle Beach	SC	Myrtle Beach International	MYR	S	$3.00	10/1/1996	8/1/2001	
Myrtle Beach	SC	Myrtle Beach International	MYR	S	$4.50	8/1/2001	8/1/2007	
Myrtle Beach	SC	Myrtle Beach International	MYR	S	$4.50	6/1/2010	1/1/2025	104,185,413
Aberdeen	SD	Aberdeen Regional	ABR	N	$3.00	1/1/2000	1/1/2002	
Aberdeen	SD	Aberdeen Regional	ABR	N	$4.50	1/1/2002	10/1/2029	2,985,232
Sioux Falls	SD	Joe Foss Field	FSD	S	$4.50	1/1/2017	4/1/2025	17,612,920
Pierre	SD	Pierre Regional	PIR	N	$4.50	2/1/2003	7/1/2009	
Pierre	SD	Pierre Regional	PIR	N	$4.50	9/1/2009	4/1/2042	2,070,789
Rapid City	SD	Rapid City Regional	RAP	N	$3.00	8/1/1997	1/1/2000	
Rapid City	SD	Rapid City Regional	RAP	N	$3.00	6/1/2000	6/1/2006	
Rapid City	SD	Rapid City Regional	RAP	N	$4.50	6/1/2006	6/1/2033	34,628,990
Watertown	SD	Watertown Regional	ATY	N	$4.50	10/1/2019	4/1/2031	688,896
Chattanooga	TN	Lovell Field	CHA	S	$3.00	7/1/1994	4/1/2001	
Chattanooga	TN	Lovell Field	CHA	S	$4.50	4/1/2001	11/1/2004	
Chattanooga	TN	Lovell Field	CHA	S	$3.00	11/1/2004	2/1/2005	
Chattanooga	TN	Lovell Field	CHA	S	$4.50	2/1/2005	3/1/2028	43,757,691

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Knoxville	TN	McGhee Tyson	TYS	S	$3.00	1/1/1994	10/1/2003	
Knoxville	TN	McGhee Tyson	TYS	S	$4.50	10/1/2003	12/1/2025	107,172,380
Jackson	TN	McKellar-Sipes Regional	MKL	CS	$4.50	10/1/2002	6/1/2025	332,248
Memphis	TN	Memphis International	MEM	M	$3.00	8/1/1992	1/1/1997	
Memphis	TN	Memphis International	MEM	M	$4.50	9/1/2018	5/1/2029	152,090,128
Nashville	TN	Nashville International	BNA	L	$3.00	1/1/1993	12/1/2009	
Nashville	TN	Nashville International	BNA	L	$4.50	12/1/2009	9/1/2010	
Nashville	TN	Nashville International	BNA	L	$3.00	9/1/2010	5/1/2015	
Nashville	TN	Nashville International	BNA	L	$4.50	5/1/2015	6/1/2043	1,551,658,353
Bristol/Johnson/Kingsport	TN	Tri-Cities	TRI	N	$3.00	2/1/1997	7/1/2007	
Bristol/Johnson/Kingsport	TN	Tri-Cities	TRI	N	$4.50	7/1/2007	1/1/2025	20,336,852
Abilene	TX	Abilene Regional	ABI	N	$3.00	1/1/1998	9/1/2002	
Abilene	TX	Abilene Regional	ABI	N	$4.50	9/1/2002	4/1/2023	
Abilene	TX	Abilene Regional	ABI	N	$4.50	8/1/2023	8/1/2032	9,370,088
Austin	TX	Austin-Bergstrom International	AUS	L	$2.00	11/1/1993	2/1/1994	
Austin	TX	Austin-Bergstrom International	AUS	L	$3.00	2/1/1994	2/1/1995	
Austin	TX	Austin-Bergstrom International	AUS	L	$3.00	7/1/1995	4/1/2004	
Austin	TX	Austin-Bergstrom International	AUS	L	$4.50	4/1/2004	11/1/2034	831,089,379
Brownsville	TX	Brownsville/South Padre Island International	BRO	N	$3.00	10/1/1997	5/1/2003	
Brownsville	TX	Brownsville/South Padre Island International	BRO	N	$4.50	5/1/2003	8/1/2045	15,969,178
Corpus Christi	TX	Corpus Christi International	CRP	N	$3.00	3/1/1994	3/1/2003	
Corpus Christi	TX	Corpus Christi International	CRP	N	$4.50	3/1/2003	8/1/2031	57,428,922
Dallas	TX	Dallas Love Field	DAL	M	$3.00	2/1/2008	2/1/2010	
Dallas	TX	Dallas Love Field	DAL	M	$4.50	2/1/2010	4/1/2027	510,334,570
Dallas-Fort Worth	TX	Dallas-Fort Worth International	DFW	L	$3.00	5/1/1994	6/1/1996	
Dallas-Fort Worth	TX	Dallas-Fort Worth International	DFW	L	$3.00	2/1/1997	7/1/2002	
Dallas-Fort Worth	TX	Dallas-Fort Worth International	DFW	L	$4.50	7/1/2002	10/1/2038	5,655,256,130
Del Rio	TX	Del Rio International	DRT	N	$4.50	2/1/2010	7/1/2025	794,239
Longview	TX	East Texas Regional	GGG	N	$3.00	9/1/1996	4/1/2002	
Longview	TX	East Texas Regional	GGG	N	$3.00	9/1/2002	9/1/2012	
Longview	TX	East Texas Regional	GGG	N	$4.50	9/1/2012	9/1/2023	2,350,343
College Station	TX	Easterwood Field	CLL	N	$3.00	7/1/1996	4/1/2001	
College Station	TX	Easterwood Field	CLL	N	$4.50	4/1/2001	5/1/2031	11,197,211
El Paso	TX	El Paso International	ELP	S	$3.00	1/1/1997	8/1/2010	
El Paso	TX	El Paso International	ELP	S	$4.50	8/1/2010	5/1/2013	
El Paso	TX	El Paso International	ELP	S	$4.50	6/1/2013	12/1/2024	146,723,170
Houston	TX	George Bush Intcntl/Houston	IAH	L	$3.00	12/1/2008	3/1/2015	

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Houston	TX	George Bush Intcntl/Houston	IAH	L	$4.50	3/1/2015	4/1/2039	2,809,691,307
Beaumont/Port Arthur	TX	Jack Brooks Regional	BPT	N	$3.00	9/1/1994	3/1/2002	
Beaumont/Port Arthur	TX	Jack Brooks Regional	BPT	N	$4.50	3/1/2002	3/1/2029	4,901,113
Laredo	TX	Laredo International	LRD	N	$3.00	10/1/1993	6/1/2009	
Laredo	TX	Laredo International	LRD	N	$4.50	6/1/2009	4/1/2040	20,779,276
Lubbock	TX	Lubbock Preston Smith International	LBB	S	$3.00	10/1/1993	2/1/2005	
Lubbock	TX	Lubbock Preston Smith International	LBB	S	$2.00	2/1/2005	2/1/2007	
Lubbock	TX	Lubbock Preston Smith International	LBB	S	$3.00	2/1/2007	6/1/2008	
Lubbock	TX	Lubbock Preston Smith International	LBB	S	$4.50	6/1/2008	12/1/2032	71,825,694
McAllen	TX	McAllen International	MFE	S	$3.00	4/1/1998	6/1/2011	
McAllen	TX	McAllen International	MFE	S	$4.50	6/1/2011	12/1/2027	38,570,954
Midland	TX	Midland International Air And Space Port	MAF	S	$3.00	1/1/1993	9/1/2004	
Midland	TX	Midland International Air And Space Port	MAF	S	$4.50	9/1/2004	1/1/2014	
Midland	TX	Midland International Air And Space Port	MAF	S	$3.00	1/1/2014	11/1/2014	
Midland	TX	Midland International Air And Space Port	MAF	S	$4.50	11/1/2014	7/1/2025	61,469,379
Amarillo	TX	Rick Husband Amarillo International	AMA	N	$4.50	1/1/2009	6/1/2025	22,751,167
Fort Cavazos (Killeen)	TX	Robert Gray AAF	GRK	N	$3.00	1/1/1993	11/1/1994	
Fort Cavazos (Killeen)	TX	Robert Gray AAF	GRK	N	$3.00	4/1/1995	5/1/2001	
Fort Cavazos (Killeen)	TX	Robert Gray AAF	GRK	N	$4.50	5/1/2001	8/1/2003	
Fort Cavazos (Killeen)	TX	Robert Gray AAF	GRK	N	$4.50	12/1/2003	1/1/2006	
Fort Cavazos (Killeen)	TX	Robert Gray AAF	GRK	N	$4.50	6/1/2006	7/1/2028	16,040,348
San Angelo	TX	San Angelo Regional/Mathis Field	SJT	N	$3.00	5/1/1993	4/1/2002	
San Angelo	TX	San Angelo Regional/Mathis Field	SJT	N	$4.50	4/1/2002	1/1/2030	8,489,950
San Antonio	TX	San Antonio International	SAT	M	$3.00	11/1/2001	10/1/2007	
San Antonio	TX	San Antonio International	SAT	M	$4.50	10/1/2007	2/1/2029	431,280,175
Wichita Falls	TX	Sheppard AFB/Wichita Falls Municipal	SPS	N	$4.50	10/1/2008	8/1/2058	9,607,509
Tyler	TX	Tyler Pounds Regional	TYR	N	$3.00	3/1/1994	9/1/2003	
Tyler	TX	Tyler Pounds Regional	TYR	N	$4.50	9/1/2003	10/1/2037	11,668,802
Harlingen	TX	Valley International	HRL	S	$3.00	11/1/1998	12/1/2007	
Harlingen	TX	Valley International	HRL	S	$4.50	12/1/2007	7/1/2009	
Harlingen	TX	Valley International	HRL	S	$4.50	8/1/2009	9/1/2027	37,855,709
Victoria	TX	Victoria Regional	VCT	CS	$3.00	12/1/1994	8/1/1998	
Victoria	TX	Victoria Regional	VCT	CS	$3.00	1/1/1999	1/1/2002	
Victoria	TX	Victoria Regional	VCT	CS	$4.50	1/1/2002	8/1/2016	828,792
Waco	TX	Waco Regional	ACT	N	$3.00	11/1/1995	10/1/2001	
Waco	TX	Waco Regional	ACT	N	$4.50	10/1/2001	8/1/2026	6,715,295
Houston	TX	William P Hobby	HOU	M	$3.00	11/1/2006	3/1/2015	

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Houston	TX	William P Hobby	HOU	M	$4.50	3/1/2015	9/1/2038	736,300,640
Cedar City	UT	Cedar City Regional	CDC	N	$4.50	2/1/2007	10/1/2011	
Cedar City	UT	Cedar City Regional	CDC	N	$4.50	2/1/2012	8/1/2043	1,883,165
Salt Lake City	UT	Salt Lake City International	SLC	L	$3.00	12/1/1994	4/1/2001	
Salt Lake City	UT	Salt Lake City International	SLC	L	$4.50	4/1/2001	4/1/2037	2,077,959,779
St. George	UT	St George Regional	SGU	N	$3.00	5/1/1998	9/1/2002	
St. George	UT	St George Regional	SGU	N	$4.50	6/1/2003	11/1/2030	8,387,183
Wendover	UT	Wendover	ENV	GA	$3.00	8/1/1996	10/1/1999	142,300
Charlottesville	VA	Charlottesville-Albemarle	CHO	N	$2.00	9/1/1992	10/1/1993	
Charlottesville	VA	Charlottesville-Albemarle	CHO	N	$3.00	4/1/1995	1/1/2005	
Charlottesville	VA	Charlottesville-Albemarle	CHO	N	$4.50	1/1/2005	1/1/2010	
Charlottesville	VA	Charlottesville-Albemarle	CHO	N	$4.50	8/1/2010	12/1/2027	30,384,472
Lynchburg	VA	Lynchburg Regional/Preston Glenn Field	LYH	N	$3.00	7/1/1995	7/1/1996	
Lynchburg	VA	Lynchburg Regional/Preston Glenn Field	LYH	N	$3.00	9/1/2000	6/1/2002	
Lynchburg	VA	Lynchburg Regional/Preston Glenn Field	LYH	N	$4.50	6/1/2002	9/1/2031	8,364,446
Newport News	VA	Newport News/Williamsburg International	PHF	N	$3.00	10/1/2006	7/1/2007	
Newport News	VA	Newport News/Williamsburg International	PHF	N	$4.50	7/1/2010	6/1/2024	15,313,209
Norfolk	VA	Norfolk International	ORF	S	$3.00	5/1/1997	1/1/2010	
Norfolk	VA	Norfolk International	ORF	S	$4.50	9/1/2010	1/1/2026	172,173,416
Richmond	VA	Richmond International	RIC	S	$3.00	5/1/1994	1/1/2005	
Richmond	VA	Richmond International	RIC	S	$4.50	1/1/2005	12/1/2024	183,868,888
Roanoke	VA	Roanoke/Blacksburg Regional (Woodrum Field)	ROA	N	$3.00	9/1/1998	12/1/2001	
Roanoke	VA	Roanoke/Blacksburg Regional (Woodrum Field)	ROA	N	$4.50	12/1/2001	6/1/2025	30,893,090
Arlington	VA	Ronald Reagan Washington Ntl	DCA	L	$3.00	11/1/1993	5/1/2001	
Arlington	VA	Ronald Reagan Washington Ntl	DCA	L	$4.50	5/1/2001	2/1/2036	1,677,372,966
Staunton/Waynesboro/ Harrisonburg	VA	Shenandoah Valley Regional	SHD	N	$3.00	12/1/2001	12/1/2006	
Staunton/Waynesboro/ Harrisonburg	VA	Shenandoah Valley Regional	SHD	N	$4.50	6/1/2007	10/1/2025	1,039,952
Dulles	VA	Washington Dulles International	IAD	L	$3.00	1/1/1994	5/1/2001	
Dulles	VA	Washington Dulles International	IAD	L	$4.50	5/1/2001	12/1/2038	2,442,302,508
Charlotte Amalie	VI	Cyril E King	STT	S	$3.00	3/1/1993	8/1/1995	
Charlotte Amalie	VI	Cyril E King	STT	S	$3.00	12/1/1995	12/1/2002	
Charlotte Amalie	VI	Cyril E King	STT	S	$3.00	8/1/2004	4/1/2012	
Charlotte Amalie	VI	Cyril E King	STT	S	$4.50	4/1/2012	5/1/2025	55,060,671
Christiansted	VI	Henry E Rohlsen	STX	N	$3.00	3/1/1993	4/1/1996	
Christiansted	VI	Henry E Rohlsen	STX	N	$3.00	12/1/1996	7/1/2003	
Christiansted	VI	Henry E Rohlsen	STX	N	$3.00	10/1/2011	7/1/2016	9,339,163

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Burlington	VT	Patrick Leahy Burlington International	BTV	S	$3.00	4/1/1997	9/1/2003	
Burlington	VT	Patrick Leahy Burlington International	BTV	S	$4.50	9/1/2003	10/1/2009	
Burlington	VT	Patrick Leahy Burlington International	BTV	S	$4.50	12/1/2009	6/1/2025	60,738,637
Bellingham	WA	Bellingham International	BLI	N	$3.00	7/1/1993	8/1/1998	
Bellingham	WA	Bellingham International	BLI	N	$3.00	3/1/1999	7/1/2002	
Bellingham	WA	Bellingham International	BLI	N	$4.50	7/1/2002	7/1/2010	
Bellingham	WA	Bellingham International	BLI	N	$4.50	10/1/2010	10/1/2027	38,188,548
Friday Harbor	WA	Friday Harbor	FHR	N	$3.00	2/1/2001	7/1/2016	
Friday Harbor	WA	Friday Harbor	FHR	N	$4.50	4/1/2018	6/1/2029	1,060,107
Moses Lake	WA	Grant County International	MWH	GA	$3.00	3/1/1999	11/1/2005	
Moses Lake	WA	Grant County International	MWH	GA	$4.50	11/1/2005	2/1/2017	162,124
Wenatchee	WA	Pangborn Memorial	EAT	N	$3.00	8/1/1993	10/1/1995	
Wenatchee	WA	Pangborn Memorial	EAT	N	$3.00	6/1/1998	7/1/2002	
Wenatchee	WA	Pangborn Memorial	EAT	N	$4.50	7/1/2002	2/1/2003	
Wenatchee	WA	Pangborn Memorial	EAT	N	$4.50	5/1/2003	4/1/2010	
Wenatchee	WA	Pangborn Memorial	EAT	N	$4.50	5/1/2010	4/1/2035	9,728,976
Pullman	WA	Pullman/Moscow Regional	PUW	N	$3.00	6/1/1994	2/1/1996	
Pullman	WA	Pullman/Moscow Regional	PUW	N	$3.00	2/1/2000	1/1/2002	
Pullman	WA	Pullman/Moscow Regional	PUW	N	$4.50	1/1/2002	9/1/2013	
Pullman	WA	Pullman/Moscow Regional	PUW	N	$4.50	11/1/2013	3/1/2066	10,029,690
Seattle	WA	Seattle-Tacoma International	SEA	L	$3.00	11/1/1992	10/1/2001	
Seattle	WA	Seattle-Tacoma International	SEA	L	$4.50	10/1/2001	1/1/2043	3,841,864,375
Everett	WA	Seattle Paine Field International	PAE	N	$4.50	11/1/2020	6/1/2029	17,180,842
Spokane	WA	Spokane International	GEG	S	$3.00	6/1/1993	4/1/2003	
Spokane	WA	Spokane International	GEG	S	$4.50	4/1/2003	9/1/2035	265,126,621
Pasco	WA	Tri-Cities	PSC	N	$3.00	11/1/1993	10/1/2001	
Pasco	WA	Tri-Cities	PSC	N	$4.50	10/1/2001	9/1/2040	58,947,132
Walla Walla	WA	Walla Walla Regional	ALW	N	$3.00	11/1/1993	10/1/2001	
Walla Walla	WA	Walla Walla Regional	ALW	N	$4.50	10/1/2001	11/1/2024	3,745,775
Port Angeles	WA	William R Fairchild International	CLM	GA	$3.00	8/1/1993	5/1/1995	
Port Angeles	WA	William R Fairchild International	CLM	GA	$3.00	9/1/1996	10/1/2011	
Port Angeles	WA	William R Fairchild International	CLM	GA	$3.00	7/1/2012	4/1/2022	1,000,156
Yakima	WA	Yakima Air Trml/McAllister Field	YKM	N	$3.00	2/1/1993	2/1/1999	
Yakima	WA	Yakima Air Trml/McAllister Field	YKM	N	$3.00	5/1/1999	4/1/2011	
Yakima	WA	Yakima Air Trml/McAllister Field	YKM	N	$4.50	4/1/2011	6/1/2031	7,104,032
Appleton	WI	Appleton International	ATW	N	$3.00	7/1/1994	6/1/2006	
Appleton	WI	Appleton International	ATW	N	$4.50	6/1/2006	4/1/2008	

Associated City	State	Airport Name	LOC ID	Hub size	Level	Start Date	Expiration Date	Total PFC Approved (by location)
Appleton	WI	Appleton International	ATW	N	$3.00	4/1/2008	9/1/2008	
Appleton	WI	Appleton International	ATW	N	$4.50	9/1/2008	8/1/2036	41,406,402
Mosinee	WI	Central Wisconsin	CWA	N	$3.00	11/1/1993	9/1/2007	
Mosinee	WI	Central Wisconsin	CWA	N	$4.50	9/1/2007	10/1/2025	15,547,303
Eau Claire	WI	Chippewa Valley Regional	EAU	N	$3.00	2/1/1996	12/1/2001	
Eau Claire	WI	Chippewa Valley Regional	EAU	N	$4.50	12/1/2001	1/1/2006	
Eau Claire	WI	Chippewa Valley Regional	EAU	N	$4.50	8/1/2006	6/1/2024	2,147,974
Madison	WI	Dane County Regional/Truax Field	MSN	S	$3.00	9/1/1993	11/1/2001	
Madison	WI	Dane County Regional/Truax Field	MSN	S	$4.50	11/1/2001	5/1/2045	203,372,735
Milwaukee	WI	General Mitchell International	MKE	M	$3.00	5/1/1995	11/1/2012	
Milwaukee	WI	General Mitchell International	MKE	M	$4.50	11/1/2012	7/1/2027	398,687,403
Green Bay	WI	Green Bay/Austin Straubel International	GRB	N	$3.00	3/1/1993	3/1/2002	
Green Bay	WI	Green Bay/Austin Straubel International	GRB	N	$4.50	3/1/2002	12/1/2028	46,299,787
La Crosse	WI	La Crosse Regional	LSE	N	$3.00	7/1/1994	4/1/2001	
La Crosse	WI	La Crosse Regional	LSE	N	$4.50	4/1/2001	4/1/2028	12,741,825
Rhinelander	WI	Rhinelander/Oneida County	RHI	N	$3.00	1/1/1994	4/1/1996	
Rhinelander	WI	Rhinelander/Oneida County	RHI	N	$3.00	6/1/1996	9/1/2001	
Rhinelander	WI	Rhinelander/Oneida County	RHI	N	$4.50	9/1/2001	3/1/2022	
Rhinelander	WI	Rhinelander/Oneida County	RHI	N	$4.50	3/1/2023	9/1/2024	2,909,327
Lewisburg	WV	Greenbrier Valley	LWB	N	$4.50	4/1/2011	1/1/2025	1,104,958
Parkersburg	WV	Mid-Ohio Valley Regional	PKB	CS	$3.00	5/1/1999	8/1/2002	
Parkersburg	WV	Mid-Ohio Valley Regional	PKB	CS	$4.50	8/1/2003	10/1/2027	798,612
Morgantown	WV	Morgantown Municipal/Walter L Bill Hart Field	MGW	CS	$2.00	12/1/1992	1/1/1994	
Morgantown	WV	Morgantown Municipal/Walter L Bill Hart Field	MGW	CS	$2.00	12/1/1994	1/1/2002	
Morgantown	WV	Morgantown Municipal/Walter L Bill Hart Field	MGW	CS	$4.50	1/1/2002	3/1/2008	
Morgantown	WV	Morgantown Municipal/Walter L Bill Hart Field	MGW	CS	$4.50	6/1/2009	1/1/2026	1,170,454
Clarksburg	WV	North Central West Virginia	CKB	N	$3.00	4/1/1994	10/1/1995	
Clarksburg	WV	North Central West Virginia	CKB	N	$4.50	4/1/2001	8/1/2002	
Clarksburg	WV	North Central West Virginia	CKB	N	$4.50	5/1/2004	5/1/2054	3,101,233
Beckley	WV	Raleigh County Memorial	BKW	CS	$4.50	8/1/2017	8/1/2039	285,965
Huntington	WV	Tri-State/Milton J Ferguson Field	HTS	N	$3.00	12/1/1995	12/1/2008	
Huntington	WV	Tri-State/Milton J Ferguson Field	HTS	N	$3.00	5/1/2009	6/1/2012	
Huntington	WV	Tri-State/Milton J Ferguson Field	HTS	N	$4.50	7/1/2012	4/1/2027	8,421,335
Charleston	WV	West Virginia International Yeager	CRW	N	$3.00	8/1/1993	11/1/2001	
Charleston	WV	West Virginia International Yeager	CRW	N	$4.50	11/1/2001	6/1/2051	44,319,750
Casper	WY	Casper/Natrona County International	CPR	N	$3.00	9/1/1993	4/1/2001	
Casper	WY	Casper/Natrona County International	CPR	N	$4.50	4/1/2001	3/1/2012	

