



U.S. Department of Transportation

# **BUDGET ESTIMATES FISCAL YEAR 2024**

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**FEDERAL AVIATION  
ADMINISTRATION**

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**SUBMITTED FOR USE OF  
THE COMMITTEE ON APPROPRIATIONS**



**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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## **OVERVIEW**

The FY 2024 budget request holds safety as the FAA's highest priority, while placing an emphasis on the modernization of airspace and telecommunications systems necessary to provide reliable transportation to the flying public. The FAA's FY 2024 budget request of \$19.8 billion represents an increase of 4.1 percent from the FY 2023 enacted level. When combined with the \$5 billion in advanced annual appropriations under the Bipartisan Infrastructure Law, the total FY 2024 funding request for FAA is \$24.8 billion. This funding level allows the FAA to make continued investments to safeguard the most complex airspace in the world while modernizing our aviation systems, equipment, and infrastructure.

The FAA's current authorization (FAA Reauthorization Act of 2018 (Pub. L. 115-254)) expires on September 30, 2023. As the Department works to define and present specific proposals that respond to the changing aviation landscape, it is guided by the following key principles:

- Continue to provide the safest aerospace system in the world;
- Address the maintenance and modernization of the National Airspace System (NAS);
- Enable the continued integration of all aviation users into the national airspace;
- Foster an aviation workforce built on equity, diversity, and inclusion;
- Secure FAA's leadership in the aerospace sector globally;
- Improve equity and consumer protection for the flying public; and
- Promote innovation, environmental protection, and climate action.

Through these principles, the FAA's next authorization will improve safety, enable access to the system by current and emerging users, and improve the standards of service and access for air travelers and other stakeholders. We look forward to working with all of our stakeholders to bring to fruition an FAA authorization that is reflective of these core principles and continues to improve the safest and most efficient aerospace system in the world.

The FY 2024 budget request allows FAA to accelerate air traffic control hiring and training to compensate for the restricted hiring experienced during the height of the pandemic and the rebounding of air traffic more quickly than forecasted. The goal of this training surge effort is to streamline the path for controller training while further increasing resiliency to serve high-demand markets as air traffic increases. The FAA plans to hire and train 1,500 controllers in FY 2023 as well as address the backlog of training for developmental controllers currently working in air traffic facilities. For FY 2024, the FAA plans to hire and train 1,800 controllers, an increase of 300 above the levels for FY 2023. This plan will allow FAA to rebuild the pipeline of new controllers needed to meet projected traffic demands.

The FY 2024 budget also requests a significant boost in resources needed to sustain and modernize the NAS. This request includes a new NAS Modernization Acceleration program in the F&E account and a \$25 million increase in the Operations account to



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improve the reliability and stability of critical systems while the FAA accelerates the modernization effort with F&E funding.

As part of this modernization effort, the FY 2024 budget provides significant investment in sustaining and modernizing FAA's telecommunications infrastructure. Since this modernization is a multi-year effort, an additional \$50 million is also requested in the Operations account to sustain the existing telecommunications infrastructure while the modernization efforts funded in the F&E account are underway.

**Operations** - The FY 2024 budget requests \$12.7 billion for the Operations account, an increase of \$825.6 million, or 6.9 percent above the FY 2023 enacted budget. This funding level will allow the FAA to address uncontrollable cost increases while making targeted investments in controller hiring and training, sustainment of the NAS and telecommunications systems, aviation safety oversight, and other key areas such as sustainability, equity, and aircraft certification reform.

The FAA estimates \$617.3 million in uncontrollable cost increases in FY 2024. This includes uncontrollable employee compensation costs, such as annualization of hiring in FY 2023 as well as government-wide pay raises and retirement contributions for FAA's Operations-funded workforce in FY 2024. The FAA also requests funding to support inflationary cost increases across the FAA, in support service contracts, parts, facility leases, and the introduction of new equipment into the system.

In addition to the \$168.7 million requested to support the controller hiring and training surge and NAS sustainment efforts, the Operations account includes \$39.6 million for seven additional proposals. For safety, this includes \$16.2 million to address Aircraft Certification Reform legislation, \$7.9 million to address staffing requirements from increased demand for more oversight, and \$10 million for improving aviation and hazardous materials safety oversight. Other key administrative priorities requested in the budget include: \$4.2 million to enhance sustainability and reduce the agency's environmental footprint at FAA-owned facilities; \$1.3 million to increase diversity and inclusion in FAA's workforce; \$3.6 million to promote aviation and aerospace talent development; and \$4.2 million to boost staffing resources in FAA's Office of Chief Counsel.

**Facilities and Equipment** - The FY 2024 budget request includes \$3.5 billion for Facilities and Equipment, an increase of \$517 million, or 17.6 percent, above the FY 2023 enacted level.

The FY 2024 budget proposes a new program to accelerate modernization of NAS systems through targeted investments. This \$115 million request will allow the FAA flexibility to adjust to emerging needs and includes funding for program costs as well as related personnel expenses. Potential modernization acceleration candidates in FY 2024 include Aeronautical Information Management to accelerate the modernization of NOTAMS, Enterprise - Integrated Display System to accelerate dissemination of

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supporting information to air traffic controllers across the nation, and other investments under evaluation.

The request boosts funding for modernization of the FAA Telecommunication Infrastructure, providing a total of \$340.8 million. The FAA is embarking on a multiyear investment to build a new FAA Enterprise Network System. This generational advancement in network architecture and technology will enable the innovation needed to support NextGen operations and meet evolving security and resiliency needs. In parallel, the FAA is focusing on the transition of existing telecommunications technology to a modernized Internet Protocol (IP) network. This request will enable the FAA to proactively accelerate the completion of Time Division Multiplexing (TDM) to IP migrations by 2027 in response to service discontinuance notices from telecommunication service providers who will no longer support TDM technology.

The request includes \$510.8 million to improve the condition of air traffic control facilities. Of this total, \$505.6 million is for facilities to sustain current operational and safety needs at the FAA through modernization and improvement. This includes \$98.9 million to support replacing fuel storage tanks, ensuring OSHA compliance, reducing energy consumption at staffed facilities, and removing hazardous material.

The requested funding works in tandem with the \$1 billion of FY 2024 funds in the Bipartisan Infrastructure Law (BIL). The BIL funding includes \$662 million to fund the design and construction of new air traffic control towers and \$338 million to sustain operational and safety needs at FAA facilities through modernization and improvement. Collectively, this represents a more than \$1.5 billion investment to improve the state of good repair of FAA facilities and represents a down payment on the agency's commitment to the nation's physical infrastructure. Most air traffic control facilities remain in poor condition. The average age of FAA's air route traffic control centers and Combined Control Facility is 61 years old, and more than 50% of the terminal facilities are more than 40 years of age.

The budget request also includes \$1.4 billion in support of core systems providing communications, surveillance, and other programs that make up our national airspace system. In particular, this request includes \$107.3 million to sustain aging surveillance systems that must remain in service until 2035 and \$75.1 million to support aging voice switch systems that allow communications between controllers and pilots.

In addition, the request includes \$701.9 million to continue operationalizing NextGen, which aims to improve the safety, efficiency, capacity, and environmental impact of the nation's air transportation system through the use of advanced technology, procedures and infrastructure. The budget also includes \$20 million to continue integration of Unmanned Aircraft Systems (UAS) and commercial space operations.

**Research, Engineering & Development** - This budget request includes \$255.1 million for the Research, Engineering and Development account. This funding request highlights the Administration's commitment to safety, climate and sustainability goals and

furthering equity by conducting research on ways to safely enhance air travel for people with disabilities using wheelchairs.

The budget request includes a total of \$111.2 million for research in essential safety areas, including \$6.1 million to investigate improvements for the safe integration of commercial space operations into the national airspace, and another \$21.1 million for safety research related to UAS. The UAS research builds upon current drone operations, rules policy, and procedures to achieve full UAS integration in the NAS. Other safety-related research areas include advanced materials, aircraft icing, continued airworthiness, aircraft fire safety such as fire detection and suppression systems, and safeguards to protect against fires involving lithium batteries, fuel cells, and hazardous materials.

Of the requested amount, \$109.7 million is for programs that support Administration priorities on the environment by mitigating the impact of aviation on climate change, air quality, and noise. Of that amount, \$72.9 million supports accelerated research with transformative impact potential in the areas of aircraft technologies, sustainable aviation fuels (SAF), and unleaded fuels for piston-engine aircraft. These activities will support a new sustainable aviation fuels industry that is not only critical to addressing the climate impacts of civil aviation, but also provides considerable economic development across rural America. Other climate-related research areas include identifying alternative propulsion technologies that can be incorporated into existing engines, as well as testing technologies that could have a transformative impact in reducing harmful lead emissions from the General Aviation fleet of aircraft.

**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 still promoting a sustainable, clean, and resilient future for the FAA's airport facilities and infrastructure.

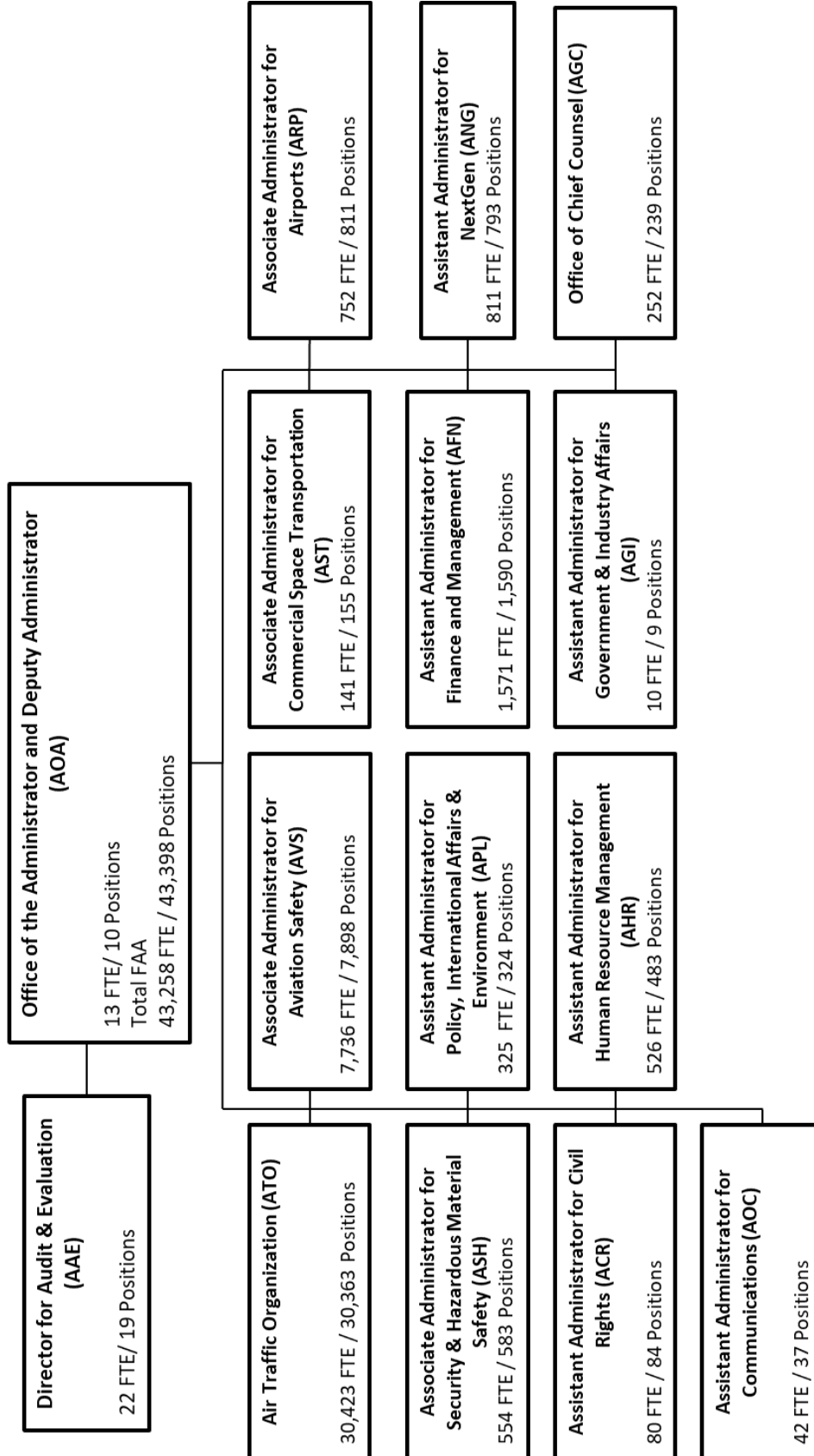
The request includes \$157.4 million for personnel and related expenses for the FAA's Office of Airports. This funding level covers \$8.8 million in uncontrollable pay and non-pay increases in FY 2024. In addition, the budget requests \$6.8 million for 47 new positions that are needed across headquarters and regions to provide engineering, community planning, and environmental protection oversight due to increased workload, increased complexity, and evolving new entrant needs.

Finally, the request includes \$41.8 million for the Airport Technology Research program to support the safe and efficient integration of new and innovative technologies into the airport environment, as well as \$15.0 million for the Airport Cooperative Research Program.

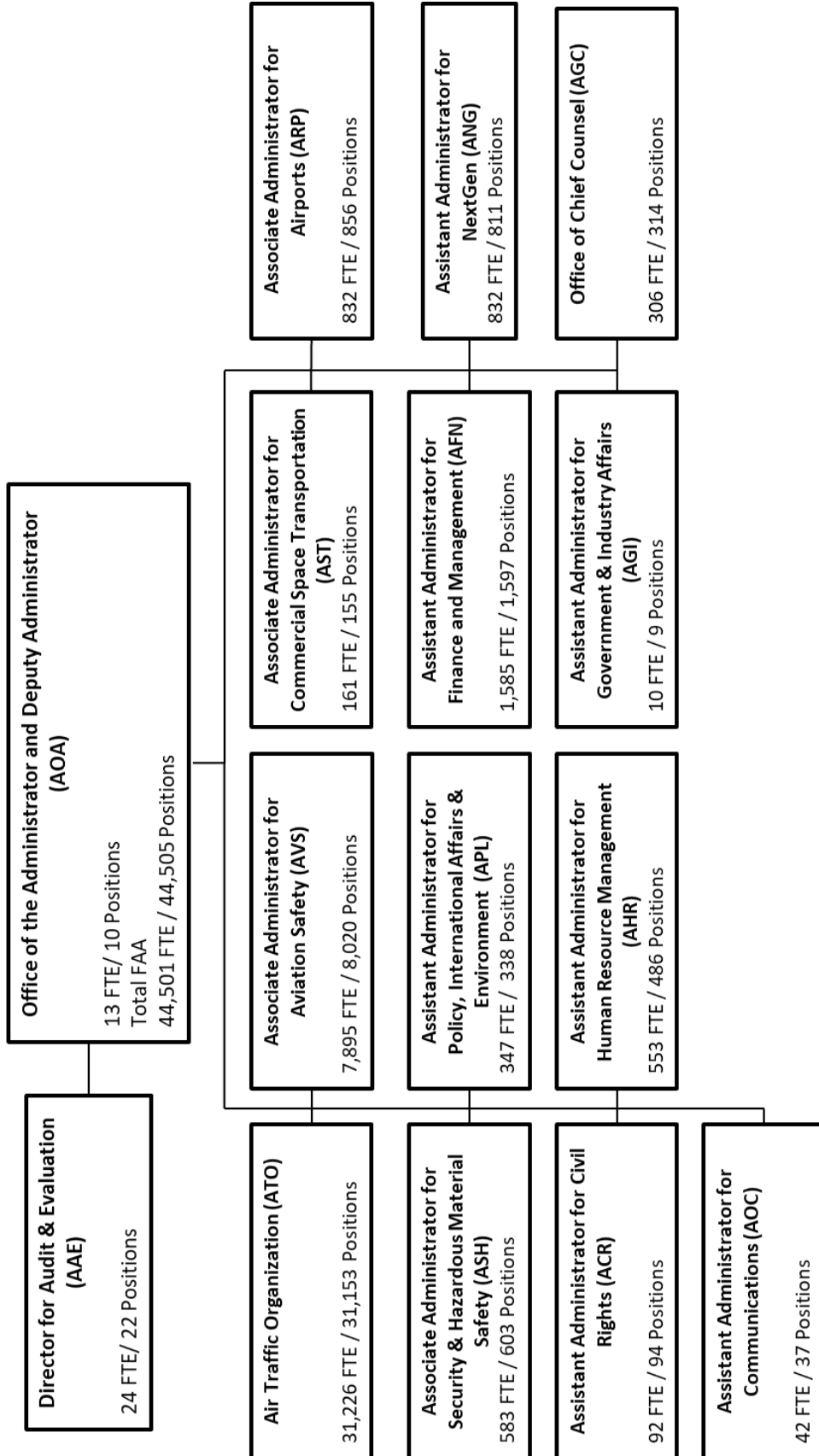
## **Conclusion**

The FAA's budget request for FY 2024 embodies the Administration's priorities of safeguarding and modernizing the most complex airspace in the world, while also mitigating climate change and increasing equity. Coupled with the Bipartisan Infrastructure Law's historic commitment to our infrastructure, this request funds critical investments that will pay dividends to the nation for decades to come.

**Exhibit I-A  
ORGANIZATION CHART  
FY 2023**



**Exhibit I-B  
ORGANIZATION CHART  
FY 2024**



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**EXHIBIT II-1  
FY 2024 BUDGET AUTHORITY  
FEDERAL AVIATION ADMINISTRATION  
(\$000)**

| ACCOUNT NAME   | M / D    | FY 2022<br>ENACTED   | FY 2023<br>ENACTED   | FY 2024<br>REQUEST   |
|--|----------|----------------------|----------------------|----------------------|
| <b>Operations (TF)</b>                                 | <b>D</b> | <b>\$ 11,414,100</b> | <b>\$ 11,915,000</b> | <b>\$ 12,740,627</b> |
| Rescissions  |          |                      |                      |                      |
| Transfers  |          |                      |                      |                      |
| Offsets  |          |                      |                      |                      |
| <b>Facilities and Equipment (TF)</b>                   | <b>D</b> | <b>\$ 2,892,888</b>  | <b>\$ 2,945,000</b>  | <b>\$ 3,462,000</b>  |
| Rescissions  |          |                      |                      |                      |
| Transfers  |          |                      |                      |                      |
| Offsets  |          |                      |                      |                      |
| <b>Research, Engineering and Development (TF)</b>      | <b>D</b> | <b>\$ 248,500</b>    | <b>\$ 255,000</b>    | <b>\$ 255,130</b>    |
| Rescissions  |          |                      |                      |                      |
| Transfers  |          |                      |                      |                      |
| Offsets  |          |                      |                      |                      |
| <b>Grants-in-Aid for Airports</b>                      | <b>M</b> | <b>\$ 3,350,000</b>  | <b>\$ 3,350,000</b>  | <b>\$ 3,350,000</b>  |
| Contract Authority (AATF)                              |          | \$ 3,350,000         | \$ 3,350,000         | \$ 3,350,000         |
| Rescissions  |          |                      |                      |                      |
| Transfers  |          |                      |                      |                      |
| Offsets  |          |                      |                      |                      |
| Obligation Limitation [Non-Add]                        | <b>D</b> | <b>[3,350,000]</b>   | <b>[3,350,000]</b>   | <b>[3,350,000]</b>   |
| <b>Overflight Fees</b>                                 | <b>M</b> | <b>\$ 93,925</b>     | <b>\$ 136,746</b>    | <b>\$ 155,949</b>    |
| <b>Overflight Fees (Transfer to EAS)</b>               | <b>M</b> | <b>\$ (93,925)</b>   | <b>\$ (136,746)</b>  | <b>\$ (155,949)</b>  |
| <b>Property Disposal or Lease Proceeds</b>             | <b>M</b> | <b>1,307</b>         |                      |                      |
| <b>NET NEW BUDGET AUTHORITY REQUESTED:</b>             |          | <b>17,906,795</b>    | <b>18,465,000</b>    | <b>19,807,757</b>    |
| [Mandatory BA]   | <b>M</b> | \$ 3,351,307         | \$ 3,350,000         | \$ 3,350,000         |
| [Discretionary BA]                                     | <b>D</b> | \$ 14,555,488        | \$ 15,115,000        | \$ 16,457,757        |
| <b>Supplemental Funding</b>                            |          | <b>\$ 951,180</b>    | <b>\$ 558,555</b>    | <b>\$ -</b>          |
| Grants-in-Aid for Airports                             | <b>D</b> | \$ 554,180           | \$ 558,555           |                      |
| Research, Engineering & Dev. - Inflation Reduction Act | <b>M</b> | \$ 297,000           |                      |                      |
| Hurricane Relief                                       | <b>D</b> | \$ 100,000           |                      |                      |
| <b>IIJA Supplemental (Division J)</b>                  |          | <b>\$ 4,998,000</b>  | <b>\$ 4,998,000</b>  | <b>\$ 4,998,000</b>  |
| Facilities and Equipment                               | <b>D</b> | \$ 1,000,000         | \$ 1,000,000         | \$ 1,000,000         |
| Airport Infrastructure Grants*                         | <b>D</b> | \$ 2,999,000         | \$ 2,999,000         | \$ 2,999,000         |
| Airport Terminal Program*                              | <b>D</b> | \$ 999,000           | \$ 999,000           | \$ 999,000           |
| <b>Grand Total, All Appropriations</b>                 |          | <b>\$ 23,855,975</b> | <b>\$ 24,021,555</b> | <b>\$ 24,805,757</b> |

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

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## EXHIBIT II-2

### FY 2024 TOTAL BUDGETARY RESOURCES BY APPROPRIATION ACCOUNT FEDERAL AVIATION ADMINISTRATION Appropriations, Obligation Limitations, and Exempt Obligations (\$000)

| <u>ACCOUNT NAME</u>                                    | <u>M/D</u> | <u>FY 2022<br/>ENACTED</u> | <u>FY 2023<br/>ENACTED</u> | <u>FY 2024<br/>REQUEST</u> |
|--|------------|----------------------------|----------------------------|----------------------------|
| <b>Operations</b>                                      | <b>D</b>   | <b>11,414,100</b>          | <b>11,915,000</b>          | <b>12,740,627</b>          |
| Air Traffic Organization (ATO)                         |            | 8,471,860                  | 8,811,812                  | 9,439,068                  |
| Aviation Safety (AVS)                                  |            | 1,536,298                  | 1,630,794                  | 1,745,532                  |
| Commercial Space Transportation (AST)                  |            | 32,197                     | 37,581                     | 42,018                     |
| Finance & Management (AFN)                             |            | 889,066                    | 917,899                    | 949,376                    |
| NextGen (ANG)  |            | 63,955                     | 65,581                     | 70,097                     |
| Security and Hazardous Materials Safety (ASH)          |            | 139,316                    | 152,359                    | 163,951                    |
| Staff Offices  |            | 281,408                    | 298,974                    | 330,585                    |
| <b>Facilities &amp; Equipment</b>                      | <b>D</b>   | <b>2,892,888</b>           | <b>2,945,000</b>           | <b>3,462,000</b>           |
| Engineering, Development, Test and Evaluation          |            | 135,701                    | 146,550                    | 136,240                    |
| Air Traffic Control Facilities and Equipment           |            | 1,778,033                  | 1,754,900                  | 2,122,481                  |
| Non-Air Traffic Control Facilities and Equipment       |            | 219,754                    | 221,200                    | 206,829                    |
| Facilities and Equipment Mission Support               |            | 209,400                    | 252,350                    | 246,450                    |
| Personnel and Related Expenses                         |            | 550,000                    | 570,000                    | 635,000                    |
| NAS Modernization Acceleration                         |            | 0                          | 0                          | 115,000                    |
| <b>Research, Engineering &amp; Development</b>         | <b>D</b>   | <b>248,500</b>             | <b>255,000</b>             | <b>255,130</b>             |
| <b>Grants-in-Aid for Airports</b>                      |            | <b>3,350,000</b>           | <b>3,350,000</b>           | <b>3,350,000</b>           |
| Grants-in-Aid for Airports                             | M          | 3,156,874                  | 3,146,800                  | 3,135,724                  |
| Personnel & Related Expenses                           | M          | 127,165                    | 137,372                    | 157,475                    |
| Airport Technology Research                            | M          | 40,961                     | 40,828                     | 41,801                     |
| Airport Cooperative Research Program                   | M          | 15,000                     | 15,000                     | 15,000                     |
| Small Community Air Service                            | M          | 10,000                     | 10,000                     | 0                          |
| <b>Gross New Budgetary Resources</b>                   |            | <b>17,905,488</b>          | <b>18,465,000</b>          | <b>19,807,757</b>          |
| <b>Rescissions</b>                                     |            |                            |                            |                            |
| <b>Transfers</b>                                       |            |                            |                            |                            |
| <b>Offsets</b>   |            |                            |                            |                            |
| <b>TOTAL BUDGETARY RESOURCES:</b>                      |            | <b>\$ 17,905,488</b>       | <b>\$ 18,465,000</b>       | <b>\$ 19,807,757</b>       |
| [Mandatory]  |            | 3,350,000                  | 3,350,000                  | 3,350,000                  |
| [Discretionary]  |            | 14,555,488                 | 15,115,000                 | 16,457,757                 |
| [Obligation Limitation]                                |            | [3,350,000]                | [3,350,000]                | [3,350,000]                |
| <b>Supplemental Funding</b>                            |            | <b>951,180</b>             | <b>558,555</b>             | <b>-</b>                   |
| Grants-in-Aid for Airports                             | D          | 554,180                    | 558,555                    |                            |
| Research, Engineering & Dev. - Inflation Reduction Act | M          | 297,000                    |                            |                            |
| Hurricane Relief                                       | D          | 100,000                    |                            |                            |
| <b>IIJA Supplemental (Division J)</b>                  |            | <b>4,998,000</b>           | <b>4,998,000</b>           | <b>4,998,000</b>           |
| 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                    |
| <b>Grand Total, All Appropriations</b>                 |            | <b>\$ 23,854,668</b>       | <b>\$ 24,021,555</b>       | <b>\$ 24,805,757</b>       |

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

# Federal Aviation Administration FY 2024 President's Budget Submission

## EXHIBIT II-3 FY 2024 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         |
|---|--------------|-------------------|------------|--------------------------|----------------|---------------------------|---------------|
| <b>OPERATIONS</b>   | \$ 7,287,637 | \$ 4,361,521      | \$ 36,279  | \$ 15,162                | \$ 103,125     | \$ 936,903                | \$ 12,740,627 |
| Air Traffic Organization (ATO)                                | \$ 5,458,868 | \$ 3,713,168      | \$ 1,000   |                          |                | \$ 266,032                | \$ 9,439,068  |
| Aviation Safety (AVS)   | \$ 1,657,625 | \$ 900            |            |                          |                | \$ 87,007                 | \$ 1,745,532  |
| Commercial Space Transportation (AST)                         | \$ 6,231     |                   | \$ 480     |                          | \$ 35,307      |                           | \$ 42,018     |
| Finance and Management (AFM)                                  |              | \$ 648,353        |            | \$ 1,165                 |                | \$ 299,858                | \$ 949,376    |
| Security and Hazardous Materials Safety (ASH)                 | \$ 163,951   |                   |            |                          |                |                           | \$ 163,951    |
| NextGen and Operations Planning (ANG)                         |              |                   |            | \$ 2,279                 | \$ 67,818      |                           | \$ 70,097     |
| Staff Offices   | \$ 962       | \$                | \$ 33,899  | \$ 11,718                |                | \$ 284,006                | \$ 330,585    |
| <b>FACILITIES &amp; EQUIPMENT</b>                             | \$ 271,253   | \$ 1,312,824      |            | \$                       | \$ 1,741,683   | \$ 136,240                | \$ 3,462,000  |
| Activity 1 - Engineering, Development, Test and Evaluation    |              |                   |            |                          |                |                           |               |
| Activity 2 - Air Traffic Control Facilities and Equipment     | \$ 95,500    | \$ 835,726        |            |                          | \$ 1,191,255   |                           | \$ 2,122,481  |
| Activity 3 - Non-Air Traffic Control Facilities and Equipment | \$ 126,000   | \$ 22,400         |            |                          | \$ 58,429      |                           | \$ 206,829    |
| Activity 4 - Facilities and Equipment Mission Support         |              | \$ 213,900        |            |                          | \$ 32,550      |                           | \$ 246,450    |
| Activity 5 - Personnel and Related Expenses                   | \$ 49,753    | \$ 240,798        |            |                          | \$ 344,449     |                           | \$ 635,000    |
| Activity 6 - NAS Modernization Acceleration                   |              |                   |            |                          | \$ 115,000     |                           | \$ 115,000    |
| <b>RESEARCH, ENGINEERING &amp; DEVELOPMENT</b>                | \$ 111,250   | \$ 6,157          | \$ 4,001   | \$ 109,654               | \$ 13,524      | \$ 10,544                 | \$ 255,130    |
| <b>GRANTS-IN-AID FOR AIRPORTS</b>                             | \$ 890,532   | \$ 2,141,866      | \$ 178,924 | \$ 77,531                | \$ 60,936      | \$ 211                    | \$ 3,350,000  |
| Grants-in-Aid for Airports                                    | \$ 857,477   | \$ 1,994,273      | \$ 174,584 | \$ 66,040                | \$ 43,350      |                           | \$ 3,135,724  |
| Personnel & Related Expenses                                  | \$ 14,489    | \$ 137,268        | \$ 190     | \$ 3,491                 | \$ 2,026       | \$ 11                     | \$ 157,475    |
| Airport Technology Research                                   | \$ 12,566    | \$ 8,825          | \$ 3,600   | \$ 7,250                 | \$ 9,560       |                           | \$ 41,801     |
| Airport Cooperative Research Program                          | \$ 6,000     | \$ 1,500          | \$ 550     | \$ 750                   | \$ 6,000       | \$ 200                    | \$ 15,000     |
| Small Community Air Service                                   |              |                   |            |                          |                |                           |               |
| <b>TOTAL REQUESTED</b>  | \$ 8,560,672 | \$ 7,822,368      | \$ 219,204 | \$ 202,347               | \$ 1,919,268   | \$ 1,083,898              | \$ 19,807,757 |
| <b>IIIA SUPPLEMENTAL ADVANCE APPROPRIATIONS</b>               | \$ 500,000   | \$ 3,778,000      | \$ 330,000 | \$ 360,000               | \$ 30,000      |                           | \$ 4,998,000  |
| Facilities & Equipment  |              | \$ 1,000,000      |            |                          |                |                           | \$ 1,000,000  |
| Airport Infrastructure Grants*                                | \$ 300,000   | \$ 2,429,000      | \$ 180,000 | \$ 60,000                | \$ 30,000      |                           | \$ 2,999,000  |
| Airport Terminal Program*                                     | \$ 200,000   | \$ 349,000        | \$ 150,000 | \$ 300,000               |                |                           | \$ 999,000    |
| <b>GRAND TOTAL</b>  | \$ 9,060,672 | \$ 11,600,368     | \$ 549,204 | \$ 562,347               | \$ 1,949,268   | \$ 1,083,898              | \$ 24,805,757 |

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

**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.

**Climate & Sustainability:** Tackle the climate crisis by ensuring that transportation plays a central role in the solution. Substantially reduce greenhouse gas emissions and 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 communities and responsibly steward the public's resources.

**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 everyone in the communities and responsibly steward the public's resources.

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

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**EXHIBIT II-4**

**FY 2024 OUTLAYS  
FEDERAL AVIATION ADMINISTRATION  
(\$000)**

| <u>ACCOUNT NAME</u>   | <u>M / D</u> | <u>FY 2022<br/>ACTUAL</u> | <u>FY 2023<br/>ENACTED</u> | <u>FY 2024<br/>REQUEST</u> |
|---|--------------|---------------------------|----------------------------|----------------------------|
| <b>Operations</b>   | <b>D</b>     | <b>\$11,360,950</b>       | <b>\$12,234,820</b>        | <b>\$12,937,970</b>        |
| General   |              | \$3,926,950               | \$2,239,210                | \$4,197,070                |
| AATF  |              | \$7,434,000               | \$9,995,610                | \$8,740,900                |
| <b>Facilities &amp; Equipment</b>                               |              | <b>\$3,054,558</b>        | <b>\$3,054,150</b>         | <b>\$3,252,410</b>         |
| AATF  |              |                           |                            |                            |
| - Discretionary   | <b>D</b>     | \$3,053,694               | \$3,054,150                | \$3,252,410                |
| - Mandatory   | <b>M</b>     | \$864                     |                            |                            |
| <b>Research, Engineering &amp; Development</b>                  | <b>D</b>     | <b>\$196,480</b>          | <b>\$239,430</b>           | <b>\$255,120</b>           |
| <b>Grants-in-Aid for Airports</b>                               | <b>D</b>     | <b>\$3,496,857</b>        | <b>\$4,128,000</b>         | <b>\$4,489,000</b>         |
| <b>Aviation Insurance Revolving Account</b>                     | <b>M</b>     | <b>(29,706)</b>           | <b>(\$33,000)</b>          | <b>(\$58,000)</b>          |
| <b>Aviation User Fees (Overflight)</b>                          | <b>M</b>     | <b>\$1,297</b>            | <b>\$3,000</b>             | <b>\$2,000</b>             |
| <b>Franchise Fund</b>   | <b>D</b>     | <b>\$6,207</b>            | <b>\$35,000</b>            | <b>\$110,000</b>           |
| <b>TOTAL:</b>   |              | <b>\$ 18,086,643</b>      | <b>\$ 19,661,400</b>       | <b>\$ 20,988,500</b>       |
| Mandatory   |              | (\$27,545)                | (\$30,000)                 | (\$56,000)                 |
| Discretionary   |              | \$18,114,188              | \$19,691,400               | \$21,044,500               |
| <b>SUPPLEMENTAL FUNDING</b>                                     |              |                           |                            |                            |
| <b>COVID-19 Supplementals</b>                                   |              |                           |                            |                            |
| CARES   | <b>D</b>     | \$1,323,596               | \$948,000                  | \$278,000                  |
| CRRSA   | <b>D</b>     | \$925,892                 | \$326,000                  | \$167,000                  |
| Relief for Airports   | <b>M</b>     | \$2,684,000               | \$2,238,000                | \$1,212,000                |
| Employee Leave Fund   | <b>M</b>     | \$514                     | \$0                        | \$0                        |
| <b>Other Supplementals</b>                                      |              |                           |                            |                            |
| Research, Engineering & Dev. - Inflation Reduction Act          | <b>M</b>     | \$0                       | \$0                        | \$93,000                   |
| Hurricane Relief  | <b>D</b>     | \$7,463                   | \$32,000                   | \$35,000                   |
| <b>Infrastructure Investment and Jobs Act (IIJA Division J)</b> |              |                           |                            |                            |
| Facilities and Equipment  | <b>D</b>     | \$33,926                  | \$332,000                  | \$590,000                  |
| Airport Infrastructure Grants                                   | <b>D</b>     | \$6,662                   | \$2,032,000                | \$2,729,000                |
| Airport Terminal Program  | <b>D</b>     | \$1,936                   | \$748,000                  | \$868,000                  |
| <b>Grand Total, Outlays from all Appropriations</b>             |              | <b>\$ 23,070,632</b>      | <b>\$ 26,317,400</b>       | <b>\$ 26,960,500</b>       |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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

| Operations                                    | FY 2022<br>Enacted  | FY 2023<br>Enacted* | Baseline Changes                         |                                    |                      |  |            | FY 2024<br>Baseline<br>Estimate | Program<br>Increases/<br>Decreases               | FY 2024<br>Request  |
|---|---------------------|---------------------|--|------------------------------------|----------------------|--|------------|---------------------------------|--|---------------------|
|   |                     |                     | Annualization<br>of FY 2023 Pay<br>Raise | Annualization<br>of FY 2023<br>FTE | FY 2024 Pay<br>Raise | Adjustment for<br>Compensable<br>Days (261 days) | GSA Rent   | WCF<br>Increase/<br>Decrease    | Inflation and<br>Other<br>Adjustments<br>to Base |                     |
| <b>PERSONNEL RESOURCES (FTE)</b>              | 38,777              | 39,332              |  | 263                                |                      |  |            |                                 |  | 40,110              |
| Direct FTE                                    |                     |                     |  |                                    |                      |  |            |                                 |  |                     |
| <b>FINANCIAL RESOURCES</b>                    |                     |                     |  |                                    |                      |  |            |                                 |  |                     |
| <b>ADMINISTRATIVE EXPENSES</b>                |                     |                     |  |                                    |                      |  |            |                                 |  |                     |
| Salaries and Benefits                         | \$8,030,153         | \$8,402,603         | \$96,626                                 | \$46,393                           | \$327,703            | \$34,670   |            | (\$353)                         | \$41,128   | \$9,006,355         |
| Travel  | \$89,221            | \$96,977            |  |                                    |                      |  |            |                                 | \$1,521  | \$2,823             |
| Transportation                                | \$22,540            | \$22,837            |  |                                    |                      |  |            |                                 | \$305  | \$23,157            |
| GSA Rent                                      | \$124,106           | \$126,433           |  |                                    |                      |  |            |                                 | \$1,692  | \$128,125           |
| Rental Payments to Other                      | \$44,798            | \$45,625            |  |                                    |                      |  |            | \$0                             | \$610  | \$46,235            |
| Communications, & Utilities                   | \$398,987           | \$411,619           |  |                                    |                      |  |            |                                 | \$11,595   | \$423,214           |
| Printing                                      | \$3,451             | \$3,491             |  |                                    |                      |  |            |                                 | \$45   | \$3,536             |
| Other Services                                | \$2,431,645         | \$2,547,644         |  |                                    |                      |  |            | \$5,823                         | \$46,140   | \$2,599,607         |
| Supplies                                      | \$47,087            | \$49,380            |  |                                    |                      |  |            |                                 | \$660  | \$50,040            |
| Equipment                                     | \$196,857           | \$203,104           |  |                                    |                      |  |            |                                 | \$2,718  | \$205,822           |
| Land and Structure                            | \$3,621             | \$3,630             |  |                                    |                      |  |            |                                 | \$49   | \$3,679             |
| Grants, Claims and Subsidies                  | \$713               | \$718               |  |                                    |                      |  |            |                                 | \$10   | \$728               |
| Insurance Claims and Indemnities              | \$20,921            | \$939               |  |                                    |                      |  |            |                                 | \$13   | \$952               |
| <b>Admin Subtotal</b>                         | <b>\$11,414,100</b> | <b>\$11,915,000</b> | <b>\$96,626</b>                          | <b>\$46,393</b>                    | <b>\$327,703</b>     | <b>\$34,670</b>                                  | <b>\$0</b> | <b>\$5,470</b>                  | <b>\$106,486</b>                                 | <b>\$12,532,348</b> |
| <b>PROGRAMS</b>                               |                     |                     |  |                                    |                      |  |            |                                 |  |                     |
| Air Traffic Organization (ATO)                | \$8,471,860         | \$8,811,812         | \$73,083                                 | \$23,354                           | \$247,844            | \$26,204   |            | \$50                            | \$88,075   | \$9,270,422         |
| Aviation Safety (AVS)                         | \$1,536,298         | \$1,630,794         | \$15,837                                 | \$14,414                           | \$53,713             | \$5,708  |            | \$1,234                         | \$4,456  | \$1,726,156         |
| Commercial Space Transportation (AST)         | \$32,197            | \$37,581            | \$308                                    | \$2,829                            | \$1,047              | \$109  |            |                                 | \$144  | \$42,018            |
| Finance and Management (AFN)                  | \$889,066           | \$917,899           | \$3,168                                  |                                    | \$10,745             | \$1,174  |            | \$3,399                         | \$11,826   | \$948,211           |
| NextGen (ANG)                                 | \$63,955            | \$65,581            | \$383                                    |                                    | \$1,301              | \$126  |            | (\$3)                           | \$430  | \$67,818            |
| Security and Hazardous Materials Safety (ASH) | \$139,316           | \$152,359           | \$1,179                                  | \$2,849                            | \$4,000              | \$429  |            | \$344                           | \$666  | \$161,826           |
| Staff Offices                                 | \$281,408           | \$298,974           | \$2,668                                  | \$2,947                            | \$9,053              | \$920  |            | \$446                           | \$889  | \$315,897           |
| <b>Programs Subtotal</b>                      | <b>\$11,414,100</b> | <b>\$11,915,000</b> | <b>\$96,626</b>                          | <b>\$46,393</b>                    | <b>\$327,703</b>     | <b>\$34,670</b>                                  | <b>\$0</b> | <b>\$5,470</b>                  | <b>\$106,486</b>                                 | <b>\$12,532,348</b> |
| <b>TOTAL</b>                                  | <b>\$11,414,100</b> | <b>\$11,915,000</b> | <b>\$96,626</b>                          | <b>\$46,393</b>                    | <b>\$327,703</b>     | <b>\$34,670</b>                                  | <b>\$0</b> | <b>\$5,470</b>                  | <b>\$106,486</b>                                 | <b>\$12,532,348</b> |
|   |                     |                     |  |                                    |                      |  |            |                                 |  | <b>\$12,740,627</b> |

\* The FY 2023 Enacted amounts for the Air Traffic Organization (ATO), Commercial Space Transportation (AST), Finance and Management (AFN), Security and Hazardous Materials Safety (ASH) and Staff Offices include a transfer of funding for \$1,298,000 from ATO, AST, AFN and ASH to the Office of Chief Counsel (AGC) as authorized by provisions in the Operations appropriations language.

# Federal Aviation Administration FY 2024 President's Budget Submission

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

| Facilities and Equipment                         | FY 2022<br>Actual  | FY 2023<br>Enacted | Baseline Changes                        |  |                       |  | WCF Increase/<br>Decrease | GSA Rent   | FY 2024 FERS<br>Increase | Inflation and<br>other<br>adjustments to<br>base | FY 2024<br>Baseline<br>Estimate | Program<br>Increases/<br>Decreases | FY 2024<br>Request |
|--|--------------------|--------------------|---|--|-----------------------|--|---------------------------|------------|--------------------------|--|---------------------------------|------------------------------------|--------------------|
|  |                    |                    | Annualization<br>of Prior Pay<br>Raises | Annualization<br>of new FY 2023<br>FTE | FY 2024 Pay<br>Raises | Adjustment for<br>Compensable<br>Days (261 days) |                           |            |                          |  |                                 |                                    |                    |
| <b>PERSONNEL RESOURCES (FTE)</b>                 |                    |                    |   |  |                       |  |                           |            |                          |  |                                 |                                    |                    |
| Direct FTE                                       | 2,717              | 2,740              |   |  |                       |  |                           |            |                          |  | 2,740                           | 242                                | 2,982              |
|  |                    |                    |   |  |                       |  |                           |            |                          |  | 0                               |                                    | 0                  |
| <b>FINANCIAL RESOURCES</b>                       |                    |                    |   |  |                       |  |                           |            |                          |  |                                 |                                    |                    |
| <b>ADMINISTRATIVE EXPENSES</b>                   |                    |                    |   |  |                       |  |                           |            |                          |  |                                 |                                    |                    |
| Salaries and Benefits                            | \$507,153          | \$522,698          | \$5,834                                 |  | \$20,386              | \$2,163  |                           |            |                          |  | \$551,081                       | \$36,300                           | \$587,381          |
| Travel   | \$35,676           | \$36,630           |   |  |                       |  |                           |            |                          | \$6,537  | \$43,167                        | \$7,475                            | \$50,642           |
| Transportation                                   | \$2,050            | \$2,031            |   |  |                       |  |                           |            |                          |  | \$2,031                         | \$402                              | \$2,433            |
| GSA Rent   | \$689              | \$683              |   |  |                       |  |                           |            |                          |  | \$683                           | \$170                              | \$853              |
| Rental Payments to Others                        | \$35,816           | \$43,146           |   |  |                       |  |                           |            |                          |  | \$43,146                        | (\$990)                            | \$42,156           |
| Communications, & Utilities                      | \$44,636           | \$44,090           |   |  |                       |  |                           |            |                          |  | \$44,090                        | \$11,655                           | \$55,745           |
| Printing   | \$28               | \$29               |   |  |                       |  |                           |            |                          |  | \$29                            | \$4                                | \$33               |
| Other Services:                                  | \$1,911,267        | \$1,940,881        |   |  |                       |  |                           |            |                          | \$80   | \$1,940,961                     | \$353,418                          | \$2,294,379        |
| -WCF   | \$54               | \$54               |   |  |                       |  |                           |            |                          | \$0  | \$54                            | \$0                                | \$54               |
| Supplies   | \$28,133           | \$27,876           |   |  |                       |  |                           |            |                          |  | \$27,876                        | \$6,228                            | \$34,104           |
| Equipment  | \$176,211          | \$175,778          |   |  |                       |  |                           |            |                          |  | \$175,778                       | \$35,204                           | \$210,982          |
| Land and Structures                              | \$148,364          | \$147,820          |   |  |                       |  |                           |            |                          |  | \$147,820                       | \$32,178                           | \$179,998          |
| Insurance, Claims and Indemnities                | \$2,811            | \$3,284            |   |  |                       |  |                           |            |                          |  | \$3,284                         | (\$44)                             | \$3,240            |
| <b>Admin Subtotal</b>                            | <b>\$2,892,888</b> | <b>\$2,945,000</b> | <b>\$5,834</b>                          | <b>\$0</b>                             | <b>\$20,386</b>       | <b>\$2,163</b>                                   | <b>\$0</b>                | <b>\$0</b> | <b>\$0</b>               | <b>\$6,617</b>                                   | <b>\$2,980,000</b>              | <b>\$482,000</b>                   | <b>\$3,462,000</b> |
| <b>PROGRAMS</b>                                  |                    |                    |   |  |                       |  |                           |            |                          |  |                                 |                                    |                    |
| Engineering, Development, Test and Evaluation    | \$135,701          | \$146,550          |   |  |                       |  |                           |            |                          |  | \$146,550                       | (\$10,310)                         | \$136,240          |
| Air Traffic Control Facilities and Equipment     | \$1,778,033        | \$1,754,900        |   |  |                       |  |                           |            |                          |  | \$1,754,900                     | \$367,581                          | \$2,122,481        |
| Non-Air Traffic Control Facilities and Equipment | \$219,754          | \$221,200          |   |  |                       |  |                           |            |                          |  | \$221,200                       | (\$14,371)                         | \$206,829          |
| Facilities and Equipment Mission Support         | \$209,400          | \$252,350          |   |  |                       |  |                           |            |                          |  | \$252,350                       | (\$5,900)                          | \$246,450          |
| Personnel and Related Expenses                   | \$550,000          | \$570,000          | \$5,834                                 | \$0                                    | \$20,386              | \$2,163  | \$0                       | \$0        | \$0                      | \$6,617  | \$605,000                       | \$30,000                           | \$635,000          |
| NAS Modernization Acceleration                   | \$0                | \$0                |   |  |                       |  |                           |            |                          |  | \$0                             | \$115,000                          | \$115,000          |
| <b>Programs Subtotal</b>                         | <b>\$2,892,888</b> | <b>\$2,945,000</b> | <b>\$5,834</b>                          | <b>\$0</b>                             | <b>\$20,386</b>       | <b>\$2,163</b>                                   | <b>\$0</b>                | <b>\$0</b> | <b>\$0</b>               | <b>\$6,617</b>                                   | <b>\$2,980,000</b>              | <b>\$482,000</b>                   | <b>\$3,462,000</b> |
| <b>BASE PROGRAMS TOTAL</b>                       | <b>\$2,892,888</b> | <b>\$2,945,000</b> | <b>\$5,834</b>                          | <b>\$0</b>                             | <b>\$20,386</b>       | <b>\$2,163</b>                                   | <b>\$0</b>                | <b>\$0</b> | <b>\$0</b>               | <b>\$6,617</b>                                   | <b>\$2,980,000</b>              | <b>\$482,000</b>                   | <b>\$3,462,000</b> |

\*This exhibit does not include resources associated with the Infrastructure Investment and Jobs Act.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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

| Research, Engineering and Development | FY 2022 Enacted  | FY 2023 Enacted  | Annualization of Prior Pay Raises | Annualization of new FY 2023 FTE | FY 2024 Pay Raises | Adjustment for Compensable Days (261 days) | Baseline Changes      |            |                       |   | FY 2024 Baseline Estimate | Program Increases/Decreases | FY 2024 Request  |
|---------------------------------------|------------------|------------------|-----------------------------------|----------------------------------|--------------------|--|-----------------------|------------|-----------------------|---|---------------------------|-----------------------------|------------------|
|                                       |                  |                  |                                   |                                  |                    |  | WCF Increase/Decrease | GSA Rent   | FY 2024 FERS Increase | Inflation and other adjustments to base |                           |                             |                  |
| <b>PERSONNEL RESOURCES (FTE)</b>      | 217              | 226              |                                   | 7                                |                    |  |                       |            |                       |   | 0                         | \$0                         | 233              |
| Direct FTE                            |                  |                  |                                   |                                  |                    |  |                       |            |                       |   | 0                         |                             | 233              |
| <b>FINANCIAL RESOURCES</b>            |                  |                  |                                   |                                  |                    |  |                       |            |                       |   |                           |                             |                  |
| <b>ADMINISTRATIVE EXPENSES</b>        |                  |                  |                                   |                                  |                    |  |                       |            |                       |   |                           |                             |                  |
| Salaries and Benefits                 | \$43,179         | \$46,680         | \$537                             | \$1,446                          | \$1,841            | 151  |                       | \$0        |                       |   | \$50,655                  | \$0                         | \$50,655         |
| Travel                                | \$1,152          | \$1,175          |                                   |                                  |                    |  |                       |            |                       | \$45                                    | \$1,220                   |                             | \$1,220          |
| Transportation                        | \$16             | \$16             |                                   |                                  |                    |  |                       |            |                       | \$0                                     | \$17                      |                             | \$17             |
| GSA Rent                              | \$0              | \$0              |                                   |                                  |                    |  |                       |            |                       |   | \$0                       |                             | \$0              |
| Communications, & Utilities           | \$5              | \$5              |                                   |                                  |                    |  |                       |            |                       |   | \$5                       |                             | \$5              |
| Printing                              | \$5              | \$5              |                                   |                                  |                    |  |                       |            |                       |   | \$5                       |                             | \$5              |
| Other Services:                       |                  |                  |                                   |                                  |                    |  |                       |            |                       |   |                           |                             |                  |
| -Advisory and Assistance Services     | \$0              | \$0              |                                   |                                  |                    |  |                       |            |                       |   | \$0                       |                             | \$0              |
| -Others                               | \$131,532        | \$134,438        |                                   |                                  |                    |  |                       |            |                       | \$2,689                                 | \$137,126                 | (\$6,650)                   | \$130,476        |
| -WCF                                  | \$0              | \$0              |                                   |                                  |                    |  |                       |            |                       | \$0                                     | \$0                       |                             | \$0              |
| Supplies                              | \$656            | \$669            |                                   |                                  |                    |  |                       |            |                       | \$13                                    | \$683                     |                             | \$683            |
| Equipment                             | \$2,402          | \$2,450          |                                   |                                  |                    |  |                       |            |                       | \$49                                    | \$2,499                   |                             | \$2,499          |
| Land and Structures                   | \$424            | \$432            |                                   |                                  |                    |  |                       |            |                       | \$9                                     | \$441                     |                             | \$441            |
| Grants, Claims & Subsidies            | \$69,129         | \$69,129         |                                   |                                  |                    |  |                       |            |                       |   | \$69,129                  |                             | \$69,129         |
| Interest and Dividends                | \$0              | \$0              |                                   |                                  |                    |  |                       |            |                       |   | \$0                       |                             | \$0              |
| <b>Admin Subtotal</b>                 | <b>\$248,500</b> | <b>\$255,000</b> | <b>\$537</b>                      | <b>\$1,446</b>                   | <b>\$1,841</b>     | <b>\$151</b>                               | <b>\$0</b>            | <b>\$0</b> | <b>\$0</b>            | <b>\$2,805</b>                          | <b>\$261,780</b>          | <b>(\$6,650)</b>            | <b>\$255,130</b> |
| <b>PROGRAMS</b>                       |                  |                  |                                   |                                  |                    |  |                       |            |                       |   |                           |                             |                  |
| Research, Engineering and Development | \$248,500        | \$255,000        | \$537                             | \$1,446                          | \$1,841            | \$151                                      | \$0                   | \$0        | \$0                   | \$2,805                                 | \$261,780                 | (\$6,650)                   | \$255,130        |
| <b>Programs Subtotal</b>              | <b>\$248,500</b> | <b>\$255,000</b> | <b>\$537</b>                      | <b>\$1,446</b>                   | <b>\$1,841</b>     | <b>\$151</b>                               | <b>\$0</b>            | <b>\$0</b> | <b>\$0</b>            | <b>\$2,805</b>                          | <b>\$261,780</b>          | <b>(\$6,650)</b>            | <b>\$255,130</b> |
| <b>TOTAL</b>                          | <b>\$248,500</b> | <b>\$255,000</b> | <b>\$537</b>                      | <b>\$1,446</b>                   | <b>\$1,841</b>     | <b>\$151</b>                               | <b>\$0</b>            | <b>\$0</b> | <b>\$0</b>            | <b>\$2,805</b>                          | <b>\$261,780</b>          | <b>(\$6,650)</b>            | <b>\$255,130</b> |

\*This exhibit does not include resources associated with the Infrastructure Investment and Jobs Act.