Associated City	State	Airport Name	LOC ID	Hub size	Level	Start Date	Expiration Date	Total PFC Approved (by location)
Casper	WY	Casper/Natrona County International	CPR	N	$3.00	3/1/2012	10/1/2019	
Casper	WY	Casper/Natrona County International	CPR	N	$4.50	10/1/2019	7/1/2031	10,100,378
Riverton	WY	Central Wyoming Regional	RIW	N	$3.00	5/1/1995	4/1/2001	
Riverton	WY	Central Wyoming Regional	RIW	N	$4.50	4/1/2001	11/1/2036	1,180,133
Cheyenne	WY	Cheyenne Regional/Jerry Olson Field	CYS	N	$3.00	11/1/1993	4/1/2001	
Cheyenne	WY	Cheyenne Regional/Jerry Olson Field	CYS	N	$4.50	4/1/2001	9/1/2012	
Cheyenne	WY	Cheyenne Regional/Jerry Olson Field	CYS	N	$4.50	9/1/2014	9/1/2024	1,804,637
Jackson	WY	Jackson Hole	JAC	N	$3.00	8/1/1993	4/1/2001	
Jackson	WY	Jackson Hole	JAC	N	$4.50	4/1/2001	9/1/2041	39,383,556
Laramie	WY	Laramie Regional	LAR	N	$3.00	8/1/1996	10/1/2000	
Laramie	WY	Laramie Regional	LAR	N	$3.00	12/1/2000	8/1/2001	
Laramie	WY	Laramie Regional	LAR	N	$4.50	12/1/2006	4/1/2013	
Laramie	WY	Laramie Regional	LAR	N	$4.50	6/1/2013	2/1/2064	4,089,854
Gillette	WY	Northeast Wyoming Regional	GCC	N	$3.00	9/1/1993	12/1/2001	
Gillette	WY	Northeast Wyoming Regional	GCC	N	$4.50	12/1/2001	6/1/2004	
Gillette	WY	Northeast Wyoming Regional	GCC	N	$4.50	1/1/2005	1/1/2023	
Gillette	WY	Northeast Wyoming Regional	GCC	N	$4.50	6/1/2023	7/1/2027	2,921,574
Sheridan	WY	Sheridan County	SHR	N	$3.00	3/1/1996	12/1/2001	
Sheridan	WY	Sheridan County	SHR	N	$4.50	12/1/2001	9/1/2008	
Sheridan	WY	Sheridan County	SHR	N	$4.50	10/1/2008	2/1/2030	2,163,671
Rock Springs	WY	Southwest Wyoming Regional	RKS	N	$3.00	4/1/1995	4/1/2006	
Rock Springs	WY	Southwest Wyoming Regional	RKS	N	$4.50	4/1/2006	12/1/2024	2,009,268
Worland	WY	Worland Municipal	WRL	GA	$4.50	1/1/2003	3/1/2008	
Worland	WY	Worland Municipal	WRL	GA	$4.50	8/1/2008	7/1/2022	265,060
Cody	WY	Yellowstone Regional	COD	N	$3.00	8/1/1997	7/1/2001	
Cody	WY	Yellowstone Regional	COD	N	$4.50	7/1/2001	4/1/2005	
Cody	WY	Yellowstone Regional	COD	N	$4.50	9/1/2005	6/1/2018	
Cody	WY	Yellowstone Regional	COD	N	$4.50	7/1/2018	2/1/2020	
Cody	WY	Yellowstone Regional	COD	N	$4.50	12/1/2020	1/1/2027	3,637,963

unique locations approved 404 Total $127,822,766,355

NOTES:
Total PFC approved includes all the collections at the location

Letter of Intent (LOI) Commitments by Fiscal Year

State	City	Airport Name	Discretionary 2024	Entitlement 2024	Discretionary 2025	Entitlement 2025
CA	San Diego	San Diego International	10,000,000	0	10,000,000	0
IL	Chicago	Chicago O'Hare International	30,000,000	0	30,000,000	0
TX	Dallas-Fort Worth	Dallas-Fort Worth International	16,666,667	0	0	0
DC	Washington*	Ronald Reagan Washington Ntl	10,000,000	0	10,000,000	0
		Totals	66,666,667	0	50,000,000	0

Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)

State	City	Airport Name	Discretionary 2026	Entitlement 2026	Discretionary 2027	Entitlement 2027
CA	San Diego	San Diego International	10,000,000	0	10,000,000	0
IL	Chicago	Chicago O'Hare International	20,000,000	0	0	0
TX	Dallas-Fort Worth	Dallas-Fort Worth International	0	0	0	0
DC	Washington*	Ronald Reagan Washington Ntl	15,000,000	0	15,000,000	0
		Total	45,000,000	0	25,000,000	0

Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)

State	City	Airport Name	Discretionary 2028	Entitlement 2028	Discretionary 2029	Entitlement 2029
CA	San Diego	San Diego International	10,000,000	0	10,000,000	0
IL	Chicago	Chicago O'Hare International	0	0	0	0
TX	Dallas-Fort Worth	Dallas-Fort Worth International	0	0	0	0
DC	Washington*	Ronald Reagan Washington Ntl	15,000,000	0	15,000,000	0
		Total	25,000,000	0	25,000,000	0

Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)

State	City	Airport Name	Discretionary 2030	Entitlement 2030	Discretionary 2031	Entitlement 2031
CA	San Diego	San Diego International	15,000,000	0	15,000,000	0
IL	Chicago	Chicago O'Hare International	0	0	0	0
TX	Dallas-Fort Worth	Dallas-Fort Worth International	0	0	0	0
DC	Washington*	Ronald Reagan Washington Ntl	13,000,000	0	0	0
		Total	28,000,000	0	15,000,000	0

Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)

State	City	Airport Name	Discretionary Total	Entitlement Total
CA	San Diego	San Diego International	90,000,000	0
IL	Chicago	Chicago O'Hare International	80,000,000	0
TX	Dallas-Fort Worth	Dallas-Fort Worth International	16,666,667	0
DC	Washington*	Ronald Reagan Washington Ntl	93,000,000	0
		Total	279,666,667	0

FACILITY REPLACEMENT AND RADAR MODERNIZATION

SEC. ___. FACILITY REPLACEMENT AND RADAR MODERNIZATION PROGRAM.

(a) FEDERAL AVIATION ADMINISTRATION APPROPRIATION.—In addition to amounts made available under section 48101(a) of title 49, United States Code, and amounts otherwise available, there is appropriated to carry out this section, the following sums out of amounts in the Airport and Airway Trust Fund not otherwise appropriated:

(1) for fiscal year 2025, $1,000,000,000, to remain available until expended;

(2) for fiscal year 2026, $1,000,000,000, to remain available until expended;

(3) for fiscal year 2027, $2,000,000,000, to remain available until expended;

(4) for fiscal year 2028, $2,000,000,000, to remain available until expended; and

(5) for fiscal year 2029, $2,000,000,000, to remain available until expended.

(b) PURPOSE.—Amounts made available in subsection (a) shall be available to the Administrator of the Federal Aviation Administration to acquire, establish, and improve air navigation facilities under section 44502(a)(1)(A) of title 49, United States Code.

(c) LIMITATIONS AND PRIORITIES.—

(1) MANNED FACILITY REPLACEMENTS.—Not less than $5,000,000,000 of the amounts made available under subsection (a) for fiscal years 2025 through 2029, in the aggregate, shall be used for the manned facility replacement projects.

(2) PERSONNEL AND RELATED EXPENSES.—Not more than $1,250,000,000 of the amounts made available under subsection (a) for fiscal years 2025 through 2029, in the aggregate, may be used for personnel and related expenses.

(3) AIRPORT RADAR PROJECTS.—For amounts not used for manned facility replacement projects under paragraph (1), the Administrator shall prioritize airport radar projects.

EXHIBIT III-1
FACILITY REPLACEMENT AND RADAR MODERNIZATION
Summary by Program Activity
Appropriations, Obligation Limitations, and Exempt Obligations
($000)

	FY 2023 ENACTED	FY 2024 ANNUALIZED CR	FY 2025 REQUEST
Facilities Replace	$ -	$ -	$ 852,000
Radar Replace	$ -	$ -	$ 98,000
Personnel and Related Expenses	$ -	$ -	$ 50,000
Facility Replacement and Radar Modernization	$ -	$ -	$ 1,000,000

Program and Performance Statement

To ensure the highest level of safety and integrity of the National Airspace System, the President's Budget proposes an additional $8.0 billion over five years (FY 2025-FY 2029) to replace additional manned air traffic control facilities, replace cooperative radars, and modernize noncooperative radars across the nation. This proposal would include the first ever recapitalization effort for Air Route Traffic Control Centers, alongside the replacement of over 20 air traffic control towers. A facility replacement and radar modernization program funded via a multi-year mandatory account will ensure the agency's major infrastructure assets are recapitalized in time to mitigate service degradations and safety risks. This sustained level of investment will ensure the U.S. has a vibrant and safe airspace for the future.

Detailed Justification for Facility Replacement and Radar Modernization

Facility Replacement and Radar Modernization Budget Request ($000)

Program Activity	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Salaries and Expenses			50,000
Program Costs			950,000
Total			**$ 1,000,000**
FTE			181

What is this program and what does this funding level support?

The FAA shoulders the crucial responsibility of overseeing the infrastructure of a vast network of nearly 350 air traffic control towers (ATCT) and terminal radar approach control (TRACON) facilities, in addition to managing 21 air route traffic control centers (ARTCC). These facilities and radars are a product of almost $70.0 billion (in today's dollars) of investment throughout multiple decades. Re-capitalization is necessary to sustain safe and efficient National Airspace System (NAS) operations in the decades to come. A failure to replace facilities and modernize radar networks in a timely manner will degrade FAA's capacity to keep pace with the aviation economy and undermine opportunities to improve safety.

Air traffic control facilities including towers, TRACONS, and ARTCCs serve as the backbone of our nation's airspace and are pivotal in ensuring the safe and efficient flow of air traffic. Because of their age, many sites can no longer be satisfactorily maintained and require recapitalization/replacement. In addition, each of these facilities relies on a broad array of equipment for air traffic management, including a national network of radar systems that provide air traffic controllers with information on aircraft locations. Similar to our facilities, because the majority of our FAA radar installations are over 40 years old, many are beyond their useful life.

The $8.0 billion proposed over FY 2025-2029 will include $1.0 billion per year in FY 2025-2026 and $2.0 billion per year in FY 2027- 2029. Of this total, at least $5.0 billion will be dedicated to air traffic control facility replacements/recapitalizations, $2.0 billion will be dedicated to radar modernization, and $1.0 billion for personnel-related implementation expenses.

A detailed funding plan for this proposal is shown in the table below.

Facility Replacement and Radar Modernization Proposal ($M)						
	FY 2025	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Total**
ARTCC Recapitalization	96.0	560.9	651.1	339.0	854.0	2,501.0
ATCT/TRACON Replace	756.0	252.0	978.0	408.0	105.0	2,499.0
Facilities Replace Subtotal	**852.0**	**812.9**	**1,629.1**	**747.0**	**959.0**	**5,000.0**
Radar Replace	**98.0**	**87.1**	**170.9**	**953.0**	**691.0**	**2,000.0**
Personnel Related Expenses	**50.0**	**100.0**	**200.0**	**300.0**	**350.0**	**1,000.0**
Total	**1,000.0**	**1,000.0**	**2,000.0**	**2,000.0**	**2,000.0**	**8,000.0**

Facilities

The FAA confronts a pressing challenge – aging buildings. Air traffic control facilities have structural deficiencies and chronic issues that cannot be resolved through maintenance or sustainment work. These issues include water leaks, mold, tower cab window condensation, deterioration due to old designs, and general disrepair. Drivers for replacement include material degradation; deficiencies in structural integrity, building codes and compliance; and poor insulation and energy efficiency. As the average age of these facilities continues to rise, these types of issues will grow exponentially. Air traffic controllers must have safe and secure towers to effectively manage and ensure the safety of air traffic. Replacement of these structures will provide the new standard in construction, health, safety, and operational efficiency.

Many of the FAA's facilities are large and complex, often requiring expensive and lengthy replacement efforts. Due to their size, costs are typically spread out across multiple fiscal years and the instability of annual appropriations can make it difficult to commit funding to such projects. A stable and predictable funding source will be crucial to a successful recapitalization plan.

For example, in FY 2022, the Bipartisan Infrastructure Law (BIL) funded a multi-year effort for the replacement of 30 air traffic control towers that would have been impossible to execute via annual appropriations. This proposal will build on the BIL program to replace additional towers and also make a down-payment on the recapitalization of air route traffic control facilities, representing a substantial investment in the national airspace system. The FAA's forward-thinking approach aims not only to enhance safety and efficiency but also to foster environmental responsibility through sustainable design principles.

Air traffic control facility replacements are expensive. Facility replacement costs can vary significantly from site to site depending on location, building size, tower height, equipment,

and complexity of the environment. To give a sense of the magnitude of the replacement efforts, the $841 million ATCT/TRACON Replacement funding provided to the Facilities and Equipment (F&E) account since FY 2014 covers the construction costs of less than 10 out of the nearly 350 FAA-owned terminal air traffic control facilities across the nation. In addition to replacement funds, annual appropriations provide funding to sustain our existing facilities. As facilities age and equipment surpasses the end of their expected lifespan, the cost to sustain them increases and their effectiveness declines.

In addition to funding provided through the annual appropriations process, the Bipartisan Infrastructure Law provided $1.0 billion each year over the FY 2022-2026 period for the replacement and sustainment of air traffic control facilities. The majority of this funding will support air traffic control tower replacements. Additional investment is needed to expand upon the work started under BIL and ensure the inventory is recapitalized in time to mitigate service degradations and safety risks.

All ARTCCs were constructed in the 1960's and the average age is 61 years. Given the size and complexity of an ARTCC, replacing one could take at least five years. The FAA must start a large-scale recapitalization no later than FY 2025 to ensure the ARTCC network continues to meet the needs of the NAS. The proposed ARTCC recapitalization program will be the first of its kind in FAA history and will require decades to complete. Recapitalization of the entire ARTCC portfolio will require significant negotiation with major labor partners in order to execute the program in a manner that is both timely and cost effective.

The FAA uses a set of elements to filter from the overall list of nearly 350 facilities to create a funnel of candidate sites for air traffic control facility replacements. These include:

- Facility level: Each facility is given a level, ranging from 1 through 12, based on the number of operations at the facility.
- Facility type: Whether a tower has or does not have a radar, is a TRACON, is a combined control facility, etc.
- Tier: Each facility has a service tier designation, ranging from 1 through 4, based on the services provided and the number operations at the facility.
- Facility condition index: Measures the state of good repair of a facility.
- Age of facility: Measured in years.
- Surface events rate: This safety metric includes runway incursion information for the facility.
- Site evaluations: This evaluation incorporates issues with the geography, such as identifying line of sight problems.
- Average annual enplanement: The total number of revenue passengers boarding aircraft at the airport, including both originations and transfers.
- Average annual operations: Measures the total number of flights in a facility.

With the implementation of BIL, the FAA included additional elements to reach smaller towers and communities with critical need that would not be considered through the normal process. The small tower effort is also setting the stage to replace more facilities in parallel

and achieve more results faster/simultaneously. The next grouping of potential BIL funded towers (18) was developed collaboratively with the FAA's labor partners and is included in Appendix B.

The candidate list of 52 facilities for the Facility Replacement and Radar Modernization program merges the two approaches. It uses the elements listed above to identify the facility replacements that most benefit the NAS as a whole, while still preserving space for the lower tier facilities. The full candidate list is provided in Appendix C.

Air Traffic Control Tower and/or TRACON Replacement: The FAA used as a basis the cost of 12 facilities replaced over the last 10 years, adjusted for inflation. This analysis provided an estimate of $120.0 million on average for total replacement cost per site. The FAA will evaluate the group of 52 facilities, which were identified through the use of both the site criteria listed on page 5 as well as those used to identify replacement candidates for BIL. During the process, environmental, land/lease issues or changing operational concerns may cause a site to be moved to a later phase in the multi-year effort. If funding permits, additional sites would be pulled from a pool of 249 locations. These locations, listed in Appendix E, are all the FAA-owned towers that are both 21 years or older and have not received replacement funding from either BIL or the annual appropriations process.

The breakdown below represents how the years of funding would be distributed. Facilities with completed business cases that support replacement will be funded first for design and construction while additional facilities undergo their business case analysis.

- Year 1 (FY 2025): Funding for Design and Construction for nine sites
- Year 2 (FY 2026): Funding for Design and Construction for three sites
- Year 3 (FY 2027): Funding for Design and Construction for seven sites and equipment for 13 sites
- Year 4 (FY 2028): Funding for Design and Construction for two sites and equipment for eight sites
- Year 5 (FY 2029): Funding for Contingency and Close Out for 21 sites

ARTCC Replacement: The FAA has never replaced an ARTCC. Current analysis shows an estimated average cost of $930.0 million per site to replace and fully equip an ARTCC. Using some BIL funding, the FAA established an ARTCC Replacement program office to explore both the feasibility of a complete major overhaul program and the site selection and land acquisition for ARTCC replacement sites. Funding under this new program will cover design, land acquisition, construction, and equipment procurement.

Radar Systems

The FAA's plan also focuses on the timely and strategic modernization of surveillance radars. Airports use these radars to detect and display the presence and position of aircraft in the terminal area as well as the airspace around airports. The aging radars pose a significant challenge for air traffic management. As these radar systems age, they are more prone to technological obsolescence, making it increasingly difficult to maintain their performance and

integrate them with modern aviation infrastructure. The potential for increased downtime due to repairs can negatively impact airport operations and compromise the efficiency of air traffic control. Moreover, aging radar systems struggle to keep pace with the growing demands of air travel and evolving regulatory standards. To address these challenges, this plan invests in the replacement of radars opting for new technologies that offer improved performance, enhanced reliability, and compatibility with the latest air traffic management initiatives.

FAA maintains hundreds of radar systems across the nation. These systems, deployed across many decades, are a critical tool used by air traffic controllers to safely and efficiently manage air traffic. Modern aviation could not exist without these radar systems. In addition to the recapitalization of air traffic control facilities discussed above, this proposal includes a down payment on a multi-billion dollar initiative to replace and modernize 343 cooperative radars and 34 (of 230) non-cooperative radars by 2031.

FAA's radar system inventory includes cooperative radars that communicate with aircraft avionics to identify an aircraft and determine its position, and non-cooperative radars that use reflected radio frequency energy to determine aircraft position and provide a basic weather depiction. Cooperative systems include the ATCBI-5, ATCBI-6, Mode S, and MSSR. Non-cooperative systems include the ASR-8, ASR-9, and ASR-11. All FAA radar systems are older than their original intended lifespan (20 years). The oldest systems, the ATCBI-5 and ASR-8 are more than 50 years old.

FAA radar systems provide safety critical information to air traffic controllers, including an aircraft's position and identity as well as weather information. FAA radar systems provide a backup to Automatic Dependent Surveillance–Broadcast information, providing essential information in the event of Global Positioning System (GPS) degradation. This information is also essential for homeland security and national defense missions. As FAA radar systems exceed their intended lifespan, outages increase in frequency and duration, and service restoration becomes more difficult as antiquated components become increasingly difficult to obtain. The absence of critical aircraft position and identity information increases the risk of airborne collision and results in increased separation requirements, reducing operational efficiency.

The FAA is already in the process of replacing cooperative radars, thanks to the seed funding from annual F&E appropriations. These efforts culminated with the recent award of the Mode S Beacon Replacement Systems (MSBRS) contract. The FAA is already using this vehicle to replace over 40 of the 388 cooperative radar systems. By leveraging the MSBRS contract already in place, the FAA can replace the remaining cooperative radar systems with an additional $1.1 billion. The remaining $0.9 billion would support a plan to replace an initial set of the non-cooperative radars.

The FAA would analyze the current inventory of non-cooperative radars to determine the highest value systems to replace. Operational factors such as number of operations and class of airports as well as number of overlapping radar systems would be considered. The types of operations such as equipage levels, military vs. non-military, commercial vs general aviation, visual flight rules vs. instrument flight rules , etc. would be analyzed. Cost factors such as system complexity, reduction of system configurations, amount of obsolescence, and cost of

ownership would also be considered. The systems with the highest operational value and maximum cost avoidance would be prioritized for replacement.

The breakdown below represents how the years of funding would be distributed.

- Year 1 (FY 2025): Procure 86 MSBRS. Award non-cooperative radar contract.
- Year 2 (FY 2026): Install prior year's MSBRS and procure an additional 86 MSBRS. Procure four non-cooperative radars for test and evaluation.
- Year 3 (FY 2027): Install prior year's MSBRS and procure an additional 86 MSBRS. Conduct non-cooperative radar test.
- Year 4 (FY 2028): Install prior year's MSBRS and procure an additional 85 MSBRS. Procure 34 non-cooperative radar systems.
- Year 5 (FY 2029): Install prior year's MSBRS. Install 15 non-cooperative radars (balance installed in FY 2030 and FY 2031)

Personnel Related Expenses

Salaries and expenses to support program implementation are estimated as a percentage of the total funding amount, consistent with the amounts planned for F&E BIL activities. Building on the lessons learned from BIL, FAA hiring will ramp up as projects are implemented. The $1.0 billion allocated to personnel and related expenses equates to roughly 13 percent of the total $8.0 billion.

While the funding will be appropriated through FY 2029, it would be available until expended. It is anticipated that the work under this program will continue well beyond that timeline. As such, FAA plans to obligate this funding and expend FTE through FY 2034. The table below shows anticipated pay and non-pay costs under this proposal:

Facility Replacement and Radar Modernization
Personnel & Related Expenses ($ in Thousands)

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Total
Pay	34,546	82,565	86,615	92,446	98,059	104,111	112,455	120,063	91,531	41,316	863,706
Non-Pay	15,322	15,719	15,724	15,714	15,666	3,908	15,724	15,714	15,666	3,908	133,064
Total	**49,868**	**98,283**	**102,339**	**108,160**	**113,725**	**108,019**	**128,179**	**135,777**	**107,197**	**45,224**	**996,770**

As shown in the table below, the majority of staffing funded in this proposal will be procurement program office personnel in the Air Traffic Organization. Additional contracting officer and legal support positions will be funded in the Office of Finance and Management and Chief Counsel.

Facility Replacement and Radar Modernization
Full-Time Equivalent (FTE) Allocation

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
ATO	163	388	380	380	380	380	380	380	261	85
AFN	16	31	31	31	31	31	31	31	31	31
AGC	3	5	5	5	5	5	5	5	5	5
Total	**181**	**423**	**416**	**416**	**416**	**416**	**416**	**416**	**297**	**121**

What benefits will be provided to the American Public through this request and why is this program necessary?