## Budget Exhibit Tables

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



**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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

|                            | <b><u>FY 2022<br/>ENACTED</u></b> | <b><u>FY 2023<br/>ENACTED</u></b> | <b><u>FY 2024<br/>REQUEST</u></b> |
|----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| <b>DIRECT:</b>             |                                   |                                   |                                   |
| Facilities & Equipment     | 49                                | 54                                | 54                                |
| Grants-in-Aid for Airports | 234                               | 196                               | 67                                |
| Operations                 | 54,170                            | 59,831                            | 65,654                            |
| <b>TOTAL</b>               | <b><u>\$ 54,453</u></b>           | <b><u>\$ 60,081</u></b>           | <b><u>\$ 65,775</u></b>           |

**Footnote: Customer Estimate - FAA**

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

|                            | <b><u>ENACTED</u></b>  | <b><u>PRES. BUD.</u></b> | <b><u>REQUEST</u></b> |
|----------------------------|------------------------|--------------------------|-----------------------|
| <b>DIRECT:</b>             |                        |                          |                       |
| Grants-in-Aid for Airports | 85                     | 20                       | 7                     |
| Operations                 | 1,638                  | 565                      | 212                   |
| <b>TOTAL</b>               | <b><u>\$ 1,723</u></b> | <b><u>\$ 585</u></b>     | <b><u>\$ 219</u></b>  |

**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.

**Federal Aviation Administration  
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**EXHIBIT II-7  
FEDERAL AVIATION ADMINISTRATION  
PERSONNEL RESOURCE -- SUMMARY  
TOTAL FULL-TIME EQUIVALENTS**

|  | <b>FY 2022<br/>ACTUAL</b> | <b>FY 2023<br/>ENACTED</b> | <b>FY 2024<br/>REQUEST</b> |
|--|---------------------------|----------------------------|----------------------------|
| <b><u>DIRECT FUNDED BY APPROPRIATION</u></b>           |                           |                            |                            |
| Operations   | 38,777                    | 39,332                     | 40,110                     |
| Facilities & Equipment                                 | 2,717                     | 2,740                      | 2,982                      |
| Research, Engineering & Development                    | 196                       | 226                        | 233                        |
| Grants-in-Aid for Airports                             | 594                       | 637                        | 684                        |
| <b>SUBTOTAL, DIRECT FUNDED</b>                         | <b>42,284</b>             | <b>42,935</b>              | <b>44,009</b>              |
| <b><u>REIMBURSEMENTS / ALLOCATIONS /<br/>OTHER</u></b> |                           |                            |                            |
| Reimbursements and 'Other'                             |                           |                            |                            |
| Operations   | 153                       | 196                        | 196                        |
| Aviation Insurance Revolving Fund                      | 2                         | 4                          | 4                          |
| Facilities & Equipment                                 | 43                        | 53                         | 53                         |
| Grants-in-Aid for Airports                             | 4                         | 2                          | 4                          |
| Administrative Services Franchise Fund                 | 1,345                     | 1,392                      | 1,392                      |
| <b>SUBTOTAL, REIMBURSE./ALLOC./OTH.</b>                | <b>1,547</b>              | <b>1,647</b>               | <b>1,649</b>               |
| <b>BASE TOTAL FTEs</b>                                 | <b><u>43,831</u></b>      | <b><u>44,582</u></b>       | <b><u>45,658</u></b>       |
| <b><u>SUPPLEMENTAL FUNDED FTEs</u></b>                 |                           |                            |                            |
| <b>Supplementals</b>                                   |                           |                            |                            |
| CARES Act  | 3                         | 1                          | 1                          |
| Relief for Airports (ARPA)                             | 7                         | 3                          | 2                          |
| Inflation Reduction Act (IRA)                          | -                         | 5                          | 5                          |
| <b>IIJA Supplemental (Division J)</b>                  |                           |                            |                            |
| Facilities & Equipment                                 | 52                        | 196                        | 330                        |
| Airport Infrastructure Grants                          | 14                        | 87                         | 114                        |
| Airport Terminal Program                               | 8                         | 31                         | 40                         |
| <b>SUBTOTAL, Supplemental Funded</b>                   | <b>84</b>                 | <b>323</b>                 | <b>492</b>                 |
| <b>TOTAL FTEs</b>                                      | <b><u>43,915</u></b>      | <b><u>44,905</u></b>       | <b><u>46,150</u></b>       |

INFO:

Allocations to Other Agencies

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**EXHIBIT II-8  
FEDERAL AVIATION ADMINISTRATION  
PERSONNEL RESOURCE -- SUMMARY  
FULL-TIME PERMANENT POSITIONS**

|  | <b>FY 2022<br/>ACTUAL</b> | <b>FY 2023<br/>ENACTED</b> | <b>FY 2024<br/>REQUEST</b> |
|--|---------------------------|----------------------------|----------------------------|
| <b><u>DIRECT FUNDED BY APPROPRIATION</u></b>           |                           |                            |                            |
| Operations   | 38,584                    | 39,250                     | 39,909                     |
| Facilities & Equipment                                 | 2,760                     | 2,806                      | 3,048                      |
| Research, Engineering & Development                    | 196                       | 237                        | 237                        |
| Grants-in-Aid for Airports                             | 574                       | 662                        | 709                        |
| <b>SUBTOTAL, DIRECT FUNDED</b>                         | <b>42,114</b>             | <b>42,955</b>              | <b>43,903</b>              |
| <b><u>REIMBURSEMENTS / ALLOCATIONS /<br/>OTHER</u></b> |                           |                            |                            |
| Reimbursements and 'Other'                             |                           |                            |                            |
| Operations   | 98                        | 98                         | 98                         |
| Aviation Insurance Revolving Fund                      | 2                         | 4                          | 4                          |
| Facilities & Equipment                                 | -                         | -                          | -                          |
| Grants-in-Aid for Airports                             | 1                         | 2                          | 4                          |
| Administrative Services Franchise Fund                 | 1,349                     | 1,411                      | 1,411                      |
| <b>SUBTOTAL, REIMBURSE./ALLOC./OTH.</b>                | <b>1,450</b>              | <b>1,515</b>               | <b>1,517</b>               |
| <b>BASE TOTAL POSITIONS</b>                            | <b>43,564</b>             | <b>44,470</b>              | <b>45,420</b>              |
| <b><u>SUPPLEMENTAL FUNDED FTPs</u></b>                 |                           |                            |                            |
| <b>Supplementals</b>                                   |                           |                            |                            |
| CARES Act  | 1                         | 1                          | 1                          |
| Relief for Airports (ARPA)                             | 2                         | 3                          | 2                          |
| Inflation Reduction Act (IRA)                          | -                         | 5                          | 5                          |
| <b>IIJA Supplemental (Division J)</b>                  |                           |                            |                            |
| Facilities & Equipment                                 | 119                       | 280                        | 440                        |
| Airport Infrastructure Grants                          | 51                        | 114                        | 113                        |
| Airport Terminal Program                               | 23                        | 40                         | 41                         |
| <b>SUBTOTAL, Supplemental Funded</b>                   | <b>196</b>                | <b>443</b>                 | <b>602</b>                 |
| <b>TOTAL POSITIONS</b>                                 | <b>43,760</b>             | <b>44,913</b>              | <b>46,022</b>              |

INFO:

Allocations to Other Agencies

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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

|   | <b>FY 2022<br/>ACTUALS</b> | <b>FY 2023<br/>ESTIMATE</b> | <b>FY 2024<br/>ESTIMATE</b> |
|---|----------------------------|-----------------------------|-----------------------------|
| <b><u>USER FEE</u></b>                    |                            |                             |                             |
| Civil Aviation Registry Fees              | 1,425                      | 1,392                       | 1,531                       |
| Foreign Repair Station/Certification Fees | 4,660                      | 6,356                       | 6,992                       |
| Aeronautical Charting Fees                | 33                         | 33                          | 33                          |
| Overflight Fees                           | 93,925                     | 136,746                     | 155,949                     |
| Unmanned Aircraft Systems Registry Fees   | 1,197                      | 1,150                       | 1,265                       |
| <b>Total User Fees</b>                    | <b>101,240</b>             | <b>145,677</b>              | <b>165,770</b>              |





**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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**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, [\$11,915,000,000] \$12,740,627,000, to remain available until September 30, [2024] 2025, of which [\$9,993,821,000 to] \$8,740,627,000 shall be derived from the Airport and Airway Trust Fund: *Provided*[], That of the amounts made available under this heading—]

[(1) not less than \$1,630,794,000 shall be available for aviation safety activities;]

[(2) \$8,812,537,000 shall be available for air traffic organization activities;]

[(3) \$37,854,000 shall be available for commercial space transportation activities;]

[(4) \$918,049,000 shall be available for finance and management activities;]

[(5) \$65,581,000 shall be available for NextGen and operations planning activities;]

[(6) \$152,509,000 shall be available for security and hazardous materials safety activities;

and]

[(7) \$297,676,000 shall be available for staff offices:]

[*Provided further*, That not to exceed 5 percent of any budget activity, except for aviation safety budget activity, may be transferred to any budget activity under this heading: *Provided further*, That no transfer may increase or decrease any appropriation under this heading by more than 5 percent: *Provided further*, That any transfer in excess of 5 percent shall be treated as a reprogramming of funds under section 405 of this Act and shall not be available for obligation or expenditure except in compliance with the procedures set forth in that section: *Provided further*, 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 the amounts made available under this heading shall be reduced by \$100,000 for each day after 60 days after the submission of the budget request that such report has not been transmitted to Congress]: *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 the amounts made available under this heading shall be reduced by \$100,000 for each day after the date that is 60 days after the submission of the budget request that such report has not been submitted to Congress]: *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 none of the funds made available by this Act shall be available for the Federal Aviation Administration to finalize or implement any regulation that would promulgate new aviation user fees not specifically authorized by law after the date of the enactment of this Act]: *Provided further*, That there may

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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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[: *Provided further*, That of the amounts made available under this heading, not less than \$187,800,000 shall be used to fund direct operations of the current air traffic control towers in the contract tower program, including the contract tower cost share program, and any airport that is currently qualified or that will qualify for the program during the fiscal year: *Provided further*, That none of the funds made available by this Act for aeronautical charting and cartography are available for activities conducted by, or coordinated through, the Working Capital Fund: *Provided further*, That none of the funds appropriated or otherwise made available by this Act or any other Act may be used to eliminate the Contract Weather Observers program at any airport]. (*Department of Transportation Appropriations Act, 2023.*)



**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**Program and Financing (in millions of dollars)**

| Identification code: 69-1301-0-1-402                           |   | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|--|---|-------------------|---------------------|---------------------|
| <b>Obligations by program activity:</b>                        |   |                   |                     |                     |
| 0001   | Air Traffic Organization (ATO).....                             | 8,476             | 8,812               | 9,432               |
| 0002   | NextGen.....  | 64                | 65                  | 70                  |
| 0003   | Finance & Management.....                                       | 897               | 929                 | 952                 |
| 0004   | Aviation Safety .....   | 1,556             | 1,643               | 1,755               |
| 0005   | Commercial Space Transportation .....                           | 33                | 38                  | 42                  |
| 0006   | Security & Hazardous Materials Safety .....                     | 134               | 159                 | 164                 |
| 0007   | Staff Offices.....  | 281               | 301                 | 330                 |
| 0008   | 2017/2018 Hurricanes & CARES Act .....                          | 1                 | .....               | .....               |
| 0100   | Direct Program Activities Subtotal .....                        | 11,442            | 11,947              | 12,745              |
| 0799   | Total Direct Obligations .....                                  | 11,442            | 11,947              | 12,745              |
| 0801   | Operations (Reimbursable).....                                  | 154               | 144                 | 145                 |
| 0900   | Total new obligations, unexpired accounts .....                 | 11,596            | 12,091              | 12,890              |
| <b>Budgetary resources:</b>                                    |   |                   |                     |                     |
| Unobligated balance:   |   |                   |                     |                     |
| 1000   | Unobligated balance brought forward, Oct. 1.....                | 152               | 164                 | 158                 |
| 1021   | Recoveries of prior year unpaid obligations.....                | 53                | .....               | .....               |
| 1070   | Unobligated balance (total) .....                               | 205               | 164                 | 158                 |
| Budget authority:  |   |                   |                     |                     |
| Appropriations, discretionary:                                 |   |                   |                     |                     |
| 1100   | Appropriation .....   | 5,000             | 1,921               | 4000                |
| Spending authority from offsetting collections, discretionary, |   |                   |                     |                     |
| 1700   | Collected .....   | 7,558             | 10,145              | 8,909               |
| 1701   | Change in uncollected payments, Federal sources.....            | -992              | 19                  | .....               |
| 1750   | Spending auth from offsetting collections, disc (total) .....   | 6,566             | 10,164              | 8,909               |
| 1900   | Budget authority (total) .....                                  | 11,566            | 12,085              | 12,909              |
| 1930   | Total budgetary resources available .....                       | 11,771            | 12,249              | 13,067              |
| Memorandum (non-add) entries:                                  |   |                   |                     |                     |
| 1940   | Unobligated balance expiring.....                               | -11               | .....               | .....               |
| 1941   | Unexpired unobligated balance, end of year .....                | 164               | 158                 | 177                 |
| <b>Change in obligated balance:</b>                            |   |                   |                     |                     |
| Unpaid obligations:  |   |                   |                     |                     |
| 3000   | Unpaid obligations, brought forward, Oct. 1 .....               | 1,841             | 1,860               | 1,567               |
| 3001   | Adjustments to unpaid obligations, brought forward, Oct 1... .. | 1                 | .....               | .....               |
| 3010   | New Obligations, unexpired accounts .....                       | 11,596            | 12,091              | 12,890              |
| 3011   | Obligations ("upward adjustments"), expired accounts .....      | 2                 | .....               | .....               |
| 3020   | Outlays (gross) .....   | -11,500           | -12,384             | -13,106             |
| 3040   | Recoveries of prior year unpaid obligations, unexpired .....    | -53               | .....               | .....               |
| 3041   | Recoveries of prior year unpaid obligations, expired .....      | -27               | .....               | .....               |
| 3050   | Unpaid obligations, end of year .....                           | 1,860             | 1,567               | 1,351               |
| Uncollected payments:  |   |                   |                     |                     |
| 3060   | Uncollected pymts, Fed sources, brought forward, Oct 1 .....    | -1,127            | -119                | -138                |
| 3070   | Change in uncollected pymts, Fed sources, unexpired .....       | 992               | -19                 | .....               |
| 3071   | Change in uncollected pymts, Fed sources, expired .....         | 16                | .....               | .....               |
| 3090   | Uncollected pymts, Fed sources, end of year .....               | -119              | -138                | -138                |
| Memorandum (non-add) entries:                                  |   |                   |                     |                     |
| 3100   | Obligated balance, start of year .....                          | 715               | 1,741               | 1,429               |

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| Identification code: 69-1301-0-1-402                    |  | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|---|--|-------------------|---------------------|---------------------|
| 3200  | Obligated balance, end of year .....                           | 1,741             | 1,429               | 1,213               |
| <b>Budget authority and outlays, net:</b>               |  |                   |                     |                     |
| Discretionary:  |  |                   |                     |                     |
| 4000  | Budget authority, gross .....                                  | 11,566            | 12,085              | 12,909              |
| Outlays, gross:   |  |                   |                     |                     |
| 4010  | Outlays from new discretionary authority .....                 | 9,834             | 10,654              | 11,380              |
| 4011  | Outlays from discretionary balances .....                      | 1,666             | 1,730               | 1,726               |
| 4020  | Outlays, gross (total) .....                                   | 11,500            | 12,384              | 13,106              |
| Offsets against gross budget authority and outlays:     |  |                   |                     |                     |
| Offsetting collections (collected) from:                |  |                   |                     |                     |
| 4030  | Federal sources .....  | -7,557            | -10,126             | -8,890              |
| 4033  | Non-Federal sources .....                                      | -15               | -18                 | -18                 |
| 4034  | Offsetting governmental collections.....                       | -1                | -1                  | -1                  |
| 4040  | Offsets against gross budget authority and outlays (total) ... | -7,573            | -10,145             | -8,909              |
| Additional offsets against gross budget authority only: |  |                   |                     |                     |
| 4050  | Change in uncollected pymts, Federal sources, unexpired ...    | 992               | -19                 | .....               |
| 4052  | Offsetting collections credited to expired accounts .....      | 15                | .....               | .....               |
| 4060  | Additional offsets against budget authority only (total) ..... | 1,007             | -19                 | .....               |
| 4070  | Budget authority, net (discretionary) .....                    | 5,000             | 1,921               | 4,000               |
| 4080  | Outlays, net (discretionary) .....                             | 3,927             | 2,239               | 4,197               |
| 4180  | Budget authority, net (total) .....                            | 5,000             | 1,921               | 4,000               |
| 4190  | Outlays, net (total) .....                                     | 3,927             | 2,239               | 4,197               |

The 2024 Budget requests \$12.741 billion for Federal Aviation Administration (FAA) operations. These funds will be used to continue to promote aviation safety and efficiency. The Budget provides funding for the Air Traffic Organization (ATO) which is responsible for managing the air traffic control system. As a performance-based organization, the ATO is designed to provide cost-effective, efficient, and, above all, safe air traffic services. The Budget also funds the Aviation Safety Organization which ensures the safe operation of the airlines and certifies new aviation products. In addition, the request also funds regulation of the commercial space transportation industry, as well as FAA policy oversight and overall management functions.

**Object Classification** (in millions of dollars)

| Identification code: 69-1301-0-1-402 |  | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|--------------------------------------|--|-------------------|---------------------|---------------------|
| Direct obligations:                  |  |                   |                     |                     |
| Personnel compensation:              |  |                   |                     |                     |
| 11.1                                 | Full-time permanent.....                                   | 4,998             | 5,228               | 5,571               |
| 11.3                                 | Other than full-time permanent .....                       | 34                | 39                  | 48                  |
| 11.5                                 | Other personnel compensation .....                         | 583               | 611                 | 648                 |
| 11.9                                 | Total personnel compensation .....                         | 5,615             | 5,878               | 6,267               |
| 12.1                                 | Civilian personnel benefits .....                          | 2,421             | 2,522               | 2,738               |
| 13.0                                 | Benefits for former personnel .....                        | 1                 | 1                   | 1                   |
| 21.0                                 | Travel and transportation of persons.....                  | 90                | 100                 | 101                 |
| 22.0                                 | Transportation of things .....                             | 23                | 24                  | 23                  |
| 23.1                                 | Rental payments to GSA.....                                | 125               | 127                 | 128                 |
| 23.2                                 | Rental payments to others.....                             | 45                | 43                  | 46                  |
| 23.3                                 | Communications, utilities, and miscellaneous charges ..... | 400               | 415                 | 423                 |

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|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-1301-0-1-402 |  |         |          |          |
| 24.0                                 | Printing and reproduction .....              | 4       | 3        | 4        |
| 25.1                                 | Advisory and assistance services.....        | 917     | 952      | 999      |
| 25.2                                 | Other services from non-Federal sources..... | 1,538   | 1,603    | 1,752    |
| 26.0                                 | Supplies and materials .....                 | 47      | 51       | 50       |
| 31.0                                 | Equipment.....                               | 210     | 202      | 207      |
| 32.0                                 | Land and structures.....                     | 4       | 4        | 4        |
| 41.0                                 | Grants, subsidies, and contributions.....    | 1       | 1        | 1        |
| 42.0                                 | Insurance claims and indemnities .....       | 1       | 21       | 1        |
| 99.0                                 | Direct obligations .....                     | 11,442  | 11,947   | 12,745   |
| 99.0                                 | Reimbursable obligations.....                | 154     | 144      | 145      |
| 99.9                                 | Total new obligations .....                  | 11,596  | 12,091   | 12,890   |

**Employment Summary**

|                                      |   | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|---|---------|----------|----------|
|                                      |   | Actual  | Estimate | Estimate |
| Identification code: 69-1301-0-1-402 |   |         |          |          |
| 1001                                 | Direct civilian full-time equivalent employment .....       | 38,777  | 39,332   | 40,110   |
| 2001                                 | Reimbursable civilian full-time equivalent employment ..... | 153     | 196      | 196      |

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

|   | <b>FY 2022<br/>ENACTED</b> | <b>FY 2023<br/>ENACTED</b> | <b>FY 2024<br/>REQUEST</b> |
|---|----------------------------|----------------------------|----------------------------|
| Air Traffic Organization (ATO)                | \$ 8,471,860               | \$ 8,811,812               | \$ 9,439,068               |
| Aviation Safety (AVS)                         | \$ 1,536,298               | \$ 1,630,794               | \$ 1,745,532               |
| Commercial Space (AST)                        | \$ 32,197                  | \$ 37,581                  | \$ 42,018                  |
| Finance & Management (AFN)                    | \$ 889,066                 | \$ 917,899                 | \$ 949,376                 |
| NextGen (ANG)                                 | \$ 63,955                  | \$ 65,581                  | \$ 70,097                  |
| Security and Hazardous Materials Safety (ASH) | \$ 139,316                 | \$ 152,359                 | \$ 163,951                 |
| Staff Offices                                 | \$ 281,408                 | \$ 298,974                 | \$ 330,585                 |
| <b>TOTAL, Base appropriations</b>             | <b>\$ 11,414,100</b>       | <b>\$11,915,000</b>        | <b>\$12,740,627</b>        |
| FTEs  |                            |                            |                            |
| Direct Funded                                 | 38,777                     | 39,332                     | 40,110                     |
| Reimbursable, allocated, other                | 153                        | 196                        | 196                        |
| <b>Supplemental Funding</b>                   |                            |                            |                            |
| <b>COVID-19 Supplementals</b>                 |                            |                            |                            |
| CRRSA   |                            |                            |                            |
| Relief for Airports (ARPA)                    |                            |                            |                            |
| Employee Leave Fund (ARPA)                    |                            |                            |                            |
| <b>IIJA Supplemental (Division J)</b>         |                            |                            |                            |
| Facilities & Equipment                        |                            |                            |                            |
| Airport Infrastructure Grants                 |                            |                            |                            |
| Airport Terminal Program                      |                            |                            |                            |
| <b>TOTAL, Base appropriations</b>             | <b>\$ -</b>                | <b>\$ -</b>                | <b>\$ -</b>                |
| FTEs  |                            |                            |                            |
| Direct Funded                                 |                            |                            |                            |
| Reimbursable, allocated, other                |                            |                            |                            |
| <b>Account</b>                                | <b>\$ 11,414,100</b>       | <b>\$11,915,000</b>        | <b>\$12,740,627</b>        |

**Program and Performance Statement**

This account provides funds for the operation, maintenance, communications and logistical support of the air traffic control and air navigation systems. It also covers administrative and managerial costs for the FAA's regulatory, international, medical, engineering and development programs as well as policy oversight and overall management functions. The operations account includes the following major activities:

- (1) operation on a 24-hour daily basis of a national air traffic system;
- (2) establishment and maintenance of a national system of aids to navigation;
- (3) establishment and surveillance of civil air regulations to assure safety in aviation;
- (4) development of standards, rules and regulations governing the physical fitness of airmen as well as the administration of an aviation medical research program;
- (5) regulation of the commercial space transportation industry;
- (6) administration of acquisition programs; and
- (7) headquarters, administration and other staff offices.

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**EXHIBIT III-1a  
OPERATIONS  
SUMMARY ANALYSIS OF CHANGE FROM FY 2023 TO FY 2024 Appropriations,  
Obligations, Limitations, and Exempt Obligations (\$000)**

|   | <b><u>\$000</u></b> | <b><u>FTE</u></b> |
|---|---------------------|-------------------|
| <b>FY 2023 ENACTED (POST BASE TRANSFER)</b>                 | <u>\$11,915,000</u> | <u>39,332</u>     |
| <b>ADJUSTMENTS TO BASE:</b>                                 |                     |                   |
| Annualization of FY 2023 Pay Raise 4.6%                     | 96,626              |                   |
| Annualization of FY 2023 FTE                                | 23,039              | 155               |
| Annualization of FY 2023 FTE - Controller Hiring Surge      | 23,354              | 108               |
| FY 2024 Pay Raise 5.2%                                      | 327,703             |                   |
| FY 2024 FERS Increase                                       | 41,128              |                   |
| One More Compensable Day (261 days)                         | 34,670              |                   |
| Transition from F&E to Ops                                  | 18,361              |                   |
| Non-Pay Inflation 1.3%                                      | 46,997              |                   |
| Working Capital Fund  | 5,470               |                   |
| <b>SUBTOTAL, ADJUSTMENTS TO BASE</b>                        | <b>617,348</b>      | <b>263</b>        |
| <b>DISCRETIONARY ADJUSTMENTS</b>                            |                     |                   |
| Controller Hiring and Training Surge                        | 93,646              | 349               |
| Telecommunications Infrastructure Sustainment               | 50,000              |                   |
| NAS Maintenance and Sustainment                             | 25,000              |                   |
| Address Aircraft Certification Reform Legislation           | 16,210              | 27                |
| Strengthen Aviation Safety Oversight                        | 7,918               | 36                |
| Improve Hazardous Materials Transportation Safety Oversight | 2,125               | 10                |
| Enhance Sustainability                                      | 4,211               | 3                 |
| Increase Diversity and Inclusion in FAA's Workforce         | 1,340               | 7                 |
| Aviation and Aerospace Talent Development                   | 3,653               | 34                |
| Chief Counsel Staffing                                      | 4,176               | 27                |
| <b>SUBTOTAL, DISCRETIONARY ADJUSTMENTS</b>                  | <b>208,279</b>      | <b>493</b>        |
| <b>BASE TRANSFER</b>  |                     |                   |
| Chief Counsel Staffing                                      | 0                   | 22                |
| <b>SUBTOTAL, BASE TRANSFER</b>                              | <b>0</b>            | <b>22</b>         |
| <b>FY 2024 REQUEST</b>                                      | <b>\$12,740,627</b> | <b>40,110</b>     |

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| <b>Operations Summary<br/>(\$000)</b>                       |                                   |               |              |               |
|---|-----------------------------------|---------------|--------------|---------------|
|   | <b>Dollars<br/>(in thousands)</b> | <b>FTP</b>    | <b>OTFTP</b> | <b>FTE</b>    |
| <b>FY 2023 Enacted</b>                                      | <b>\$11,915,000</b>               | <b>39,250</b> | <b>900</b>   | <b>39,332</b> |
| <b>Adjustments to Base</b>                                  | <b>\$617,348</b>                  | <b>-</b>      | <b>-</b>     | <b>263</b>    |
| Annualization of FY 2023 Pay Raise 4.6%                     | 96,626                            | -             | -            | -             |
| Annualization of FY 2023 FTE                                | 23,039                            | -             | -            | 155           |
| Annualization of FY 2023 FTE -- Controller Hiring Surge     | 23,354                            | -             | -            | 108           |
| FY 2024 Pay Raise 5.2%                                      | 327,703                           | -             | -            | -             |
| FY 2024 FERS Increase                                       | 41,128                            | -             | -            | -             |
| One More Compensable Day (261 days)                         | 34,670                            | -             | -            | -             |
| Transition from Facilities & Equipment to Operations        | 18,361                            | -             | -            | -             |
| Non-Pay Inflation 1.3%                                      | 46,997                            | -             | -            | -             |
| Working Capital Fund  | 5,470                             | -             | -            | -             |
| <b>Discretionary Adjustments</b>                            | <b>\$208,279</b>                  | <b>637</b>    | <b>303</b>   | <b>493</b>    |
| Controller Hiring and Training Surge                        | 93,646                            | 410           | 195          | 349           |
| Telecommunications Infrastructure Sustainment               | 50,000                            | -             | -            | -             |
| National Airspace System Maintenance and Sustainment        | 25,000                            | -             | -            | -             |
| Address Aircraft Certification Reform Legislation           | 16,210                            | 53            | -            | 27            |
| Strengthen Aviation Safety Oversight                        | 7,918                             | 72            | -            | 36            |
| Improve Hazardous Materials Transportation Safety Oversight | 2,125                             | 20            | -            | 10            |
| Enhance Sustainability                                      | 4,211                             | 6             | -            | 3             |
| Increase Diversity and Inclusion in FAA's Workforce         | 1,340                             | 13            | -            | 7             |
| Aviation and Aerospace Talent Development                   | 3,653                             | 10            | 108          | 34            |
| Chief Counsel Staffing                                      | 4,176                             | 53            | -            | 27            |
| <b>Base Transfers</b>                                       | <b>-</b>                          | <b>22</b>     | <b>-</b>     | <b>22</b>     |
| Chief Counsel Staffing                                      | -                                 | 22            | -            | 22            |
| <b>FY 2024 Request</b>                                      | <b>\$12,740,627</b>               | <b>39,909</b> | <b>1,203</b> | <b>40,110</b> |

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| Staffing Summary -- FY 2022 - FY 2024                                       |   |       |                   |                    |                    |
|---|---|-------|-------------------|--------------------|--------------------|
|   |   | Type  | FY 2022<br>Actual | FY 2023<br>Enacted | FY 2024<br>Request |
| Air Traffic Organization  | ATO   | FTP   | 27,769            | 28,033             | 28,443             |
|   |   | OTFTP | 496               | 599                | 794                |
|   |   | FTE   | 28,012            | 28,240             | 28,697             |
| Associate Administrator for<br>Aviation Safety                              | AVS   | FTP   | 7,493             | 7,775              | 7,897              |
|   |   | OTFTP | 48                | 48                 | 48                 |
|   |   | FTE   | 7,385             | 7,613              | 7,772              |
| Associate Administrator for<br>Commercial Space Transportation              | AST   | FTP   | 115               | 155                | 155                |
|   |   | OTFTP | 5                 | 5                  | 5                  |
|   |   | FTE   | 117               | 141                | 161                |
| Assistant Administrator for Finance<br>and Management                       | AFN   | FTP   | 1,378             | 1,378              | 1,378              |
|   |   | OTFTP | 14                | 14                 | 14                 |
|   |   | FTE   | 1,375             | 1,377              | 1,377              |
| Assistant Administrator for Next<br>Generation Air Transportation<br>System | ANG   | FTP   | 164               | 164                | 166                |
|   |   | OTFTP | 3                 | 3                  | 3                  |
|   |   | FTE   | 174               | 174                | 175                |
| Associate Administrator for Security<br>and Hazardous Materials Safety      | ASH   | FTP   | 541               | 579                | 599                |
|   |   | OTFTP | -                 | -                  | -                  |
|   |   | FTE   | 520               | 551                | 580                |
| Staff Offices   | Assistant Administrator<br>for Human Resource<br>Management                     | FTP   | 483               | 483                | 486                |
|   |   | OTFTP | 201               | 201                | 301                |
|   |   | FTE   | 526               | 526                | 553                |
|   | Office of the<br>Administrator and Deputy                                       | FTP   | 10                | 10                 | 10                 |
|   |   | OTFTP | 2                 | 2                  | 2                  |
|   |   | FTE   | 13                | 13                 | 13                 |
|   | Assistant Administrator<br>for Audit and Evaluation                             | FTP   | 19                | 19                 | 22                 |
|   |   | OTFTP | -                 | -                  | -                  |
|   |   | FTE   | 20                | 22                 | 24                 |
|   | Assistant Administrator<br>for Civil Rights                                     | FTP   | 67                | 82                 | 92                 |
|   |   | OTFTP | 2                 | 2                  | 2                  |
|   |   | FTE   | 70                | 78                 | 90                 |
|   | Assistnat Administrator<br>for Government and<br>Industry Affairs               | FTP   | 7                 | 9                  | 9                  |
|   |   | OTFTP | -                 | -                  | -                  |
|   |   | FTE   | 8                 | 10                 | 10                 |
|   | Assistant Administrator<br>for Communications                                   | FTP   | 35                | 37                 | 37                 |
|   |   | OTFTP | 5                 | 5                  | 5                  |
|   |   | FTE   | 40                | 42                 | 42                 |
|   | Office of Chief Counsel   | FTP   | 224               | 230                | 305                |
|   |   | OTFTP | 17                | 17                 | 17                 |
|   |   | FTE   | 233               | 245                | 297                |
|   | Assistant Administrator<br>for Policy, International<br>Affairs and Environment | FTP   | 279               | 296                | 310                |
|   |   | OTFTP | 4                 | 4                  | 12                 |
|   |   | FTE   | 284               | 300                | 319                |
| Total   |   | FTP   | 38,584            | 39,250             | 39,909             |
|   |   | OTFTP | 797               | 900                | 1,203              |
|   |   | FTE   | 38,777            | 39,332             | 40,110             |