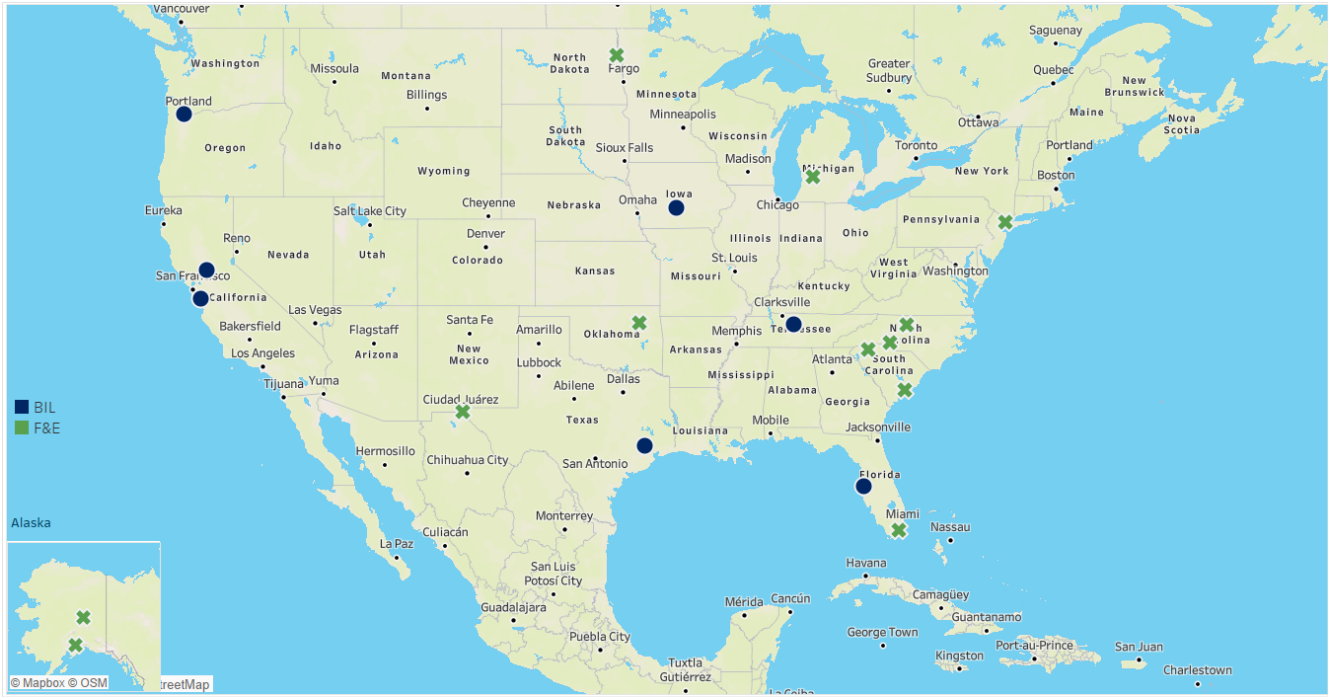
The FAA stands as the guardian of our national airspace system with a primary mission to ensure safety, efficiency, and continued operations. The FAA recognizes the critical importance of replacing aging infrastructure to uphold the highest standards of safety and operation efficiency. By investing in modern infrastructure, the FAA not only enhances safety and efficiency but also ensures the long-term viability of the U.S. aviation system, mitigating the challenges posed by legacy infrastructure and positioning the national airspace system for a resilient future.

Appendix A: Current Air Traffic Control Facility Replacements

The two most recent ATCT replacements were both in North Carolina. In February 2022, Charlotte, NC was commissioned, and in September 2022, Greensboro, NC was commissioned.

The following is a list of air traffic control facility replacement projects funded from FY 2019 through FY 2023 annual appropriations, as well as using FY 2023 and FY 2024 BIL funds.

- Anchorage, AK (ANC)
- Asheville, NC (AVL)
- Charleston, SC (CHS)
- Charlotte, NC (CLT)
- Des Moines, IA (DSM)
- El Paso, TX (ELP)
- Fairbanks, AK (FAI)
- Grand Forks, ND (GFK)
- Grand Rapids, MI (GRR)
- Greensboro, NC (GSO)
- Greer, SC (GSP)
- Hillsboro, OR (HIO)
- Nashville, TN (BNA)
- Sacramento, CA (SMF)
- San Jose, CA (SJC)
- Tamiami, FL (TMB)
- Tampa, FL (TPA)
- Teterboro, NY (TEB)
- Tomball, TX (DWH)
- Tulsa, OK (TUL)



Appendix B: Planned Air Traffic Control Facility Replacement Projects in BIL Spend Plan

The following list and map of air traffic control facility replacements projects are those identified in the FY 2025 BIL spend plan and selected based on age, height, CONUS, no radar, and HUB zone status.

Facility	Facility Name	State
AHN	Athens	GA
ALN	Alton	IL
BFM	Mobile	AL
BLI	Bellingham	WA
DET	Detroit	MI
DTN	Shreveport	LA
EMT	El Monte	CA
EYW	Key West	FL
FCM	Eden Prairie	MN
FLO	Florence	SC
FMY	Fort Myers	FL
FTW	Fort Worth	TX
GLH	Greenville	MS
HFD	Hartford	CT
HKS	Jackson	MS
LAW	Lawton	OK

Facility	Facility Name	State
LEB	Lebanon	NH
LOU	Louisville	KY
MCN	Macon	GA
MOD	Modesto	CA
MVY	Tisbury	MA
MWA	Marion	IL
OGD	Ogden	UT
PAH	Paducah	KY
PIH	Pocatello	ID
PNE	Philadelphia	PA
PUB	Pueblo	CO
RDG	Reading	PA
RVS	Tulsa	OK
SLE	Salem	OR
TOP	Topeka	KS

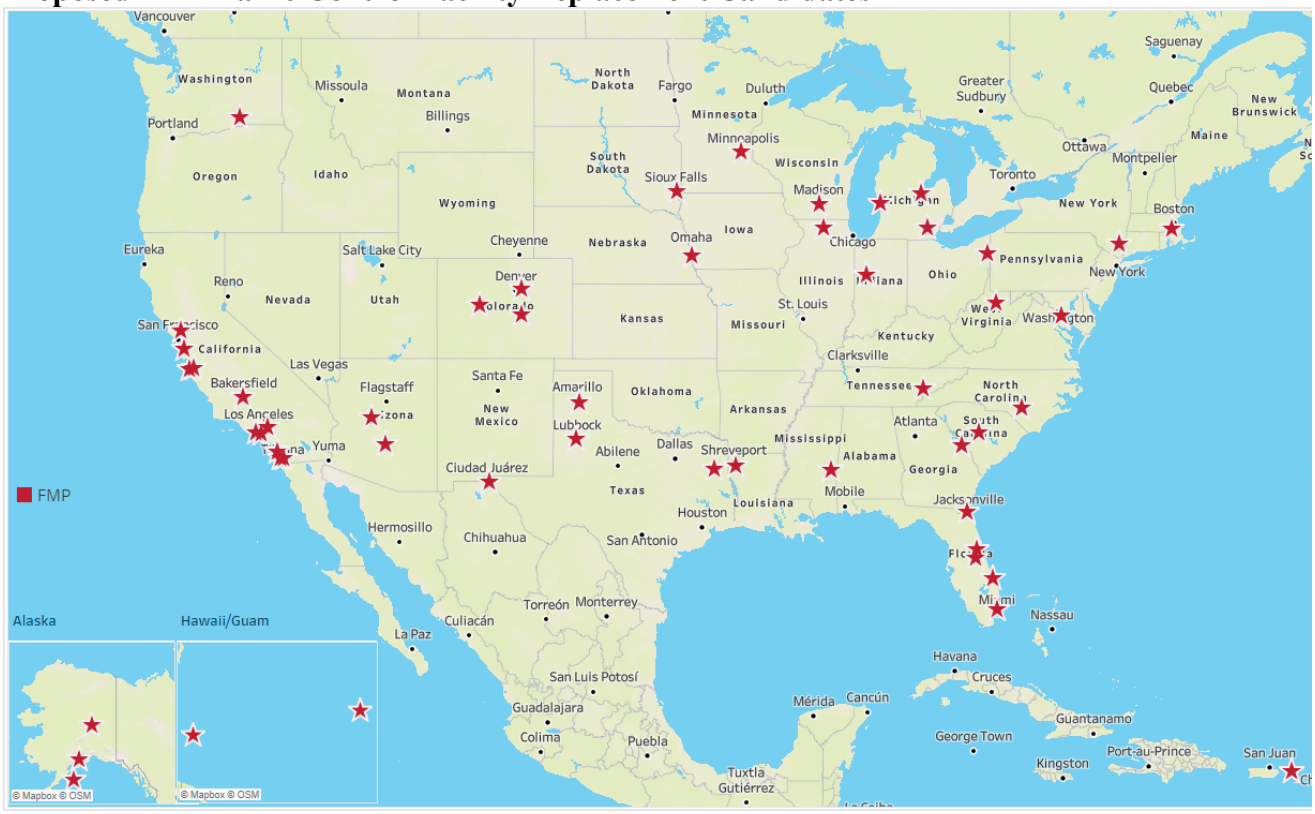
Appendix C: Proposed Air Traffic Control Facility Replacement Candidate List

The following list and map of 52 facilities, with an average age of 41 years, merges BIL's focus on lower tiered facilities with the pre-existing criteria for facility replacements. The asterisked locations were identified by an FAA collaborative team (management and labor) as the next group of BIL towers should funding be available. Other facilities and TRACONs were identified and evaluated with the elements listed on page 5. The FAA plans to select 20-25 facilities from this list.

Facility	Facility Name	State
ADQ	Kodiak Tower	AK
ADW	Andrews Tower	MD
AGS	Augusta Tower	GA
AMA*	Amarillo Tower	TX
APC*	Napa Tower	CA
ARB*	Ann Arbor Tower	MI
ASE*	Aspen Tower	CO
BAD	Barksdale TRACON	LA
BFL	Bakersfield Tower	CA
CAE	West Columbia ATCT/TRACON	SC
CKB*	Clarksburg Tower	WV
COS	Colorado Springs ATCT/TRACON	CO
CRQ*	Palomar Tower	CA
D01	Denver TRACON (D01)	CO
ELP	El Paso ATCT (ELP)	TX
ENA	Kenai Tower	AK
F11	Central Florida TRACON	FL
FAI	Fairbanks ATCT/TRACON	AK
FAY*	Fayetteville Tower	NC
FFZ	Falcon Mesa ATCT	AZ
FLL*	Fort Lauderdale Tower	FL
FPR*	St Lucie Tower	FL
FSD*	Sioux Falls Tower	SD
GGG	Longview Tower	TX
GUM	Guam Tower	GU
HNL	Honolulu ATCT/Control Facility	HI
JAX	Jacksonville Tower	FL
LAF*	Lafayette Tower	IN
LAX	Los Angeles ATCT (LAX)	CA
LBB	Lubbock Tower	TX
LGB	Long Beach Tower	CA
MBS*	Saginaw Tower	MI
MEI	Meridian Tower	MS
MIC*	Crystal Tower	MN
MKG*	Muskegon Tower	MI
MRY*	Monterey Tower	CA
MSN	Madison ATCT/TRACON	WI
MYF*	Montgomery Tower	CA
OWD	Norwood Tower	MA
PAO*	Palo Alto Tower	CA
POC*	Brackett Tower	CA
POU*	Poughkeepsie Tower	NY
PRC*	Prescott Tower	AZ
PSC*	Pasco Tower	WA
R90	Omaha TRACON	NE
RFD*	Rockford Tower	IL
SEE	Gillespie ATCT	CA
SFB	Sanford ATCT	KY
SNS	Salinas Tower	CA
STT*	St Thomas Tower	VI
TYS	Knoxville ATCT/TRACON	KY
YNG*	Youngstown Tower	OH

*Collaborative Team identified

Proposed Air Traffic Control Facility Replacement Candidates



Appendix D: Proposed Air Route Traffic Control Center (ARTCC) Replacement Candidate List

The tables below encompass the air route traffic control centers (ARTCCs) that could be replaced through the Facility Replacement and Radar Modernization program. The FAA will select for replacement candidates from this list.

ARTCC Replacement Candidates		
ID	**Facility Name**	**State**
ZAB	Albuquerque ARTCC	NM
ZAN	Anchorage ARTCC	AK
ZAU	Chicago ARTCC	IL
ZBW	Boston ARTCC	MA
ZDC	Washington ARTCC	VA
ZDV	Denver ARTCC	CO
ZFW	Fort Worth ARTCC	TX
ZHU	Houston ARTCC	TX
ZID	Indianapolis ARTCC	IN
ZJX	Jacksonville ARTCC	FL
ZKC	Kansas City ARTCC	KC
ZLA	Los Angeles ARTCC	CA
ZLC	Salt Lake ARTCC	UT
ZMA	Miami ARTCC	FL
ZME	Memphis ARTCC	TN
ZMP	Minneapolis ARTCC	MN
ZNY	New York ARTCC	NY
ZOA	Oakland ARTCC	CA
ZOB	Cleveland ARTCC	OH
ZSE	Seattle ARTCC	WA
ZTL	Atlanta ARTCC	GA

Appendix E: FAA-Owned Air Traffic Control Facilities Inventory

The list below represents the inventory of FAA owned ATCT or TRACON facilities that are 21 years of age or older that are not already funded, or will be funded, from other sources (such as BIL and annual appropriations). This list includes those facilities that are listed in Appendix B as candidates for funding under this proposal. It covers approximately 250 of almost 350 FAA-owned terminal air traffic control facilities. Facilities are grouped by their Facility Condition Index (FCI). The average age of this group of towers is 41 years. There are two in good condition, 73 in fair condition, and the remaining 174 are in poor condition.

ID	Facility Name	City	State	Classification Type	Tier Level	Age (in Years)	FCI Group
CRP	Corpus Christi Tower	Corpus Christi	TX	Combined TRACON Tower	4	21	Good
GRR	Grand Rapids Tower	Grand Rapids	MI	Combined TRACON Tower	3	59	Good
SBA	Santa Barbara Tower	Goleta	CA	Combined TRACON Tower	3	25	Fair
VNY	Van Nuys Tower	Van Nuys	CA	Tower With Radar	2	56	Fair
BHM	Birmingham Tower	Birmingham	AL	Combined TRACON Tower	3	22	Fair
ABE	Allentown Tower	Allentown	PA	Combined TRACON Tower	3	28	Fair
BMI	Bloomington Tower	Bloomington	IL	FAA Contract Tower (FCT)	4	21	Fair
SLN	Salina Tower	Salina	KS	FAA Contract Tower (FCT)	4	21	Fair
ORF	Norfolk Tower	Virginia Beach	VA	Combined TRACON Tower	3	28	Fair
LMT	Klamath Falls Tower	Klamath Falls	OR	FAA Contract Tower (FCT)	4	24	Fair
MWH	Grant County Tower	Moses Lake	WA	Combined TRACON Tower	4	24	Fair
STP	St Paul Tower	St. Paul	MN	Tower With Radar	4	24	Fair
SYR	Syracuse Tower	North Syracuse	NY	Combined TRACON Tower	3	24	Fair
ADQ	Kodiak Tower	Kodiak	AK	FAA Contract Tower (FCT)	4	81	Fair
ROW	Roswell Tower	Roswell	NM	Combined TRACON Tower	4	25	Fair

PKB	Parkersburg Tower	Williamstown	WV	FAA Contract Tower (FCT)	4	52	Fair
PWK	Chicago Executive Tower	Wheeling	IL	Tower With Radar	3	27	Fair
RDM	Redmond Tower	Redmond	OR	FAA Contract Tower (FCT)	4	26	Fair
ARR	Aurora Tower	Sugar Grove	IL	Tower With Radar	3	48	Fair
ORH	Worcester Tower	Worcester	MA	FAA Contract Tower (FCT)	4	27	Fair
PDX	Portland Tower	Portland	OR	Tower With Radar	2	24	Fair
CRQ	Palomar Tower	Carlsbad	CA	Tower With Radar	2	50	Fair
MLU	Monroe Tower	Monroe	LA	Combined TRACON Tower	4	30	Fair
FTY	Fulton County Tower	Atlanta	GA	FAA Contract Tower (FCT)	4	29	Fair
ORL	Orlando Executive, FL ATCT	Orlando	FL	Tower With Radar	3	29	Fair
AUS	Austin Tower	Austin	TX	Combined TRACON Tower	2	25	Fair
ABY	Albany Tower	Albany	GA	FAA Contract Tower (FCT)	4	49	Fair
ALO	Waterloo Tower	Waterloo	IA	Combined TRACON Tower	4	36	Fair
ALW	Walla Walla Tower	Walla Walla	WA	FAA Contract Tower (FCT)	4	48	Fair
ASE	Aspen Tower	Aspen	CO	Combined TRACON Tower	4	50	Fair
ATW	Appleton Tower	Appleton	WI	FAA Contract Tower (FCT)	4	38	Fair
BAF	Westfield Tower	Westfield	MA	FAA Contract Tower (FCT)	4	47	Fair
BET	Bethel Tower	Bethel	AK	FAA Contract Tower (FCT)	3	40	Fair
BRO	Brownsville Tower	Brownsville	TX	FAA Contract Tower (FCT)	4	36	Fair
BTV	Burlington Tower	S. Burlington	VT	Combined TRACON Tower	3	31	Fair
BVY	Beverly Tower	Beverly	MA	FAA Contract Tower (FCT)	4	48	Fair

CGF	County Tower	Highland Heights	OH	FAA Contract Tower (FCT)	4	49	Fair
CHA	Chattanooga Tower	Chattanooga	TN	Combined TRACON Tower	4	41	Fair
CKB	Clarksburg Tower	Bridgeport	WV	Combined TRACON Tower	4	37	Fair
CLL	College Station Tower	College Station	TX	FAA Contract Tower (FCT)	4	48	Fair
COU	Columbia Tower	Ashland	MO	FAA Contract Tower (FCT)	4	50	Fair
CRE	Grand Strand Tower	N. Myrtle Beach	SC	FAA Contract Tower (FCT)	4	48	Fair
DBQ	Dubuque Tower	Dubuque	IA	FAA Contract Tower (FCT)	4	50	Fair
FLG	Flagstaff Tower	Flagstaff	AZ	FAA Contract Tower (FCT)	4	48	Fair
FMN	Farmington Tower	Farmington	NM	FAA Contract Tower (FCT)	4	55	Fair
GRI	Grand Island Tower	Grand Island	NE	FAA Contract Tower (FCT)	4	50	Fair
GYR	Goodyear Tower	Goodyear	AZ	FAA Contract Tower (FCT)	3	49	Fair
HUM	Houma Tower	Houma	LA	FAA Contract Tower (FCT)	4	40	Fair
HVN	New Haven Tower	East Haven	CT	FAA Contract Tower (FCT)	4	40	Fair
ILM	Wilmington Tower	Wilmington	NC	Combined TRACON Tower	3	36	Fair
ISO	Kinston Tower	Kinston	NC	FAA Contract Tower (FCT)	4	48	Fair
ITH	Ithaca Tower	Ithaca	NY	FAA Contract Tower (FCT)	4	50	Fair
JVL	Janesville Tower	Janesville	WI	FAA Contract Tower (FCT)	4	57	Fair
LRD	Laredo Tower	Laredo	TX	FAA Contract Tower (FCT)	3	48	Fair
LSE	Lacrosse Tower	Lacrosse	WI	FAA Contract Tower (FCT)	4	52	Fair
LWB	Greenbrier Tower	Lewisburg	WV	FAA Contract Tower (FCT)	4	49	Fair
LWM	Lawrence Tower	North Andover	MA	FAA Contract Tower (FCT)	3	40	Fair

LWS	Lewiston Tower	Lewiston	ID	FAA Contract Tower (FCT)	4	49	Fair
MGW	Morgantown Tower	Morgantown	WV	FAA Contract Tower (FCT)	4	52	Fair
MKC	Downtown Tower	Kansas City	MO	Tower With Radar	4	36	Fair
MKG	Muskegon Tower	Muskegon	MI	Combined TRACON Tower	4	56	Fair
MOT	Minot Tower	Minot	ND	FAA Contract Tower (FCT)	4	47	Fair
NEW	Lakefront Tower	New Orleans	LA	Tower With Radar	4	36	Fair
OJC	Olathe Tower	Olathe	KS	FAA Contract Tower (FCT)	4	52	Fair
OWB	Owensboro Tower	Owensboro	KY	FAA Contract Tower (FCT)	4	37	Fair
SFF	Felts Field Tower	Spokane	WA	FAA Contract Tower (FCT)	4	55	Fair
SPI	Springfield Tower	Springfield	IL	Combined TRACON Tower	4	43	Fair
SQL	San Carlos Tower	San Carlos	CA	FAA Contract Tower (FCT)	3	54	Fair
STT	St Thomas Tower	Charlotte Amalie	VI	Tower With Radar	3	58	Fair
SUX	Sioux Gateway Tower	Sioux City	IA	Combined TRACON Tower	4	31	Fair
TCL	Tuscaloosa Tower	Tuscaloosa	AL	FAA Contract Tower (FCT)	4	50	Fair
TIW	Tacoma Narrows Tower	Gig Harbor	WA	FAA Contract Tower (FCT)	4	50	Fair
TWF	Twin Falls Tower	Twin Falls	ID	Combined Non-Radar Approach/Tower	4	48	Fair
TXK	Texarkana Tower	Texarkana	AR	FAA Contract Tower (FCT)	4	46	Fair
MOB	Mobile Tower	Mobile	AL	Combined TRACON Tower	4	34	Fair
MGM	Montgomery Tower	Hope Hull	AL	Combined TRACON Tower	4	27	Poor
ARB	Ann Arbor Tower	Ann Arbor	MI	Tower With Radar	4	50	Poor
SAN	San Diego Tower	San Diego	CA	Tower With Radar	1	27	Poor
VGT	North Las Vegas Tower	North Las Vegas	NV	Tower With Radar	2	21	Poor

ITO	Hilo Tower	Hilo	HI	Combined TRACON Tower	3	44	Poor
POC	Brackett Tower	La Verne	CA	Tower With Radar	3	58	Poor
PWM	Portland Tower	Portland	ME	Combined TRACON Tower	3	47	Poor
SEE	Gillespie Tower	San Diego/El Cajon	CA	Tower With Radar	2	61	Poor
U90	Tucson TRACON	Tucson	AZ	TRACON	2	56	Poor
MDT	Harrisburg Intl Tower	Middletown	PA	Combined TRACON Tower	3	34	Poor
MYF	Montgomery Tower	San Diego	CA	Tower With Radar	2	58	Poor
DFWA	Dallas Fort Worth Tower MA2 (East)	Dallas-Fort Worth	TX	Tower With Radar	1	29	Poor
RAL	Riverside Tower	Riverside	CA	FAA Contract Tower (FCT)	3	56	Poor
DFWB	Dallas Fort Worth Tower MB2 (West)	Dallas-Fort Worth	TX	Pending Controlling	1	29	Poor
AGS	Augusta Tower	Augusta	GA	Combined TRACON Tower	4	48	Poor
SBP	San Luis Tower	San Luis Obispo	CA	FAA Contract Tower (FCT)	3	35	Poor
HOU	Hobby Tower	Houston	TX	Tower With Radar	2	23	Poor
SJU	San Juan Tower	San Juan	PR	Tower With Radar	2	27	Poor
LVK	Livermore Tower	Livermore	CA	Tower With Radar	2	50	Poor
EVV	Evansville Tower	Evansville	IN	Combined TRACON Tower	4	48	Poor
CNO	Chino Tower	Chino	CA	Tower With Radar	2	29	Poor
T75	St Louis TRACON	St. Charles	MO	TRACON	2	21	Poor
ORD	Chicago O'Hare Tower	Chicago	IL	Tower With Radar	1	27	Poor
RDD	Redding Tower	Redding	CA	FAA Contract Tower (FCT)	3	50	Poor
BDL	Bradley Tower	Windsor Locks	CT	Tower With Radar / TRACON	2	24	Poor
Y90	Bradley Tower	Windsor Locks	CT	Tower With Radar / TRACON	2	24	Poor
CRG	Craig Tower	Jacksonville	FL	FAA Contract Tower (FCT)	3	48	Poor

SFB	Sanford Tower	Sanford	FL	Tower With Radar	2	26	Poor
OSU	Ohio State Tower	Columbus	OH	FAA Contract Tower (FCT)	4	51	Poor
PDK	DeKalb-Peachtree Tower	Chamblee	GA	Tower With Radar	2	35	Poor
SNA	John Wayne Tower	Costa Mesa	CA	Tower With Radar	2	41	Poor
IAH	Houston Intercontinental ATCT	Houston	TX	Tower With Radar	1	26	Poor
PRC	Prescott Tower	Prescott	AZ	Tower With Radar	2	34	Poor
DAB	Daytona Beach Tower	Daytona Beach	FL	Combined TRACON Tower	2	37	Poor
DAL	Dallas Love Tower	Dallas	TX	Tower With Radar	2	31	Poor
SDM	Brown Field Tower	San Diego	CA	FAA Contract Tower (FCT)	4	49	Poor
OMA	Eppley Tower	Omaha	NE	Tower With Radar	2	48	Poor
MRI	Merrill Tower	Anchorage	AK	Tower With Radar	2	24	Poor
SDL	Scottsdale Tower	Scottsdale	AZ	Tower With Radar	2	34	Poor
MCO	Orlando Tower	Orlando	FL	Tower With Radar	1	21	Poor
SDF	Standiford Tower	Louisville	KY	Combined TRACON Tower	1	25	Poor
MIC	Crystal Tower	Crystal	MN	Tower With Radar	3	60	Poor
AMA	Amarillo Tower	Amarillo	TX	Combined TRACON Tower	3	64	Poor
M98	Minneapolis Tower	Minneapolis	MN	Tower With Radar / TRACON	1	26	Poor
MSP	Minneapolis Tower	Minneapolis	MN	Tower With Radar / TRACON	1	26	Poor
FFZ	Falcon Tower	Mesa	AZ	Tower With Radar	2	39	Poor
FPR	St Lucie Tower	Ft Pierce	FL	Tower With Radar	3	36	Poor
STL	St Louis Tower	Bridgeton	MO	Tower With Radar	2	24	Poor
D21	Detroit Tower	Detroit	MI	Tower With Radar / TRACON	1	31	Poor
DTW	Detroit Tower	Detroit	MI	Tower With Radar / TRACON	1	31	Poor
S56	Salt Lake City Tower	Salt Lake City	UT	Tower With Radar / TRACON	1	24	Poor
SLC	Salt Lake City Tower	Salt Lake City	UT	Tower With Radar / TRACON	1	24	Poor

RFD	Rockford Tower	Rockford	IL	Combined TRACON Tower	4	65	Poor
LIT	Little Rock Tower	Little Rock	AR	Combined TRACON Tower	3	23	Poor
FAI	Fairbanks Tower	Fairbanks	AK	Combined TRACON Tower	3	46	Poor
GON	Groton Tower	Groton	CT	FAA Contract Tower (FCT)	4	50	Poor
MSY	Moiusantt Tower	New Orleans	LA	Combined TRACON Tower	2	28	Poor
GTF	Great Falls Tower	Great Falls	MT	Combined TRACON Tower	4	59	Poor
CAE	Columbia Tower	West Columbia	SC	Combined TRACON Tower	3	55	Poor
SMO	Santa Monica Tower	Santa Monica	CA	Tower With Radar	3	56	Poor
MIA	Miami Tower	Miami	FL	Combined TRACON Tower	1	21	Poor
DHN	Dothan Tower	Dothan	AL	FAA Contract Tower (FCT)	4	49	Poor
FRG	Farmingdale Tower	Farmingdale	NY	Tower With Radar	2	39	Poor
BUR	Burbank Tower	Burbank	CA	Tower With Radar	2	31	Poor
ABQ	Albuquerque Tower	Albuquerque	NM	Combined TRACON Tower	2	29	Poor
TRI	Tri-Cities Tower	Blountville	TN	Combined TRACON Tower	4	37	Poor
PVD	Providence Tower	Warwick	RI	Combined TRACON Tower	2	32	Poor
BFL	Bakersfield Tower	Bakersfield	CA	Combined TRACON Tower	3	48	Poor
BUF	Buffalo Tower	Cheektowaga	NY	Combined TRACON Tower	2	29	Poor
LAX	Los Angeles Tower	Los Angeles	CA	Tower With Radar	1	27	Poor
LEX	Lexington Tower	Lexington	KY	Combined TRACON Tower	3	53	Poor
HPN	Westchester Tower	White Plains	NY	Tower With Radar	2	55	Poor
MCI	Kansas City Tower	Kansas City	MO	Combined TRACON Tower	2	26	Poor

ONT	Ontario Tower	Ontario	CA	Tower With Radar	2	36	Poor
OWD	Norwood Tower	Norwood	MA	FAA Contract Tower (FCT)	4	53	Poor
MYR	Myrtle Beach Tower	Myrtle Beach	SC	Combined TRACON Tower	3	41	Poor
FSM	Ft Smith Tower	Ft Smith	AR	Combined TRACON Tower	4	24	Poor
LBB	Lubbock Tower	Lubbock	TX	Combined TRACON Tower	3	47	Poor
MDW	Midway Tower	Chicago	IL	Tower With Radar	1	26	Poor
TMB	Tamiami Tower	Miami	FL	Tower With Radar	2	55	Poor
CVG	Cincinnati Tower	Erlanger	KY	Combined TRACON Tower	2	25	Poor
MAF	Midland Tower	Midland	TX	Combined TRACON Tower	3	40	Poor
R90	Omaha TRACON	Bellevue	NE	TRACON	2	58	Poor
SGF	Springfield Tower	Springfield	MO	Combined TRACON Tower	3	45	Poor
GUM	Guam Tower	Tamuning	GU	FAA Contract Tower (FCT)	3	65	Poor
BGR	Bangor Tower	Bangor	ME	Combined TRACON Tower	3	28	Poor
GNV	Gainesville Tower	Gainesville	FL	FAA Contract Tower (FCT)	4	50	Poor
COS	Colorado Springs Tower	Peterson AFB	CO	Combined TRACON Tower	3	44	Poor
GGG	Longview Tower	Longview	TX	Combined TRACON Tower	4	46	Poor
SUS	Spirit Tower	Chesterfield	MO	Tower With Radar	2	37	Poor
MLI	Quad City Tower	Moline	IL	Combined TRACON Tower	3	49	Poor
DFW	Dallas-Fort Worth Tower Center	Dallas-Fort Worth	TX	Tower With Radar	1	49	Poor
ELP	El Paso Tower	El Paso	TX	Combined TRACON Tower	3	56	Poor
A80	Atlanta TRACON	Peachtree City	GA	TRACON	1	22	Poor
FNT	Flint Tower	Flint	MI	Combined TRACON Tower	3	50	Poor

PIT	Pittsburgh Tower	Pittsburgh	PA	Combined TRACON Tower	2	38	Poor
RHV	Reid-Hillview Tower	San Jose	CA	Tower With Radar	2	56	Poor
FAR	Fargo Tower	Fargo	ND	Combined TRACON Tower	3	44	Poor
HGR	Hagerstown Tower	Hagerstown	MD	FAA Contract Tower (FCT)	4	50	Poor
PCT	Potomac TRACON	Warrenton	VA	Combined TRACON	1	21	Poor
PHL	Philadelphia Tower	Philadelphia	PA	Combined TRACON Tower	1	42	Poor
FLL	Ft Lauderdale Tower	Ft Lauderdale	FL	Tower With Radar	1	38	Poor
FAY	Fayetteville Tower	Fayetteville	NC	Combined TRACON Tower	4	51	Poor
CID	Cedar Rapids Tower	Cedar Rapids	IA	Combined TRACON Tower	3	42	Poor
D10	Dallas-Ft Worth TRACON	Dallas-Ft Worth	TX	TRACON	1	27	Poor
PIE	St Petersburg Tower	St. Petersburg/Clearwater	FL	Tower With Radar	2	27	Poor
MKE	Milwaukee Tower	Milwaukee	WI	Combined TRACON Tower	2	37	Poor
CMA	Camarillo Tower	Camarillo	CA	Tower With Radar	2	31	Poor
DEN	Denver Tower	Denver	CO	Tower With Radar	1	28	Poor
C90	Chicago TRACON	Elgin	IL	TRACON	1	27	Poor
PTK	Pontiac Tower	Waterford	MI	Tower With Radar	2	26	Poor
WJF	Fox Tower	Lancaster	CA	FAA Contract Tower (FCT)	4	50	Poor
NCT	Northern California TRACON	Mather	CA	TRACON	1	21	Poor
OKC	Oklahoma City Tower	Oklahoma City	OK	Combined TRACON Tower	3	56	Poor
SAT	San Antonio Tower	San Antonio	TX	Combined TRACON Tower	2	37	Poor
F11	Central Florida TRACON	Orlando	FL	TRACON	1	40	Poor

JAX	Jacksonville Tower	Jacksonville	FL	Combined TRACON Tower	2	55	Poor
YIP	Willow Run Tower	Belleville	MI	Tower With Radar	3	36	Poor
SCT	Southern California TRACON	San Diego	CA	Combined TRACON	1	30	Poor
PAO	Palo Alto Tower	Palo Alto	CA	Tower With Radar	2	55	Poor
ROC	Rochester Tower	Rochester	NY	Combined TRACON Tower	3	41	Poor
MBS	Saginaw Tower	Freeland	MI	Combined TRACON Tower	4	58	Poor
LIH	Lihue Tower	Lihue	HI	FAA Contract Tower (FCT)	3	53	Poor
SBN	South Bend Tower	South Bend	IN	Combined TRACON Tower	4	43	Poor
A11	Anchorage TRACON	Anchorage	AK	Tower With Radar / TRACON	1	48	Poor
N90	New York TRACON	Westbury	NY	Combined TRACON	1	43	Poor
ENA	Kenai Tower	Kenai	AK	FAA Contract Tower (FCT)	4	49	Poor
MFE	Mc Allen Tower	McAllen	TX	FAA Contract Tower (FCT)	4	58	Poor
MFD	Mansfield Tower	Mansfield	OH	Combined TRACON Tower	4	49	Poor
UGN	Waukegan Tower	Waukegan	IL	FAA Contract Tower (FCT)	4	35	Poor
FYV	Fayetteville Tower	Fayetteville	AR	FAA Contract Tower (FCT)	4	37	Poor
CIC	Chico Tower	Chico	CA	FAA Contract Tower (FCT)	4	48	Poor
RDU	Raleigh-Durham Tower	Morrisville	NC	Combined TRACON Tower	2	36	Poor
AKN	King Salmon Tower	King Salmon	AK	FAA Contract Tower (FCT)	4	63	Poor
PSC	Pasco Tower	Pasco	WA	Combined TRACON Tower	4	50	Poor
BIS	Bismarck Tower	Bismarck	ND	Combined TRACON Tower	4	49	Poor
YKM	Yakima Tower	Yakima	WA	FAA Contract Tower (FCT)	4	49	Poor

HLN	Helena Tower	Helena	MT	Combined Non-Radar Approach/Tower	3	27	Poor
HNL	Honolulu Tower	Honolulu	HI	Tower With Radar & Combined Control Facility	1	40	Poor
CHO	Charlottesville Tower	Charlottesville	VA	FAA Contract Tower (FCT)	4	51	Poor
D01	Denver TRACON	Denver	CO	TRACON	1	1	Poor
FSD	Sioux Falls Tower	Sioux Falls	SD	Combined TRACON Tower	4	57	Poor
TYS	Knoxville Tower	Louisville	TN	Combined TRACON Tower	3	36	Poor
WDG	Woodring Tower	Enid	OK	FAA Contract Tower (FCT)	4	49	Poor
OGG	Maui Tower	Kahului	HI	Tower With Radar	2	35	Poor
LGB	Long Beach Tower	Long Beach	CA	Tower With Radar	2	55	Poor
ACY	Atlantic City Tower	Atlantic City	NJ	Combined TRACON Tower	3	36	Poor
LAF	Lafayette Tower	West Lafayette	IN	Tower Without Radar	4	50	Poor
DEC	Decatur Tower	Decatur	IL	FAA Contract Tower (FCT)	4	57	Poor
MSN	Madison Tower	Madison	WI	Combined TRACON Tower	3	55	Poor
CDW	Caldwell Tower	Fairfield	NJ	Tower With Radar	3	46	Poor
YNG	Youngstown Tower	Vienna	OH	Combined TRACON Tower	4	53	Poor
ICT	Wichita Tower	Wichita	KS	Combined TRACON Tower	2	40	Poor
BAD	Barksdale AFB TRACON	Barksdale	LA	TRACON	4	35	Poor
ADW	Andrews Tower	Camp Springs	MD	Tower With Radar	1	1	Poor
POU	Poughkeepsie Tower	Wappinger's Falls	NY	Tower With Radar	4	50	Poor
MDH	Carbondale Tower	Murphysboro	IL	FAA Contract Tower (FCT)	4	39	Poor
DXR	Danbury Tower	Danbury	CT	FAA Contract Tower (FCT)	3	50	Poor

HWO	North Perry Tower	Pembroke Pines	FL	FAA Contract Tower (FCT)	3	56	Poor
SMX	Santa Maria Tower	Santa Maria	CA	FAA Contract Tower (FCT)	3	48	Poor
OLM	Olympia Tower	Olympia	WA	FAA Contract Tower (FCT)	4	49	Poor
JFK	Kennedy Tower	Jamaica	NY	Tower With Radar	1	28	Poor
RAP	Rapid City Tower	Rapid City	SD	FAA Contract Tower (FCT)	4	58	Poor
LNS	Lancaster Tower	Lititz	PA	FAA Contract Tower (FCT)	4	58	Poor
MKK	Molokai Tower	Hoolehua	HI	FAA Contract Tower (FCT)	4	40	Poor
LNK	Lincoln Tower	Lincoln	NE	Tower With Radar	3	50	Poor
SIG	Isla Grande Tower	Carolina	PR	FAA Contract Tower (FCT)	3	47	Poor
SNS	Salinas Tower	Salinas	CA	FAA Contract Tower (FCT)	3	55	Poor
APC	Napa Tower	Napa	CA	Tower With Radar	3	59	Poor
RSW	Ft Myers Tower	Ft Myers	FL	Combined TRACON Tower	2	40	Poor
BTR	Baton Rouge Tower	Baton Rouge	LA	Combined TRACON Tower	3	41	Poor
EUG	Eugene Tower	Eugene	OR	Combined TRACON Tower	3	36	Poor
MEI	Meridian Tower	Meridian	MS	FAA Contract Tower (FCT)	4	58	Poor
HCF	Honolulu Tower	Honolulu	HI	Tower With Radar & Combined Control Facility	1	40	Poor

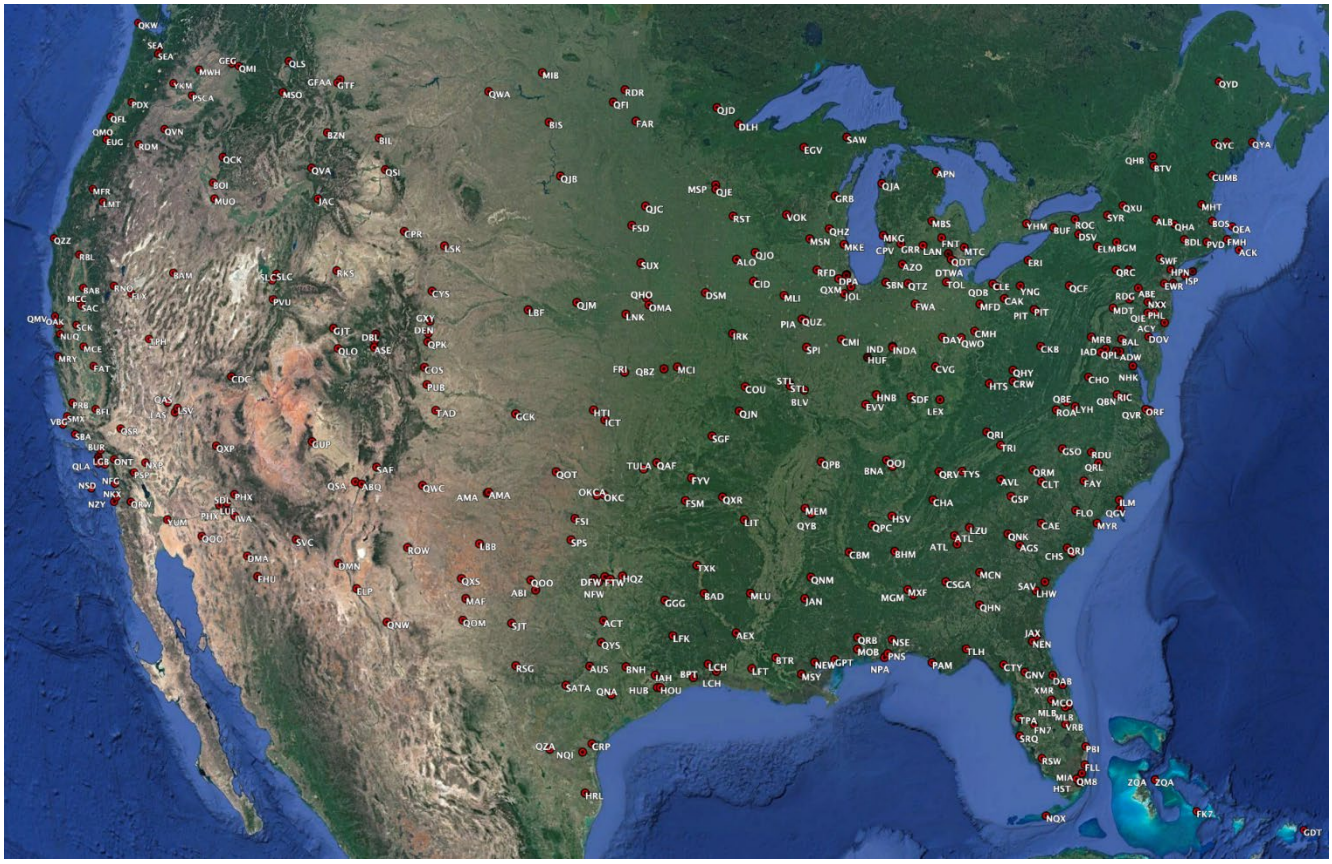
Appendix F: Radar Replacement Candidate list

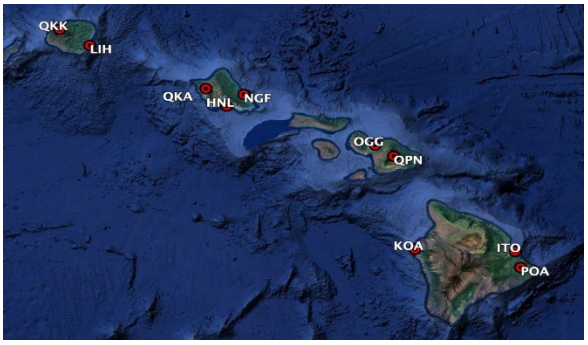
The tables and maps below include the various cooperative and non-cooperative radar systems that could be replaced through the Facility Replacement and Radar Modernization program.

Type of Cooperative Radar	System Count
ASR-11 Digital Standard Facility (MSSR)	69
Mode-S Standard Facility (Beacon Only)	6
Mode-S Standard Facility at ASR-9 site	101
Mode-S Standard Facility with CARSR	21
Mode-S Standard Facility with CTD at ASR-8 site	11
ATCBI-5 at ASR-9	18
ATCBI-5 with 5' Planer Antenna Standard Facility with CTD	26
ATCBI-5 with 6' Planer Antenna Standard Facility with CTD	2
ATCBI-5 with 5' Planer Antenna Standard Facility with Collocated Antenna	2
ATCBI-5 with 5' Planer Antenna Standard Facility	1
ATCBI-6 Standard Facility	28
ATCBI-6 Standard Facility with Collocated Antenna	54
ATCBI-6M Standard Facility with Collocated Antenna	45
ATCBI-6M Standard Facility	4
Total	**388**

Non-Cooperative Terminal Radars	System Count
ASR-8 with CTD Standard Facility	40
ASR-9 Standard Facility	121
ASR-11 Digital Standard Facility (PSR)	69
Total	**230**

Radar Replacements in Contiguous United States, Alaska, Hawaii, and Puerto Rico/Guam





FACILITIES AND EQUIPMENT (BIL Funding)

The Bipartisan Infrastructure Law (BIL) (P.L. 117-58) appropriated $5.0 billion for Facilities & Equipment in annual installments of $1.0 billion from FY 2022 to FY 2026. This funding supports the improvement of existing and construction of new air traffic control infrastructure. Enacted in FY 2022, BIL enables the Federal Aviation Administration to address significant construction projects to address airport traffic control tower needs in rural and underserved communities. The agency has initiated a significant effort on new construction for 30 of these facilities.

In FY 2023, the FAA awarded a contract for the Sustainable Airport Traffic Control Tower Design Initiative. This initiative will develop a standard sustainable tower design that will meet the operational needs of the nation's airspace. This new tower design will be readily adaptable to various heights and local conditions, including extremes of temperature and the potential for earthquakes or hurricanes as well as snowstorms and ice, soil types, violent winds, and the corrosive effects of salt-sea air. The design will use less energy and construction materials which are easier to recycle. The design will also focus on construction methods that will allow the FAA to build each new tower in a much shorter timeframe than was previously possible.

AIRPORT TERMINAL PROGRAM

The Bipartisan Infrastructure Law (P.L. 117-58) appropriated $5 billion for the Airport Terminal Program, in annual $1 billion installments from FY 2022 to FY 2026, for the Secretary of Transportation to provide competitive grants for airport terminal development projects that address the aging infrastructure of the nation's airports.

In FY 2023, the FAA awarded four multi-modal projects, which included funding for facility rehabilitation and additional construction to improve airport access to the public through bus, rail, and other public transportation. In addition, the agency awarded 12 grants for new or replacement terminals. Finally, the FAA conducted outreach to airports with potential new terminal projects that reduce emissions and provide multi-modal access.

AIRPORT INFRASTRUCTURE GRANTS

The Bipartisan Infrastructure Law (P.L. 117-58) appropriated $15 billion, in annual installments of $3 billion from FY 2022 to FY 2026, for airport projects that increase safety and expand capacity. Airports may use Airport Infrastructure Grants funding to support airport pavement projects. Significantly deteriorated runway pavement can cause damage to airframes, engines, and landing gear; unnecessarily compromising safety, and leading to higher rehabilitation costs.

In FY 2023, the Office of Airports issued 426 grants for new or rehabilitation pavement projects. Periodic maintenance of runways, particularly resurfacing, has proven a cost-effective way to delay the need for major runway rehabilitation.