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**Resource Summary -- FY 2022 - FY 2024 (\$000)**

|   |   |     | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |              |
|---|---|-----|--------------------|--------------------|--------------------|--------------|
| Air Traffic Organization (ATO)  |   |     | pcb                | \$ 6,098,029       | \$ 6,354,960       | \$ 6,802,354 |
|   |   |     | o/o                | \$ 2,373,831       | \$ 2,456,852       | \$ 2,636,714 |
| ATO Total   |   |     | \$ 8,471,860       | \$ 8,811,812       | \$ 9,439,068       |              |
| Associate Administrator for Aviation Safety (AVS)                         |   |     | pcb                | \$ 1,300,028       | \$ 1,377,236       | \$ 1,474,122 |
|   |   |     | o/o                | \$ 236,270         | \$ 253,558         | \$ 271,410   |
| AVS Total   |   |     | \$ 1,536,298       | \$ 1,630,794       | \$ 1,745,532       |              |
| Associate Administrator for Commercial Space Transportation (AST)         |   |     | pcb                | \$ 22,963          | \$ 26,817          | \$ 31,110    |
|   |   |     | o/o                | \$ 9,234           | \$ 10,764          | \$ 10,908    |
| AST Total   |   |     | \$ 32,197          | \$ 37,581          | \$ 42,018          |              |
| Assistant Administrator for Finance and Management (AFN)                  |   |     | pcb                | \$ 265,703         | \$ 275,526         | \$ 290,603   |
|   |   |     | o/o                | \$ 623,363         | \$ 642,373         | \$ 658,773   |
| AFN Total   |   |     | \$ 889,066         | \$ 917,899         | \$ 949,376         |              |
| Assistant Administrator for NextGen Air Transportation System (ANG)       |   |     | pcb                | \$ 32,179          | \$ 33,349          | \$ 35,310    |
|   |   |     | o/o                | \$ 31,776          | \$ 32,232          | \$ 34,787    |
| ANG Total   |   |     | \$ 63,955          | \$ 65,581          | \$ 70,097          |              |
| Associate Administrator for Security and Hazardous Materials Safety (ASH) |   |     | pcb                | \$ 94,268          | \$ 102,571         | \$ 112,476   |
|   |   |     | o/o                | \$ 45,048          | \$ 49,788          | \$ 51,475    |
| ASH Total   |   |     | \$ 139,316         | \$ 152,359         | \$ 163,951         |              |
| Staff Offices   | Assistant Administrator for Human Resource Management         | pcb | \$ 82,477          | \$ 86,486          | \$ 92,889          |              |
|   |   | o/o | \$ 31,598          | \$ 31,720          | \$ 33,180          |              |
|   | AHR Total   |     | \$ 114,075         | \$ 118,206         | \$ 126,069         |              |
|   | Office of the Administrator and Deputy (AOA)                  | pcb | \$ 2,965           | \$ 3,074           | \$ 3,238           |              |
|   |   | o/o | \$ 805             | \$ 809             | \$ 819             |              |
|   | AOA Total   |     | \$ 3,770           | \$ 3,883           | \$ 4,057           |              |
|   | Assistant Administrator for Audit and Evaluation (AAE)        | pcb | \$ 4,155           | \$ 4,592           | \$ 5,094           |              |
|   |   | o/o | \$ 854             | \$ 865             | \$ 877             |              |
|   | AAE Total   |     | \$ 5,009           | \$ 5,457           | \$ 5,971           |              |
|   | Assistant Administrator for Civil Rights (ACR)                | pcb | \$ 11,911          | \$ 13,261          | \$ 15,712          |              |
|   |   | o/o | \$ 1,489           | \$ 1,527           | \$ 1,897           |              |
|   | ACR Total   |     | \$ 13,400          | \$ 14,788          | \$ 17,609          |              |
|   | Assistant Administrator for Government and Industry Affairs   | pcb | \$ 1,502           | \$ 1,563           | \$ 1,649           |              |
|   |   | o/o | \$ 415             | \$ 417             | \$ 421             |              |
|   | AGI Total   |     | \$ 1,917           | \$ 1,980           | \$ 2,070           |              |
|   | Assistant Administrator for Communications (AOC)              | pcb | \$ 7,539           | \$ 8,121           | \$ 8,563           |              |
|   |   | o/o | \$ 315             | \$ 335             | \$ 339             |              |
|   | AOC Total   |     | \$ 7,854           | \$ 8,456           | \$ 8,902           |              |
|   | Office of the Chief Counsel (AGC)                             | pcb | \$ 46,800          | \$ 50,246          | \$ 61,842          |              |
|   |   | o/o | \$ 5,316           | \$ 5,531           | \$ 5,855           |              |
|   | AGC Total   |     | \$ 52,116          | \$ 55,777          | \$ 67,697          |              |
|   | Assistant Administrator for Policy, International Affairs and | pcb | \$ 59,634          | \$ 64,801          | \$ 71,393          |              |
|   |   | o/o | \$ 23,633          | \$ 25,626          | \$ 26,817          |              |
|   | APL Total   |     | \$ 83,267          | \$ 90,427          | \$ 98,210          |              |
|   |   |     |                    |                    |                    |              |
| Grand Total   |   |     | \$ 11,414,100      | \$ 11,915,000      | \$ 12,740,627      |              |



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**FY 2024 Discretionary Adjustments  
(In thousands)**

|   | ATO               | AVS              | AFN             | ANG             | ASH             | Staff Offices    | Total             |
|---|-------------------|------------------|-----------------|-----------------|-----------------|------------------|-------------------|
| <b>Discretionary Adjustments</b>  |                   |                  |                 |                 |                 |                  |                   |
| Controller Hiring and Training Surge (410 FTP/195 OTFTP/349 FTE)            | \$ 93,646         |                  |                 |                 |                 | \$ -             | \$ 93,646         |
| Telecommunications Infrastructure Sustainment                               | \$ 50,000         |                  |                 |                 |                 | \$ -             | \$ 50,000         |
| National Airspace System Maintenance and Sustainment                        | \$ 25,000         |                  |                 |                 |                 | \$ -             | \$ 25,000         |
| Address Aircraft Certification Reform Legislation (53 FTP/27 FTE)           |                   | \$ 15,958        |                 |                 |                 | \$ 252           | \$ 16,210         |
| Strengthen Aviation Safety Oversight (72 FTP/36 FTE)                        |                   | \$ 7,918         |                 |                 |                 | \$ -             | \$ 7,918          |
| Improve Hazardous Materials Transportation Safety Oversight (20 FTP/10 FTE) |                   |                  |                 |                 | \$ 2,125        | \$ -             | \$ 2,125          |
| Enhance Sustainability (6 FTP/3 FTE)  |                   |                  | \$ 1,165        | \$ 2,279        |                 | \$ 767           | \$ 4,211          |
| Increase Diversity and Inclusion in FAA's Workforce (13 FTP/7 FTE)          |                   |                  |                 |                 |                 | \$ 1,340         | \$ 1,340          |
| Aviation and Aerospace Talent Development (10 FTP/108 OTFTP/34 FTE)         |                   |                  |                 |                 |                 | \$ 3,653         | \$ 3,653          |
| Chief Counsel Staffing (53 FTP/27 FTE)                                      |                   |                  |                 |                 |                 | \$ 4,176         | \$ 4,176          |
| <b>Subtotal, Discretionary Adjustments</b>                                  | <b>\$ 168,646</b> | <b>\$ 23,876</b> | <b>\$ 1,165</b> | <b>\$ 2,279</b> | <b>\$ 2,125</b> | <b>\$ 10,188</b> | <b>\$ 208,279</b> |

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**Air Traffic Controller Hiring and Training Surge**  
Air Traffic Organization (ATO)

(In thousands)

|   | <b>FY 2024</b>    |
|---|-------------------|
| <b>Air Traffic Controller Hiring and Training Surge</b> | <b>\$117,000*</b> |
| PC&B  | \$59,326          |
| Non-Pay   | \$57,674          |
| <b>FTE</b>  | <b>457</b>        |

\* Includes \$23.4 million in Adjustments to Base and \$93.6 million in Discretionary Adjustments

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

Due to the COVID-19 pandemic in 2020, the FAA temporarily shut down the Air Traffic Control Training Academy and paused controllers' On-the-Job Training (OJT) in air traffic facilities. The FAA was eventually able to re-open the Academy and resume OJT, but at reduced capacity with social distancing requirements.

With the impacts of the pandemic still ongoing in FY 2021, the FAA reduced the Air Traffic Controller (ATC) hiring goal for that year from 920 to 500 due to limited training capacity.

As the impacts of the pandemic became more manageable, the FAA began to restore controller hiring in FY 2022 and by February 2022, the FAA Academy returned to full capacity and OJT had resumed across the system. In addition, the FAA 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 is to streamline the path for controller training while further increasing resiliency to serve high-demand markets as air traffic increases.

The FAA plans to hire and train 1,500 controllers in FY 2023 as well as address the backlog of training for developmentals currently working in air traffic facilities. The FY 2023 hiring target represents a significant increase of approximately 47 percent over previous plans. This hiring plan is funded in the FY 2023 enacted appropriation.

For FY 2024, the FAA plans to hire and train 1,800 controllers, an increase of 300 above the levels for FY 2023. This increase will allow FAA to allow us to rebuild the pipeline of the necessary Certified Professional Controller (CPC) staffing levels to meet current traffic demands, which overall have nearly rebounded to pre-pandemic levels.

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

ATO is requesting \$117.0 million in support of the air traffic controller training and hiring surge.

- \$23.354 million for the annualization of additional controllers hired in FY 2023.
- \$93.646 million for additional hiring and training costs in FY 2024. This includes:
  - \$35.972 million for salaries and expenses of 300 additional air traffic controllers to be hired above FY 2023 levels.
  - \$57.674 million for contract support and travel expenses to increase and expedite the training capacity at the Academy and in the field.

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**Telecommunications Infrastructure  
Air Traffic Organization (ATO)**

(In thousands)

|  | <b>FY 2024</b>  |
|--|-----------------|
| <b>Telecommunications Infrastructure</b> | <b>\$50,000</b> |
| PC&B                                     | \$0             |
| Non-Pay                                  | \$50,000        |
| <b>FTE</b>                               |                 |

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

The FAA's telecommunications services are provided through legacy networks based on an older communications standard called Time Division Multiplexing Technology (TDM). America's telecommunications providers are moving to newer Internet Protocol (IP)-based technology that provides faster, more flexible services. The FAA must replace legacy TDM equipment and connections with more powerful IP-based offerings as telecommunications providers sunset their TDM services. At the same time, the FAA is re-competing the prime services contract under which FAA receives its telecommunications services.

Baseline Federal Telecommunications Infrastructure (FTI) program costs are anticipated to grow during this time period as telecommunication carriers begin to sunset TDM services. As other users migrate to alternate technologies, those government users that remain are forced to pay higher costs to sustain the legacy infrastructure. The FAA will have to purchase these TDM services on shorter terms, with substantial increased cost to the FAA. Failure to fund these cost increases would have a significant impact on the FAA's air traffic operations.

The FAA received funding in FY 2022 to replace legacy TDM services in cases where carrier discontinuance has already taken place or is imminent. However, the pace of discontinuance notices has increased beyond expectations.

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

The existing FTI contract is the primary means through which the FAA currently acquires telecommunication services. The FAA Enterprise Network Services (FENS) program will replace FTI through a new, long-term contract providing FAA with state-of-the-art IP-based telecommunications services. Portions of both networks (FTI and FENS) will need to operate concurrently until FTI is completely phased-out.

FENS will be the FAA's long-term solution, providing a completely new telecommunications infrastructure that is not dependent on the legacy service offerings and technologies that are currently experiencing price increases and are rapidly being decommissioned in the commercial marketplace. The FENS acquisition provides the FAA with the opportunity to obtain the next

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generation of telecommunications technologies in a competitive environment, thus driving down costs.

The FAA is pursuing four specific strategies to price increases for legacy TDM service offerings:

1. Collaborate with the FAA's service provider and commercial telecommunications carriers to identify options to mitigate the impacts to the FAA;
2. Modernize the FAA user systems and applications to reduce the FAA's dependence on legacy service offerings (i.e., migrate users away from TDM-based communications);
3. Move to alternate telecommunication solutions (e.g., Carrier Ethernet, microwave, and wireless solutions); and
4. Implement FENS as the long-term solution.

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

ATO is requesting \$50 million for the following:

- Contract funding in support of the modernization of the FAA's telecommunication infrastructure. The funding will cover cost increases for legacy services through FTI; support accelerated replacement of legacy TDM services due to immediate TDM discontinuances; and support any new FENS services that begin in FY 2024.

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**National Airspace System (NAS) Maintenance and Sustainment  
Air Traffic Organization (ATO)**

(In thousands)

|  | <b>FY 2024</b>  |
|--|-----------------|
| <b>NAS Maintenance and Sustainment</b> | <b>\$25,000</b> |
| PC&B                                   | \$0             |
| Non-Pay                                | \$25,000        |
| <b>FTE</b>                             |                 |

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

Much of the mission critical equipment necessary for ensuring the safety of the national airspace is either outdated or is cost prohibitive to maintain. Older systems technologies require significant engineering efforts to increase capacity or functionality to sustain communication, navigation, weather, aeronautical information, and surveillance systems. Additionally, new entrants to the air space, such as drones, create new challenges in monitoring and ensuring the safety of the air space for all users.

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

The FAA is requesting \$25 million to enhance operational support to improve the reliability and stability of critical systems while the FAA accelerates modernization efforts with F&E funding. This influx of resources will reduce the risk of system outages that can impact the air space and the flying public.

The ATO's primary focus is to address system components that are at risk for failure and/or vulnerable to system degradation, especially for those systems that are approaching or at end of life. This funding will be used to support efforts in the Air Traffic Organization for projects across the En Route and Terminal airspace as well as work to sustain communication, navigation, weather, aeronautical information, and surveillance systems and equipment.

The FAA plans to use the funding to:

1. Add critical contract resources for safety, security, configuration management, risk, and system engineering
2. Test and evaluate software and hardware modifications
3. Conduct technical refresh projects to replace hardware and equipment that are approaching, at, or past end of life
4. Evaluate infrastructure systems that are vulnerable to failure

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

**ATO** is requesting \$25 million for the following:

- Funding to support focusing on system defects, targeted security vulnerabilities, tech refreshes and the hardening of operational and support procedures. These resources will help the FAA mitigate potential safety incidents resulting from maintainability and reliability issues.

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**Address Aircraft Certification Reform Legislation**  
Aviation Safety (AVS) and Office of Audit and Evaluation (AAE)

(In thousands)

|  | <b>FY 2024</b>  |
|--|-----------------|
| <b>Address Aircraft Certification Reform Legislation</b> | <b>\$16,210</b> |
| PC&B   | \$5,210         |
| Non-Pay  | \$11,000        |
| <b>FTE</b>   | <b>27</b>       |

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

The FAA is continuing its multiyear efforts to address the recommendations from independent reviews such as the Special Committee to Review the Federal Aviation Administration's Aircraft Certification Process (Special Committee), Joint Authorities Technical Review (JATR), and the Aircraft Certification, Safety, and Accountability Act (ACSAA). Additionally, aircraft certification reform efforts are also addressing significant industry growth and the rapid expansion of Urban Air Mobility, Optionally Piloted Aircraft, as well as support for Safety Management Systems implementation. Collectively, these require additional resources to maintain significant ongoing and evolving efforts for the Aviation Safety (AVS) organization to accomplish its goals regarding aircraft certification reform.

As part of these efforts and as required by ACSAA Section 132, AVS is conducting a safety culture assessment with accompanying follow-up intervention work to influence a positive safety culture across the enterprise. Leveraging a neutral third party, AVS will assess both climate and culture of the organization to establish a baseline for the health of the AVS safety culture. The analysis will provide data about the current culture across AVS and the impacts culture has on the overall achievement of the AVS safety mission.

The assessment is an annual requirement over the next 10 years, with accompanying actions that leverage what the agency learns to further expand a positive safety culture. Existing resources allowed for completion of the FY 2022 assessment and will allow for a small number of pilot interventions in FY 2023, informed by the FY 2022 assessment findings. Additional funding would be needed to sustain this program.

The Office of Audit and Evaluation (AAE) has two primary functions: safety audit/investigation and hotline operations. The office operates and manages several administrative and safety hotlines. From 2016 to present, the hotline complaint volume continues to rise and will need additional resources to manage the increase in workload. Additionally, based upon an analysis of all matters submitted to the FAA Hotline in FY 2021, there were more than 8,000 reports filed with the hotline and 6,164 referrals to FAA organizations for investigation or other appropriate action. The number of referrals to FAA organizations increased by 18 percent over FY 2020.



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

AVS will continue to operationalize the recommendations and requirements of Congress and various committees. Our request provides:

- A non-pay funding increase required for the continued support of the Aircraft Certification oversight support tool/data analytics platform. Former systems relied on decentralized dashboards, disparate data streams, and insufficient analytical evaluation capability to complement our Subject Matter Expert skill set. This increase will allow AVS to provide real time data analytics. The tool will support urgent needs related to various mission critical and high-risk certification efforts.
- Additional staff to manage international activities and projects, including coverage for foreign accident investigation requirements led by AVP annually as well as the additional activities it supports. Our presence in support of these activities will provide reassurance of the FAA's commitment to the global international aviation community.
- A staffing resource to focus on the AVS Data Champion initiative to ensure that our organization can effectively sustain and plan for our future data needs. Specifically, this initiative will enable AVS to:
  - Ensure an iterative and comprehensive look at the data needs of AVS (driven by the safety/business objectives),
  - Ensure AVS data-related initiatives align with the priorities and desired outcomes of AVS and the FAA as a whole,
  - Confirm that all AVS investments effectively consider data use in their planning and execution,
  - Identify analytic requirements to inform Enterprise Information Management (EIM) architectural decisions, and
  - Position AVS to leverage the full capabilities of EIM.

The FAA is requesting funds for additional staffing with specialized skills in analysis, development of analytical methodologies and subject matter experts to deploy its safety teams in expanding and new domains. New safety teams for the rotorcraft and drone communities have been established to replicate the success the FAA has had with the commercial safety team. The safety teams will utilize additional staff and contractor support to lead and support Government-Industry safety teams and technical groups, integrate safety teams, and coordinate strategic activities. The FAA plays a critical role in supporting the government and industry safety teams and these resources are vital to ensure the effectiveness of the safety teams in reducing the fatality risk in the NAS.

The request will provide for dedicated resources to train AVS staff and help sustain the follow up activities associated with the annual Safety Culture Assessment. In addition, AVS employees will be encouraged to participate in the survey and engage in the process. Finally, AAE is requesting an additional three Safety Hotline Analyst positions in order to accept reports related to aviation safety and coordinate investigation of hotline complaints.

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

**The FY 2024 Budget request includes \$16.210 million** and 53 FTP/27 FTE to support the following:

- **AVS:** \$15.958 million and 50 FTP/25 FTE.
  - \$4.958 million and 50 FTP/25 FTE to address the staffing requirements from the Aircraft Certification Reform legislation. These positions include systems engineers, safety inspectors, data scientist, test pilots, and program analyst. The 50 FTP will be spread across AVS accordingly: 33 FTP for Aircraft Certification (AIR), 16 FTP for the Office of Accident Prevention & Investigation (AVP), and 1 FTP for the Office of Quality, Integration & Executive Service (AQS).
  - \$11 million to address two specific efforts in support of Aircraft Certification Reform legislation.
    - \$10 million for continuing tool enhancement, data storage, license fees, and subject matter expert support of the AVS Oversight Support Tool. Enhancements will advance the Continued Operation Safety (COS) modernization objectives, mitigate decentralized dashboards, disparate data streams, and the absence of analytical evaluation capability, while enabling AVS to provide real time data analytics. This centralized data migration and extraction capability will support the COS process for various mission critical and high-risk certifications.
    - \$1 million to support Aircraft Certification Reform legislation and the Safety Culture Assessment. These funds are for the design and support of implementing cultural interventions, training of a Program Lead and associated employees on the assessment methodology, and administering the assessment with an emphasis on more focus groups reaching a larger number of employees directly.
- **AAE:** \$252,000 and 3 FTP/2 FTE.
  - \$252,000 and 3 FTP/2 FTE to support the increase in Safety Hotline and Whistleblowers complaints. These permanent employees will provide the necessary workforce bandwidth, skill sets, and collaboration capabilities to successfully support AAE's mission.

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**Strengthen Aviation Safety Oversight  
Aviation Safety (AVS)**

(In thousands)

|   | <b>FY 2024</b> |
|---|----------------|
| <b>Strengthen Aviation Safety Oversight</b> | <b>\$7,918</b> |
| PC&B  | \$6,870        |
| Non-Pay                                     | \$1,048        |
| <b>FTE</b>                                  | <b>36</b>      |

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

AVS promotes safety in air transportation by setting standards for certification and oversight of airmen, operators, agencies and designees in a rapidly changing environment. This environment is challenging because of post-pandemic growth in business and leisure travel, marketplace consolidation and performance, and the dynamics of oversupply and undersupply.

There is a resurgence of industry demand for certification of operations and maintenance services aligned with surveillance requirements for air carrier and general aviation entities. Along with industry restoration, the Flight Standards Service continues to use risk-based decision-making (RBDM) surveillance. Data and program management analysts are needed to support the inspectors who provide oversight, certification and surveillance services while implementing RBDM.

As of January 2023, there are 224 applicants awaiting to start the certification process for operators and other certificate holders. While there are multiple contributing factors, resource capacity plays a critical role in the ability to timely process these applications. While the time to complete each certification varies dependent on the complex nature of the applicant, the average time to complete a typical, non-complex, single-pilot operator certification under Part 135 is over 10 months.

Over time, our stakeholder base has changed. An aging general aviation pilot population has led to an increased number of medical conditions reported on applications that require monitoring, commonly from four to six health conditions. On the other end of the age spectrum, the 16-25 year-old population entering the educational system to become tomorrow's professional pilots have a high incidence of treated mental health conditions, to include Attention Deficit Disorder/Attention-Deficit/Hyperactivity Disorder (ADD/ADHD), Major Depression and Autism Spectrum Disorder. These case files require extensive review and neuropsychological evaluations, which contributes to a backlog in medical certifications. The highly trained professionals who review these cases are logging a record number of overtime hours to keep pace and we do not anticipate this workload diminishing over time.

AVS is developing new technologies and methods in accident investigation to include the use of Flight Data Recorder analysis software, and Automatic Dependent Surveillance – Broadcast

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data. Flight Data Recorders have evolved significantly in the past decade, which has led to a significance increase in recorded parameters.

In the commercial space arena, FAA envisions six active rulemaking projects and two space aerospace rulemaking committees (SpARCs) in FY 2024. FAA requires additional resources to successfully carry out the full rulemaking agenda.

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

AVS requests additional staffing and non-pay resources to address these evolving situations.

Additional Aviation Safety Inspectors (ASIs) will develop, administer, and enforce regulations and standards as needed in order to align with anticipated industry changes. Additional ASIs are needed to work the backlog of operator certification projects. ASIs are safety-critical positions within the FAA and are involved in developing, administering, or enforcing regulations and standards concerning civil aviation safety.

AVS will hire and train additional staff to provide consistent oversight of the medical certification process across all regions. Requested resources will perform initial application reviews, conduct medical certification examinations, provide case review, conduct analysis, and deliver specialty expertise to provide reasoned and consistent assessment and mitigation for case reviews. Additional staff and other non-pay resources will allow our highly skilled professionals to perform their jobs optimally and reduce backlogs.

The increasing requirements associated with accident investigation will be addressed. AVS will hire additional Accident Investigators to enable coverage for additional domestic and foreign investigation requirements, as well as Commercial Space launch mishaps, and accidents involving Unmanned Aircraft Systems.

An additional rulemaking analyst will support new agency-wide regulatory activities, allowing us to prioritize these efforts within the current portfolio of 60 rules (which exceeds our resource capability).

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

AVS requests \$7.918 million and 72 FTP/ 36 FTE.

- \$6.870 million for additional Aviation Safety Inspectors to address the increased number of medical conditions reported on applications that require oversight and monitoring, to enable coverage for additional domestic and foreign accident investigation requirements, and the support for the proposed increase of new regulatory activities. The 72 FTP will be spread across AVS accordingly: 55 FTP for Flight Standards (FS), 14 FTP for Aerospace Medicine (AAM), 2 FTP for the Office of Accident Prevention & Investigation (AVP), and 1 FTP for the Office of Rulemaking (ARM).
- \$1.048 million for training, supplies, and equipment for new hires. The training will address FAA specific requirements for our technical workforce.

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**Improve Hazardous Materials Transportation Safety Oversight  
Office of Security and Hazardous Materials Safety (ASH)**

(In thousands)

|  | <b>FY 2024</b> |
|--|----------------|
| <b>Improve Hazardous Materials Transportation Safety Oversight</b> | <b>\$2,125</b> |
| PC&B   | \$1,455        |
| Non-Pay  | \$670          |
| <b>FTE</b>   | <b>10</b>      |

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

The Office of Security and Hazardous Materials Safety (ASH) Principal Hazmat Inspector program relies heavily on subject matter expert knowledge of specific certificate holders. This program has successfully provided effective dangerous goods oversight of regularly scheduled air carriers operating with a Part 121 certificate. With current resources, automation systems, and safety-risk-management tools, ASH has improved its risk-based decision-making capabilities for Part 121 certificate holders and enacted proactive risk mitigation with those air carriers, to ensure the deployment of the safety management system (SMS). ASH's current staff of Principal Hazmat Inspectors and Hazardous Materials Aviation Safety Inspectors is not sufficient to extend the same oversight model to entities operating under Part 129 (foreign air carriers), Part 135 (on-demand air carriers), and Part 145 (repair stations). The growth of e-commerce and evolving air carrier business models have caused the risk related to limited certificate holder oversight to increase.

Although there are myriad aspects to ASH's aviation safety oversight specific to dangerous goods, two key issues stand out: (1) safe transport of lithium batteries aboard aircraft and (2) development and application of an SMS by certain aviation certificate holders. In the FAA Reauthorization Act of 2018 (the Act), Congress directed the Department of Transportation (DOT) to address the safety of lithium batteries aboard aircraft through regulatory initiatives and the FAA is working to ensure compliance with air transport safety regulations as well as conducting a public awareness campaign (i.e., stakeholder engagement). In January 2023, a notice of proposed rulemaking (NPRM) expanded the applicability of SMS requirements to part 135 operators (previously limited to part 121 operators). Both the Act and NPRM increase demands on ASH aviation safety oversight resources.

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

ASH has evolved its workforce, talent, automation, and engagement with stakeholders to account for its growing mission. ASH is leveraging enterprise level data to provide visibility into the level of dangerous goods safety risks and assigned its resources to the highest risks. ASH has expanded its influence with stakeholders, incorporated system level thinking, and accounted for

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new entrants. ASH is working across multiple disciplines to reduce safety risks to aircraft cargo through research, data, and communication.

Previously, ASH received Congressional support via additional resources to improve safety data analytics, which ASH used to find areas of weakness in aviation safety oversight. Now the FAA is requesting to complete its multi-year effort to bolster its safety oversight operations workforce to account for identified safety risks and enable proactive risk mitigation. With added resources, ASH will ensure existing highest-risk Part 129, Part 135, and Part 145 certificate holders and other regulated entities 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. The requested resources will allow ASH to diversify and balance the office's approach to dangerous goods safety oversight to drive positive safety outcomes across the aviation community. It is important to note that this request for resources will right size our workforce and we do not anticipate large requests of this nature moving forward.