RESEARCH, ENGINEERING and DEVELOPMENT (IRA Funding)

The Inflation Reduction Act (P.L. 117-169) appropriated $297 million to the Federal Aviation Administration (FAA) for the Fueling Aviation's Sustainable Transition through Sustainable Aviation Fuels (FAST-SAF) and Low Emissions Aviation Technology (FAST-Tech) programs. The funding allows the Secretary to provide competitive grants to advance sustainable aviation fuels (SAF) and low emissions aviation technologies to reduce emissions from aviation and aid in addressing the climate crisis.

In FY 2023 the agency accomplished its performance metric of initiating a new project to develop sustainable aviation fuels supply chains worldwide. The project will identify waste and biomass feedstock availability, analyze ways to optimize SAF production, and assess infrastructure and logistical requirements for a holistic approach to SAF supply chain development. The FAA will focus on identifying existing infrastructure that can be leveraged for SAF production. In FY 2023, the FAA also supported SAF workshops in Thailand, the Dominican Republic, and Kenya to develop SAF supply chains in key partner states.

RELIEF for AIRPORTS

The American Rescue Plan Act of 2021 (P.L. 117-2) appropriated $8 billion, to remain available until September 30, 2024, for assistance to sponsors of airports, to be made available to prevent, prepare for, and respond to coronavirus.

EMERGENCY FAA EMPLOYEE LEAVE FUND

The American Rescue Plan Act of 2021 (P.L. 117-2) established the Emergency FAA Employee Leave Fund and appropriated $9 million, which remained available through September 30, 2022. The agency used the fund for paid leave for FAA employees who were unable to work due to reasons related to the COVID-19 pandemic.

GRANTS-IN-AID for AIRPORTS

The FY 2025 Budget does not request this supplemental funding. Previous annual appropriations acts provided supplemental funding for the Grants-in-Aid for Airports account. The FAA uses these funds to award discretionary grants to qualified airports. The FAA applies up to 0.5 percent of the funds provided to the administrative costs of awarding grants under the program.

AVIATION INSURANCE REVOLVING FUND

The Aviation Insurance Revolving Fund provides direct support for the aviation insurance program (49 U.S.C. 44305). The Federal Aviation Administration (FAA) Aviation Insurance Program provides products that address the insurance needs of the U.S. domestic air transportation industry not adequately met by the commercial insurance market. The agency may provide insurance without premium at the request of the Secretary of Defense, or the head of a department, agency, or instrumentality designated by the President, when the Secretary of Defense, or the designated head, agrees to indemnify the Secretary of Transportation against all losses covered by the insurance. The non-premium aviation insurance program was authorized through March 8, 2024 in the Airport and Airway Extension Act of 2023, Part II (P.L. 118-34).

ADMINSTRATIVE SERVICES FRANCHISE FUND

The Federal Aviation Administration (FAA) Administrative Services Franchise Fund (Franchise Fund) was authorized under the Department of Transportation (DOT) and Related Agencies Appropriation Act of 1997. The Franchise Fund is a revolving fund designed to create competition within the public sector in the performance of a wide variety of support services. It finances operations by charging users on a fee-for-service basis for goods and services. The Franchise Fund improves organizational efficiency and provides better support to FAA's internal and external customers. These services include accounting, travel, multi-media, information technology, logistics and material management, aircraft maintenance, international training, and management training.

AVIATION USER FEES

The Federal Aviation Reauthorization Act of 1996 (P.L. 104-264) authorized the collection of user fees for air traffic control and related services provided by the Federal Aviation Administration (FAA) to aircraft that neither take off nor land in the United States. These user fees are commonly known as overflight fees. The Budget estimates that $165 million in overflight fees will be collected in FY 2025.

AIRPORT and AIRWAY TRUST FUND

Section 9502 of Title 26, U.S. Code provides for amounts equivalent to the funds received in the Treasury for the passenger ticket tax, and certain other taxes paid by airport and airway users, to be transferred to the Airport and Airway Trust Fund. In turn, appropriations are authorized from this fund to meet obligations for airport improvement grants; Federal Aviation Administration facilities and equipment; research, operations, and payment to air carriers; and for the Bureau of Transportation Statistics Office of Airline Information.

TRUST FUND SHARE of FAA ACTIVITIES (AIRPORT and AIRWAY TRUST FUND)

The FY 2025 Budget request proposes $13.6 billion for Federal Aviation Administration Operations, of which the Airport and Airway Trust Fund would provide $12.8 billion.

FAA ADMINISTRATIVE PROVISIONS - REQUESTED

Sec. 110. The Administrator of the Federal Aviation Administration may reimburse amounts made available to satisfy section 41742(a)(1) of title 49, United States Code, from fees credited under section 45303 of title 49, United States Code, and any amount remaining in such account at the close of any fiscal year may be made available to satisfy section 41742(a)(1) of title 49, United States Code, for the subsequent fiscal year.

- ❖ In order to satisfy 49 U.S.C. 41742(a)(1), at the beginning of each fiscal year FAA makes available to the Essential Air Services (EAS) program funding from the Facilities & Equipment (F&E) account. This provision ensures that the F&E account is reimbursed from the over-flight fees collected and is needed in order to continue the practice in FY 2025.

Sec. 111. Amounts collected under section 40113(e) of title 49, United States Code, shall be credited to the appropriation current at the time of collection, to be merged with and available for the same purposes of such appropriation.

- ❖ As authorized under 49 USC 40113(e), the FAA may provide safety-related training and operational services to foreign aviation authorities with or without reimbursement. While FAA generally enforces a prepayment policy for reimbursable goods and services provided to foreign countries or international organizations, many have laws or regulations similar to the U.S. that prohibit advance payments. In those instances, FAA often receives payments for services provided during a fiscal year after that year has ended. This provision allows FAA to use the funds for additional technical assistance work that cannot be prepaid, instead of returning the funds to a lapsed appropriation.

Sec. 112. None of the funds made available by this Act shall be available for paying premium pay under subsection 5546(a) of title 5, United States Code, to any Federal Aviation Administration employee unless such employee actually performed work during the time corresponding to such premium pay.

- ❖ The provision stems from past legal action taken by air traffic controllers to receive premium pay for a full shift, even if only part of the shift was eligible for premium pay. The FAA recommends retaining this provision as a GP that would apply to all FAA accounts. FAA also recommends keeping this provision for FY 2025 in order to minimize potential payroll liability.

Sec. 113. None of the funds in this Act may be obligated or expended for an employee of the Federal Aviation Administration to purchase a store gift card or gift certificate through use of a Government-issued credit card.

- ❖ This provision prohibits FAA employees from using a government-issued credit card to purchase a store gift card or gift certificate. FAA recommends retaining this provision as a GP that would apply to all FAA accounts.

Sec. 114. The Federal Aviation Administration Administrative Services Franchise Fund may be reimbursed after performance or paid in advance from funds available to the Federal Aviation Administration and other Federal agencies for which the Fund performs services.

- The 1997 Department of Transportation and Related Agencies Appropriations Act (P.L. 104-205) created the FAA's Administrative Services Franchise Fund and outlined its basic rules for operation. One of the provisions in that law stipulated that the Fund "…shall be paid in advance from funds available to the FAA and other Federal agencies for which such centralized services are performed…" This requirement for advances without exception creates inefficiencies in operations as service providers spend resources to ensure timely advances on approximately 1,500 active agreements annually, regardless of amount. While this original language requires strict compliance for collection of funds in advance of performance services, the requested provision provides flexibility in the collection of advances. The flexibility allowed by this provision will not change the requirement for service providers to ensure timely advances, but will allow service providers to prioritize efforts and gain efficiencies. Through financial oversight and the use of operating reserve, the FAA Franchise Fund maintains sufficient funds available to continue operations. The flexibility of the payment timing allowed under this provision does not jeopardize operations or solvency of the Fund. This flexibility is also in accordance with how similar funds in other Federal agencies (such as the Department of Interior, authorized in P.L. 108-7) are allowed to operate.

Sec. 115. Notwithstanding any other transfer restriction under this Act, not to exceed 10 percent of any appropriation made available for the current fiscal year for the Federal Aviation Administration by this Act or provided by previous appropriations Acts may be transferred between such appropriations for the Federal Aviation Administration, but no such appropriation except as otherwise specifically provided, shall be increased by more than 10 percent by any such transfer: Provided, That funds transferred under this section shall not be available for obligation unless the Committees on Appropriations of the Senate and the House of Representatives are notified 15 days in advance of such transfer: Provided further, That any transfer from an amount made available for obligation as discretionary grants-in-aid for airports pursuant to section 47117(f) of title 49, United States Code shall be deemed as obligated for grants-in-aid for airports under part B of subtitle VII of title 49, United States Code for the purposes of complying with the limitation on incurring obligations in this appropriations Act or any other appropriations Act under the heading "Grants in-Aid for Airports."

- The FY 2025 budget requests additional budget flexibility. While the FAA has long benefited from the ability to seek congressional approval to reprogram limited amounts within budget accounts, there has traditionally been no flexibility at the account level. This new authority will allow the FAA to request the transfer of up to 10 percent of any appropriation across accounts, provided that no account is increased by more than 10 percent. Such a transfer would be subject to approval by both congressional Committees on Appropriations.

Sec. 116. Of the amounts made available from the Airport and Airway Trust Fund for ''Federal Aviation Administration—Facilities and Equipment'' in title VIII of Division A of the Disaster Relief Appropriations Act (Public Law 113-2), up to $2,122,540 may be used to prevent, prepare for, and respond to a federally declared disaster in future fiscal years: Provided, That amounts repurposed in this section that were previously designated by the Congress as an emergency requirement pursuant to the Balanced Budget and Emergency Deficit Control Act of 1985 are designated by the Congress as an emergency requirement pursuant to section 251(b)(2)(A)(i) of the Balanced Budget and Emergency Deficit Control Act of 1985.

- The Federal Aviation Administration requests authority to repurpose approximately $2.1 million of unobligated funds from the Hurricane Sandy disaster relief appropriation (P.L. 113-2) for a potential emergency in future fiscal years. The original appropriation of $30 million was provided to FAA's Facilities & Equipment account as no-year funding in FY 2013. Each year, unexpected emergencies occur that impact the functionality of FAA operations across the country. Impacts include destroyed runways, damaged air traffic control towers, and technology outages. While Congress often enacts emergency funding for repair, the timing of the appropriations may be unaligned with the agency's needs. If the FAA could repurpose these funds from FY 2013 the agency would have funds available when the agency determines the impacts of the emergency.

Sec. 117. (a)(1) Notwithstanding paragraphs (5) and (6) of section 405, the funds made available in this Act under the headings identified in paragraph (3) for a program, project, or activity may be transferred or reprogrammed to a different existing program, project, or activity under the same heading if the transfer or reprogramming does not increase or decrease funding under this Act to an existing program, project, or activity by more than $30,000,000 or 10 percent, whichever is less.

(2) For funds made available in this Act under the headings identified in paragraph (3), transfers and reprogrammings of funds that exceed the thresholds identified in paragraph (1) are subject to the requirements of section 405.

(3) The authority in paragraph (1) is available for funds made available to the Federal Aviation Administration under the following headings:

(A) "Operations"; and

(B) "Facilities and Equipment".

(b) Notwithstanding paragraph (7) of section 405, activities creating, reorganizing, or restructuring an organizational unit of the Federal Aviation Administration are subject to section 405 only if those activities would change the organization chart provided as an exhibit to section 1 of the Administration's budget justification. Activities making organizational changes that are exclusively within a single organizational unit identified in that chart are not subject to section 405.

- The FAA is requesting a general provision that supersedes the reprogramming thresholds contained in subsections (5), (6) and (7) of Section 405 of Title IV (General Provisions—This Act) for the annual appropriations legislation covering Transportation, Housing and Urban Development, and Related Agencies. This provision applies only to FAA's Operations and Facilities & Equipment accounts.

Section 405, which has existed essentially unchanged since FY 2004, establishes guidelines and thresholds for the formal reprogramming of funds and the reorganization of divisions within federal agencies covered by the Act. The principal reprogramming threshold of $5,000,000 has not been updated in approximately 20 years and has not kept up with normal inflationary pressures. The FAA is requesting a general provision that increases the $5,000,000 dollar threshold for reprogramming within the Operations and Facilities & Equipment accounts to the lesser of 10 percent or $30,000,000. This provides the flexibility intended when the provision was first enacted 20 years ago. Similarly, the provision alters the reprogramming requirements for organizational changes contained in subsection (7) by defining only those changes made at the FAA Associate Administrator or Assistant Administrator level be subject to formal reprogramming actions. This would provide FAA business units and staff offices greater flexibility to manage their organizations and more nimbly respond to constantly evolving aviation industry challenges.

Department of Transportation
FY 2025 Budget
Federal Aviation Administration
Research, Development, & Technology Budget Narrative
(Budget Authority in Thousands)

Budget Account	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	Basic Research	Applied Research	Experimental Development / Advanced Research	Technology Transfer
Research, Engineering & Development	**255,000**	**255,000**	**250,000**		**250,000**		
Fire Research and Safety	7,136	7,136	8,750		8,750		
Propulsion and Fuel Systems	3,000	3,000	5,174		5,174		
Advanced Materials /Structural Safety	14,720	14,720	2,548		2,548		
Aircraft Icing	2,472	2,472	3,064		3,064		
Digital System Safety	3,689	3,689	6,312		6,312		
Continued Air Worthiness	8,829	8,829	10,339		10,339		
Flight deck/Maintenance/System Integration Human Factors	14,301	14,301	16,382		16,382		
System Safety Management/Terminal Area Safety	9,252	9,252	15,000		15,000		
Air Traffic Control/Technical Operations Human Factors	5,911	5,911	5,993		5,993		
Aeromedical Research	9,000	9,000	12,186		12,186		
Weather Program	13,786	13,786	19,843		19,843		
Unmanned Aircraft Systems Research	22,077	22,077	15,567		15,567		
Alternative Fuels for General Aviation	10,000	10,000	8,411		8,411		
Commercial Space Transportation Safety	4,708	4,708	5,350		5,350		
NextGen Wake Turbulence	3,728	3,728	4,243		4,243		
NextGen - Air Ground Integration Human Factors							
NextGen - Weather Technology in the Cockpit	4,000	4,000					
NextGen - Flight Data Exchange							
Information/Cyber Security	4,769	4,769	5,943		5,943		
Environment & Energy	21,000	21,000	21,194		21,194		
NextGen – Environmental Research – Aircraft Technologies and Fuels	68,000	68,000	70,994		70,994		
System Planning and Resource Management	4,141	4,141	5,088		5,088		
Aviation Grant Management	15,000	15,000	2,125		2,125		
William J. Hughes Technical Center Laboratory Facilities	5,481	5,481	5,494		5,494		
Aviation Accessibility Research							
Facilities & Equipment	**203,550**	**193,240**	**184,800**		**62,400**	**122,400**	
Advanced Technology Development and Prototyping	24,300	34,440	31,900			31,900	
Plant	31,900	26,900	62,400		62,400		
NextGen Research & Development	90,350	74,900	79,500			79,500	
Center for Advanced Aviation System Development (CAASD)	57,000	57,000	11,000			11,000	
Grants-In-Aid for Airports	**55,828**	**55,828**	**58,360**		**58,360**		
Airport Technology Research	40,828	40,828	43,360		43,360		
Airport Cooperative Research	15,000	15,000	15,000		15,000		
Administrative - Ops	**17,154**	**16,487**	**16,319**			**16,319**	
Total	**531,532**	**520,555**	**509,479**		**370,760**	**138,719**	

Exhibit IV-2 FY 2025 Budget Request – RD&T Program Funding by DOT Strategic Goal

Department of Transportation - FY 2025 Budget
Federal Aviation Administration
Research, Development, & Technology Budget
(Budget Authority in Thousands, sample entries provided below)

	DOT STRATEGIC GOALS						
ACCOUNT/PROGRAM	**FY 2025 Request**	**SAFETY**	**ECONOMIC STRENGTH**	**EQUITY**	**CLIMATE & SUSTAINABILITY**	**TRANSFORMATION**	**ORGANIZATIONAL EXCELLENCE**
Research, Engineering & Development	**250,000**	**113,915**	**5,350**	**2,125**	**105,773**	**12,255**	**10,582**
Fire Research and Safety	8,750	8,750					
Propulsion and Fuel Systems	5,174				5,174		
Advanced Materials /Structural Safety	2,548	2,548					
Aircraft Icing	3,064	3,064					
Digital System Safety	6,312					6,312	
Continued Air Worthiness	10,339	10,339					
Aircraft Catastrophic Failure Prevention Research							
Flight deck/Maintenance/System Integration Human Factors	16,382	16,382					
System Safety Management/Terminal Area Safety	15,000	15,000					
Air Traffic Control/Technical Operations Human Factors	5,993	5,993					
Aeromedical Research	12,186	12,186					
Weather Program	19,843	19,843					
Unmanned Aircraft Systems Research	15,567	15,567					
Alternative Fuels for General Aviation	8,411				8,411		
Commercial Space Transportation Safety	5,350		5,350				
NextGen Wake Turbulence	4,243	4,243					
NextGen - Air Ground Integration Human Factors							
NextGen - Weather Technology in the Cockpit							
NextGen - Flight Data Exchange							
Information/Cyber Security	5,943					5,943	
Environment & Energy	21,194				21,194		
NextGen – Environmental Research – Aircraft Technologies and Fuels	70,994				70,994		
Airliner Cabin Environment Research							
System Planning and Resource Management	5,088						5,088
Aviation Grant Management	2,125			2,125			
William J. Hughes Technical Center Laboratory Facilities	5,494						5,494
Aviation Accessibility Research							
Facilities & Equipment	**184,800**		**11,000**			**173,800**	
Advanced Technology Development and Prototyping	31,900					31,900	
Plant	62,400					62,400	
NextGen Research & Development	79,500					79,500	
Center for Advanced Aviation System Development (CAASD)	11,000		11,000				
Grants-In-Aid for Airports	**58,360**	**19,054**	**10,813**	**4,490**	**8,438**	**15,390**	**175**
Airport Technology Research	43,360	13,029	9,163	3,940	7,588	9,640	
Airport Cooperative Research	15,000	6,025	1,650	550	850	5,750	175
Administrative - Ops	**16,319**					**16,319**	
Total	**509,479**	**132,969**	**27,163**	**6,615**	**114,211**	**217,764**	**10,757**

Research, Development and Technology: This **$509.5 million** budget request supports the Department's Safety, Economic Growth, Equity, Climate Solutions, Transformation and Organizational Excellence goals through FAA's applied research on new and advanced technologies. These research efforts enable the timely and safe introduction of technologies and improves performance across all elements of the aviation system. Of this amount, **$132.7 million** supports the Department's safety goal, **$27.2 million** supports the Department's economic growth strategic goal, **$6.6 million** supports the equity goal, **$114.2 million** supports the climate solutions goal, **$217.8 million** supports the Department's transformation goal and **$10.8 million** supports the Department's organizational excellence goal. Noteworthy investments include:

Safety

- **Flight deck/Maintenance/System Integration (Human Factors): $16.4 million (RE&D)** is requested to support research that will be used to update and maintain human factors related regulations, guidance material, procedures, orders, standards, job aids, and other aviation safety documentation. Major program objectives include human factors design standards for new/advanced Flight Deck Alerting Systems and integration of human factors into Operational Evaluations (OE) and Flight Standardization Board (FSB) Processes. This program capitalizes on robust partnerships with multiple DOT entities, external government agencies, federally funded research and development centers, academia, manufacturers, operators, joint working groups, international organizations, and industry.

- **Air Traffic Control Technical Operations Human Factors: $6.0 million (RE&D)** The research program supports the Administration's principle of Safety and provides timely human factors products and consultation services focusing on improving the safety and efficiency of complex air traffic control (ATC) systems. Research supports Goal 4 Improve Human Performance in the System as identified in FAA's National Aviation Research Plan (NARP) as it addresses Air Traffic Organization (ATO) sponsor challenges in five human factors research and development (R&D) focus areas: (1) Improved safety, reduced hazards, and error mitigation in ATC; (2) Automation effects and controller performance; (3) Improved design and operation of ATC systems; (4) Improved controller selection and training; and (5) Controller and technical operations workforce optimization. The program provides near to mid-term research to Air Traffic Organization concept development, systems development, and implementation decision-makers with guidance needed to leverage human capabilities and mitigating human limitations to maximize human performance, in accordance with FAA Order 9550.8 Human Factors Policy.

- **Aeromedical Research: $12.2 million (RE&D)** is requested to support research focusing on safety sensitive personnel and airline passenger health, safety, and performance in current and forecasted future civilian aerospace operations. This program identifies, develops, and validates new technologies, policies, training methodologies, personnel selection tools, and procedures to improve the performance of humans in aerospace systems. Major program objectives include ensuring reliably

safe aircraft cabin environments, reliably safe aircrew, and survivable aircraft, with the latter scoped to enhancing passenger safety during adverse events and streamlining the certification process for new safety equipment and cabin designs. The outputs of this research inform updates to standards, guidance, policy, and training materials to improve operational safety and facilitate new entrants into the National Airspace System. This program's societal impact includes better protection and survival for the traveling public in the event of an aircraft accident or incident. This program collaborates with other research labs, such as those at the National Air and Space Administration, National Research Council of Canada, National Institute for Occupational Safety and Health, U.S. Navy, and the Mayo Clinic.

- **Weather Program: $19.8 million (RE&D)** is requested to perform applied research to enhance safety and operational efficiency in adverse weather conditions in the National Airspace System (NAS) as well as in oceanic and remote regions. The program develops capabilities to improve observations, diagnoses, and forecasts of weather information to support operational planning and decision making by users including air traffic managers, flight dispatchers, and pilots. It also addresses needs for enhanced cockpit weather technology, information, and human factors principals to improve operational efficiency and safety and reduce flight delays and gaseous emissions in adverse weather. Anticipated program outcomes include: enhanced inflight icing diagnosis and forecasts to include liquid drop size information to align with Aircraft Certification Criteria, probabilistic forecasts of turbulence severity to enable operators to avoid turbulence at specific severity levels, and expansion of the current PIREP system to include other types of weather information, assessment of the utility benefits of fusing lower quality sources of weather information to fill gaps from approved/certified sensors, initial automated cognitive decision support processes for GA pilots to enhance hazardous weather avoidance decision making, as well as a hands-free pilot interface that will improve PIREP quality and quantity to enhance safety thru increased situational awareness of adverse weather.

- **Unmanned Aircraft Systems (UAS): $15.6 million (RE&D)** is requested to support research that builds upon current drone operations, rules policy, and procedures to achieve full UAS integration in the national airspace system (NAS). The integration of drones into the national airspace is evolving to operations predominately using electric propulsion. The requested funds also support continued efforts using drones as a learning platform for science, technology, engineering, and mathematics-outreach efforts with minority K-12 students.

- **Airport Technology Research: $12.8 million (AIP)** is requested for the program to continue research in airport safety, to support the safe and efficient integration of new and innovative technologies into the airport environment. Research areas include the development of infrastructure standards for Advanced Air Mobility vehicles, continued testing of new environmentally friendly firefighting agents, development of smart technologies to monitor runway conditions, integrating machine learning and artificial intelligence techniques into airport safety and performance monitoring.