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

**ASH** is requesting \$2.125 million

- \$1.455 million and 20 FTP/ 10 FTE to expand the Principal Hazmat Inspectors and Hazardous Materials Aviation Safety Inspectors to provide sufficient oversight of Part 129 (foreign air carriers), Part 135 (on-demand air carriers), and Part 145 (repair stations)
- \$670,000 for travel, training, technology and supplies for the new hires

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**Enhance Sustainability**

Office of Policy, International Affairs & Environment (APL),  
Mike Monroney Aeronautical Center (MMAC) within the Office of Finance and Management  
(AFN), William J. Hughes Technical Center (Tech Center)  
Within the Office of NextGen (ANG)

(In thousands)

|                               | <b>FY 2024</b> |
|-------------------------------|----------------|
| <b>Enhance Sustainability</b> | <b>\$4,211</b> |
| PC&B                          | \$472          |
| Non-Pay                       | \$3,739        |
| <b>FTE</b>                    | <b>3</b>       |

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

The Biden-Harris Administration has issued a number of Executive Orders (EOs) and associated guidance to reduce greenhouse gas emissions, deploy a fleet with zero emission vehicles (ZEVs), drive innovation in energy generation and storage, and advance environmental justice (EJ). In particular, EOs 14008, *Tackling the Climate Crisis at Home and Abroad*, and 14057, *Catalyzing Clean Energy and Jobs Through Federal Sustainability*, set aggressive goals that require more resources to successfully implement.

EO 14008 *Tackling the Climate Crisis at Home and Abroad*, was signed in January 2021. In addition to announcing aggressive goals to put the world on a sustainable climate pathway and build resilience against the impacts of climate change, EO 14008 directed agencies to develop programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities. To that end, the White House Environmental Justice Interagency Council is developing a strategy to address current and historic environmental injustice and develop clear performance metrics to ensure agency accountability. EO 14008 also created the Justice 40 Initiative, which sets the goal that 40 percent of the overall benefits of Federal investments, including in the areas of clean energy and energy efficiency, flow to disadvantaged communities. The Justice 40 Initiative has begun with a pilot program but it is anticipated that it will be expanded government-wide by FY 2024.

EO 14057 *Catalyzing Clean Energy and Jobs Through Federal Sustainability* signed in December 2021 expands upon existing legislation and places more aggressive targets on the FAA, requiring policy updates and increase in staff to implement initiatives and track progress. EO 14057 requires the FAA to transition to 100 percent carbon pollution-free electricity by 2030, a 100 percent ZEV acquisitions by 2035, net-zero building portfolio by 2045, 65 percent reduction in direct as well as indirect greenhouse gas emissions, net-zero emissions from procurement, climate-resilient infrastructure and operations, and a climate and sustainability focused Federal workforce.

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

The FAA is committed to reducing the agency's environmental footprint, ensuring facility compliance with safety requirements for building materials, fuel and hazardous waste, and meeting air quality standards.

Additional resources are required in the Office of Policy, International Affairs & Environment (APL) to review, plan, coordinate, report on, and proactively support FAA's implementation of the Executive Orders on climate change and sustainability, and adapt FAA policies as needed. APL also will be able to identify targets of opportunity for carbon free-electricity, research utility markets apt for power-purchasing agreements, and seek facilities with ideal renewable energy generation and storage.

The Office of Finance and Management (AFN) requests funds to support the implementation of the FAA's sustainability plan at the Mike Monroney Aeronautical Center (MMAC). MMAC is a leading authority at the FAA on energy and resource efficiency and regularly conducts energy audits to reduce energy consumption at the Center. These annual audits identify energy conservation measures (ECMs) which MMAC can implement to reduce costs and improve energy consumption. The requested funding will support the design, construction and installation of life cycle cost-effective ECMs as well as required annual testing and evaluation of ECMs once installed. Examples of ECM-based design and construction projects are building automation system enhancements, HVAC equipment replacements, and building envelope improvements.

At the William J. Hughes Technical Center (Tech Center), the FAA is requesting funds to support energy and water evaluations, installation of building energy and water meters, and staffing to implement and track sustainability compliance mandates. The FAA is committed to meeting legal requirements that energy and water evaluations and audits be performed at covered facilities every four years to identify potential energy and water efficiency and conservation measures. The agency will install advanced meters for electricity and natural gas at Tech Center facilities. The agency also will develop plans to implement identified energy conservation measures within two years of evaluation.

The agency seeks funding to monitor and operate above-ground and under-ground fuel storage tanks and hazardous waste collection tanks on Tech Center grounds. The fuel tanks are vital to ensure uninterrupted operations of essential air traffic systems housed at the Tech Center. The hazardous waste collection tanks must be monitored to prevent accidental discharge into the Tech Center environment. The requested funding will manage compliance and maintenance costs, provide qualified oversight personnel, and implement new compliance monitoring strategies to improve efficiency.

The FAA also seeks additional contract resources to implement asbestos monitoring and abatement measures within the Tech Center's physical plant. These services, to be provided by



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an asbestos management company, will include yearly inspections and surveillance of current conditions, and prioritization of asbestos removal and abatement projects.

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

- **APL** requests \$767,000 and 4 FTP/2 FTE
  - \$318,000 for 4 FTP/2 FTE and \$449,000 in contract support for the implementation of the Energy Act of 2020, as well as EOs 14008 and 14057. In addition, they will support the Justice 40 Initiative as well as use the findings from noise impacts health research, particularly related to disadvantaged populations, to inform FAA policy objectives, best practices, and mitigation and abatement strategies.
- **AFN** request \$1.165 million to install ECMs at MMAC within two years of evaluation, as mandated by the Energy Act of 2020, and to perform annual measurement & evaluation on all ECMs installed in accordance with EISA. The environmental benefit will be the increased energy savings from the ECMs that are implemented.
- **ANG** requests \$2.279 million and 2 FTP/1 FTE
  - \$154,000 for 2 FTP/1 FTE to manage the Tech Center's fuel and waste collection tank program and act on the FAA's behalf accepting risk, committing resources and pursuing appropriate funding. Personnel will conduct inspections, meetings, arbitration hearings, regulatory interpretations, and prioritize budgetary requirements to implement and track sustainability compliance mandates at the Tech Center. Per AMS guidance T3.8.2. This is an "Inherently Governmental function" and cannot be performed by a contractor, as it involves committing resources and accepting risk on behalf of the Government.
    - In the past, there were as many as four Federal Employees supporting the Tech Center fuel and waste collection tank program. Today, there are no Federal employees and only one support contractor with minimal Federal oversight. The program is out of compliance due to lack of funding and resources. In addition, the Tech Center currently only has one employee fulfilling the duties of Energy Manager. The Energy Manager's workload is currently full, with little to no bandwidth for additional work. EO 14057 *Catalyzing Clean Energy and Jobs through Federal Sustainability* imposed work that will require an additional FTE to accomplish.
    - These funds and positions will bring the Tech Center's tank program back into compliance and provide sustainment funding to eliminate environmental violations, mandated fines and penalties, and avoid mission critical shutdowns and delays.

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- \$2.125 million for contract support for energy and water evaluations, management of fuel and hazardous waste tanks, and asbestos removal.

**Increase Diversity and Inclusion in the FAA's Workforce**

Office of Civil Rights (ACR) and Office of Human Resource Management (AHR)

(In thousands)

|  | <b>FY 2024</b> |
|--|----------------|
| <b>Increasing Diversity and Inclusion in the FAA's Workforce</b> | <b>\$1,340</b> |
| PC&B   | \$990          |
| Non-Pay  | \$350          |
| <b>FTE</b>   | <b>7</b>       |

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

The FAA's Office of Civil Rights (ACR) and Office of Human Resources (AHR) will need additional resources to implement the objectives in the following Executive Orders (EOs):

- EO 13985: Advancing Racial Equity and Support for Underserved Communities through the Federal Government,
- EO 14035: Diversity, Equity, Inclusion, and Accessibility (DEIA) in the Federal Workforce,
- EO 13988: Preventing and Combating Discrimination on the Basis of Gender Identity or Sexual Orientation,
- EO 14041, 14045, and 14050: White House Initiatives on Advancing Educational Equity, Excellence, and Economic Opportunity for Hispanics and Black Americans, as well as through Historically Black Colleges and Universities (HBCUs)

Current and former FAA employees, including job applicants, are protected by law from discrimination. Individuals who believe they have suffered from discrimination have the right to file a complaint through the National Equal Employment Opportunity (EEO) Pre-Complaint Process. During this process, employees, former employees and applicants have the option of utilizing Alternative Dispute Resolution (ADR) to resolve the issue.

In FY 2022, cases submitted through the FAA's EEO process increased thirty-seven percent (37%) from previous years. Our analysis of complaint trend activity suggests that ACR will face caseloads in FY 2022 exceeding those in FY 2018, the previous highest number of cases in recent history. These numbers, along with the anticipated uniqueness and complexity of COVID-19 related complaint issues, will necessitate additional resources to ensure ACR can maintain legal compliance and quality standards.

The FAA's Office of Human Resources also supports the FAA's commitment to Diversity, Equity, Inclusion, and Accessibility (DEIA) as it relates to recruitment and outreach. The Flight

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Plan 21 includes numerous initiatives over the next five years that directly impact the work of AHR. The increasing use of HR data for strategic decision-making and multiple DEIA initiatives, will directly impact or increase the volume of work AHR is responsible for executing. While the FAA has been successful in consolidating numerous functions over the past several years, and is more strategic in hiring, the sheer increase of work and responsibility has highlighted the need for additional personnel to keep pace with the workload.

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

To address the FAA's equity challenges, additional funding will be needed to enhance staffing levels within ACR and engage contractor support. Adding staff positions will provide the appropriate level of resources to:

- Fully execute the Diversity and Inclusion (D&I) Strategic Plan and DEIA Implementation Plan, to attract, retain, and promote a diverse and qualified workforce
- Support DEIA activities with the Minority Serving Institutions (MSIs), American Indian Alaska Native Tribal Nations, Hispanic Serving Institutions (HSIs) and HBCUs.

National Complaint Services (NCS) manages informal complaints of discrimination against the FAA workforce, initiated by both current and former employees, contractors, and applicants. The team receives new cases daily and fields thousands of calls and emails annually. The counseling process is dynamic and often cumbersome to complete without the use of new electronic technologies. The transfer to a system using automated case management support will allow for streamlined processing times, which will result in higher informal case resolutions at a lower cost. As a result, NCS will reduce overall costs and potential liabilities to both the agency and the department.

In addition, AHR staff will be used to manage the influx in workload and enable execution of the Agencies top priorities, as outlined in Flight Plan 21. Positions will be used to ensure sufficient staff is in place to manage current and future workloads as well as increase staff addressing DEIA initiatives outlined in EO 13985 (Advancing Racial Equity and Support for Underserved Communities Through the Federal Government) and EO 14035 (Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce).

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

- **The Office of Civil Rights** requests \$1.094 million and 10 FTPs/5 FTEs which will be split between the implementation of the FAA's Diversity and Inclusion (D&I) Strategic Plan and the NCS program.

FAA's D&I Strategic Plan:

- \$303,000 and 4 FTP/2 FTE to conduct the statistical analysis that ensures that the agency's EEO and DEIA goals and requirements are met; and improve and strengthen the FAA's EEO training programs and policies.
- \$250,000 for contractor support to conduct barrier analysis.

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NCS Program:

- \$441,000 and 6 FTP/3 FTE for EEO Counselors to support the FAA ADR Mediation program's increasing caseload to resolve discrimination claims.
  - \$100,000 for development of IT tools to improve communication between the FAA employees and the Office of Civil Rights.
- **The Office of Human Resources** requests \$246,000 and 3 FTPs/2 FTE to:
    - Perform work in support of high visibility program initiatives such as Diversity, Equity, Inclusion and Accessibility projects, Flight Plan 21, data requests and a variety of miscellaneous projects.
    - These positions would be a part of a team that is directly responsible for proving project management and analysis for the various DEIA Executive Orders, Presidential Memorandums, and the DEIA Strategic Plan for the Office of Human Resources.

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**Aviation and Aerospace Talent Development**  
Office of Policy, International Affairs & Environment (APL) &  
Office of Human Resource Management (AHR)  
(In thousands)

|  | <b>FY 2024</b> |
|--|----------------|
| <b>Aviation and Aerospace Talent Development</b> | <b>\$3,653</b> |
| PC&B   | \$2,710        |
| Non-Pay  | \$943          |
| <b>FTE</b>                                       | <b>34</b>      |

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

Developing the aerospace workforce of the future is a strategic focus area for the FAA. Numerous efforts are underway to strengthen and enhance the pipeline of future aerospace professionals. The forecasted growth in the aerospace sector is driving a need for more specific and enhanced educational outreach to build up capacity among students in the fields of aviation and aerospace, particularly in underrepresented and underserved communities. As such, the demand on programs such as the Science, Technology, Engineering, and Math (STEM) Aviation and Space Education (AVSED) are exceeding currently available resources.

The FAA also has redesigned the Minority Serving Institution (MSI) Internship program's internship time period, to deepen the relationship between the interns and the FAA to provide a robust pipeline into the agency. The MSI program is a critical internship program for diverse college students interested in the rapidly evolving aerospace system. The FAA realizes that many industry leaders develop internship programs that are designed to entice potential entry-level hires into a talent pipeline, thereby helping their companies become known as employers of choice. When deciding on selecting an internship, candidates are attracted to competitive salaries and careers that promote growth in a dynamic field. The FAA has a growing need to ensure that our internships are meaningful and show candidates how their contributions directly meet our mission. The goal of the MSI internship program is to attract and retain participants from diverse populations who are a vital pipeline for our most critical positions. Without significant investment into our early career programs, like the MSI internship, the FAA is at risk of maintaining a strong workforce pipeline of new talent.

Additionally, Congress directed the FAA to establish a National Air Grant Fellowship program in the Aircraft Certification, Safety, and Accountability Act of December 2020. The Samya Rose Stumo Air Grant Fellowship program places aerospace-focused graduate students from diverse backgrounds into Congressional committees where they can shape aviation policy. A successful program will provide Fellows the experience needed to build professional knowledge of aviation policy, and see how science and policy work together to promote a vibrant industry. The program will also support diversity, equity, inclusion, and accessibility goals for the FAA. The agency wishes to expand the program beyond the level planned for FY 2023.

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

In FY 2024, additional staff will support the FAA in delivering the strategic goals and objectives needed to ensure the STEM AVSED outreach program is robust and sustainable. The FAA completed a workforce plan and analysis to determine the appropriate level of staff needed to support the program as defined in the FAA's STEM AVSED strategic plan. There is a need for a large increase in staff to support growing national programs and industry and stakeholder partnerships. Also, additional staff is needed to support implementation of certain recommendations from the Women in Aviation Advisory Board and the Youth Access to American Jobs in Aviation Task Force. Based on the success of the FAA's Airport Design Challenge, the FAA plans to dedicate staff to oversee and implement this far-reaching virtual program. As a result of the success of the FAA's initial implementation of the Adopt-a-School program, as well as external feedback from stakeholders, the FAA plans to expand the program to reach increased numbers of students in underserved and underrepresented communities. The Adopt-a-School expansion will require staff to oversee what will become a large-scale national program.

In FY 2024, the FAA will continue to build and grow on the redesigned MSI Internship Program to better align with the latest OPM guidance on federal internships. By bringing the MSI program under the Gateways (Pathways) framework, the agency is providing a direct pipeline to full-time federal employment, without the need to compete again for permanent federal positions to underserved communities. The newest iteration of the program and this request will allow an additional 100 interns to develop their skills, gain hands-on experience, and gain institutional knowledge of the FAA through a dedicated summer experience, with the option to return for multiple sessions. Through this program, the FAA is committing itself to create a future workforce that is diverse and prepared for a career in aerospace.

In FY 2023, the FAA plans to stand up an Air Grant Fellowship program office with a Director and one full-time staff member. To carry out the objectives of the legislation we aim to expand the Fellowship program to eight additional fellows in FY 2024. In order to make the program a successful professional development experience for Fellows, the FAA plans to develop specialized training to maximize the development opportunities for the Fellows.

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

- **The Office of Policy, International Affairs & Environment (APL)** is requesting \$1.653 million and 18 FTPs (8 OFTPs)/ 9FTEs split between STEM/AVSED and the Air Grant Fellowship.

**STEM/AVSED:**

- \$789,000 and 10 FTPs/5 FTEs to expand the STEM AVSED Program Office within the FAA Headquarters and the Alaskan Region. Additional staffing resources will support the FAA in delivering the strategic goals and objectives needed to ensure the STEM AVSED outreach program is robust and sustainable.

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- \$50,000 for training and travel to support to accommodate increases in staff numbers to support attendance at outreach events, workshops and other activities to inspire the next generation of aerospace employees.
- \$300,000 Purchase of equipment and materials that allow for more physical demonstrations of concepts, while conducting outreach introducing and discussing careers.

**Air Grant Fellowship:**

- \$464,000 and 8 OTFTPs/4 FTEs to hire an additional 8 Fellows.
- \$50,000 for Contractor services for curriculum refinement and targeted recruiting of candidates.

- **The Office of Human Resource Management (AHR)** is requesting \$2.0 million and 100 OTFTP/25 FTEs.

**MSI Internship Program:**

- \$1.457 million and 100 OTFTP/25 FTE to increase the base compensation to keep up with competition, continue program growth, and provide enhanced program management.
- \$543,000 for program enhancements to include expanded recruitment and outreach to diverse populations, DC capstone week, and contract support for program administration.

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**Chief Counsel Staffing**  
Office of Chief Counsel (AGC)

(In thousands)

|                               | <b>FY 2024</b> |
|-------------------------------|----------------|
| <b>Chief Counsel Staffing</b> | <b>\$4,176</b> |
| PC&B                          | \$3,906        |
| Non-Pay                       | \$270          |
| <b>FTE</b>                    | <b>27</b>      |

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

Over the last five years, the FAA has experienced unprecedented, rapid, and long-lasting growth in the amount and complexity of its legal workload. This growth is due to 1) new Federal, state, and local laws, 2) new Executive Orders, 3) international treaties, 4) regulatory procedures, 5) aviation events and congressional scrutiny, 5) new FAA actions and policies, and 7) rapid industry innovation.

An analysis of data reflecting the FAA's legal needs shows significant growth in legal demand. There also was a major shift in the amount and complexity of the FAA's legal needs outside of litigation. For example:

- From 2015 through 2021, there was a 250% increase in environmental noise-related litigation.
- From 2015 to 2021, there was a 641% increase in UAS enforcement cases.
- From 2016 to 2021, the FAA experienced a 46% increase in complex EEO litigation. This increase was most noticeable in the areas of disability and hostile work environment complaints.
- From 2016 to 2021, enforcement actions have grown by over 320 cases received annually.
- From 2016 to 2021, a 533% increase in the number of reports to Congress that AGC reviewed for legal sufficiency each year.
- Aviation accident litigation increased from approximately 18 claims in 2017 to more than 100 in 2020.
- A significant increase in the promulgation of ethics-related regulations expanded AGC's ethics-related responsibilities and workload.
- Non-repeat complaints about noise, which AGC helps address, increased by 53% from 2015 to 2021.
- In 2017, the Office of Special Counsel was investigating three complaints of whistleblower retaliation – in 2021, there are 25 complaints.
- Since 2019 there has been a 46% increase in the number of FOIA matters.



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- The number of foreign technical assistance activities requiring AGC participation, legal review and drafting, and subject matter expertise have increased by 300% since 2016.

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

An increase in staffing will allow AGC's early involvement in FAA's legal matters from a proactive and strategic posture rather than from a reactive triaging stance. This proactive posture helps FAA prevent or mitigate risks and resolve issues before parties become adversarial and initiate formal proceedings. With adequate staff, AGC can be a force multiplier for the agency.

There is an agency-wide commitment to bolster AGC staffing. The agency leveraged its transfer authority to allocate resources to AGC in FY22 and FY23 so the organization could begin to increase its staffing levels. For FY24, the FAA is requesting additional resources for AGC and proposing a base transfer of resources from AVS to AGC.

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

AGC is requesting \$4.176 million for the following activities:

- \$3.906 million for 53 FTP/27 FTE to address the growth and complexity of client needs and provide sufficient legal resources to support new Federal, state, and local laws as well as new Executive Orders, international treaties, aviation events, and rapid industry innovation.
- \$270,000 for training, travel, subscriptions, and equipment.

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**FY 2024 Explanation of Funding Changes**

**Annualization of FY 2023 Pay Raise:** This increase is required to provide for costs associated with base salary increases (October - December) resulting from the government-wide pay raise. The factor used is 0.25 of 4.6 percent.

**Annualization of FY 2023 FTE:** This increase is required to provide for costs associated with the annualization of salaries of the full time equivalent (FTE) employees from FY 2023.

**FY 2024 Pay Raise:** This increase is required to provide for costs associated with proposed government-wide pay raise of 5.2 percent.

**FY 2024 FERS Increase:** Based on A-11 guidance, this budget request assumes an increase is required to provide for costs associated with the agency's contribution rates for Air Traffic Controllers within the Federal Employees Retirement System (FERS).

**One More Compensable Day (261 days):** There are 261 Compensable days in FY 2024 vs. 260 days in FY 2023.

**Transition from Facilities and Equipment to Operations:** 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, and training. Under FAA policy, these operational costs transition to the Operations account two years after a system has been installed.

**Non-Pay Inflation:** This budget request assumes an inflation factor of 1.3 percent 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.

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

**Controller Hiring and Training Surge:** Funding is requested to build upon the Controller Hiring and Training Surge initiated by the Air Traffic Organization (ATO) in FY 2023 to accelerate air traffic control hiring and training to compensate for the restricted hiring experienced during the height of the pandemic. This funding allows FAA to continue training the 1,500 controllers the FAA plans to hire in FY 2023 and hire an additional 1,800 new controllers in FY 2024. The hiring and training surge will allow us to rebuild the pipeline of new controllers and streamline the path for controller training while further increasing resiliency to serve high

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demand markets as air traffic increases to pre-pandemic levels.

**Telecommunications Infrastructure Sustainment:** Funding is requested to support the sustainment of the FAA's telecommunication infrastructure. The funding will cover cost increases for the legacy services provided through the Federal Telecommunications Infrastructure (FTI) program and support accelerated replacement of legacy telecommunication services due immediate discontinuances. Funding is also requested for the FAA to begin transitioning to the FAA Enterprise Network Services (FENS) program that will replace the legacy FTI contract.

**National Airspace System (NAS) Maintenance and Sustainment:** Funding is requested to enhance operational support of the NAS. These additional resources will strengthen the Air Traffic Organization's (ATO) field and software maintenance programs; reducing the risk of system outages that can lead to delays to the flying public. ATO will focus on system defects, targeted security vulnerabilities, tech refreshes and the hardening of operational and support procedures. These resources will help the FAA mitigate potential safety incidents resulting from maintainability and reliability issues.

**Address Aircraft Certification Reform Legislation:** Funding is requested to hire additional systems engineers, safety inspectors, data scientists, test pilots, and program analysts to continue the strategic implementation of the Aircraft Certification, Safety, and Accountability Act (ACSAA). Funding will allow FAA to keep pace with the significant increased activity in industry growth and the rapid expansion of Urban Air Mobility, Optionally Piloted Aircraft as well as supporting Safety Management Systems (SMS) implementation. These efforts are in large part driven by the AVS Strategic Plan, recommendations from independent reviews such as the Special Committee and Joint Authorities Technical Review, and ACSAA.

**Strengthen Aviation Safety Oversight:** Funding is requested for Aviation Safety to address the staffing requirements from increased demand for more oversight; safety inspectors to work the backlog of operator certification projects; additional accident investigators to enable coverage for additional domestic and foreign investigation requirements; data analysts, program analysts, and operational support.

**Improve Hazardous Materials Transportation Safety Oversight:** Funding is requested to perform expanded certificate and safety performance oversight and improve the FAA's approach to dangerous goods safety oversight to drive positive safety outcomes across the aviation community.

**Enhance Sustainability:** Funding is requested to reduce the agency's environmental footprint at FAA-owned facilities, reduce energy consumption, ensure facility compliance with environmental and safety requirements, and meet air quality standards. At the Mike Monroney Aeronautical Center (MMAC), the FAA will add and monitor life-cycle cost-effective energy

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and water conservation and efficiency improvement measures. At the William J. Hughes Technical Center (Tech Center), the FAA requests funds to support energy and water evaluations, installation of building energy and water meters, and staffing to implement and track sustainability compliance mandates.

**Increase Diversity and Inclusion in FAA's Workforce:** Funding is requested to support FAA's commitment to attract, retain, and promote a diverse and qualified workforce. Funding provides for enhanced staffing levels and contractor support to implement the FAA's Diversity & Inclusion Strategic Plan. It also supports improvements to the FAA's mediation and other alternative dispute resolution programs to ensure trust and accountability within the agency's workforce.

**Aviation and Aerospace Talent Development:** Funding is requested to support the continued demand on programs for youth of various grade levels and backgrounds such as the Science, Technology, Engineering, and Math (STEM) Aviation and Space Education (AVSED). This request includes funding for the Minority Serving Institution (MSI) Internship program that serves as the primary internship program for college students to experience the FAA. Funding also supports the Samya Rose Stumo Air Grant Fellowship program which places aerospace-focused graduate students into Congressional committees where they can shape aviation policy.

**Chief Counsel Staffing:** Funding is requested for additional staffing for the Office of General Counsel (AGC) legal services to respond to the substantial growth in workload due to new Federal, State, and local laws; new Executive Orders and international treaties, regulatory procedures, aviation events and Congressional scrutiny, new FAA actions and policies, and rapid industry innovation. More staff will aid in the early involvement in FAA's legal matters from a proactive and strategic posture.

**Chief Counsel Staffing - Base Transfer:** This proposal transfers \$4.5M from Aviation Safety (AVS) to the Office of General Counsel (AGC) to aid AGC in hiring 22 FTP/22FTE to support FAA's regulatory and enforcement efforts.



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**Detailed Justification for the Air Traffic Organization (ATO)**

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**FY 2024 - Air Traffic Organization Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 6,098,029              | 6,354,960              | 6,802,354              |
| Program Costs           | 2,373,831              | 2,456,852              | 2,636,714              |
| <b>Total</b>            | <b>\$8,471,860</b>     | <b>\$8,811,812</b>     | <b>\$9,439,068</b>     |
| <b>FTE</b>              | <b>28,012</b>          | <b>28,240</b>          | <b>28,697</b>          |

**Funding details for ATO's various service units:**

| <b>Program Activity</b>             | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------------------|------------------------|------------------------|------------------------|
| Air Traffic Services (AJT)          | 4,492,956              | 4,680,647              | 4,763,607              |
| Technical Operations (AJW)          | 1,818,273              | 1,903,277              | 1,973,623              |
| System Operations (AJR)             | 284,729                | 267,604                | 343,255                |
| Safety and Technical Training (AJI) | 208,615                | 225,828                | 241,156                |
| Mission Support Services (AJV)      | 315,074                | 327,539                | 341,684                |
| Management Services (AJG)           | 253,583                | 234,016                | 252,572                |
| Program Management (AJM)            | 970,447                | 1,049,397              | 1,396,290              |
| Flight Programs (AJF)               | 128,183                | 123,504                | 126,881                |
| <b>Total</b>                        | <b>\$8,471,860</b>     | <b>\$8,811,812</b>     | <b>\$9,439,068</b>     |

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

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The Air Traffic Organization (ATO) operates the most complex and technically advanced air traffic control system in the world. In FY 2024, ATO is required to sustain and improve effective and efficient air traffic control throughout U.S. airspace. The funding requested will enable ATO to train FAA's highly-skilled workforce, provide information and updates to the flying public to ensure safe air travel, maintain the critical infrastructure necessary to operate the

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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. While safety is paramount, ATO is also taking steps to enable growth and changes in aviation.

ATO is a performance-based organization providing safe, secure, and cost-effective air traffic control 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 air traffic control services. Many ATO employees, including approximately 14,200 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 air traffic control equipment and programs; manage payroll and benefits programs; maintain productive relationships with the aviation industry and the general 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 handled over 45,000 scheduled passenger flights per day at U.S. airports and helps transport over 1 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 5 percent of U.S. Gross Domestic Product. Approximately 11 million people are employed in aviation-related fields, and earn over \$488.2 billion a year.

The FAA's Air Traffic Organization (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 and investing in the Tower Training Simulation (TSS) to use state-of-the-art capabilities and can meet the increased demand.

ATO's eight service organizations include:

**Air Traffic Services (AJT):** Air Traffic Services provides air traffic control (ATC) services from en route, terminal, and combined control facilities in the United States, Puerto Rico, and Guam. Air Traffic Services controls more than 29 million square miles of airspace. This

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represents more than 17 percent of the world's airspace, and includes all of the United States and large portions of the Atlantic and Pacific Oceans and 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 (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 the Technical Operations Service Unit 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; and
- 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, and by providing operational oversight of leased services. The work consists of:



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

Core work is performed by personnel at System Support and Technical Operations Control 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 tailors 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 Service Unit directorates perform essential functions for the daily operation of the NAS. Daily operations consist of a broad range of operational services for the ATO, affecting all aspects of FAA Air Traffic Control operations, but also includes air transportation, space operations, and integrating new entrants into NAS operations. All national air traffic flow management initiatives are managed by AJR along with policy and concept development for airport surface flow management programs. AJR is the focal for stakeholder interaction through formal Collaborative Decision-Making venues and serves as FAA's Customer Advocate. AJR provides the ATO, its customers and stakeholders with system operational data and performance analysis, trending and forecasting, as well as develops strategies and plans to ensure viability. AJR manages the Slot Program Office, which approves flight schedules at slot-controlled airports.

AJR 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. AJR 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), and to UAS and space operation driven security issues (especially Counter UAS security monitoring of launch area airspaces).

**Safety and Technical Training (AJI):** AJI provides safety, technical training, policy and performance, and strategic outreach necessary to enable air traffic controllers, technicians, engineers and support personnel's daily efforts to keep the NAS safe and efficient. AJI 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.

AJI is also responsible for ensuring the safety of the NAS through measuring, analyzing, mitigating, and monitoring risks. This strategy includes implementing corrective actions to

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mitigate identified hazards, gathering safety information from operational employees and systems, and deploying technology to better qualify risk. AJI manages and maintains the ATO's Safety Management System, and ensures that national safety management policies are clearly defined, communicated, and adhered to. AJI conducts audits and operational assessments of NAS changes and new technologies; and provides safety analysis and data management and integration capabilities to FAA personnel and decision-makers. Additionally, AJI manages safety policy development and reduces fatigue risks through a comprehensive fatigue risk management system.

AJI provides technical training to controllers, technicians, and engineers. AJI 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. AJI 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. AJI 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):** Established in 2010, Mission Support Services fulfills the FAA mission by providing innovative and strategic direction for infrastructure and airspace design, while ensuring superior execution of policies and procedures. Mission Support provides technical and administrative support; develops airspace policy and strategy; designs aeronautical charts and procedures; and leads international airspace coordination. With ATO-wide experience, we align our work to meet our customers' needs, integrate stakeholder efforts and perspectives to maximize efficiency and budgets, and communicate often and consistently to ensure we all move forward together. We support over 35,000 personnel including, technicians, engineers, and air traffic controllers whose daily efforts keep aircraft safe, separated, and on time. Our approximately 1,200 employees work together and across the ATO in four core functional areas: Strategy, Policy, International, and Execution. Our 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 our three Service Centers.

The Service Unit supports ATO operations in four distinct areas:

- **Strategy:** Provides ATO corporate focus to align priorities, initiatives and resources that will 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.

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- 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.

**Management Services (AJG):** As a shared services service unit, Management Services performs leadership, guidance, and support services for the operational service units in the ATO. The primary focus of AJG 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 (including 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, collaboration 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, organizational realignment and reorganization, and policy oversight.
- Coordination for hiring air traffic controllers and technicians; and supervises and assigns air traffic controller trainees to facilities.
- Support in business, financial, and contract services, emergency preparedness, real property and space management, facility security, acquisition support.

**Program Management Organization (AJM):** The Program Management Organization (PMO) provides program and acquisition management for the FAA infrastructure programs that transform, modernize and sustain the NAS, including:

- The air traffic operation
- Mission support systems
- Business support systems
  - Aviation safety
  - Commercial Space Transportation
  - Unmanned Aircraft Systems (UAS)
- The PMO is the program office for the U.S. Air Navigation Service in the United States and airspace delegated to the United States by the International Civil Aviation Organization. The PMO ensures greater visibility, tighter alignment, and closer

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integration of innovative, complex, interdependent initiatives and technologies by managing a portfolio of 150 Facilities and Equipment and Operations programs.

The PMO comprises four directorates that support two functional areas:

- Engineering and acquisition
- Second-level engineering software maintenance for the FAA's automation systems

The PMO executes its second-level engineering function at air traffic control facilities throughout the NAS and at the FAA William J. Hughes Technical Center in Atlantic City, New Jersey.

**Flight Program Operations (AJF):** Flight Program Operations is responsible for all agency flight operations, both crewed and uncrewed. These responsibilities encompass all aspects of flight program operations, training, maintenance, safety, policy, and administration. AJF conducts operations at eight facilities across the country in support of multiple missions, including aviation safety training; flight inspection; research, development, test and evaluation support; and to include aviation safety training; flight inspection; research, development, test and evaluation support; and critical event response transportation.

The service unit's core business is safe and efficient flight operations in support of 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 in order 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 National Airspace System (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. Also performs inspections of Department of Defense navigational facilities designated as essential to the defense of the United States, both foreign and domestic.
- **Research, Development, Test & Evaluation Support:** Conducts flights supporting research, development, test and evaluation of new electronic aids, air traffic procedures, aircraft improvement and aviation medical research. This mission encompasses test and evaluation of the air traffic control system, NAS systems (including the investigation of radio frequency interference problems), personnel, aircraft, equipment, and procedures.

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- **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 duties. Flight Program Operations also serves the transportation needs of Department of Transportation (DOT) and FAA senior executives, as well as other federal agencies. This mission supports other federal agencies under reimbursable agreements, including the Department of Energy (DOE), Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), and Transportation Security Administration (TSA).

**Adjustments to Base:**

**Transition from Facilities and Equipment to Operations:**

Transition to Operations and Maintenance (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 appropriation. If legacy systems are being replaced or undergoing upgrading ("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, logistics support, utilities, and the cost flight procedures and inspection for new systems.

| <b>Transition to Operations and Maintenance</b>                              | <b>Amount<br/>(\$000)</b> |
|--|---------------------------|
| Air-to-Ground Media Gateway (AGMG)   | 600                       |
| Approach Lighting System with Sequenced Flashing Lights (ALS/ALSF) Establish | 259                       |
| Communications Facility Sustainment (CFS)                                    | 580                       |
| Charlotte (CLT) ATCT/TRACON Replace  | 1,865                     |
| Common Terminal Digitizer (CTD)  | 598                       |
| Data Comm Segment 1 Phase 2 Full Services                                    | 4,493                     |
| Distance Measuring Equipment (DME) Establish                                 | 316                       |
| En Route Automation Modernization (ERAM) Sustainment 2                       | 2,300                     |
| Fiber Optic Transmission Systems (FOTS)                                      | 126                       |
| Greensboro (GSO) ATCT Replace  | 287                       |
| Instrument Landing System (ILS) Replace                                      | 53                        |
| NAS Voice Recorder Program (NVRP)  | 136                       |

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| <b>Transition to Operations and Maintenance</b>   | <b>Amount<br/>(\$000)</b> |
|---|---------------------------|
| Portland (P80) ATCT/TRACON Sustain  | 211                       |
| Precision Approach Path Indicators/Runway End Identifier Lights (PAPI/REIL) Establish   | 30                        |
| Power Services Group (PSG) Environmental Remote Monitoring System (ERMS), Direct Current (DC) Backup System, and Doppler Very High Frequency Omnidirectional Range (DVOR) Establish | 12                        |
| Runway Visual Range (RVR) Replace   | 58                        |
| System Wide Information Management (SWIM) Segment 2B – Identity Access Management (IAM) and SWIM Terminal Data Distribution System (STDDS)  | 1,847                     |
| TVS Sustainment (IVSR)  | 51                        |
| Wide Area Augmentation System (WAAS) Enhance 5  | 87                        |
| Weather Camera Program Hawaii   | 157                       |
| <b>ATO Grand Total</b>  | <b>\$14,066</b>           |

**FY 2024 Anticipated Accomplishments:**

| <b>Function/Office</b>          | <b>FY 2024 Anticipated Accomplishments</b>   |
|---------------------------------|--|
| <b>Air Traffic Organization</b> | <ul style="list-style-type: none"> <li>• 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.</li> <li>• Continue to develop and execute policies for emerging technologies integration for the flight inspection mission, to include augmentation of the infrastructure inspections using UAS.</li> <li>• Continue efforts to improve the NAS with NextGen technologies to support the increased efficiency of the NAS and delivery of services.</li> <li>• Continue to prepare the NAS for new entrants, including UAS and Commercial Space.</li> <li>• Reduce runway incursions, excursions, and other airport surface safety events through use of the Surface Safety Risk Index.</li> </ul> |

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| Function/Office                             | FY 2024 Anticipated Accomplishments   |
|---|---|
| <b>Air Traffic Organization<br/>Con't</b>   | <ul style="list-style-type: none"> <li>• Provide continuous NAS information to external aviation partners.</li> <li>• Develop strategic plans, conduct analyses, and perform systems engineering efforts to align with Trajectory Based Operations and the Performance Based Navigation NAS Navigation Strategy.</li> <li>• Optimize the process for delivering possible vehicle/pedestrian deviations by moving the entire process nationally to the Comprehensive Electronic Data Analysis and Reporting platform.</li> <li>• 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.</li> <li>• Continue increased focused efforts around Air Traffic Control Specialist training, resulting in increased Certified Professional Controllers at over 313 facilities.</li> <li>• Finish implementing an enterprise framework for the integration of UAS security features into the NAS, specifically including Counter-UAS and UAS detection capabilities.</li> <li>• Hire and train 1,800 controllers, as well as address the backlog of training for developmentals currently working in the air traffic facilities.</li> </ul> |
| <b>NextGen and<br/>Operational Related:</b> | <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Conduct maintenance and operations of independent performance based monitoring for Altimetry System Error, a key component to the continued safe operation of RVSM.</li> </ul>   |

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**Program Increases:**

The FY 2024 budget request for ATO includes additional funding for the following programmatic initiatives.

| <b>Discretionary Adjustments</b>              | <b>Amount<br/>(\$000)</b> | <b>FTP</b> | <b>OTFTP</b> | <b>FTE</b> |
|---|---------------------------|------------|--------------|------------|
| Controller Hiring and Training Surge          | 93,646                    | 410        | 195          | 349        |
| Telecommunications Infrastructure Sustainment | 50,000                    | -          |              | -          |
| NAS Maintenance and Sustainment               | 25,000                    |            |              |            |
| <b>ATO Total</b>                              | <b>\$168,646</b>          | <b>410</b> | <b>195</b>   | <b>349</b> |

**Controller Hiring and Training Surge:** Funding is requested for the Air Traffic Organization to accelerate air traffic control hiring and training that was initiated in FY 2023 and continue in FY 2024 to compensate for the restricted hiring experienced during the height of the COVID-19 pandemic. The FAA developed a plan to reduce the backlog during FY 2023 and FY 2024. For FY 2024, the FAA plans to hire and train 1,800 controllers, an increase of 300 above the levels for FY 2023 as well as address the backlog of training for developmentals currently working in air traffic facilities. This will allow FAA to rebuild the pipeline of the necessary Certified Professional Controller (CPC) staffing levels to meet current traffic demands. The hiring and training surge will streamline the path for controller training while further increasing resiliency to serve high demand markets as air traffic demand increases to pre-pandemic levels.

**Telecommunications Infrastructure Sustainment:** Funding is requested for the FAA Enterprise Network Services (FENS) program that will replace the legacy Federal Telecommunications Infrastructure (FTI) contract; the primary means through which FAA currently acquires telecommunication services. FAA will begin to transition to FENS in FY 2024. FENS will be the FAA's long-term telecommunications solution, providing a completely new infrastructure that is not dependent on the legacy service offerings and technologies that are currently experiencing price increases and are rapidly being decommissioned in the commercial marketplace. The FENS acquisition will provide the FAA with the opportunity to modernize the current telecommunication infrastructure and obtain the next generation of telecommunications technologies in a competitive environment, thus driving down costs.

**National Airspace System (NAS) Maintenance and Sustainment:** The funding will be used to support efforts in the Air Traffic Organization to support projects across the En Route and Terminal airspace as well as work to sustain communication, navigation, weather, aeronautical information, and surveillance systems and equipment. Older systems technologies require significant engineering efforts to increase capacity or functionality to maintain the integrity and safety of a strategically evolving NAS environment.



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Funding is requested to enhance operational support of the NAS. These additional resources will strengthen the Air Traffic Organization's field and software maintenance programs; reducing the risk of system outages that can lead to delays to the flying public.

(See also "Operations Summary" and "FY 2024 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?**

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The ATO continues in its efforts to provide the American public, in keeping with our mission to ensure 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 are completed.

The ATO creates standardization and provides synergy and efficiencies across the operations missions. The organization supports various programs and projects, and contributes 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,

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deploying systems and procedures to reduce serious runway incursions, and conducting training programs aimed at reducing operational errors.

**Controller Workforce: FY 2018 - FY 2022 End of Year Actuals**

|                       |        |                       |        |
|-----------------------|--------|-----------------------|--------|
| <b>FY 2018 Actual</b> | 14,695 | <b>FY 2021 Actual</b> | 13,850 |
| <b>FY 2019 Actual</b> | 14,375 | <b>FY 2022 Actual</b> | 13,693 |
| <b>FY 2020 Actual</b> | 14,242 |                       |        |

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**Air Traffic Organization (ATO)  
(\$000)**

|   | Dollars<br>(in Thousands) | FTP           | OTFTP      | FTE           |
|---|---------------------------|---------------|------------|---------------|
| <b>FY 2023 Enacted</b>                                  | <b>\$8,811,812</b>        | <b>28,033</b> | <b>599</b> | <b>28,240</b> |
| <b>Adjustments to Base</b>                              | <b>\$458,610</b>          | <b>-</b>      | <b>-</b>   | <b>108</b>    |
| Annualization of FY 2023 Pay Raise 4.6%                 | 73,083                    | -             | -          | -             |
| Annualization of FY 2023 FTE -- Controller Hiring Surge | 23,354                    | -             | -          | 108           |
| FY 2024 Pay Raise 5.2%                                  | 247,844                   | -             | -          | -             |
| FY 2024 FERS Increase                                   | 41,128                    | -             | -          | -             |
| One More Compensable Day (261 days)                     | 26,204                    | -             | -          | -             |
| Transition from Facilities & Equipment to Operations    | 14,066                    | -             | -          | -             |
| Non-Pay Inflation 1.3%                                  | 32,881                    | -             | -          | -             |
| Working Capital Fund                                    | 50                        | -             | -          | -             |
| <b>Discretionary Adjustments</b>                        | <b>\$168,646</b>          | <b>410</b>    | <b>195</b> | <b>349</b>    |
| Controller Hiring and Training Surge                    | 93,646                    | 410           | 195        | 349           |
| Telecommunications Infrastructure Sustainment           | 50,000                    | -             | -          | -             |
| National Airspace System Maintenance and Sustainment    | 25,000                    | -             | -          | -             |
| <b>FY 2024 Request</b>                                  | <b>\$9,439,068</b>        | <b>28,443</b> | <b>794</b> | <b>28,697</b> |

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



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**Detailed Justification for the Aviation Safety (AVS)**

**FY 2024- Aviation Safety Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 1,300,028              | 1,377,236              | 1,474,122              |
| Program Costs           | 236,270                | 253,558                | 271,410                |
| <b>Total</b>            | <b>\$1,536,298</b>     | <b>\$1,630,794</b>     | <b>1,745,532</b>       |
| <b>FTE</b>              | <b>7,385</b>           | <b>7,613</b>           | <b>7,772</b>           |

**Funding details for AVS services and offices:**

| <b>Program Activity</b>                               | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|---|------------------------|------------------------|------------------------|
| Flight Standards Service                              | 963,088                | 985,376                | 1,051,643              |
| Aircraft Certification Service                        | 304,155                | 320,457                | 351,373                |
| Office of Aerospace Medicine                          | 82,629                 | 96,779                 | 103,698                |
| Office of Rulemaking                                  | 8,956                  | 9,170                  | 9,249                  |
| Air Traffic Safety Oversight Service                  | 30,560                 | 35,825                 | 37,179                 |
| Office of Accident Investigation and Prevention       | 47,181                 | 50,148                 | 51,500                 |
| Office of Unmanned Aircraft Systems Integration       | 34,256                 | 40,263                 | 41,469                 |
| Office of Quality, Integration and Executive Services | 60,521                 | 81,139                 | 87,157                 |
| Organization Designation Authorization Office         | 4,952                  | 11,637                 | 12,264                 |
| <b>Total</b>  | <b>\$1,536,298</b>     | <b>\$1,630,794</b>     | <b>1,745,532</b>       |

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

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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 7,800 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.
- Ongoing and wide-ranging transformation of the NAS encompassed by NextGen
- Conducts independent safety oversight of ATO's air traffic services

AVS services and offices include:

**Flight Standards Service (FS):** The Flight Standards Service promotes safe air transportation by setting the 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 includes approximately 1,400 employees in five divisions and an executive support staff that develop 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.

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**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, develops research planning needs, and manages the agency's National Transportation Safety Board and FAA safety recommendations programs.

**Unmanned Aircraft Systems Integration (AUS):** UAS Integration is responsible for facilitating the safe, efficient, and timely integration of UAS into the NAS.

**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 will continue enhancing the promotion of standardized development, improving implementation, and application of coordinated national ODA program policy, supporting standardized outcomes and improvements across the ODA program.

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**FY 2024 Anticipated Accomplishments:**

| <b>Function/Office</b> | <b>FY 2024 Anticipated Accomplishments</b>   |
|------------------------|--|
| Aviation Safety        | <ul style="list-style-type: none"><li>• Continue to improve and revise the safety lifecycle by following direction from the Aircraft Certification Safety and Accountability Act, as well as recommendations from special committee; and continue to support of the Aircraft Certification oversight tool/data analytics platform that enhances the Continued Operation Safety (COS) modernization objectives.</li><li>• Promotes 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, market place consolidation and performance, and the dynamics of oversupply and undersupply.</li><li>• The Organization Designation Authorization Office will continue to promote standardized development, implementation, and application of coordinated national Organization Designation Authorization (ODA) program policy. It will have focused ODA oversight on high-risk areas and support appropriate expansion of the ODA program, both in scope and utilization, in consideration of the rapidly changing aviation industry.</li></ul> |

**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 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.



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Systems Approach for Safety Oversight (SASO) is reengineering Flight Standards Service business processes and developing an oversight system based upon system safety principles. SASO increases aviation safety and controls cost by adopting the International Civil Aviation Organization's safety principles, FAA's transition to risk-based decision-making and integrated oversight philosophy. This request will provide for ongoing second level engineering and recurring training.

| <b>Transition to Operations and Maintenance</b>                       | <b>Amount (\$000)</b> |
|---|-----------------------|
| Regulation and Certification Infrastructure for System Safety (RCISS) | 153                   |
| System Approach for Safety Oversight (SASO)                           | 911                   |
| <b>AVS Grand Total</b>  | <b>\$1,064</b>        |

**Program Increases:**

The FY 2024 budget request for AVS includes additional funding for the following programmatic initiatives.

| <b>Discretionary Adjustments</b>                  | <b>Amount (\$000)</b> | <b>FTP</b> | <b>FTE</b> |
|---|-----------------------|------------|------------|
| Address Aircraft Certification Reform Legislation | 15,958                | 50         | 25         |
| Strengthen Aviation Safety Oversight              | 7,918                 | 72         | 36         |
| <b>AVS Total</b>                                  | <b>\$23,876</b>       | <b>122</b> | <b>61</b>  |

**Address Aircraft Certification Reform Legislation:**

The FAA is continuing its multiyear efforts to address the recommendations from independent reviews such as the Special Committee to Review the Federal Aviation Administration's Aircraft Certification Process and Joint Authorities Technical Review, and the Aircraft Certification, Safety, and Accountability Act (ACSAA). All of these sources of change are in alignment with the AVS Strategic Plan and Flight Plan 21. FAA is requesting additional resources with specialized skills in analysis, development of analytical methodologies, and subject matter experts to deploy its safety teams in expanding and new domains.

The additional staffing will address the requirements from the ACSAA. These positions include systems engineers, safety inspectors, data scientist, test pilots, and program analyst. Funding will also address new requirements for the Aircraft Certification oversight support tool, as well as the design and implementation of safety cultural assessment intervention activities and training requirements.

**Strengthen Aviation Safety Oversight:**

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FAA promotes aviation safety in air transportation by setting standards for certification and oversight of airmen, operators, agencies and designees in a rapidly changing environment. While there are multiple contributing factors that affect our ability to provide timely processing of applications, the average time to complete a typical, non-complex, single-pilot operator certification under Part 135 is over 10 months. Additional Aviation Safety Inspectors continue to be needed to align with anticipated industry changes. Additional resources are also required to address an increased number of medical conditions reported on applications that require monitoring; as well as staffing in accident & investigations, flight standards, and rulemaking.

**Chief Counsel Staffing Base Transfer (\$-4.5 million):**

This proposal transfers \$4.5 million from Aviation Safety to aid the Office of General Counsel in hiring 22 FTP/22 FTE to support FAA's regulatory and enforcement efforts.

(See also "Operations Summary" and "FY 2024 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?**

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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.

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**Staffing Information**

|   | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| <b>Direct Full Time Equivalents (FTE)</b>             | <b>7,385</b>               | <b>7,613</b>               | <b>7,772</b>               |
| Flight Standards Service                              | 5,112                      | 5,223                      | 5,291                      |
| Aircraft Certification Service                        | 1,441                      | 1,480                      | 1,532                      |
| Office of Aerospace Medicine                          | 400                        | 422                        | 433                        |
| Office of Rulemaking                                  | 42                         | 43                         | 45                         |
| Air Traffic Safety Oversight Service                  | 126                        | 133                        | 134                        |
| Office of Accident Investigation and Prevention       | 80                         | 91                         | 105                        |
| Office of Unmanned Aircraft Systems Integration       | 88                         | 93                         | 94                         |
| Office of Quality, Integration and Executive Services | 87                         | 85                         | 86                         |
| Organization Designation Authorization Office         | 9                          | 43                         | 52                         |
|   |                            |                            |                            |
| <b>Full Time Permanent Employment (FTP)</b>           | <b>7,493</b>               | <b>7,775</b>               | <b>7,897</b>               |
| Flight Standards Service                              | 5,184                      | 5,292                      | 5,347                      |
| Aircraft Certification Service                        | 1,451                      | 1,553                      | 1,586                      |
| Office of Aerospace Medicine                          | 410                        | 424                        | 438                        |
| Office of Rulemaking                                  | 37                         | 46                         | 47                         |
| Air Traffic Safety Oversight Service                  | 132                        | 134                        | 134                        |
| Office of Accident Investigation and Prevention       | 83                         | 97                         | 115                        |
| Office of Unmanned Aircraft Systems Integration       | 87                         | 96                         | 96                         |
| Office of Quality, Integration and Executive Services | 80                         | 75                         | 76                         |
| Organization Designation Authorization Office         | 29                         | 58                         | 58                         |

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**Aviation Safety (AVS)  
(\$000)**

|  | Dollars<br>(in Thousands) | FTP          | OTFTP     | FTE          |
|--|---------------------------|--------------|-----------|--------------|
| <b>FY 2023 Enacted</b>                               | <b>\$1,630,794</b>        | <b>7,775</b> | <b>48</b> | <b>7,613</b> |
| <b>Adjustments to Base</b>                           | <b>\$95,362</b>           | <b>-</b>     | <b>-</b>  | <b>98</b>    |
| Annualization of FY 2023 Pay Raise 4.6%              | 15,837                    | -            | -         | -            |
| Annualization of FY 2023 FTE                         | 14,414                    | -            | -         | 98           |
| FY 2024 Pay Raise 5.2%                               | 53,713                    | -            | -         | -            |
| One More Compensable Day (261 days)                  | 5,708                     | -            | -         | -            |
| Transition from Facilities & Equipment to Operations | 1,064                     | -            | -         | -            |
| Non-Pay Inflation 1.3%                               | 3,392                     | -            | -         | -            |
| Working Capital Fund                                 | 1,234                     | -            | -         | -            |
| <b>Discretionary Adjustments</b>                     | <b>\$23,876</b>           | <b>122</b>   | <b>-</b>  | <b>61</b>    |
| Address Aircraft Certification Reform Legislation    | 15,958                    | 50           | -         | 25           |
| Strengthen Aviation Safety Oversight                 | 7,918                     | 72           | -         | 36           |
| <b>Base Transfers</b>                                | <b>(\$4,500)</b>          | <b>-</b>     | <b>-</b>  | <b>-</b>     |
| Chief Counsel Staffing                               | (4,500)                   | -            | -         | -            |
| <b>FY 2024 Request</b>                               | <b>\$1,745,532</b>        | <b>7,897</b> | <b>48</b> | <b>7,772</b> |

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)**

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**FY 2024 – Office of Commercial Space Transportation - Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 22,963                 | 26,817                 | 31,110                 |
| Program Costs           | 9,234                  | 10,764                 | 10,908                 |
| <b>Total</b>            | <b>\$32,197</b>        | <b>\$37,581</b>        | <b>\$42,018</b>        |
| <b>FTE</b>              | <b>117</b>             | <b>141</b>             | <b>161</b>             |

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

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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. From FY 2018 to FY 2021 alone, AST witnessed a 64 percent increase in launch activities. 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.
- **License and Permits:** AST has 180 days to evaluate a license application or 120 days to

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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.

- **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. In FY 2022, there were three launch sites in active pre-application consultation with AST.
- **Spaceports:** AST is responsible for licensing the following operation of launch sites or "spaceports":
  - Spaceport Florida at Cape Canaveral Air 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 2024 Anticipated Accomplishments:**

| Function/Office         | FY 2024 Anticipated Accomplishments  |
|-------------------------|--|
| <b>Commercial Space</b> | <ul style="list-style-type: none"><li>• Enhance and revise regulatory framework, to include Part 440 and 460, while also implementation of the Part 450 rule; 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.</li><li>• Complete licensing and permitting evaluations within statutory time limits.</li><li>• Complete process reengineering efforts and improvements to support increased industry cadence and technological innovations while driving out inefficiencies and non-value added activities.</li><li>• Complete additional safety approval applications, which evaluate space-related components, processes, or services.</li></ul> |

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

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Since AST's transfer to the FAA in 1995 through January 2023, the Office has licensed or permitted 515 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".<sup>1</sup>

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.

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<sup>1</sup> Footnote: <https://trumpwhitehouse.archives.gov/wp-content/uploads/2020/12/National-Space-Policy.pdf>



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

|   | Dollars<br>(in Thousands) | FTP        | OTFTP    | FTE        |
|---|---------------------------|------------|----------|------------|
| <b>FY 2023 Enacted</b>                  | <b>\$37,581</b>           | <b>155</b> | <b>5</b> | <b>141</b> |
| <b>Adjustments to Base</b>              | <b>\$4,437</b>            | <b>-</b>   | <b>-</b> | <b>20</b>  |
| Annualization of FY 2023 Pay Raise 4.6% | 308                       | -          | -        | -          |
| Annualization of FY 2023 FTE            | 2,829                     | -          | -        | 20         |
| FY 2024 Pay Raise 5.2%                  | 1,047                     | -          | -        | -          |
| One More Compensable Day (261 days)     | 109                       | -          | -        | -          |
| Non-Pay Inflation 1.3%                  | 144                       | -          | -        | -          |
| <b>FY 2024 Request</b>                  | <b>\$42,018</b>           | <b>155</b> | <b>5</b> | <b>161</b> |

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)**

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**FY 2024 – Office of Finance and Management – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 265,703                | 275,526                | 290,603                |
| Program Costs           | 623,363                | 642,373                | 658,773                |
| <b>Total</b>            | <b>\$889,066</b>       | <b>\$917,899</b>       | <b>949,376</b>         |
| <b>FTE</b>              | <b>1,375</b>           | <b>1,377</b>           | <b>1,377</b>           |

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

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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.

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. In addition, AFN manages leases and real property assets that house 24,300 personnel in approximately 6.9 million square feet of office space and provides management and oversight for over \$9 billion in personal property assets.