- **Airport Cooperative Research Program: $6.0 million (AIP)** is requested for the program to continue research into airport safety and supporting the integration of nationwide safety practices at airports. Research areas include the use of electric airside vehicles; developing robust Airport Rescue and Fire Fighting (ARFF) programs at small hub and general aviation airports; and integrating airport operators and tenants into efforts to identify and combat human trafficking. These efforts will enable airport sponsors and operators to identify and conform with industry safety standards and recommendations.

Economic Growth

- **Commercial Space Transportation Safety Program: $5.4 million (RE&D)** is requested to support research for new propellant combinations, human space flight, spaceport infrastructure, systemic safety initiatives, and regulatory reform. Anticipated program activities include continued liquid oxygen-liquid methane explosive yield testing to improve safety calculations required for issuing launch licenses of large vehicles using this propellant combination. FAA is also conducting significant human spaceflight participant (HSP) research activities when the expiration of the "learning period" expires in 2023. FAA will begin to consider regulations for HSP safety during launch and reentry license evaluations. FAA also plans to continue research and development activities, with the creation of the Research Alliance to replace the Community of Excellence, in launch vehicle vulnerabilities, more efficiently analyzing large data sets, and other projects to inform regulations, guidance, and internal processes. The Research Alliance will also begin leveraging research activities using a collaborative research consortium that includes other government organization and private companies.

- **Airports Cooperative Research Program: $1.7 million (AIP)** is requested to support research assisting airports in identifying and adapting emerging technologies into in-terminal passenger support programs, identifying the impacts of e-commerce on the airport industry, and continuing research into air traveler choice models. Through this research, airport operators and sponsors will be better able to position themselves to adapt to future growth and economize investments in airport infrastructure to best serve the traveling public while efficiently planning and expending public funds on infrastructure and support activities.

Equity

- **Aviation Grant Management: $2.1 million (RE&D)** is requested to support the administration and management of pre-award, post-award, closeout, records management, program management, information technology, and grant awards of FAA's Grants Program. The program will aide in the development of building and sustaining an infrastructure that encompasses the entire lifecycle of grant management and ensures that FAA has a fair, equitable and comprehensive approach for awarding grants. The program priorities support FAA's strategic goals by ensuring a comprehensive approach to award grants that equip the next generation of

aviation professionals while supporting aviation related research.

- **Airport Technology Research: $3.9 million (AIP)** is requested for the program to continue research for programs that impact people that use and don't actively use airports, such as aircraft noise and environmental justice (EJ) issues and impacts on the surrounding community. A component of research for Advanced Air Mobility (AAM) vehicles, such as electric Vertical Take-Off (eVTOL), is also included to meet this goal, since it can be envisioned that AAM will make aviation/use of airspace more accessible to more people regardless of economic status (racial equity and economic inclusion).

- **Airports Cooperative Research Program: $550 thousand (AIP)** is requested to continue research into quantifying airport minority employee engagement and advancement opportunities and increasing airport accessibility for travelers with cognitive disabilities. These efforts will provide peer-reviewed, data-based metrics for airport operators and sponsors to engage with historically under-represented employee groups, as well as better serve the entirety of the traveling public regardless of disability.

Climate and Sustainability

- **NextGen Environmental Research – Aircraft Technologies and Fuels: $71 million (RE&D)** is requested to support efforts to develop new aircraft and engine technologies, as well as to advance sustainable aviation fuels (SAF) in line with the Administration commitments on climate change and the environment. Through the Continuous Lower Energy Emissions and Noise (CLEEN) program, the FAA and industry are working together, to develop technologies that will enable aircraft and engines with lower noise and emissions, and improved fuel efficiency. Additional environmental aircraft technology research is also conducted through academic partnerships under the FAA's ASCENT Center of Excellence (COE). Between 2020 and 2050 it is estimated that the CLEEN program will have conserved a total of 36 billion gallons of fuel, a saving of 73 billion dollars, and resulted in a reduction in CO2 emissions of 420 million metric tons, equivalent to removing three million cars from the road. In addition, CLEEN Phase I will have contributed to a 14% decrease in the land area exposed to DNL 65 dB and greater. Funding from this program also supports efforts under ASCENT to provide the SAF industry with information, data, and analysis techniques that shorten the time and cost for the development of a new fuel that is safe for use. This includes efforts to enable use beyond the current blend limits of 50% and up to 100%. The COE also provides analysis of resources, infrastructure and policy that will be critical to the effort to expand the SAF supply to meet the goals of the Administration's SAF Grand Challenge. Between 2021 and 2022 SAF procurements almost tripled going from approximately 5.5 million gallons to about 16 million gallons.

- **Alternative Fuels – General Aviation**: **$8.4 million (RE&D)** is requested to support continuing analyses and testing of unleaded alternative candidate fuels leading to the replacement of current leaded aviation gasoline with safe unleaded alternative fuels. Research efforts would explore safe candidate unleaded alternative fuel formulations and exhaust emissions tests. This research would support FAA's collaboration with industry stakeholders via the Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative. The FAA also collaborates with the Environmental Protection Agency (EPA) and industry stakeholders to transition general aviation to lead-free aviation fuels by the end of 2030. This funding advances research to eliminate the single largest source of hazardous airborne lead emissions in the United States and will reduce the impact of general aviation operations on climate change and air quality.

- **Airports Cooperative Research Program: $850 thousand (AIP)** is requested to support airport guidance in transitioning to lead-free avgas. While other Federal programs are developing the standards for lead-free avgas, this will provide information for airport sponsors and operators to integrate this product into their infrastructure. In addition, this will support research the applicability of carbon-capture technology in airport infrastructure and completing much-needed updates to past reports to reflect current industry practice and federal environmental law. This will enable airport sponsors and operators to advance the state of practice while ensuring compatibility with unique airport infrastructure and safety needs, as well as evolving laws and regulations.

Transformation

- **Digital System Safety Program: $6.3 million (RE&D)** is requested to support cyber safety research to ensure resilience of position, navigation, and timing (PNT) aircraft systems as well as research on the application of advanced digital technologies such as artificial intelligence (AI) and machine learning (ML) in safety-critical aircraft systems to enable increasingly efficient and safe flight management. Advanced digital technologies provide significant potential improvements to aviation operations and enable accurate measurement of aircraft PNT. These new technologies challenge our existing software assurance methodologies and require adequate protection against attempts to alter aircraft PNT data. Research in this program will identify ways to ensure the safety of systems containing new software technologies and mitigate threats to aircraft operations. Key collaboration partners on this research include other federal agencies, academia, industry consortium groups, industry, international civil aviation authorities and other research organizations. These partnerships allow for development of consensus standards for digital systems assurance of software and hardware and enables mitigations for internationally recognized threats to the continued operational safety and efficiency of aircraft operations using Global Positioning System (GPS) or Global Navigation Satellite System (GNSS) services.

- **Information/Cyber Security Program: $5.9 million (RE&D)** is requested to accelerate aviation industry timely adoption and adaptation of novel CSDS and AI/ML technologies for enhancement of cybersecurity for the airline, airport and aircraft elements of the national aviation ecosystem to increase safety and resiliency (availability and reliability). This research is in response to a number of Presidential/OMB/DOT directives and priorities and addresses the "Cyber Security" and "Machine Learning" Critical Research Topics identified in the Department of Transportation (DOT) Transformation Grand Challenge. This applied research is conducted collaboratively with aviation industry stakeholders (airlines, airports, and aircraft Original Equipment Manufacturers (OEMs)) focused on addressing specific areas of stakeholder cybersecurity concern. Application of CSDS with AI/ML concepts to specific individual industry challenges, through CSDS concept software prototyping, experimentation, and demonstration, will include outputs such as CSDS concept validation, architecture design and operational procedure recommendations and standards recommendations. These program outputs foster outcomes that enable greater industry collaboration and assist industry in CSDS implementation decisions and development/enhancement of Information Security Event Management (ISEM) standards. The expected impact from these outcomes is an increase in both national aviation ecosystem safety and resiliency (availability and reliability).

- **Airports Technology Research Program: $9.9 million (AIP)** is requested to support research that will transform airport infrastructure making it safer and stronger, more resilient, and sustainable, fairer, and more equitable. Research areas will include new and emerging entrants, autonomous vehicles, and unmanned aerial systems. Efforts will support the adoption and implementation of new technologies and innovative practices. Research will be shared on emerging trends with private and public sector peers both domestically and internationally.

- **Airports Cooperative Research Program: $5.8 million (AIP)** is requested to support research into identifying likely 10-year and 20-year industry trends to enable airports to prepare for the future of air travel. This research will enable airports of all sizes to properly plan for growth as the industry evolves along with transformation in how the corporate realm re-evaluates its travel practices. Research will also be conducted into the impact of corporate environmental and personnel management standards, which are driving many multi-national businesses to adopt policies in excess of minimum federal standards. This will also update past research products to reflect new industry standards and practices and applicable federal law.

Organizational Excellence

- **System Planning and Resource Management Program: $5.1 million (RE&D)** is requested to support the development and optimizing of FAA's research and development (R&D) portfolio while ensuring research priorities meet the DOT/FAA's strategic goals and objectives. Deliverables include FAA's Annual

Modal Research Plan (AMRP) delivered to the DOT Assistant Secretary for Research and Technology and FAA's National Aviation Research Plan. The program ensures that FAA's research meets the president's criteria for R&D, manages the portfolio within operating cost targets, and enables effective review by the Research, Engineering and Development Advisory Committee (REDAC).

- **William J. Hughes Technical Center Laboratory Facilities: $5.5 million (RE&D)** is requested to sustain and advance capabilities within specialized laboratories that are used to support R&D program goals and objectives. Funding supports the existing laboratory infrastructure, as well as R&D facility modifications and improvements, project/engineering support, equipment, software/hardware licenses, and support tools. Numerous R&D programs use the laboratory facilities to conduct research activities that encompass current day capabilities and the ongoing transition to advanced technologies.

For more information on these programs, see Section III.

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INFORMATION TECHNOLOGY
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
BUDGET AUTHORITY

($000)

Budget Account	FY 2023 Enacted	FY 2024 President's Budget	FY 2025 President's Budget
Operations	**$1,669,440**	**$1,706,403**	**$1,822,720**
Commodity IT SS WCF	*$14,920*	*$17,515*	*$17,363*
Modal IT	*$1,654,520*	*$1,688,888*	*$1,805,357*
Facilities & Equipment (F&E)	**$1,578,430**	**$1,843,800**	**$1,993,590**
Commodity IT SS WCF	*$0*	*$0*	*$0*
Modal IT	*$1,578,430*	*$1,843,800*	*$1,993,590*
Total	**$3,247,870**	**$3,550,203**	**$3,816,310**
Note: The funding data is as of January 12, 2023. The FY 2025 F&E funding levels do not reflect changes that were made to the requested amounts for Terminal and EnRoute Voice Switch and Recorder Portfolio, Terminal and EnRoute Surveillance Portfolio, and Weather Systems Portfolio after the CIMS database had locked. Updates will be made when the CIMS database reopens.			

The Federal Aviation Administration requests **$3.8 billion** in FY 2025 for information technologies (IT) that support the full spectrum of FAA programs as well as the Department's initiative to transform and consolidate the management of certain IT solutions centrally by the Office of the Chief Information Officer (OCIO).

Commodity IT Shared Services (SS) through the Working Capital Fund

OCIO will continue to provide all modes Commodity IT Shared Services in FY 2025 to achieve economies of scale and increase consistency of cybersecurity protections across the Department. Commodity IT Shared Services include IT functions and activities dedicated to basic support services, including network operations, end-user computing, telecommunications services, and server operations.

- The budget requests **$17.4 million** in the Operations account for Commodity IT Shared Services. FAA's share was based on actual commodity IT consumption in prior years as well as planned future consumption. OCIO, in collaboration with FAA, assumed a one-to-one cost estimate to transition all commodity IT to OCIO. FAA will only be charged for services rendered.

Modal IT

The following major mission-critical IT systems will be maintained by FAA in FY 2025. This list is only a subset of all IT systems that support FAA and are reported in the Office of Management and Budget's Corporate Investment Management System.

- **Automatic Dependent Surveillance – Broadcast (ADS-B) National Airspace System (NAS) Wide Implementation –** The budget requests **$92.7 million** in the Facilities and Equipment (F&E) account to support the sustainment of ADS-B services. ADS-B reduces delays and enhances safety by using an aircraft's broadcasted position instead of position information from traditional radar. It benefits the American public by providing more efficient use of airspace capacity, fewer flight delays, and more optimal routing for aircraft.

- **Wide Area Augmentation System (WAAS) for Global Positioning System (GPS) –** The budget requests **$73.2 million** in the F&E account for the continuation of correction calculations and integrity messages for each GPS satellite. The WAAS messages are broadcast to user receivers via leased navigation transponders on three commercial geostationary (GEO) satellites. Aircraft receivers apply corrections and from the WAAS satellite network, to obtain a precise three-dimensional navigation position. The WAAS program directly supports NAS modernization by replacing ground-based navigation aids with satellite navigation technology and reduces the impact of constrained aircraft navigation due to the location of ground-based Navigation Aids. WAAS allows aircraft the flexibility of point-to-point flight operations. In FY 2025, a series of incremental releases will be deployed which will include technology refreshes, conducting safety assurance reviews of GPS compliances with aviation requirements, and research for future capabilities to extend satellite navigation support operations.

- **Data Communications –** The budget requests **$5.0 million** in the F&E account to Data Communications services between pilots and air traffic controllers. Data Communication will provide a digital link between ground automation and flight deck avionics for safety-of-flight ATC clearances, instructions, traffic flow management, flight crew requests, and reports. Data Communication is critical to the success of NAS modernization by providing communication infrastructure enhancements.

- **Offshore Automation -** The budget requests **$30.0 million** in the F&E account to standardize platforms that support control of En Route and Terminal airspace at

the four non-contiguous United States (US) facilities referred to as the offshore facilities.

- **En Route Automation Modernization (ERAM) -** The budget requests **$70.0 million** in the F&E account to complete the refresh of the base ERAM infrastructure and complete the operating system transition from IBM AIX to Linux. The program plans to be completed in CY2026. ES3 will replace the balance of the original ERAM system equipment that has not yet been refreshed. The remaining ERAM original equipment is at, or near the end of its service life and requires replacement. ERAM sustainment risk is increasing due to a higher risk of equipment failure that could result in degradation of system performance.

Information Technology System Support – The budget requests **$3.5 billion** for other system investments in the IT portfolio. Funding will also be used to migrate and modernize legacy systems to provide risk management, security, and common information management capabilities and services across the FAA; to include the airspace, navigation facilities and airports of the United States along with their associated information, services, rules, regulations, policies, procedures, personnel and equipment.

The CIMS IT database will be updated between the OST and OMB submissions.

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FEDERAL AVIATION ADMINISTRATION

OPERATIONS

ESTIMATES		APPROPRIATIONS	
2016	[1]9,915,000,000	2016	[2]9,909,724,000
2017	[3]9,994,352,000	2017	[4]10,025,852,000
2018	[5]9,890,886,000	2018	[6]10,211,754,000
		2018 Supplemental (P.L. 115-123)	[7]35,000,000
2019	[8]9,931,312,000	2019	[9]10,410,758,000
2020	[10]10,340,000,000	2020	[11]10,630,000,000
2021	[12]11,001,500,000	2021	[13]11,001,500,000
2022	[14]11,434,100,000	2022	[15]11,414,100,000
2023	[16]11,933,821,000	2023	[17]11,915,000,000
2024	[18]12,740,627,000		
2025	[19]13,603,399,000		

[1] Includes $8,547,000,000 from the Airport and Airway Trust Fund.
[2] Includes $7,922,000,000 from the Airport and Airway Trust Fund.
[3] Includes $7,608,000,000 from the Airport and Airway Trust Fund.
[4] Includes $9,173,000,000 from the Airport and Airway Trust Fund.
[5] Includes $8,100,000,000 from the Airport and Airway Trust Fund.
[6] Includes $8,886,000,000 from the Airport and Airway Trust Fund.
[7] Supplemental funding from the Further Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018 (P.L. 115-123)
[8] Includes $8,632,721,000 from the Airport and Airway Trust Fund.
[9] Includes $9,833,400,000 from the Airport and Airway Trust Fund.
[10] Includes $9,364,085,000 from the Airport and Airway Trust Fund.
[11] Includes $10,519,000,000 from the Airport and Airway Trust Fund.
[12] Includes $11,001,500,000 from the Airport and Airway Trust Fund.
[13] Includes $10,519,000,000 from the Airport and Airway Trust Fund.
[14] Includes $8,434,000,000 from the Airport and Airway Trust Fund.
[15] Includes $ 6,414,100,000 from the Airport and Airway Trust Fund.
[16] Includes $9,933,821,000 from the Airport and Airway Trust Fund.
[17] Includes $9,993,821,000 from the Airport and Airway Trust Fund.
[18] Includes $8,740,627,000 from the Airport and Airway Trust Fund.
[19] Includes $12,755,399,00 from the Airport and Airway Trust Fund.

FEDERAL AVIATION ADMINISTRATION

FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

ESTIMATES		APPROPRIATIONS	
2016	2,855,000,000	2016	2,855,000,000
2017	2,838,000,000	2017	2,855,000,000
2018	2,766,200,000	2018	3,250,000,000
		2018 Supplemental (P.L. 115-123)	[20]79,600,000
2019	2,766,572,000	2019	3,000,000,000
2020	3,295,000,000	2020	3,045,000,000
2021	3,000,000,000	2021	3,015,000,000
2022	3,410,000,000	2022	2,892,888,000
		2022 Hurricane Relief	[21]100,000,000
		2022 IIJA Supplemental	[22]1,000,000,000
2023	[23]3,015,000,000	2023	2,945,000,000
		2023 IIJA Supplemental	[24]1,000,000,000
2024	3,462,000,000	2024 IIJA Supplemental	[25]1,000,000,000
2025	3,600,000,000	2025 IIJA Supplemental	[26]1,000,000,000
		2026 IIJA Supplemental	[27]1,000,000,000

[20] Supplemental funding from the Further Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018 (P.L. 115-123)
[21] Extending Government Funding and Delivering Emergency Assistance Act, 117-43 from the General Fund.
[22] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[23] Does not include funding from Infrastructure Investment and Jobs Act.
[24] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[25] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[26] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[27] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

FEDERAL AVIATION ADMINISTRATION

RESEARCH, ENGINEERING, AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)

ESTIMATES		APPROPRIATIONS	
2016	166,000,000	2016	166,000,000
2017	167,500,000	2017	176,500,000
2018	150,000,000	2018	188,926,000
2019	74,406,000	2019	191,100,000
2020	120,000,000	2020	192,665,000
2021	170,000,000	2021	198,000,000
2022	258,500,000	2022	248,500,000
		2022 IRA Supplemental	[28]297,000,000
2023	260,500,000	2023	255,000,000
2024	255,130,000		
2025	250,000,000		

[28] Inflation Reduction Act, P.L. 117-169 from General Fund.

FEDERAL AVIATION ADMINISTRATION

GRANTS-IN-AID FOR AIRPORTS
(LIQUIDATION OF CONTRACT AUTHORIZATION)
(AIRPORT AND AIRWAY TRUST FUND)

ESTIMATES		APPROPRIATIONS	
2016	3,500,000,000	2016	3,600,000,000
2017	3,500,000,000	2017	3,750,000,000
2018	3,000,000,000	2018	3,350,000,000
		2018 Supplemental	[29]1,000,000,000
2019	3,000,000,000	2019	3,350,000,000
		2019 Supplemental	[30]500,000,000
2020	3,000,000,000	2020	3,350,000,000
		2020 Supplemental	[31]400,000,000
		CARES Act	[32]10,000,000,000
2021	3,350,000,000	2021	3,350,000,000
		2021 Supplemental	[33]400,000,000
		CRRSA Act	[34]2,000,000,000
2022	3,350,000,000	2022	3,350,000,000
		2022 Supplemental	[35]554,180,000
2023	3,350,000,000	2023	3,350,000,000
		2023 Supplemental	558,555,000
2024	3,350,000,000		
2025	3,350,000,000		

[29] FY 2018 Consolidated Appropriations Act (P.L. 115-141) from the General Fund.
[30] FY 2019 Consolidated Appropriations Act (P.L. 116-6) from the General Fund.
[31] FY 2020 Consolidated Appropriations Act (P.L. 116-94) from the General Fund.
[32] CARES Act (P.L. 116-136) from the General Fund.
[33] FY 2021 Consolidated Appropriations Act (P.L. 116-260) from the General Fund.
[34] Coronavirus Response and Relief Supplemental Appropriations Act (P.L. 116-260) from the General Fund.
[35] FY 2022 Consolidated Appropriations Act (P.L. 117-103) from the General Fund.

FEDERAL AVIATION ADMINISTRATION

GRANTS-IN-AID FOR AIRPORTS
LIMITATION ON OBLIGATIONS
(AIRPORT AND AIRWAY TRUST FUND)

ESTIMATES		APPROPRIATIONS	
2016	(2,900,000,000)	2016	(3,350,000,000)
2017	(2,900,000,000)	2017	(3,350,000,000)
2018	(3,350,000,000)	2018	(3,350,000,000)
2019	(3,350,000,000)	2019	(3,350,000,000)
2020	(3,350,000,000)	2020	(3,350,000,000)
2021	(3,350,000,000)	2021	(3,350,000,000)
2022	(3,350,000,000)	2022	(3,350,000,000)
2023	(3,350,000,000)	2023	(3,350,000,000)
2024	(3,350,000,000)		
2025	(3,350,000,000)		

FEDERAL AVIATION ADMINISTRATION

RELIEF FOR AIRPORTS

ESTIMATES		APPROPRIATIONS	
2021	0	2021	[1]8,000,000,000
2022	0	2022	0
2023	0	2023	0
2024	0		
2025	0		

[1] American Rescue Plan (P.L. 117-2) from the General Fund.

FEDERAL AVIATION ADMINISTRATION

EMPLOYEE LEAVE FUND

ESTIMATES		APPROPRIATIONS	
2021	0	2021	[2]9,000,000
2022	0	2022	0
2023	0	2023	0
2024	0		
2025	0		

[2] American Rescue Plan (P.L. 117-2) from the General Fund.

FEDERAL AVIATION ADMINISTRATION

AIRPORT INFRASTRUCTURE GRANTS

ESTIMATES		APPROPRIATIONS	
2022	0	2022	[1]3,000,000,000
2023	0	2023	[2]3,000,000,000
2024	0	2024	[3]3,000,000,000
2025	0	2025	[4]3,000,000,000
		2026	[5]3,000,000,000

[1] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[2] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[3] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[4] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[5] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

FEDERAL AVIATION ADMINISTRATION

AIRPORT TERMINAL PROGRAM

ESTIMATES		APPROPRIATIONS	
2022	0	2022	[1]1,000,000,000
2023	0	2023	[2]1,000,000,000
2024	0	2024	[3]1,000,000,000
2025	0	2025	[4]1,000,000,000
		2026	[5]1,000,000,000

[1] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[2] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[3] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[4] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.
[5] Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

FEDERAL AVIATION ADMINISTRATION

FACILITY REPLACEMENT AND RADAR MODERNIZATION

ESTIMATES	APPROPRIATIONS
2025……...1,000,000,000	
2026……...1,000,000,000	
2027……...2,000,000,000	
2028……...2,000,000,000	
2029……...2,000,000,000	

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Federal Aviation Administration
Abbreviated National Airspace System Capital Investment Plan
Fiscal Years 2025–2029

Background

The Consolidated Appropriations Act of 2023 which became Public Law 117-328 on December 29, 2022, provided the appropriation amounts and other direction for the Federal Aviation Administration within DIVISION L — TRANSPORTATION, HOUSING AND URBAN DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS ACT, 2023 under Title I—Department of Transportation. For FAA's Facilities and Equipment (F&E) appropriation, the following direction was provided regarding the Five-Year Capital Investment Plan for the National Airspace System:

Provided further, that no later than 60 days after the submission of the budget request, the Secretary of Transportation shall transmit to the Congress an investment plan for the Federal Aviation Administration which includes funding for each budget line item for fiscal years 2025 through 2029, with total funding for each year of the plan constrained to the funding targets for those years as estimated and approved by the Office of Management and Budget.