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

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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 2024 Anticipated Accomplishments:

| Function                      | FY 2024 Anticipated Accomplishments   |
|-------------------------------|---|
| <b>Budget and Programming</b> | <ul style="list-style-type: none"><li>• Ensure that required funding needs for agency programs are available.</li><li>• Ensure that agency funds and resources are utilized effectively and that FAA maintains compliance with the Anti-Deficiency Act.</li></ul>                               |
| <b>Financial Management</b>   | <ul style="list-style-type: none"><li>• Lead the Agency on all accounting operations and provide financial oversight and information to assist FAA organizations with making business decisions.</li><li>• Ensure an unmodified audit opinion on Agency FY 2024 financial statements.</li></ul> |
| <b>Financial Analysis</b>     | <ul style="list-style-type: none"><li>• Employ business case discipline to any cost/contract reviews for large investments as the Agency investment analysis process stewards.</li><li>• Provide Controller and Aviation Safety Workforce plans.</li></ul>                                      |

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**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 2022, 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 24,300 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

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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 4,541 FAA owned and GSA-leased motor fleet vehicles, which represent 76% of the DOT's fleet.

ACQ FY 2024 Anticipated Accomplishments:

| Function                                      | FY 2024 Anticipated Accomplishments  |
|---|--|
| <b>Procurement Actions</b>                    | <ul style="list-style-type: none"><li>• Ensure contractor performance is in accordance with contract terms and conditions, issue contract modifications, and monitor contract deliverables.</li><li>• Develop and implement best practices in acquisition to deliver best value for the taxpayer and increase efficiency and effectiveness of procurement methods.</li><li>• Conduct internal and external small business outreach/training and target at least 25 percent of total direct procurement dollars as small business awards.</li></ul> |
| <b>Acquisition Training and Certification</b> | <ul style="list-style-type: none"><li>• 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.</li></ul>  |
| <b>Acquisition Oversight</b>                  | <ul style="list-style-type: none"><li>• Manage audits of cost reimbursable, time &amp; 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.</li><li>• Conduct Integrated Baseline Reviews on investment programs along with validations of contractor Earned Value Management Systems.</li><li>• Conduct investment program post-implementation reviews.</li></ul>   |

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| Function                            | FY 2024 Anticipated Accomplishments   |
|-------------------------------------|---|
| <b>Real Property</b>                | <ul style="list-style-type: none"><li>• Optimize the Agency's Real Property Portfolio by reducing the number of underutilized assets.</li><li>• Implement performance targets that measure the efficiency of property management activities.</li></ul>  |
| <b>Personal Property Management</b> | <ul style="list-style-type: none"><li>• Implement applicable Personal Property Asset Lifecycle Management Policy requirements 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.</li><li>• Optimize the Agency fleet size by reducing the number of FAA's underutilized administrative Fleet Vehicles.</li></ul> |

**Information and Technology Services (AIT)**

AIT operates as the Agency'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, and 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 continuing the Agency on 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 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

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tools to enable them to conduct their jobs with maximum proficiency and efficiencies, 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, which 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 support addressing 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,



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testing, and production environments, and system development life cycle documentation, including systems analysis, system design, and system security.

Major enhancements will focus on “Big Data” analytics to include data science, artificial intelligence, machine learning, data visualization capabilities, and improving data quality throughout the Agency. Furthermore, through this EIM initiative, Agency “data champions” have partnered with AIT to level-up employee skills and deploy AI and machine learning capabilities to improve safety and operational efficiency.

**AIT FY 2024 Anticipated Accomplishments:**

| Function  | FY 2024 Anticipated Accomplishments   |
|---|---|
| <b>Shared Services and Modernization:</b><br><i>Optimize Information Access through Technology Innovation</i> | <ul style="list-style-type: none"><li>• Maximize the capabilities of the Integrated Service Center and MyIT support to provide improved services to FAA stakeholders.</li><li>• 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.</li><li>• Continue to develop and optimize Robotic Process Automation.</li><li>• Continue to reduce IT carbon footprint through responsible asset disposition practices and processes.</li><li>• Modernize asset management and service delivery by enabling critical asset procurement and product information tracking.</li><li>• Implement additional solutions to improve the Mobile Customer Experience.</li><li>• Continue to deploy collaborative technologies across the enterprise.</li><li>• Continue to optimize and standardize Video Collaboration services across the enterprise.</li><li>• Provide data backup efficiencies for FAA workforce network and individual cloud storage drives.</li><li>• Support Cybersecurity initiatives by implementing ZeroTrust and IPv6.</li><li>• Implement Enhanced Enterprise Monitoring Tools for Enterprise Operations Center.</li><li>• Modernize Enterprise Print Management to standardize and secure the printing environment.</li><li>• Streamline the Lifecycle Management of computer assets and increase efficiencies.</li><li>• Maintain a data inventory of critical software and</li></ul> |

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| Function  | FY 2024 Anticipated Accomplishments   |
|---|---|
|   | critical software platforms.  |
| <b>Cybersecurity: IT Risk Management &amp; Information Systems Security</b>                             | <ul style="list-style-type: none"> <li>• Modernize the existing tools and automation technologies in the SOC to improve the speed and accuracy of detection and response capabilities.</li> <li>• Conduct incident response exercises, both domestically and internationally, to identify process gaps and coordinate remediation activities.</li> <li>• Expand CDM capabilities to holistically manage access controls, privileges, credentials and authentication, and increase boundary protection.</li> <li>• Expand the deployment of Intelligent Traffic Monitoring for enhanced network monitoring and packet capture capabilities, data flow visualization and detection of network anomalies.</li> <li>• Enhance the use of Cloud Access Security Broker technology in support of advanced security policy governance and Zero Trust Architecture.</li> </ul>  |
| <b>Enterprise Information Management: Enable FAA's Employees to Work Smarter, Resource Optimization</b> | <ul style="list-style-type: none"> <li>• Expand and improve advanced geospatial capabilities to manage and exploit the growing volume and variety of Geographic Information Systems data.</li> <li>• Train workforce to improve data fluency and enable innovation.</li> <li>• Implement governance best practices and standards to achieve higher data quality.</li> <li>• Build-out and improve intelligent computing engines to provide insights and optimization of responses on voluminous FAA data.</li> <li>• 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.</li> <li>• Continue to expand and evolve EIM Data Platform operations capabilities; provide the cloud-based platform in the Mission Support environment.</li> <li>• Deliver capabilities and services to enable the Agency to move away from silo-centric applications, toward a unified, secure data, and integrated EIM environment.</li> </ul> |

**Mike Monroney Aeronautical Center (MMAC or AMC)**

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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 130 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, an OMB 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 an OMB designated Financial Management Center of Excellence and 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, 850,000 grants payments, 150,000 travel vouchers, 870,000 Accounts Receivable receipts for collections and 50,000 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:** As part of federal shared services, ESC is 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.

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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.

ESC also provides oversight and management of a National Wireless Program providing best in government life-cycle management for cellular and satellite devices. The program provides over 20,000 wireless devices to federal agencies which results in an estimated annual savings of over \$2.2 million.

AMC FY 2024 Anticipated Accomplishments:

| Function                                  | FY 2024 Anticipated Accomplishments  |
|---|--|
| <b>FAA Academy<br/>Technical Training</b> | <ul style="list-style-type: none"><li>• Ensure the FAA's workforce of the future is equipped with the technical skills necessary to maintain and operate the national airspace.</li><li>• Increase the safety of the NAS by providing technical training to all Air Traffic Controllers, national airspace technicians and Aviation Safety Inspectors.</li><li>• Transform the delivery of FAA technical training, with the use of emerging technologies for in-person training, virtual platforms and mixed modalities.</li><li>• 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.</li></ul> |

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| <b>Function</b>  | <b>FY 2024 Anticipated Accomplishments</b>   |
|--|--|
| <b>Facilities Oversight, Operations, Space Management, Maintenance, Environmental and Safety Support for the entire MMAC</b> | <ul style="list-style-type: none"> <li>• Drive FAA’s sustainability and conservation efforts</li> <li>• Complete annual energy and water evaluations at each facility on the Center.</li> <li>• Integrate all feasible energy efficiency alternatives into new construction and major renovation projects on the Center.</li> <li>• Continue covering total electric usage with renewable wind RECs exceeding 30% of electric usage.</li> <li>• Drive to 100% zero-emission vehicle acquisition and zero-emission light vehicle acquisitions.</li> <li>• 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.</li> <li>• Ensure further reduction of greenhouse gas emissions from 2008 level.</li> <li>• Improve monitoring through the installation of advanced metering technologies for electricity, steam and water.</li> <li>• Lead the way with ISO 50001 certification for MMAC and assist the FAA’s Office of Environment and Energy with agency-wide certification.</li> <li>• Continue to improve MMAC security through the convergence of cybersecurity and physical security via Security Convergence Team.</li> </ul> |
| <b>Financial Services / Information Technology</b>   | <ul style="list-style-type: none"> <li>• Achieve efficiencies across federal government through financial shared services as part of the Cybersecurity Quality Services Management Office market place.</li> <li>• Continue to advance FAA’s intelligent automation capabilities.</li> <li>• Maintain 99.5 percent availability for IT systems as defined in customer agreements detailing specific commitments.</li> <li>• Improve service provision through timely mitigation of audit findings focusing on strengthening processes and closing process gaps.</li> </ul>   |
| <b>Franchise Fund Oversight and Management</b>   | <ul style="list-style-type: none"> <li>• 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.</li> </ul>   |

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**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 Capital budget. Once new systems are installed in the NAS, the ongoing operational costs are transferred to the Operations appropriation.

- Enterprise Information Management (EIM) TOM funding covers the operational cost for services that enable a modern cloud-based scalable enterprise and for the transition of maintenance support and software subscription renewals from F&E to Operations base for:
  - Enterprise Intelligence Monitoring, which automates cloud monitoring and accelerates digital transformation.
  - Modernized airspace intelligence, which tracks and analyzes aircraft and related objects and events as they move through time and space.
  - Data Security Governance approach that aligns data governance and analytics to ensure data privacy and compliance.
- Information Systems Security (ISS) TOM funding covers the annual operational costs to support cyber threat intelligence collection, processing, dissemination and reporting threats persistent in our FAA Cloud Services multi-cloud tenants and the transition of maintenance support and software subscription renewals from F&E to Operations base for:
  - The Security Operations Center (SOC), which hosts infrastructure in Leesburg, VA and the Disaster Recovery Site in Oklahoma City, OK.
  - Cloud-hosted cybersecurity skill development platform used to maximize cyber defender's performance in responding to cyber incidents.

| <b>Transition to Operations and Maintenance</b> | <b>Amount<br/>(\$000)</b> |
|---|---------------------------|
| Enterprise Information Management (EIM)         | \$2,267                   |
| Information Systems Security (ISS)              | \$964                     |
| <b>AFN Total:</b>                               | <b>\$3,231</b>            |

**Program Increases:**

The FY 2024 budget request for AFN includes additional funding for the following programmatic initiative.

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| <b>Discretionary Adjustments</b> | <b>Amount<br/>(\$000)</b> | <b>FTP</b> | <b>FTE</b> |
|----------------------------------|---------------------------|------------|------------|
| Enhance Sustainability           | \$1,165                   | -          | -          |
| <b>AFN Total</b>                 | <b>\$1,165</b>            | <b>-</b>   | <b>-</b>   |

**Enhance Sustainability:** Executive Order 14057 “Catalyzing Clean Energy and Jobs Through Federal Sustainability” expands upon existing legislation and places more aggressive targets on the FAA, requiring policy updates and increase in staff to implement initiatives, track progress, and report to OST, CEQ, and OMB. The order requires the FAA to transition to 100 percent carbon pollution-free electricity by 2030, 100 percent ZEV acquisitions by 2035, net-zero building portfolio by 2045, 65 percent reduction in direct as well as indirect greenhouse gas emissions, net-zero emissions from procurement, climate-resilient infrastructure and operations, and a climate- and sustainability-focused Federal workforce.

At the Mike Monroney Aeronautical Center (MMAC), the FAA plans to add and monitor life-cycle cost-effective energy and water conservation and efficiency improvement measures. MMAC will increase the number of energy conservation measures tracked in the Compliance Tracking System (CTS). The CTS was established under the Energy Independence and Security Act (EISA) 2007. EISA also requires “energy and water savings are measured and verified” annually. As a result, MMAC requests funding to perform additional measurement and verification work to ensure compliance with EISA requirements.

(See also “Operations Summary” and “FY 2024 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?**

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:

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- 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.



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

|  | Dollars<br>(in Thousands) | FTP          | OTFTP     | FTE          |
|--|---------------------------|--------------|-----------|--------------|
| <b>FY 2023 Enacted</b>                               | <b>\$917,899</b>          | <b>1,378</b> | <b>14</b> | <b>1,377</b> |
| <b>Adjustments to Base</b>                           | <b>\$30,312</b>           | -            | -         | -            |
| Annualization of FY 2023 Pay Raise 4.6%              | 3,168                     | -            | -         | -            |
| FY 2024 Pay Raise 5.2%                               | 10,745                    | -            | -         | -            |
| One More Compensable Day (261 days)                  | 1,174                     | -            | -         | -            |
| Transition from Facilities & Equipment to Operations | 3,231                     | -            | -         | -            |
| Non-Pay Inflation 1.3%                               | 8,595                     | -            | -         | -            |
| Working Capital Fund                                 | 3,399                     | -            | -         | -            |
| <b>Discretionary Adjustments</b>                     | <b>\$1,165</b>            | -            | -         | -            |
| Enhance Sustainability                               | 1,165                     | -            | -         | -            |
| <b>FY 2024 Request</b>                               | <b>\$949,376</b>          | <b>1,378</b> | <b>14</b> | <b>1,377</b> |

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)**

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**FY 2024 – NextGen and Operations Planning – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 32,179                 | 33,349                 | 35,310                 |
| Program Costs           | 31,776                 | 32,232                 | 34,787                 |
| <b>Total</b>            | <b>\$63,955</b>        | <b>\$65,581</b>        | <b>\$70,097</b>        |
| <b>FTE</b>              | <b>174</b>             | <b>174</b>             | <b>175</b>             |

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

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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.

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**FY 2024 Anticipated Accomplishments:**

| <b>Function/Activity</b>                | <b>FY 2024 Anticipated Accomplishments</b>   |
|---|--|
| <b>Facility Related:</b>                | <ul style="list-style-type: none"><li>• Provide the technical platform for research in aircraft safety (fire, structural, unmanned aircraft systems, etc.), airport technologies (safety and capacity), human factors, and weather.</li><li>• Provide laboratory systems for conducting integrated concept evaluations, modeling and simulations, and testing and evaluating all new technologies in the national airspace.</li><li>• Provide 24 hours a day, 7 days a week, 365 days a year field support for all operational systems within the national airspace.</li><li>• Provide facility operations and maintenance, environmental management and maintenance, and engineering support for all facilities located at the William J. Hughes Technical Center.</li><li>• Safeguard both employees and campus infrastructure by ensuring compliance with environmental laws, policies, directives, and initiatives.</li></ul>  |
| <b>NextGen and Operational Related:</b> | <ul style="list-style-type: none"><li>• 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.</li><li>• 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.</li><li>• 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.</li><li>• Provide improved advisories for Flight Operations Center Airline/Operations Center.</li></ul> |

**Program Increases:**

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The FY 2024 budget request for ANG includes additional funding for the following programmatic initiative.

| <b>Discretionary Adjustments</b> | <b>Amount<br/>(\$000)</b> | <b>FTP</b> | <b>FTE</b> |
|----------------------------------|---------------------------|------------|------------|
| Enhance Sustainability           | 2,279                     | 2          | 1          |
| <b>ANG Total</b>                 | <b>\$2,279</b>            | <b>2</b>   | <b>1</b>   |

**Enhance Sustainability:** At the William J. Hughes Technical Center (Tech Center), the FAA is requesting funds to support the Tech Center’s fuel and waste collection tank program along with staff to manage and act on the FAA’s behalf accepting risk, committing resources and pursuing appropriate funding.

The additional resources will aid in the monitoring and operating of the above-ground and under-ground fuel storage tanks and hazardous waste collection tanks on Tech Center grounds. The fuel tanks are vital to ensure uninterrupted operations of essential air traffic systems housed at the Tech Center.

Personnel will conduct inspections, meetings, arbitration hearings, regulatory interpretations, and prioritize budgetary requirements to implement and track sustainability compliance mandates at the Tech Center. Per Acquisition Management System (AMS) guidance T3.8.2. , this is an “Inherently Governmental function” and cannot be performed by a contractor, as it involves committing resources and accepting risk on behalf of the Government.

(See also “Operations Summary” and “FY 2024 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

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NextGen capabilities.

**NextGen and Operations Planning (ANG)  
(\$000)**

|   | Dollars<br>(in Thousands) | FTP        | OTFTP    | FTE        |
|---|---------------------------|------------|----------|------------|
| <b>FY 2023 Enacted</b>                  | <b>\$65,581</b>           | <b>164</b> | <b>3</b> | <b>174</b> |
| <b>Adjustments to Base</b>              | <b>\$2,237</b>            | <b>-</b>   | <b>-</b> | <b>-</b>   |
| Annualization of FY 2023 Pay Raise 4.6% | 383                       | -          | -        | -          |
| FY 2024 Pay Raise 5.2%                  | 1,301                     | -          | -        | -          |
| One More Compensable Day (261 days)     | 126                       | -          | -        | -          |
| Non-Pay Inflation 1.3%                  | 430                       | -          | -        | -          |
| Working Capital Fund                    | (3)                       | -          | -        | -          |
| <b>Discretionary Adjustments</b>        | <b>\$2,279</b>            | <b>2</b>   | <b>-</b> | <b>1</b>   |
| Enhance Sustainability                  | 2,279                     | 2          | -        | 1          |
| <b>FY 2024 Request</b>                  | <b>\$70,097</b>           | <b>166</b> | <b>3</b> | <b>175</b> |

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





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**Detailed Justification for Security and Hazardous Materials Safety (ASH)**

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**FY 2024 – Security and Hazardous Materials Safety Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 94,268                 | 102,571                | 112,476                |
| Program Costs           | 45,048                 | 49,788                 | 51,475                 |
| <b>Total</b>            | <b>\$139,316</b>       | <b>\$152,359</b>       | <b>\$163,951</b>       |
| <b>FTE</b>              | <b>520</b>             | <b>551</b>             | <b>580</b>             |

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

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The Security and Hazardous Materials Safety organization (ASH) ensures aviation safety, supports national and homeland security efforts, and promotes an efficient airspace system through the development and execution of its safety and security policies and programs nationally and globally. Overall, ASH programs protect the flying public, U.S. certificated airmen, FAA employees, contractors, information, facilities, and assets. ASH provides agency crisis management coordination, manages continuity of operations and government plans, executes regulatory oversight for the safe air transport of hazardous materials, investigates airman and employee misconduct, executes and supports FAA and other national security responsibilities in identifying and analyzing security threats to the FAA, the national airspace, and U.S. civil aviation operating worldwide.

ASH advances efficiency and effectiveness in program delivery by applying approaches outlined in the Evidence Act, OMB M-20-12, and the DOT's Evaluation Framework. The ASH evaluation plan, shaped by the Learning Agenda for FY 2024, encompasses program evaluation standards adopting rigorous design and methodology to achieve systematic data collection and analysis. Findings and subsequent recommendations will be implemented to achieve swift benefit to ASH, the FAA, and its stakeholders. The efficacy evaluation of the ASH Program Management Maturity Model is the first of several planned evaluations for FY 2024.

**Office of Hazardous Materials Safety (AXH)** is responsible for ensuring and promoting 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

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- operations
- Evaluating the effectiveness of operators' risk mitigation strategies
- Coordinating the collaborative efforts of government and industry safety teams
- Overseeing and monitoring 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
- Collaborating with internal and external stakeholders to identify, analyze, mitigate, and manage safety risks

**Office of Personnel Security (AXP)** promotes the safety and security of over 88,000 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

**Office of Infrastructure Protection (AXF)** 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 security needs of over 10,000 unstaffed facilities. Specific programs include:

- Facility Security Management Program
- Information Safeguards Program

**Office of National Security Programs and Incident Response (AXE)** is responsible for ensuring agency-level emergency readiness and response, crisis management, threat identification and analysis, and national security support to promote and ensure national airspace and aviation safety and security. Programs supported by AXE include:

- Maintain 24/7 situational awareness through the Washington Operations Center Complex
- Provides intelligence updates and for executives and information sharing with stakeholders and maintains 24/7 intelligence support through the Current Intelligence and Threat Evaluation Watch Operations Division
- Coordinates agency support of U.S. Government aviation national security programs through the Special Operations and Law Enforcement Support
- Provides the FAA with emergency communications in response to local, regional and national emergencies when normal common-carrier communications are interrupted and directly supports the FAA Mission Essential Function of providing Aviation War Risk Insurance to DoD-contracted air carriers in support of national security and defense through the Command, Control, and Communications Division
- Coordinates the FAA's emergency management efforts, to include Continuity of Operations (COOP), and maintain a 24/7 Emergency Incident Coordinator (EIC) position for situational awareness of incidents that could affect the NAS, FAA personnel, or facilities through the Emergency Preparedness and Response; Incident Management Division
- Investigates airmen with specific alcohol and drug related criminal offenses and motor vehicle actions, to prohibit their access to the NAS through the Regulatory Investigations Division

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- Serves as the principal point of contact for the National Capital Region in response to aviation related threats, including UAS and laser incidents through the Enforcement Standards and Policy Division
- Supports 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)
- Primary coordinator within the FAA on agency actions, messaging, and requests relating to UAS security issues, including counter-UAS (C-UAS) and collaborates with security partners and the private sector on UAS security issue through the Unmanned Aircraft Systems Security

**Office of Investigations and Professional Responsibility (AXI)** conducts administrative and civil investigations involving FAA employees, contractors, and non-employees suspected of violating FAA orders and policy. ASH provides services in the following areas: cyber and UAS investigations and analysis, insider threat detection and mitigation, e-discovery, and defensive counter-intelligence services, including foreign travel briefings and de-briefings. Examples of activities they conduct 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
  - E-Discovery
  - Computer Cyber Investigations
  - UAS Digital Forensics

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**FY 2024 Anticipated Accomplishments:**

| Function/Office                                   | FY 2024 Anticipated Accomplishments  |
|---|--|
| <b>Office of Hazardous Materials Safety (AXH)</b> | <ul style="list-style-type: none"><li>• Improve industry compliance with aviation safety regulations and standards through inspections, data analyses, and risk management.</li><li>• 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.</li><li>• Conduct risk-based safety oversight of the aviation industry, targeting the highest-risk operators to ensure continued operational safety.</li><li>• Implement new programs and revised approaches directed by safety recommendations.</li><li>• Automate and standardize the safety oversight and inspection process.</li><li>• Manage and coordinate hazardous materials-related drone activities for ASH and ensure alignment with FAA and DOT initiatives.</li><li>• Develop new and innovative stakeholder engagement approaches to inform the aviation community and industry of trends and emerging risks.</li><li>• Improve the effectiveness of existing ASH certification, regulatory, and compliance systems.</li></ul> |

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| Function/Office                           | FY 2024 Anticipated Accomplishments  |
|---|--|
| <b>Office of Personnel Security (AXP)</b> | <ul style="list-style-type: none"> <li>• 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.</li> <li>• Initiate and adjudicate background investigations for new employees and contractors.</li> <li>• Facilitate the granting and passing of security clearances for employees in national security positions.</li> <li>• Continue deployment and issuance of identification media in compliance with Homeland Security Presidential Directive (HSPD-12).</li> <li>• Continue enrolling FAA employees in the Trusted Workforce (TW) 2.0 (Continuous Evaluation) program with the Defense Counterintelligence and Security Agency. TW 2.0 will apply to all employees in 2024.</li> <li>• 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.</li> <li>• 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.</li> </ul> |

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| Function/Office   | FY 2024 Anticipated Accomplishments   |
|---|---|
| <b>Office of Infrastructure Protection (AXF)</b>                        | <ul style="list-style-type: none"> <li>Assess the security risks of FAA facilities and develop security countermeasure mitigation strategies for each assessed facility.</li> <li>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.</li> <li>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.</li> <li>Enhance standards, programmatic safeguards and controls for protecting classified national security and controlled, unclassified information from loss, compromise, or unauthorized disclosure.</li> </ul>  |
| <b>Office of National Security Programs and Incident Response (AXE)</b> | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Support interagency efforts to safely integrate drones into the national airspace; collaborate with national security partners to address drone security concerns; facilitate Counter-UAS testing and employment.</li> <li>Ensure the safe integration of Counter-UAS technologies into the national airspace.</li> <li>Support agency investigations of non-compliant drone operations.</li> </ul> |

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| Function/Office | FY 2024 Anticipated Accomplishments   |
|-----------------|---|
|                 | <ul style="list-style-type: none"> <li>• Maintain emergency operations network capability and ensure continued situational awareness of daily operations and emergency events.</li> <li>• 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.</li> <li>• Investigate airmen with alcohol- and drug-related motor vehicle actions to ensure incidents are reported in accordance with the Code of Federal Regulations.</li> <li>• Initiate enforcement action, when warranted, to remove airmen who pose a risk to the national airspace.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Develop standards and web-based capabilities to enhance mission effectiveness for the DUI and LEAP programs.</li> <li>• Enhance awareness of drone, Laser, and Unruly Passenger issues through the use of social media, educational material, and support of our partners.</li> <li>• Develop, implement, and integrate Cyber Threat Intelligence capabilities into the FAA's cyber security architecture.</li> </ul> |

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| Function/Office   | FY 2024 Anticipated Accomplishments   |
|---|---|
| <b>Office of Investigations and Professional Responsibility (AXI)</b> | <ul style="list-style-type: none"> <li>• Conduct investigations of FAA employees and contractors for misconduct and professional accountability.</li> <li>• Conduct administrative and civil investigations/inquiries that fall under the FAA's jurisdiction, including executive misconduct and whistleblower retaliation.</li> <li>• Conduct trend analysis and compliance reviews on all agency wide misconduct allegations, including management inquiries.</li> <li>• Operate an agency-wide complaint intake system that provides data for analysis and compliance to ensure accountability.</li> <li>• Develop and execute FAA's Defensive Counter-Intelligence Program to protect the 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.</li> </ul> |

**Program Increases:**

The FY 2024 budget request for ASH includes additional funding for the following programmatic initiatives.

| Discretionary Adjustments                                   | Amount (\$000) | FTP       | FTE       |
|---|----------------|-----------|-----------|
| Improve Hazardous Materials Transportation Safety Oversight | 2,125          | 20        | 10        |
| <b>ASH Total</b>  | <b>\$2,125</b> | <b>20</b> | <b>10</b> |

**Improve Hazardous Materials Transportation Safety Oversight:** The current ASH Principal Hazmat Inspector program, which relies heavily on expert knowledge of specific certificate holders, has successfully provided effective dangerous goods oversight of regularly scheduled air carriers operating with a Part 121 certificate. The additional resources are for the continued improvement of safety data analytics, which ASH used to find areas of weakness in aviation safety oversight. Now the FAA is requesting to complete its multi-year effort to bolster



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its safety oversight operations workforce to account for identified safety risks and enable proactive risk mitigation.

Through this increase, ASH will ensure existing highest-risk Part 129 (foreign air carriers), Part 135 (on-demand air carriers), and Part 145 (repair stations) certificate holders and other regulated entities 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. The requested staffing resources will drive positive safety outcomes by providing the data and information that links actions to outcomes and the means to measure the effectiveness of safety risk mitigating factors.

(See also “Operations Summary” and “FY 2024 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?**

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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.

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

|   | Dollars<br>(in Thousands) | FTP        | OTFTP    | FTE        |
|---|---------------------------|------------|----------|------------|
| <b>FY 2023 Enacted</b>                                      | <b>\$152,359</b>          | <b>579</b> | <b>-</b> | <b>551</b> |
| <b>Adjustments to Base</b>                                  | <b>\$9,467</b>            | <b>-</b>   | <b>-</b> | <b>19</b>  |
| Annualization of FY 2023 Pay Raise 4.6%                     | 1,179                     | -          | -        | -          |
| Annualization of FY 2023 FTE                                | 2,849                     | -          | -        | 19         |
| FY 2024 Pay Raise 5.2%                                      | 4,000                     | -          | -        | -          |
| One More Compensable Day (261 days)                         | 429                       | -          | -        | -          |
| Non-Pay Inflation 1.3%                                      | 666                       | -          | -        | -          |
| Working Capital Fund  | 344                       | -          | -        | -          |
| <b>Discretionary Adjustments</b>                            | <b>\$2,125</b>            | <b>20</b>  | <b>-</b> | <b>10</b>  |
| Improve Hazardous Materials Transportation Safety Oversight | 2,125                     | 20         | -        | 10         |
| <b>FY 2024 Request</b>                                      | <b>\$163,951</b>          | <b>599</b> | <b>-</b> | <b>580</b> |

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



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**Detailed Justification for - Staff Offices**

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**FY 2024 - Staff Offices – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 216,983                | 232,144                | 260,380                |
| Program Costs           | 64,425                 | 66,830                 | 70,205                 |
| <b>Total</b>            | <b>\$281,408</b>       | <b>\$298,974</b>       | <b>\$330,585</b>       |
| <b>FTE</b>              | <b>1,194</b>           | <b>1,236</b>           | <b>1,348</b>           |

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

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

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

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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.