In order to comply with the Congressional direction above, this Abbreviated National Airspace System (NAS) Capital Investment Plan (CIP) for Fiscal Years (FY) 2025-2029 is included within the FAA's FY 2025 President's Budget.

Highlights

The Abbreviated five-year NAS CIP fulfills the Secretary's commitment; complies with the language in the Consolidated Appropriations Act, 2023; and addresses the following topics:

- Economic Impact
- FAA Capital Planning Considerations
- Next Generation Air Transportation System (NextGen), NAS Modernization, Sustaining Systems and Infrastructure, Facilities Replacement
- Five-year F&E funding table by budget line item for FY 2025 through FY 2029
- Current Status of Major Capital Programs

Economic Impact

Aviation plays an important role in the health of the US economy. Hence, effective planning for a reliable worldwide aviation network is critical for the future of the economy. Both domestic

and international commerce rely heavily on ready access to aviation services for carrying passengers and freight to the cities around the world, which helps to sustain economic growth. In August 2022, the FAA issued its most recent report on the economic impact of U.S. civil aviation in the year 2020[2]. The report indicated that economic activity attributed to civil aviation-related goods and services totaled $.9 trillion and generated 4.9 million jobs with $259.1 billion in earnings. In total, U.S. aviation contributed 2.3 percent to the U.S. Gross Domestic Product. Other aviation related economic activities highlighted include:

- Air carriers operating in U.S. airspace transported 403.8 million passengers with over 495.7 billion revenue passenger miles
- U.S. airports accommodated more than 75.5 billion revenue ton-miles of freight in support of commercial activities
- Commercial airline operations enabled $136.2 billion of visitor expenditures on goods and services
- Civil aircraft manufacturing total output was $38.2 billion

FAA Capital Planning Considerations

Critical factors in capital planning at the FAA include the extensive CIP development process; the rigorous approval process; and the continuous assessment of the safety and capacity requirements of the NAS.

The development of the CIP requires significant time to plan, define, and prioritize expected program outcomes for review and approval by decision makers. Maintaining a balanced portfolio of FAA's capital investments is critical to the long-term sustainment and modernization of the NAS to meet projected demand, deliver new services and capabilities, and improve system safety and efficiency. Program offices and sponsors must develop business cases to justify the need for programs, define the technical approach and requirements, develop lifecycle cost and schedule estimates, and identify interdependencies among programs.

In accordance with the FAA's Acquisition Management System, proposed capital investments are presented to the Joint Resources Council for review and approval to initiate these programs. Once approved, programs enter the investment analysis process, are added to the Enterprise Architecture and the CIP, and are included in the President's Budget request to Congress. Once funds are appropriated, program offices must then manage risk during program execution to deliver planned outcomes on schedule and on budget. In addition, new systems or capabilities must demonstrate compliance with all applicable FAA reliability and safety standards before receiving final approval to operate in the NAS.

[2] Source: Federal Aviation Administration, "The Economic Impact of Civil Aviation on the U.S. Economy," August 2022 https://www.faa.gov/sites/faa.gov/files/2022-08/2022-APL-038%202022_economic%20impact_report.pdf

Addressing real-time changes in air traffic demand and anticipated future growth may require increases in NAS safety, capacity, efficiency, reliability, and system flexibility. Other variables affecting capital planning include periodic changes in economic conditions, scheduled expansion projects at major airports, and ongoing sustainment needs for mission critical Air Traffic Control (ATC) systems, facilities, and other NAS infrastructure. By statute, each year of the CIP estimates must balance to the most recent F&E funding target for that year, as issued to FAA by the Office of Management and Budget. In the CIP development process, the FAA allocates funding to capital programs to support the implementation of operational changes for NextGen, programs sustaining and modernizing current NAS systems and infrastructure, and mission support. This approach to planning ensures that current NAS performance and safety standards are maintained or improved.

NextGen, NAS Modernization, Sustaining Systems and Infrastructure, Facilities Replacement

The air traffic control infrastructure is a complex system made up of several thousand components that control air traffic approaching, landing, and departing from airports. ATC infrastructure includes 21 Air Route Traffic Control Centers housing the automation equipment used by air traffic controllers to control en route air traffic, over 500 Air Traffic Control Towers, and over 150 Terminal Radar Approach Control facilities. This daily flow of air traffic is dependent upon several hundred surveillance and weather radars, navigation systems for en route and airport approach guidance, and thousands of radios that allow pilots and air traffic controllers to stay in contact during all phases of an aircraft's flight.

NAS Modernization is a multi-year effort to modernize the U.S. air traffic control system to improve the safety, efficiency, capacity, and environmental performance of the NAS. NAS modernization involves the deployment of advanced technologies and infrastructure upgrades to the air traffic control system. This includes data communications networks, satellite-based navigation systems, and advances surveillance systems to improve the accuracy and reliability of air traffic control. Overall, NAS modernization is a major effort to transform the U.S. air traffic control system into a more efficient, reliable, and safe system that can accommodate the growing demands of air travel.

NextGen is a portfolio of programs, systems, and procedures at different levels of maturity that will provide enhanced capabilities for the movement and management of air traffic. The work in the portfolio is being deployed in stages. Some enhancements are currently in deployment, some are nearing implementation, and some of the capabilities of NextGen are being defined and matured, as the technology to support them becomes available (Pre-Implementation).

Selected key investments from 84 Capital Budget Line Item (BLI) Facility and Equipment (F&E) Programs are highlighted below:

- **Surface Surveillance Portfolio Sustain 1**– Surface Movement Radar (SMR) Replacement at existing ASDE-X systems at 35 airports and ASSC systems at 9 airports are surface surveillance systems that use radar, multilateration (a surveillance technique

based on measurement of the times of arrival of aircraft and vehicle transponder signals at multiple receivers), and Automatic Dependent Surveillance-Broadcast to track aircraft and vehicles. These systems help air traffic controllers prevent surface collisions and reduce runway incursions by improving situational awareness. The ASDE-3 SMR Replacement Program will address replacing the SMR sensor which is part of many of the ASDE-X and all the ASSC systems. (BLI 2B09)

- **Air Route Traffic Control Center (ARTCC) and Combined Control Facility (CCF) Building Improvements** - Major construction projects that will replace building systems include architectural elements, such as walls, roof and interior finishes; mechanical systems such as heating, ventilation, and air conditioning equipment, environmental control systems and plumbing; electrical distribution and lighting, and fire protection systems. (BLI 2A03)

- **Electrical Power System Sustain/Support** - This program sustains and supports the existing electrical power components and systems that include power conditioning, power regulation, power distribution, standby power, onsite prime power, grounding, monitoring, and electrical power cable infrastructure. Power systems' performance is critical to national airspace system operations, and any power disruptions are briefed daily to the administrator and senior management. (BLI 2E07)

- **Unstaffed Infrastructure Sustainment (UIS)** - The UIS program sustains national airspace supporting infrastructure at approximately 12,000 sites in the national airspace system. This will continue to enable the reliable and continuous operations of surveillance, navigation, communication, and weather equipment. Unstaffed infrastructure protects electronic equipment from weather hazards and unauthorized entry. (BLI 2E02)

- **En Route Automation** – The En Route Automation Modernization (ERAM) Enhancements include improvements to trajectory modeling, increased conflict detection and resolution capabilities to support separation management and expand the automated coordination of flight data and aircraft control with the Canadian Air Navigation Service Provider (Nav Canada). (BLI 2A01)

- **Automatic Dependent Surveillance – Broadcast (ADS-B) NAS Wide Implementation (ADS-B)** – Continued implementation of ADS-B will provide more efficient use of airspace capacity, fewer flight delays, and more optimal routing for aircraft. Other efficiencies include reduced weather deviations and fewer cancellations during inclement weather conditions. ADS-B increases access to some Alaskan regions and Gulf of Mexico oil platforms. (BLI 2A09)

- **Standard Terminal Automation Replacement System (STARS) – Sustainment 3**– Standard Terminal Automation Replacement System (STARS) is the principal tool used by air traffic controllers in and around airport terminal facilities for controlling aircraft. STARS infrastructure can be expanded and extended to meet increased traffic demands,

and to accommodate the introduction of new automation functions necessary for improved safety, efficiency, and capacity. (BLI 2B01)

- **Aeronautical Information Management (AIM) Modernization Federal NOTAM System (FNS) Sustainment -** The Aeronautical Information Management Modernization (AIMM) program develops and enhances systems and services that address future air traffic requirements. Digital aeronautical data enables near real-time processing of information that improves access to, and the quality of NAS data, including Notice to Airmen (NOTAM). The Federal NOTAM System (FNS) sustainment program falls under the AIMM program umbrella and addresses a key US Congressional mandate. (BLI 4A09)

- **Telecommunications Infrastructure (FTI) – Sustainment 2** Telecommunications services are essential to the operations of the NAS and the FAA. The FTI Sustainment 2 program will provide technical refresh of the existing FTI services and infrastructure used by the FAA to support approximately 30,100+ telecom services at more than 4,400+ sites. FTI telecommunication services are designed, engineered, and provisioned to meet FAA-specific availability, latency, and security requirements. The FTI Sustainment 2 program will ensure the continued operation of telecommunication services with the successor program FAA FENS. (BLI 2E09)

- **Terminal and En Route Voice Switch and Recorder Portfolio** – This program addresses sustainment and replacement of aging, obsolete voice switches, voice recorders and back-up systems located in the Air Route Traffic Control Centers and Terminal Facilities throughout the national airspace system. The replacement of new voice switches will provide reliable communication from controller to controller and controllers to pilots, creating a safer and more efficient national airspace system. Voice recorders collect voice conversations among air traffic controllers, pilots, and ground-based personnel. Recorded conversations assist in the investigation of accidents, incidents, and in the routine evaluation of air traffic operations. (BLI 2B11)

- **Landing and Lighting Portfolio** –This portfolio contains critical ground infrastructure that collectively enables all aircraft to navigate the established aircraft routes in the sky as well as the ability to safely descend and land on the airport runway. The work under this portfolio includes assessment of the systems to determine the need for system relocations, operational modifications, sustainment work to maintain and/or improve system performance, and to procure and install systems as needed. (BLI 2D05)

The FAA's FY 2025-2029 CIP provides a balanced portfolio of capital programs for the modernization and sustainment of systems and critical NAS infrastructure, integration of UAS operations into the NAS, and the operationalization of NextGen.

Estimated Funding by Budget Line Item

The following table shows funding by Budget Line Item (BLI) for the capital programs in the FY 2025 to FY 2029 timeframe. The FY 2025 funding amounts in this table are consistent with this budget submission. The FY 2026 through FY 2029 total-year funds are constrained to the F&E targets issued by the Office of Management and Budget.

Estimated Funding by Budget Line Item
(*In millions of dollars)*

FY25 BLI Number	Capital Budget Line Item (BLI) Program	FY 2025 Est.	FY 2026 Est.	FY 2027 Est.	FY 2028 Est.	FY 2029 Est.
	Activity 1: Engineering, Development, Test and Evaluation	**$173.80**	**$147.29**	**$149.82**	**$153.89**	**$160.66**
1A01	Advanced Technology Development and Prototyping (ATDP)	$31.90	$36.39	$36.42	$36.39	$36.16
1A02	William J. Hughes Technical Center Laboratory Sustainment	$23.40	$16.90	$16.90	$17.00	$17.00
1A03	William J. Hughes Technical Center Infrastructure Sustainment	$39.00	$15.00	$15.00	$15.00	$15.00
1A04	NextGen – Separation Management Portfolio	$11.00	$14.00	$14.00	$13.00	$13.00
1A05	NextGen – Traffic Flow Management (TFM) Portfolio	$9.00	$9.00	$9.00	$12.00	$12.00
1A06	NextGen – On Demand NAS Portfolio	$9.00	$9.00	$9.00	$10.00	$12.00
1A07	NextGen – NAS Infrastructure Portfolio	$12.50	$13.50	$15.00	$16.00	$20.00
1A08	NextGen – Support Portfolio	$8.00	$7.00	$8.00	$7.00	$8.00
1A09	NextGen – Unmanned Aircraft Systems (UAS)	$20.00	$16.00	$16.00	$16.00	$16.00
1A10	NextGen – Enterprise, Concept Development, Human Factors, and Demonstrations Portfolio	$10.00	$10.50	$10.50	$11.50	$11.50
	Activity 2: Procurement and Modernization of Air Traffic Control Facilities and Equipment	**$2,235.60**	**$2,393.20**	**$2,475.40**	**$2,533.00**	**$2,605.15**
	A. En Route Programs	**$558.20**	**$568.37**	**$646.53**	**$642.14**	**$728.39**
2A01	NextGen – En Route Automation Modernization (ERAM) – System Enhancements and Technology Refresh	$70.00	$42.67	$42.67	$37.67	$99.87
2A02	Next Generation Weather Radar (NEXRAD)	$3.00	$3.00	$7.00	$4.00	$4.00
2A03	Air Route Traffic Control Center (ARTCC) and Combined Control Facility (CCF) Building Sustainment	$99.70	$144.92	$182.76	$217.76	$217.76
2A04	Air/Ground Communications Infrastructure	$7.70	$6.84	$8.64	$10.34	$15.64
2A05	Air Traffic Control En Route Radar Facilities Improvements	$8.10	$8.61	$7.34	$6.04	$6.04
2A06	Oceanic Automation System	$12.50	$21.00	$42.90	$29.20	$20.40
2A07	Next Generation Very High Frequency Air/Ground Communications System	$53.20	$24.90	$56.70	$63.40	$63.50
2A08	NextGen – System-Wide Information Management (SWIM)	$80.90	$47.00	$38.00	$45.40	$60.00
2A09	NextGen – Automatic Dependent Surveillance - Broadcast (ADS-B) NAS Wide Implementation	$92.70	$103.95	$95.10	$106.00	$110.00
2A10	NextGen – Air Traffic Management Implementation Portfolio	$41.70	$77.69	$95.40	$73.90	$41.40
2A11	NextGen – Time Based Flow Management (TBFM) Portfolio	$15.70	$21.39	$28.89	$22.80	$22.65
2A12	NextGen – Next Generation Weather Processor (NWP)	$29.80	$1.04	$0.67	$8.27	$27.77
2A13	Airborne Collision Avoidance System X (ACAS X)	$1.70	$1.70	$0.00	$0.00	$0.00
2A14	NextGen – Data Communication in support of NextGen	$5.00	$10.67	$0.67	$0.67	$12.67
2A15	Offshore Automation	$30.00	$48.00	$29.80	$7.70	$4.20
2A16	En Route Improvements	$2.00	$0.00	$0.00	$0.00	$0.00
2A17	Commercial Space Integration	$4.50	$5.00	$10.00	$9.00	$22.50

FY25 BLI Number	Capital Budget Line Item (BLI) Program	FY 2025 Est.	FY 2026 Est.	FY 2027 Est.	FY 2028 Est.	FY 2029 Est.
	B. Terminal Programs	**$735.25**	**$881.81**	**$919.33**	**$953.00**	**$994.48**
2B01	Standard Terminal Automation Replacement System (STARS)	$136.80	$160.00	$150.66	$105.45	$115.48
2B02	Terminal Automation Program	$8.40	$4.00	$4.00	$2.00	$2.00
2B03	Terminal Air Traffic Control Facilities – Replace	$63.00	$85.13	$80.00	$108.00	$103.00
2B04	Air Traffic Control Tower (ATCT)/Terminal Radar Approach Control (TRACON) Facilities – Improve	$44.55	$104.22	$141.02	$166.02	$166.02
2B05	NAS Facilities Occupational Safety and Health Administration (OSHA) and Environmental Standards Compliance	$35.00	$29.98	$35.00	$36.00	$42.00
2B06	Integrated Display System (IDS)	$45.50	$64.20	$85.10	$64.70	$39.40
2B07	NextGen – Terminal Flight Data Manager (TFDM)	$59.10	$45.56	$31.83	$65.96	$58.04
2B08	NextGen – Unmanned Aircraft Systems (UAS) Implementation	$10.00	$9.00	$9.00	$9.00	$9.00
2B09	Surface Surveillance Portfolio Sustain 1	$105.20	$70.44	$74.79	$64.94	$82.77
2B10	Terminal and En Route Surveillance Portfolio	$95.65	$108.36	$81.11	$69.32	$68.79
2B11	Terminal and En Route Voice Switch and Recorder Portfolio	$120.05	$185.42	$206.81	$247.10	$294.67
2B12	NextGen – Enterprise Information Platform	$9.00	$15.50	$20.00	$14.50	$13.30
2B13	Remote Towers	$3.00	$0.00	$0.00	$0.00	$0.00
	C. Flight Service Programs	**$42.30**	**$56.14**	**$47.14**	**$36.22**	**$23.74**
2C01	Future Flight Services Program (FFSP)	$3.00	$14.70	$6.80	$5.30	$1.90
2C02	Alaska Flight Service Facility Modernization (AFSFM)	$2.70	$2.84	$2.84	$0.84	$0.84
2C03	Weather Camera Program	$6.50	$5.00	$5.00	$5.00	$5.00
2C04	Weather Systems Portfolio	$30.10	$33.60	$32.50	$25.08	$16.00
	D. Landing and Navigation Aids Programs	**$147.85**	**$140.98**	**$132.68**	**$157.08**	**$132.58**
2D01	VHF Omnidirectional Radio Range (VOR) Minimum Operating Network (MON)	$7.00	$0.00	$0.00	$0.00	$0.00
2D02	Wide Area Augmentation System (WAAS) for GPS	$73.20	$72.00	$61.10	$85.50	$75.00
2D03	Instrument Flight Procedures Automation (IFPA)	$4.10	$2.40	$0.00	$0.00	$0.00
2D04	Runway Safety Areas (RSA) – Navigational Mitigation	$1.80	$0.00	$0.00	$0.00	$0.00
2D05	Landing and Lighting Portfolio	$57.75	$56.58	$56.58	$56.58	$42.58
2D06	Distance Measuring Equipment (DME), VHF Omni-Directional Range (VOR), Tactical Air Navigation (TACAN) (DVT) Portfolio	$4.00	$10.00	$15.00	$15.00	$15.00
	E. Other ATC Facilities Programs	**$752.00**	**$745.90**	**$729.72**	**$744.56**	**$725.96**
2E01	Fuel Storage Tank Replacement and Management	$10.60	$12.66	$22.00	$22.00	$22.00
2E02	Unstaffed Infrastructure Sustainment (UIS)	$63.30	$90.95	$103.76	$108.76	$112.76
2E03	Aircraft Replacement and Related Equipment Program	$113.10	$61.50	$56.50	$14.90	$6.50
2E04	Airport Cable Loop Systems – Sustained Support	$10.00	$10.00	$10.00	$10.00	$10.00
2E05	Real Property Disposition / Facilities Decommissioning	$9.00	$5.05	$10.00	$10.00	$10.00
2E06	Child Care Center Sustainment	$1.20	$1.00	$1.00	$1.00	$1.00
2E07	Electrical Power Systems – Sustain/Support	$120.50	$189.04	$227.36	$221.00	$221.00
2E08	Energy Management and Compliance (EMC)	$4.80	$4.20	$4.00	$4.00	$4.00
2E09	FAA Telecommunications Infrastructure	$419.50	$368.50	$295.10	$352.90	$338.70
	Operational Analysis and Reporting Systems	$0.00	$3.00	$0.00	$0.00	$0.00
	Activity 3: Non-Air Traffic Control Facilities and Equipment	**$220.00**	**$168.22**	**$147.40**	**$144.50**	**$140.00**
	A. Support Programs	**$178.00**	**$140.22**	**$127.40**	**$123.40**	**$120.00**
3A01	Hazardous Materials Management	$23.60	$19.94	$25.00	$31.00	$31.00
3A02	Aviation Safety Analysis System (ASAS)	$29.90	$33.00	$29.30	$28.00	$28.00
3A03	National Airspace System Recovery Communications (RCOM)	$12.00	$10.00	$10.00	$10.00	$10.00
3A04	Facility Security Risk Management	$15.00	$14.28	$15.00	$15.00	$10.00
3A05	Information Security	$38.70	$23.50	$22.70	$24.00	$24.00
3A06	System Approach for Safety Oversight (SASO)	$13.20	$13.90	$5.40	$1.80	$0.00
3A07	Aerospace Medical Equipment Needs (AMEN)	$1.50	$0.00	$0.00	$0.00	$0.00
3A08	NextGen – System Safety Management Portfolio	$15.00	$10.00	$10.00	$10.00	$15.00
3A09	National Test Equipment Program	$3.00	$3.00	$0.00	$0.00	$0.00
3A10	Mobile Assets Management Program	$4.00	$2.40	$2.00	$2.00	$2.00
3A11	Configuration, Logistics, and Maintenance Resource Solutions (CLMRS)	$17.00	$10.20	$8.00	$1.60	$0.00
3A12	Tower Simulation System (TSS) - Tower Training Simulator	$5.10	$0.00	$0.00	$0.00	$0.00
	B. Training, Equipment and Facilities	**$42.00**	**$28.00**	**$20.00**	**$21.10**	**$20.00**
3B01	Aeronautical Center Infrastructure Modernization	$41.00	$28.00	$20.00	$21.10	$20.00
3B02	Distance Learning	$1.00	$0.00	$0.00	$0.00	$0.00

FY25 BLI Number	Capital Budget Line Item (BLI) Program	FY 2025 Est.	FY 2026 Est.	FY 2027 Est.	FY 2028 Est.	FY 2029 Est.
	Activity 4: Facilities and Equipment Mission Support	**$280.60**	**$244.60**	**$242.38**	**$252.60**	**$250.59**
4A01	System Engineering and Development Support	$38.00	$39.00	$39.00	$39.00	$39.00
4A02	Program Support Leases	$45.00	$45.00	$45.00	$50.00	$50.00
4A03	Logistics and Acquisition Support Services	$12.00	$12.00	$12.00	$12.00	$12.00
4A04	Mike Monroney Aeronautical Center Lease	$16.90	$16.00	$16.00	$22.00	$16.00
4A05	Transition Engineering Support	$19.00	$19.00	$19.00	$19.00	$19.00
4A06	Technical Support Services Contract (TSSC)	$28.00	$28.00	$28.00	$28.00	$28.00
4A07	Resource Tracking Program (RTP)	$11.00	$12.20	$12.20	$12.20	$12.20
4A08	Center for Advanced Aviation System Development (CAASD)	$57.00	$47.00	$47.00	$47.00	$47.00
4A09	NextGen - Aeronautical Information Management Program	$53.70	$26.40	$24.18	$23.40	$27.39
	Activity 5: Personnel Compensation, Benefits and Travel	**$690.00**	**$730.70**	**$752.00**	**$769.02**	**$786.60**
5A01	Personnel and Related Expenses	$690.00	$730.70	$752.00	$769.02	$786.60
	Total Year Funding	**$3,600.00**	**$3,684.00**	**$3,767.00**	**$3,853.00**	**$3,943.00**

This is direct F&E funding. There is an additional $1B per year in FY25-26 for Infrastructure, Investment, and Jobs Act (IIJA)

Current Status of Major Capital Programs

The criticality of on-budget and on-time acquisitions are important for the success of major capital programs. In accordance with Congressional direction through the Government Accountability Office (GAO), the FAA provides the status of Air Traffic Organization's performance in acquiring ATC systems. In addition, the FAA regularly reports to Congress and the public on its overall performance in acquiring these ATC systems.

Major capital programs are typically classified in Acquisition Categories that have an aggregate rating of medium or high in the following areas: combination of complexity, risk, political sensitivity, safety, security and cost; requirement of special management attention based on importance to the mission of the FAA; significance of program and policy implications; executive visibility; and, high developmental costs. For more information on Acquisition Categories see: http://fast.faa.gov/NFFCA_Acquisition_Categories.cfm

The table below shows the most recent status of information on FAA's major capital programs. The final page of the report reflects completed or cancelled major capital programs.

FAA Capital Programs
Current Information for Major Programs

Programs	NextGen Program	Prime Vendor	Original Baseline			Rebaseline			Current Estimate*		Comments
			Original APB Date	Completion Date	Budget $M	Rebaseline APB Date	Revised Completion Date	Revised Budget $M	Completion Date	Budget $M	
Automatic Dependent Surveillance Broadcast (ADS-B) – Baseline Services Future Segments (BSFS) Acquisition Category (ACAT) 1 New Investment (NI)	x	L3Harris	May-19	Jan-26	$718.3				Jan-26	$752.3	**Current Estimate vs Original Baseline:** The cost growth of $34.0M (-4.7% variance) is due to: 1) addition of the deployment of Airport Surface Surveillance Capability (ASSC) at Joint Base Andrews; 2) Activities to achieve ADS-B BSFS Phase 2 Final Investment Decision (FID) and award follow-on ADS-B contract; 3) Bolster currently low Management Reserve; and 4) possible conversion of Time Division Multiplexing (TDM) telecommunications links to Internet Protocol (IP) links. There is a pending transfer to OPS budget starting in FY25 for subscription services. This has not been updated yet for the cost baseline.
Automatic Dependent Surveillance Broadcast (ADS-B) - Enhancements ACAT 3NI	x	L3Harris, Leidos	Jul-22	Oct-26	$101.9				Oct-26	$101.9	
Advanced Technologies and Oceanic Procedures (ATOP) Enhancement 1 ACAT 3NI	x	Leidos	Apr-19	May-25	$81.7				May-25	$85.0	**Current Estimate vs Original Baseline:** The cost growth of $3.3M (-4.1% variance) is due to additional funding to complete and deploy the remaining ADS – Contract (ADS-C) capabilities in ATOP Releases T30 and T31.
Common Support Services Weather (CSS-Wx) ACAT 1	x	L3Harris	Mar-15	Aug-22	$120.1	May-21	Apr-26	$211.4	Apr-26	$211.4	**Rebaseline vs. Original Baseline:** The schedule delay of 44 months (-49.4% variance) and cost growth of $91.3M (-76.0% variance) is associated with underestimating software development efforts, hardware requirements, platform changes, interface changes, integration issues, and ineffective management of resources and processes related to software development and testing by the prime contractor.
Data Communications (Data Comm) Segment 1, Phase 2 (S1P2), Full En Route Services ACAT 1NI	x	L3Harris, Leidos	Aug-16	Dec-23	$421.4				Jul-27	$423.0	**Current Estimate vs Original Baseline:** The schedule delay of 43 months (-48.9% variance) and the cost growth of $1.6M (-0.4% variance) is due to the FY19 Government shutdown, lack of Subject Matter Expert (SME) resources, latent avionics air-to-ground network interoperability issues, and COVID-19 restrictions.
Data Communications (Data Comm) Segment 1, Phase 2 (S1P2), Initial En Route Services ACAT 1NI	x	L3Harris, Leidos	Oct-14	Feb-21	$816.7				May-25	$864.3	**Current Estimate vs Original Baseline:** The schedule delay of 51 months (-67.1% variance) and the cost increase of $47.6M (-5.8% variance) is due to the FY19 Government shutdown, lack of SME resources, latent avionics air-to-ground network interoperability issues, COVID-19 restrictions, capacity limitations and availability of controllers.
Enterprise-Information Display System (E-IDS) Phase 1 ACAT 1NI		Leidos	Jun-20	May-27	$219.2				Dec-27	$304.0	**Current Estimate vs Original Baseline:** The cost growth of $84.8M (-38.7% variance) and schedule delay of 7 months (-8.4% variance) are preliminary estimates and are due to: 1) the prime contractor underestimating system engineering and software development efforts, 2) derived requirements growth versus original contract proposal, 3) Source Lines of Code (SLOC) growth versus original contract proposal, and 4) Software productivity lower than original poposal. The Baseline Change Decision (BCD) is planned for calendar year (CY) 2024.
En Route Automation Modernization (ERAM) Enhancement 2 ACAT 1	x	Leidos	Dec-16	Dec-23	$253.6	Dec-18	Dec-24	$192.9	Dec-24	$192.9	**Rebaseline vs. Original Baseline:** The schedule delay of 12 months (-14.3% variance) is associated with budget uncertainty and reductions, technical changes, and adjusting priorities. The cost under run of $60.7M (23.9% variance) is due to reduced scope as a result of a reprioritization of enhancements to include only mature capabilities validated through engineering and development activities.
ERAM Sustainment 3 ACAT 4 Technology Refresh (TR)	x	Leidos	Dec-19	Sep-26	$332.9				Sep-26	$342.2	**Current Estimate vs Original Baseline:** The cost growth of $9.3M (-2.8% variance) is associated with an increase in prime vendor contract costs, Monitor & Control Workstations/Servers (MCWS) & Air Traffic (AT) workstations, and funding for non-severable work efforts.

*Data as of Dec-23

FAA Capital Programs
Current Information for Major Programs

Programs	NextGen Program	Prime Vendor	Original Baseline			Rebaseline			Current Estimate*		Comments
			Original APB Date	Completion Date	Budget $M	Rebaseline APB Date	Revised Completion Date	Revised Budget $M	Completion Date	Budget $M	
MODE S Beacon Replacement System (MSBRS) Phase 1A ACAT 4 TR		Leidos	Nov-19	Apr-27	$209.2				Apr-27	$209.2	
NextGen Weather Processor (NWP) ACAT 1	x	Raytheon Corporation	Mar-15	Aug-22	$189.3	May-21	Apr-26	$319.9	Apr-26	$319.9	**Rebaseline vs. Original Baseline:** The schedule delay of 44 months (-49.4% variance) is associated with the CSS-Wx delays and Government Furnished Information (GFI). NWP and CSS-Wx are highly integrated programs and is dependent on CSS-Wx going operational. The cost growth of $130.6M (-69.0% variance) is associated with underestimating software design and development, prime contractor rate changes due to a corporate reorganization, interface changes with CSS-Wx for input and output data, underestimating the Integrated Logistics Support (ILS) Transition, and the transfer of Aviation Weather Display (AWD) service responsibility to NWP which included the development of an interface to System Wide Information Management (SWIM).
Next-Generation VHF/UHFAir to Ground Communication System (NEXCOM) Phase 2 ACAT 2 NI		General Dynamics C4 Systems	Aug-17	Dec-26	$334.2				Dec-26	$354.1	**Current Estimate vs. Original Baseline:** The cost growth of $19.9M (-6.0% variance) is due to congressional plus ups which was used to prioritize the procurement and replacement of version 1 radios.
Offshore Automation Segment 1 ACAT 1NI		Leidos	Sep-22	Jul-29	$256.3				Jul-29	$256.3	**New Add: FID approved September 2022**
System Approach for Safety Oversight (SASO) Phase 4 ACAT 3 NI		Volpe	Jul-21	Sep-28	$130.4				Sep-28	$130.4	
Standard Terminal Automation Replacement System (STARS) Sustainment 3 ACAT 4TR		Raytheon Corporation	Jun-21	Mar-27	$241.4				Mar-27	$241.6	
System Wide Information Management (SWIM) Segment 2C ACAT 4TR	x	L3Harris	Mar-20	Sep-25	$129.5				Sep-25	$133.9	**Current Estimate vs. Original Baseline:** The cost growth of $4.4M (-3.4% variance) is associated with replacement of the legacy National Offload Program (NOP) hardware at 148 STARS sites with Store and Forward Appliances (SAFA) Devices and the related upgrade of the SWIM Terminal Data Distribution Services (STDDS) software.
Terminal Flight Data Manager (TFDM) ACAT 1 NI	x	Leidos	Jun-16	Sep-28	$795.2				Feb-30	$950.0	**Current Estimate vs. Original Baseline:** The schedule delay of 17 months (-11.6% variance) and cost increase of $161.8M (-20.3% variance) is associated with: 1) COVID-19 work restrictions, 2) additional software enhancements, 3) sustainment support post-deployment, 4) Traffic Flow Management System (TFMS) Departure Spacing Program (DSP) interface, 5) Additional costs for FAA Telecommunications Infrastructure (FTI) - SWIM complexities, 6) FY19 Government Shutdown, and 6) New Cyber Security upgrades. The BCD is planned for CY 2024.
Wide Area Augmentation System (WAAS) Phase 4B ACAT NI2A		Raytheon Corporation, Leidos	Jun-22	Jun-28	$665.3				Jun-28	$665.3	There is a pending transfer to OPS budget starting in FY25 for satellite lease services. This has not been updated yet for the cost baseline.
Voice Communications System (VCS) Phase 1 - Air-to-Ground Converter (APC) System ACAT 1NI		TBD	Dec-23	Jul-26	$133.8				Jul-26	$133.8	**New Add: FID approved December 2023**

*Data as of Dec-23

FAA Capital Programs
Major Programs - Completed or Cancelled

Programs	NexGen Program	Prime Vendor	Original Baseline			Rebaseline			Actual Results*		Comments
			Original APB Date	Completion Date	Budget $M	Rebaseline APB Date	Revised Completion Date	Revised Budget $M	Completion Date	Budget $M	
System Approach for Safety Oversight (SASO) Phase 3 ACAT 3NI			Feb-16	May-23	$135.7				Apr-23	$117.7	Program Completed. **Current Estimate vs. Original Baseline:** The program completed 1-month early (1.1% favorable variance) and a cost savings of $18.0M (13.3% favorable variance).
Time Based Flow Management (TBFM) Enhancement 1 ACAT 3 NI	x	Leidos	Apr-15	Sep-22	$188.3				May-23	$224.3	**Current Estimate vs. Original Baseline**: The schedule delay of 8 months (-9.0% variance) and the cost growth of $36.0M (-19.1% variance) is associated with the following: 1) A replan to address high priority North East Corridor improvements; 2) the FY19 Government Shutdown; 3) COVID-19 work restrictions, 4) the need to address the complexity of multiple stakeholders, training, and the degree of change management required in the field to implement regional integration as part of Trajectory Based Operations (TBO), and 5) the expanded deployment of Integrated Departure and Arrival Capability (IDAC) to four Miami Air Route Traffic Control Center (ARTCC) Remote Towers at Tampa (TPA), Palm Beach (PBI), Ft. Lauderdale Executive (FXE), and Southwest International Airport/Ft. Myers (RSW).

*Data as of Dec-23

Major Programs that have completed their acquisition phase since the last publication of the CIP appear below and will not be shown in subsequent years.

Facilities and Equipment Spend Plan for Fiscal Year 2025
Infrastructure Investment and Jobs Act Funding

The following table depicts the Facilities and Equipment (F&E) detailed spend plan at the Budget Line Item (BLI) level. FAA plans to distribute $1 billion in funding for FY 2025 for the following projects.

FY 2025 BLI	BLI Name	FY 2025 IIJA ($K)
1J01	Terminal and En Route Air Traffic Control Facilities - Replace	$556,000
1J02	Unstaffed Infrastructure Sustainment and Real Property Disposition	$45,000
1J03	Electrical Power System - Sustain/Support and Fuel Storage Tank Replacement and Management	$125,000
1J04	Hazardous Materials Management and NAS Facilities, OSHA, and Environmental Standards Compliance	$55,000
IJ05	Facility Security Risk Management	$9,000
1J06	Personnel Compensation, Benefits, and Travel (PCB&T)	$200,000
IJ07	Navigation, Landing, and Lighting	$10,000
	Total	**$1,000,000**

Terminal and En Route Air Traffic Control Facilities – Replace

In conjunction with the spend plan, the law requests a list of projects for replacing facilities that are owned by the FAA, including air traffic control towers that are staffed through the contract tower program.

Seven Tier 1 and 2 facilities are planned for replacement. These include:

Priority Facility Replacement (Tier 1 and Tier 2 Facilities)				
Location ID	**State**	**City**	**Facility Type**	**HUBZone/ Recurring Process**
BNA	TN	Nashville	FAA Tower	Recurring Process
DSM	IA	Des Moines	FAA Tower	Recurring Process
HIO	OR	Hillsboro	FAA Tower	Recurring Process
SJC	CA	Santa Clara	FAA Tower	Recurring Process
TPA	FL	Tampa	FAA Tower	Recurring Process
SMF	CA	Sacramento	FAA Tower	Recurring Process
DWH	TX	Tomball	FAA Tower	Recurring Process

Thirty-one Tier 3 and 4 facilities are currently being evaluated for replacement with a standard modular facility design and were selected based on the following criteria:

- Facility is FAA owned and more than 40 years of age.
- Facility is located within the contiguous United States.
- Facility is a standalone tower that does not have a Terminal Radar Approach Control Facility collocated at the site. Future modular replacements could include a collocated Terminal Radar Approach Control Facility.
- Facility is under 100 feet in height.
- Tier 3 and Tier 4 facilities that support small airports in the United States. Small airports have less than 150,000 air traffic control operations per year.

Additional qualifications used for the identification of these initial planned sites includes the following criteria:

- Located in a Small Business Administration (SBA) designated "HUBZone." This is a SBA program for small companies that operate and employ people in historically underutilized business zones.
- The FAA has a recurring process for evaluating if a facility should be replaced, sustained, or modernized to ensure an acceptable level of building conditions. Several facilities were under evaluation as potential replacement projects prior to IIJA enactment and have been included in this spend plan.

It should be noted that if issues arise during the pre-construction phase of the replacement process for the smaller modular facilities, the FAA would consider other FAA owned air traffic control facilities that meet the qualifications above for replacement. Potential issues that could impact the successful construction of a facility include:

- The virtual siting of the facility reveals that the new Air Traffic Control Tower would exceed the 120-foot standard design that will be used to construct these facilities.
- A location proposed on the airport grounds requires extensive infrastructure investment such as building roads and running utilities to a land parcel that is in a remote area of the airport.
- Environmental issues involving wetlands and environmental offsets.
- Other issues will be evaluated on a case-by-case basis.
- The replacement of these Tier 3 and Tier 4 facilities is designed to be an efficient and streamlined construction process and any impediments to that process could result in FAA moving to the next candidate site.

The actual cost of these replacements has not been finalized at this time. That result will affect the total number of facility projects that will be funded with the FY 2023, FY 2024, and FY 2025 funding under IIJA. Current cost estimates suggest that the FY 2023, FY 2024, and FY 2025 IIJA funding levels proposed for Terminal and En Route Air Traffic Control Facilities – Replace will cover the fully equipped replacement costs of the 31 proposed Tier 3 and 4 Air Traffic Control Replacement Projects listed in the table below.

Standardized Modular Facility Replacement Candidates (Tier 3 and Tier 4 Facilities)				
Location ID	**State**	**City**	**Facility Type**	**HUBZone/ Recurring Process**
AHN	GA	Athens	FAA Contract Tower (FCT)	HUBZone
ALN	IL	East Alton	FAA Contract Tower (FCT)	HUBZone
BFM	AL	Mobile	FAA Contract Tower (FCT)	HUBZone
BLI	WA	Bellingham	FAA Contract Tower (FCT)	HUBZone
DET	MI	Detroit	FAA Contract Tower (FCT)	HUBZone
DTN	LA	Shreveport	FAA Contract Tower (FCT)	HUBZone
EMT	CA	El Monte	FAA Tower	HUBZone
EYW	FL	Key West	FAA Contract Tower (FCT)	Recurring Process
FCM	MN	Eden Prarie	FAA Tower	Recurring Process
FLO	SC	Florence	FAA Tower	HUBZone
FMY	FL	Fort Myers	FAA Contract Tower (FCT)	HUBZone
FTW	TX	Fort Worth	FAA Tower	HUBZone
GLH	MS	Greenville	FAA Contract Tower (FCT)	HUBZone
HFD	CT	Hartford	FAA Contract Tower (FCT)	HUBZone
HKS	MS	Jackson	FAA Contract Tower (FCT)	HUBZone
LAW	OK	Lawton	FAA Contract Tower (FCT)	HUBZone
LEB	NH	West Lebanon	FAA Contract Tower (FCT)	HUBZone
LOU	KY	Louisville	FAA Tower	HUBZone
MCN	GA	Macon	FAA Contract Tower (FCT)	HUBZone
MOD	CA	Modesto	FAA Contract Tower (FCT)	HUBZone
MVY	MA	Tisbury	FAA Contract Tower (FCT)	HUBZone
MWA	IL	Marion	FAA Contract Tower (FCT)	HUBZone
OGD	UT	Ogden	FAA Contract Tower (FCT)	HUBZone
PAH	KY	West Paducah	FAA Contract Tower (FCT)	HUBZone
PIH	ID	Pocatello	FAA Contract Tower (FCT)	HUBZone
PNE	PA	Philadelphia	FAA Tower	HUBZone
PUB	CO	Pueblo	FAA Tower	HUBZone
RDG	PA	Reading	FAA Tower	Recurring Process
RVS	OK	Tulsa Riverside	FAA Tower	HUBZone

Standardized Modular Facility Replacement Candidates (Tier 3 and Tier 4 Facilities)				
Location ID	**State**	**City**	**Facility Type**	**HUBZone/ Recurring Process**
SLE	OR	Salem	FAA Contract Tower (FCT)	HUBZone
TOP	KS	Topeka	FAA Contract Tower (FCT)	HUBZone

Unstaffed Infrastructure Sustainment Program

The Unstaffed Infrastructure Sustainment Program accounts for approximately $1.3 billion of the sustainment backlog. This infrastructure houses all of the FAA's communications, surveillance, weather, and navigation systems. This program sustains the buildings, broadcast towers, air conditioning systems, roads, fences, and other related infrastructure at approximately 12,000 unstaffed sites. This infrastructure is past its service life and requires a comprehensive sustainment effort to ensure the integrity of the NAS.

The FY 2025 BIL/IIJA funds will support approximately 25 projects that include:

- Remote Center Air Ground (RCAG) and Remote Transmitter Receiver (RTR) full site replacement projects. These are some of the key communications sites that Air Traffic Controllers rely on to communicate with pilots.

- Radio tower replacement projects. These radio towers enable essentially the entire NAS communications and surveillance infrastructure, which Air Traffic Controller use to see and communicate with pilots. Based on a pilot assessment project, it is estimated that approximately 20 to 30 percent of all NAS radio towers are unsafe for technicians to climb and maintain. This work will replace many of those radio towers.

- Employee Housing and Life Safety Shelter sustainment projects. FAA owns housing for employees at remote locations in Alaska. FAA also owns a network of life safety emergency shelters in harsh environments like remote arctic and mountain top locations. Employees who use these facilities provide air traffic control services and facilities maintenance services.

Power Systems Program

The Power Systems Program accounts for approximately $1.8 billion of the sustainment backlog. Power systems services projects replace primary and back-up power system components across national airspace facilities throughout the U.S Power systems ensure that national airspace systems directly tied to air traffic control are always running in a seamless manner. A variety of backup power components is required to preserve automation, communication, surveillance, weather, and navigation and landing system functionality at all times. The NAS supports levels of redundancy to ensure air traffic

control are safe and always available to control air traffic. Over time, all these systems exceed their lifecycle and must be replaced.

The FY 2025 BIL/IIJA funds would support approximately 270 projects that include:

- Replacement of the ARTCC Critical and Essential Power Systems that are required to provide high-quality and high-reliability power to En Route ARTCC's and large Terminal Radar Approach Control Facilities.

- Replacement of electrical line distribution components at terminal facilities. This equipment consists of underground distribution cables, transformers, and switchgear at airports.

- Replacement of engine generators and their associated fuel storage tanks across the U.S. These systems will be replaced with Direct Current Back up Battery Systems that provide and distribute conditioned Alternating Current and Direct Current power to national airspace electronic equipment. This exchange would eliminate the possibility of fossil fuel leaking into groundwater and would provide a cleaner source of energy that does not emit carbon waste like the engine generators do.

- Replacement of Direct Current Backup Systems and Power Conditioning Systems that provide short-term power sources that protects NAS systems against commercial power disruptions and power surges. In concert with this work, large stationary battery banks that support those systems will also be replaced.

Environmental Cleanup and Hazardous Materials Management

This program allow FAA to remediate contaminated areas of concern that require investigation, remediation, and closure activities. Investigations at the identified sites that have toxic contamination resulting from a variety of hazardous substances, including petroleum cleaning solvents, degreasing agents, pesticides, asbestos, polychlorinated biphenyls, and heavy metals.

The FY 2025 IIJA/BIL Funding will allow FAA to remediate approximately 60 contaminated areas of concern. The direct outcome of closing these contaminated areas of concern leads to overall decreased environmental remediation liability to the FAA. Investigating, remediating, and obtaining site closure at the FAA's contaminated areas of concern also increases employee and public safety by minimizing exposure to toxic and hazardous substances at these sites.

Facility Security Risk Management (FSRM)

The FSRM program is responsible for providing and maintaining physical security infrastructure, implementing standardized facility protective measures at approximately 1,041 FAA staffed facilities and responding to internal and external security directives. These protective measures include personnel access control (via card readers, fencing,

gates, and security guards), surveillance (cameras), vehicle access control (barriers), visibility enhancements (lighting), and X-ray machines. The FY 2025 IIJA/BIL funding will allow for the continued funding of the technical refresh of security systems at the Mike Monroney Aeronautical Center (MMAC) and the William J. Hughes Technical Center.

Navigation, Landing, and Lighting

The FY 2025 IIJA/BIL funding will allow for navigation, landing, and lighting replacements and improvements at facilities such as Instrument Landing Systems, lighting systems, and Precision Approach Path Indicators.

Personnel Compensation, Benefits, and Travel (PCB&T)

Administrative Expenses allows administrative staffing and travel to be funded for FY 2024 – FY 2026. This funds the full staffing level of 200 FTEs, travel and related expenses necessary for the BIL F&E workforce to complete the projects planned under the law. These employees perform vital work in support of these projects, including site engineering, installation and implementation.