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**Detailed Justification for – Office of the Administrator (AOA)**

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**FY 2024 – Office of the Administrator –Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 2,965                  | 3,074                  | 3,238                  |
| Program Costs           | 805                    | 809                    | 819                    |
| <b>Total</b>            | <b>\$3,770</b>         | <b>\$3,883</b>         | <b>\$4,057</b>         |
| <b>FTE</b>              | <b>13</b>              | <b>13</b>              | <b>13</b>              |

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

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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 2024, 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?**

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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

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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.

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Detailed Justification for – Audit and Evaluation (AAE)

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**FY 2024 – Office of Audit and Evaluation (AAE) – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 4,155                  | 4,592                  | 5,094                  |
| Program Costs           | 854                    | 865                    | 877                    |
| <b>Total</b>            | <b>\$5,009</b>         | <b>\$5,457</b>         | <b>\$5,971</b>         |
| <b>FTE</b>              | <b>20</b>              | <b>22</b>              | <b>24</b>              |

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

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The Office of Audit and Evaluation (AAE) has two primary functions: safety audit/investigation and hotline operations.

Safety audit and investigation analysis staff perform audit and investigative review functions primarily for internal safety disclosures and concerns, including the FAA Whistleblower Protection Program. It also coordinates and evaluates FAA responses to DOT, Office of Inspector General, General Accounting Office, and United States Office of Special Counsel generated audits, investigations, and evaluations.

Hotline operations provides reporting and data for analysis of hotline submissions, coordination of AAE investigations, and reviews for completeness investigations conducted by appropriate FAA organizations. The office also operates and manages several administrative and safety hotlines.

The office provides an impartial Agency venue for investigation and early resolution of safety disclosures. The Aircraft Certification Safety and Accountability Act of 2020 requires that an Ombudsman branch be created as part of the Aviation Safety Whistleblower Investigation Office within the Office of Audit and Evaluation.

The FY 2024 funding will continue to support the enhancement and upgrade of the FAA's Hotline and Whistleblower Protection Program system to a cloud solution while continuing to provide a centralized Agency focus for internally and externally generated safety-related complaints, critical audits, and investigations. Planned enhancements include increased analytics, searching, reporting, and improved case management and the new Ombudsman branch as part of The Aircraft Certification Safety and Accountability Act of 2020 (ACSAA).



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**Program Increases:**

The FY 2024 budget request for AAE includes additional funding for the following programmatic initiatives.

| <b>Discretionary Adjustments</b>                  | <b>Amount<br/>(\$000)</b> | <b>FTP</b> | <b>FTE</b> |
|---|---------------------------|------------|------------|
| Address Aircraft Certification Reform Legislation | 252                       | 3          | 2          |
| <b>AAE Total</b>                                  | <b>\$252</b>              | <b>3</b>   | <b>2</b>   |

**Address Aircraft Certification Reform Legislation:** This funding requests additional resources for the Safety Hotline in order to address Aircraft Certification, Safety, and Accountability Act mandates and the rising complaint volume. The Office of Audit and Evaluation (AAE) has two primary functions: safety audit/investigation and hotline operations. The office operates and manages several administrative and safety hotlines. This will better enable implementation of the FAA’s strategic objectives concerning accountability and workplace of the future.

(See also “Operations Summary” and “FY 2024 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?**

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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 and employee workplace conflicts. 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.

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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 safely and constructively raise, address, and resolve safety complaints, concerns or whistleblower contributions.

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**Detailed Justification for – Civil Rights (ACR)**

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**FY 2024 – Office of Civil Rights (ACR) – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 11,911                 | 13,261                 | 15,712                 |
| Program Costs           | 1,489                  | 1,527                  | 1,897                  |
| <b>Total</b>            | <b>\$13,400</b>        | <b>\$14,788</b>        | <b>\$17,609</b>        |
| <b>FTE</b>              | <b>70</b>              | <b>78</b>              | <b>90</b>              |

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

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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 2024 Anticipated Accomplishments:**

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| <b>Function/Office</b>   | <b>FY 2024 Anticipated Accomplishments</b>   |
|--|--|
| <b>Internal Civil Rights Services</b> <ul style="list-style-type: none"><li>• EEO Complaint Services/Alternative Dispute Resolution Services</li><li>• Model EEO Program</li><li>• Diversity and Inclusion</li><li>• EEO Training</li><li>• Reasonable Accommodations Request Processing</li></ul> | <ul style="list-style-type: none"><li>• Process 100 percent of the allegations and inquiries regarding EEO complaints by providing quality counseling, mediation, and consulting services.</li><li>• Assist and provide resources for Agency selecting officials to increase the hiring of people with targeted disabilities.</li><li>• Ensure that reasonable accommodation requests are processed timely and equitably.</li><li>• Assist the Agency in building a Model EEO Workplace through outreach, consultations, collaboration and educational partnerships.</li><li>• 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.</li><li>• Implement the FAA's Diversity and Inclusion Strategic Plan, thus ensuring a more inclusive workforce.</li></ul> |

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| Function/Office  | FY 2024 Anticipated Accomplishments  |
|--|--|
| <b>External Civil Rights Services</b> <ul style="list-style-type: none"> <li>Disability Airport Compliance</li> <li>Airport Non-discrimination Compliance (Title VI of the Civil Rights Act)</li> <li>Disadvantaged Business Enterprise (DBE)/Airport Concession Disadvantaged Business Enterprise (ACDBE) Compliance</li> </ul> | <ul style="list-style-type: none"> <li>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.</li> <li>Maintain an online FAA DBE-connect system to connect DBEs and relevant airport opportunities, and allow airports to identify certified DBEs in areas of work needed to support their DBE goals.<br/><a href="https://faa.dbesystem.com/">https://faa.dbesystem.com/</a></li> <li>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.</li> <li>Ensure that resources are allocated sufficiently, justly, and equally in underserved communities.</li> </ul> |

**Program Increase:**

The FY 2024 budget request for ACR includes additional funding for the following programmatic initiative.

| Discretionary Adjustments                           | Amount (\$000) | FTP       | FTE      |
|---|----------------|-----------|----------|
| Increase Diversity and Inclusion in FAA's Workforce | 1,094          | 10        | 5        |
| <b>ACR Total</b>                                    | <b>\$1,094</b> | <b>10</b> | <b>5</b> |

**Increase Diversity and Inclusion in FAA's Workforce:** FAA's Office of Civil Rights (ACR) will need additional resources to manage the Diversity and Inclusion (D&I) Strategic Plan, the DEIA Implementation Plan, and to incorporate D&I into Flight Plan 21. Funding is also requested to implement the objectives in various Executive Orders (EOs) that promote advancing equity across the federal government. To address the FAA's equity challenges, additional funding will be needed to enhance staffing levels.

The National Complaint Services (NCS) manages informal complaints of discrimination against the FAA workforce. The counseling process is dynamic and often cumbersome to complete without using new electronic technologies. The funding supports the transfer to a system using automated case management support as well as more EEO counselors.

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(See also “Operations Summary” and “FY 2024 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?**

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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.

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**Detailed Justification for – Government and Industry Affairs (AGI)**

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**FY 2023 – Government and Industry Affairs (AGI) – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 1,502                  | 1,563                  | 1,649                  |
| Program Costs           | 415                    | 417                    | 421                    |
| <b>Total</b>            | <b>\$1,917</b>         | <b>\$1,980</b>         | <b>\$2,070</b>         |
| <b>FTE</b>              | <b>8</b>               | <b>10</b>              | <b>10</b>              |

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

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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 2023 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.

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**What benefits will be provided to the American public through this request and why is this**

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**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.



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**Detailed Justification for – Communications (AOC)**

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**FY 2024 – Communications (AOC) – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 7,539                  | 8,121                  | 8,563                  |
| Program Costs           | 315                    | 335                    | 339                    |
| <b>Total</b>            | <b>\$7,854</b>         | <b>\$8,456</b>         | <b>8,902</b>           |
| <b>FTE</b>              | <b>40</b>              | <b>42</b>              | <b>42</b>              |

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

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The Office of Communications (AOC) delivers critical safety information to the news media, stakeholders, and FAA employees worldwide to support the FAA’s operations, programs and mission. AOC helps the FAA achieve its mission by providing timely and accurate information and performing robust outreach to an increasingly diverse set of stakeholders. Using a variety of communications tools, AOC delivers its services through two major programs: Media Relations and Corporate Communications.

**Media Relations:**

Media Relations works closely with other FAA offices to provide timely and accurate information to the media, the aviation community and the public about FAA initiatives and activities. Media Relations develops and implements communication strategies and public outreach to alert and inform the traveling public and aviation stakeholders of urgent safety issues.

**Corporate Communications:**

Corporate Communications manages the FAA’s digital communications, including FAA.gov, MyFAA and the Agency’s social media accounts, which generate more than 470 million impressions annually. Corporate Communications leads the FAA’s creative and multimedia services, including video, audio, and application development. The team coordinates with other FAA offices to provide more than 40,000 FAA employees with accurate and timely information on programs and activities.

**FY 2024 Anticipated Accomplishments:**

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| Function/Office                 | FY 2024 Anticipated Accomplishments   |
|---------------------------------|---|
| <b>Media Relations</b>          | <ul style="list-style-type: none"> <li>• Increase awareness and understanding of FAA initiatives and other issues through press conferences, media briefings, press releases, social media, and other communication channels.</li> <li>• Increase awareness of the FAA's role as a world leader on aviation issues.</li> <li>• Support open government initiatives to make data available, improve online services, and increase collaboration with citizens, stakeholders, and other government agencies.</li> </ul> |
| <b>Corporate Communications</b> | <ul style="list-style-type: none"> <li>• Expand the use of social media platforms to educate new audiences.</li> <li>• Use a variety of internal communication vehicles to educate employees about Agency strategic goals, programs, and activities. Obtain feedback that helps the FAA meet those goals.</li> </ul>  |

**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 is 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 are connected with the vision, mission and values of the agency. These vital communication vehicles ensure that employees are able to 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.

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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.

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**Detailed Justification for – Office of Chief Counsel (AGC)**

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**FY 2024 – Office of the Chief Counsel (AGC) – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 46,800                 | 50,246                 | 61,842                 |
| Program Costs           | 5,316                  | 5,531                  | 5,855                  |
| <b>Total</b>            | <b>\$52,116</b>        | <b>\$55,777</b>        | <b>\$67,697</b>        |
| <b>FTE</b>              | <b>233</b>             | <b>245</b>             | <b>297</b>             |

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

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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. Across every line of business and every Agency program, AGC provides legal advice, reviews Agency action for legal sufficiency and conformity, represents Agency interests in various administrative and court forums, defends the Agency's actions, and enhances risk management by proactively seeking to identify and mitigate risk. In addition, AGC is responsible for internal FAA adjudicative functions responsible for adjudicating bid protests and contract disputes, aviation civil penalties below a specified threshold, and complaints filed against airport sponsors. This office also provides alternative dispute resolution services.

AGC's principal legal practice areas are:

- 1) Enforcing aviation safety rules, airport grant assurances, and protecting intellectual property/data rights law interests; aircraft litigation; appellate and other district court litigation (e.g., constitutional, tort, APA, Freedom of Information Act (FOIA), etc.);
- 2) Protecting FAA's interests with zealous defense of FAA decisions, including rulemaking litigation, aviation torts, FOIA litigation, environmental approvals, and personnel decisions.
- 3) Rulemaking activity, environmental legal services, airport legal services which support airport expansion and capacity, commercial space legal services which support launch activities, and acquisition of technologies that support increased capacity and efficiency; international activity and harmonization of safety rules; and
- 4) Enhancing FAA's high performing workforce, supporting numerous Agency-wide strategic initiatives, and providing legal services in support of Agency administrative

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functions including, but not limited to, acquisition and fiscal law; employment and labor law; ethics counsel and program; FOIA and Privacy Act; Congressional oversight investigations; real property, data, and intellectual property; national security; cybersecurity; legislative; and emergency management.

**FY 2024 Anticipated Accomplishments:**

Funding at the FY 2024 requested level would provide 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 implementation of key priorities of the Administration, including Pandemic response, safer workforce, climate change, environmental justice, and equity, as directed in Executive Orders issued since January 20, 2021.
- Rulemaking, including critical safety rules and regulatory aspects of NextGen and not only the safe, but also the 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 Unmanned Aircraft Systems, 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.
- 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. Division 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.
- Supporting all aspects of lifecycle acquisition management for the FAA through proactive legal engagement and program support to assist with increasing quality, reducing the time, managing the risk and budget of delivering safe and secure services to the aviation community and flying public. In particular, AGC devotes increasing resources to acquisition and administration of 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 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

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personnel, requirements development, planning support, and applicability of evolving government-wide policies. Much of this support and oversight involves operationalizing an increasingly integrated virtual and actual combined contractor-federal work environment and ecosystem.

- 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.
- Establishing an acquisition workforce-aligned (and integrated) training program for incoming acquisition attorneys that meets the needs of the overall acquisition workforce, clear expectations for performance and promotion, and a professionalization effort for acquisition attorneys in the division.
- Providing proactive legal support to all policy development for the FAA, focusing in the acquisition and finance operations, plus key support to unmanned aerial systems and the War Risk Insurance program.
- 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 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 15 attorneys and all managers to this issue.
- Safety and environmental review of commercial space launch activities.
- Providing management advice and counsel on employment and labor matters, including the following areas: whistleblower protection, DEIA initiatives, labor negotiations, vaccination and attestation requirements, contours of the FAA's unique personnel management system; class action litigation, client training, and air traffic controller hiring.
- Implementation of Congressional 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.
- Defending aviation accident and other tort claims and appellate challenges to FAA Order and final Agency decisions.

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- Improving FAA information management including FOIA, Privacy Act and Paperwork Reduction Act obligations and legal challenges to how the FAA manages its information.
- 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 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 2024 budget request for AGC includes additional funding for the following programmatic initiative.

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| <b>Discretionary Adjustments</b> | <b>Amount<br/>(\$000)</b> | <b>FTP</b> | <b>FTE</b> |
|----------------------------------|---------------------------|------------|------------|
| Chief Counsel Staffing           | 4,176                     | 53         | 27         |
| <b>AGC Total</b>                 | <b>\$4,176</b>            | <b>53</b>  | <b>27</b>  |

**Chief Counsel Staffing:** An increase in staffing will allow AGC’s early involvement in FAA’s legal matters from a proactive and strategic posture rather than from a reactive triaging stance. This helps FAA prevent or mitigate risks and resolve issues before adversarial parties become wedded to their positions, collect damaging documentation, and initiate formal proceedings. AGC will hire new attorneys dedicated to support the rapid and long-lasting growth in the number and complexity of the Agency’s legal needs. Increased resources will allow AGC to meet the FAA’s advanced and technical legal needs and help the Agency accomplish its mission in this era of increased innovation, risk, and scrutiny.

**Chief Counsel Staffing - Base Transfer (\$4.5 million; 22 FTP/ 22 FTE):** This proposal transfers \$4.5 million from Aviation Safety to aid AGC in hiring 22 FTP/22 FTE to support FAA’s regulatory and enforcement efforts.

(See also “Operations Summary” and “FY 2024 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?**

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AGC contributes to the overall success of FAA programs and functions that reside with the various lines of business and staff offices with programmatic responsibility. AGC’s contribution 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.

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 to 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 rulemaking attorneys play a critical role in establishing regulatory requirements involving certification (airman and aircraft), operations, airspace, airports and commercial space licensing. The enforcement attorneys provide essential



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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 the safety of the national airspace. The environmental attorneys are critical to ensuring environmental assessments are completed for infrastructure, new systems and airspace redesigns. The Employment and Labor Division lawyers 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 lawyers support the FAA's nearly 6,000 managers through day-to-day counseling, training, and support of high profile disciplinary matters. In addition to its role in 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. The information lawyers play a significant role in managing the information and data generated and collected by the FAA consistent with the FAA's legal obligations to properly manage information. The national security and emergency management attorney is critical in supporting the FAA's efforts in protecting 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. The aviation accident and tort litigators are critical to defending Agency employees and systems against claims of negligence arising from fatal aircraft accidents.

The direct beneficiaries of AGC's services are the Agency organizations that have operational and programmatic responsibility for carrying out FAA's mission, and by extension, the goals of the Department of Transportation. More significantly, the flying public is the overarching beneficiary of the increased safety and efficiency of a modern air transportation system. AGC is a key partner supporting the Agency's success in all of FAA's various program areas.

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

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**FY 2024 – Office of Policy, International Affairs, and Environment (APL) – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 59,634                 | 64,801                 | 71,393                 |
| Program Costs           | 23,633                 | 25,626                 | 26,817                 |
| <b>Total</b>            | <b>\$83,267</b>        | <b>\$90,427</b>        | <b>\$98,210</b>        |
| <b>FTE</b>              | <b>284</b>             | <b>300</b>             | <b>319</b>             |

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

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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 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.

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**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.

**Anticipated FY 2024 Accomplishments:**

| Function/Activity                | FY 2024 Anticipated Accomplishments  |
|----------------------------------|--|
| <b>Aviation Policy and Plans</b> | <ul style="list-style-type: none"> <li>• Facilitate the implementation of a long-term FAA reauthorization bill, working across the Agency, with the Administration, and with Congress and stakeholders.</li> <li>• 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;</li> <li>• 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.</li> <li>• Develop national and airport level activity forecasts, benefit-cost studies, issue analysis, economic impact studies, and stakeholder outreach, to facilitate national airspace planning</li> <li>• Improve FAA's effectiveness by leading streamlined and responsive corporate planning, performance, and risk management processes for the Agency.</li> <li>• Conduct analysis and coordinate cross-FAA efforts regarding impacts to the FAA and the aviation industry, including economic, pandemic, and pilot shortage recovery impacts.</li> <li>• Conduct economic/policy analysis of domestic and international aviation issues and coordinate these efforts across the Federal government.</li> </ul> |

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| Function/Activity             | FY 2024 Anticipated Accomplishments  |
|-------------------------------|--|
| <b>International Affairs</b>  | <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul> |
| <b>Environment and Energy</b> | <ul style="list-style-type: none"> <li>• Review and update environmental policies, as needed, based on research outcomes, technology development, and stakeholder engagement with a particular focus on community noise.</li> <li>• 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.</li> <li>• Provide international leadership on aviation environmental matters, including through implementation of the Carbon Offsetting and Reduction Scheme for International Aviation</li> <li>• 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.</li> </ul>   |

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| <b>Function/Activity</b>                               | <b>FY 2024 Anticipated Accomplishments</b>   |
|--|--|
| <b>National Engagement and Regional Administration</b> | <ul style="list-style-type: none"> <li>• Enhance aviation safety by increasing awareness and outreach on the FAA high priority safety initiatives.</li> <li>• 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.</li> <li>• Support emergency preparedness and continuity of operations.</li> <li>• Provide program management assistance and coordination activities to support the prioritization and implementation of Northeast Corridor initiatives that reduce delays and improve schedule reliability.</li> <li>• 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.</li> </ul> |

**Program Increases:**

The FY 2024 budget request for APL includes additional funding for the following programmatic initiatives.

| <b>Discretionary Adjustments</b>          | <b>Amount (\$000)</b> | <b>FTP</b> | <b>OTFTP</b> | <b>FTE</b> |
|---|-----------------------|------------|--------------|------------|
| Enhance Sustainability                    | 767                   | 4          | -            | 2          |
| Aviation and Aerospace Talent Development | 1,653                 | 10         | 8            | 9          |
| <b>APL Total</b>                          | <b>\$2,420</b>        | <b>14</b>  | <b>8</b>     | <b>11</b>  |

**Enhance Sustainability:** Additional resources are required in the Office of Policy, International Affairs & Environment (APL) to review, plan, coordinate, report on, and proactively support FAA's implementation of the Executive Orders on climate change and sustainability, and adapt FAA policies as needed. This request will achieve and maintain compliance with new sustainability, energy management, resiliency, and environmental justice requirements consistent with White House direction. This effort supports the implementation of the Energy Act of 2020, as well as EOs 14008 and 14057. In addition, it will support the Justice 40 Initiative as well as use the findings from noise impacts health research, particularly related to disadvantaged populations, to inform FAA policy objectives, best practices, and mitigation and abatement strategies.

**Aviation and Aerospace Talent Development:** This request will develop a measurable,

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sustainable and meaningful program that provides outreach and connections with diverse student populations. The FY 2024 funding request will enhance educational outreach through the STEM AVSED Program, as well as grow the Samya Rose Stumo National Air Grant Fellowship Program as directed by Congress in December 2020. A successful program will provide Fellows the experience needed to build professional knowledge of aviation policy, and see how science and policy work together to promote a vibrant industry. The program will also support diversity, equity, inclusion, and accessibility goals for the FAA. The agency wishes to expand the program beyond the level planned for FY 2023.

(See also “Operations Summary” and “FY 2024 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?**

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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 the global leader in aviation, the FAA must engage internationally to influence improved global aviation standards and enhance overall aviation safety and efficiency. 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

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students. The additional funds will provide FAA with the ability to more fully implement robust outreach programs to put students on clear pathways to aerospace careers, resulting in a robust pipeline of diverse aerospace professionals for the future workforce.

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**Detailed Justification for – Human Resource Management (AHR)**

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**FY 2024 – Office of Human Resource Management (AHR) – Budget Request  
(\$000)**

| <b>Program Activity</b> | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 Request</b> |
|-------------------------|------------------------|------------------------|------------------------|
| Salaries and Expenses   | 82,477                 | 86,486                 | 92,889                 |
| Program Costs           | 31,598                 | 31,720                 | 33,180                 |
| <b>Total</b>            | <b>\$114,075</b>       | <b>\$118,206</b>       | <b>\$126,069</b>       |
| <b>FTE</b>              | <b>526</b>             | <b>526</b>             | <b>553</b>             |

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

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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 44,000 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 2024, 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



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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** manages the FAA's employee compensation, performance management, work-life, and workers' compensation and emergency management programs and researches and develops new total rewards programs.

Key Activities include:

- Administer two distinct performance management programs and systems: Valuing Performance System and the Performance Management & Assessment System
- Administer Short Term Incentive and Management Performance Incentive Program
- Calculate and administer pay and incentive programs

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- Manage Agency-wide recognition initiative, INSPIRE
- Manage the FAA and DOT Worker's 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.
- Manage and promote the Employee Assistance Program/ WorkLife Solutions Program
- Manage and promote work-life programs including the child care centers, health and wellness, child subsidy, nursing mothers, emergency planning, telework, and voluntary leave share programs
- Researches and improves and 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 34,000 (78%) of the approximate 44,000 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, PARs, and arbitrations, at both the national and regional levels of recognition
- Provides CBA, statutory, case law, and LER policy interpretation, advice and guidance
- Provides labor and employee relations training to management
- 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 and anti-harassment case management tracking services for departmental modes
- Provides Employee Assistance Program (EAP) management in Regional offices and Centers
- Provides Accountability Board management in Regional offices and Centers

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**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
- Enterprise Succession Planning
- Department Rotational Assignment Programs (DRAP), 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/Core Training Program
- Degree Completion Program
- SkillSoft Learning Platform/Shared Services

**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 and Employee Engagement
- Awards (monetary, time off and length of service)

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- AHR Financial Contracts & Records Management
- AHR Business Management & Planning
- FAA Off boarding
- FAA Human Capital Management Technology

| Function/Activity | FY 2024 Anticipated Accomplishments   |
|-------------------|---|
| <b>AHF</b>        | <ul style="list-style-type: none"> <li>• Evolving AHR’s robotics process automation (RPA) 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.</li> <li>• Evolving and growing the FAA internship programs including the Minority Serving Institution Internship and Gateways programs.</li> <li>• Standardizing and automating the Personnel Action Request process.</li> <li>• Implementing enterprise-wide workforce planning priorities identified in the FY 2022 workforce organizational assessment.</li> <li>• 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.</li> </ul>                  |
| <b>AHB</b>        | <ul style="list-style-type: none"> <li>• Deploy case digitization/claims management tool for Workers Compensation.</li> <li>• Ensure compliance with workers’ compensation components of Department of Labor’s Protecting Employees, Enabling Reemployment initiative.</li> <li>• Go live with expanded Performance Management &amp; Assessment System, consolidating the Valuing Performance program and population into this new tool.</li> <li>• Redesign of SCI and Short Term Incentive program to align with best practices that best support FAA’s mission.</li> <li>• 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.</li> <li>• Telework: Support the expansion of Agency readiness with the assessment and enhancement of workplace flexibilities based upon the Future of Work deliverables and work to enhance telework reporting with the use of one electronic telework agreement for most of the workforce.</li> </ul> |

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| Function/Activity | FY 2024 Anticipated Accomplishments  |
|-------------------|--|
| <b>AHB Cont'd</b> | <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• 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.</li> <li>• Nursing Mothers Program: Expanding the Nursing Mothers program to include 2 portable lactation rooms.</li> <li>• 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.</li> <li>• Child Care Subsidy: Determine if subsidy cap should be increased to meet market demands.</li> </ul> |
| <b>AHL</b>        | <ul style="list-style-type: none"> <li>• Provide day-to-day operational support and services to FAA managers on labor and employee relations.</li> <li>• Implement a labor and employee relations strategy.</li> <li>• Manage oversight and compliance of all bargaining with FAA unions.</li> <li>• Provide day-to-day administration of the Employee Assistance Program and Accountability Board in the Regional offices and Centers.</li> </ul>   |
| <b>AHD</b>        | <ul style="list-style-type: none"> <li>• Provide best practice leadership development programs to prepare leaders to effectively respond to ongoing changes in strategic priorities.</li> <li>• 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.</li> <li>• Enhance the available learning services available to all FAA employees through the eLMS.</li> <li>• Addition of comprehensive virtual learning inventory focusing on managerial and leadership development.</li> </ul>   |

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| Function/Activity | FY 2024 Anticipated Accomplishments  |
|-------------------|--|
| <b>AHA</b>        | <ul style="list-style-type: none"> <li>Continue to foster a workplace free of harassment and inappropriate behavior through investigation and adjudicating allegations of employee misconduct.</li> <li>Lead the Agency in executing action plans for increased employee engagement across the FAA.</li> <li>Ensure AHR compliance with IT systems, budget, contracting and financial rules and regulations.</li> <li>Develop executive level strategic partnerships and communications</li> <li>Provide HR data reports and analysis to support FAA-wide human capital decision-making.</li> <li>Completed migration to Electronic Transition System for automated off boarding.</li> </ul> |

**Program Increase:**

The FY 2024 budget request for AHR includes additional funding for the following programmatic initiatives.

| Discretionary Adjustments                           | Amount (\$000) | FTP      | OTFTP      | FTE       |
|---|----------------|----------|------------|-----------|
| Increase Diversity and Inclusion in FAA's Workforce | 246            | 3        | -          | 2         |
| Aviation and Aerospace Talent Development           | 2,000          | -        | 100        | 25        |
| <b>AHR Total</b>                                    | <b>\$2,246</b> | <b>3</b> | <b>100</b> | <b>27</b> |

**Increase Diversity and Inclusion in FAA's Workforce:** In order to support the FAA's commitment to Diversity, Equity, Inclusion, and Accessibility (DEIA) as it relates to recruitment and outreach. The quality of the FAA's DEIA program is limited without additional resources. This funding request will enable us to conduct recruitment and outreach in support of DEIA initiatives as associated with new goals and targets outlined in Flight Plan 21 in support of DEIA.

**Aviation and Aerospace Talent Development:** This request will expand the Minority Serving Institution program with additional interns. The Office of Human Resource Management manages the FAA's Minority Serving Institution (MSI) Program, which provides college students with professional experiences in the Aviation and Aerospace industry, nationwide. The program provides members of diverse groups with opportunities in FAA career fields where they are otherwise under-represented.

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(See also “Operations Summary” and “FY 2024 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.

**Staff Offices  
(\$000)**

|   | Dollars<br>(in Thousands) | FTP          | OTFTP      | FTE          |
|---|---------------------------|--------------|------------|--------------|
| <b>FY 2023 Enacted</b>                              | <b>\$298,974</b>          | <b>1,166</b> | <b>231</b> | <b>1,236</b> |
| <b>Adjustments to Base</b>                          | <b>\$16,923</b>           | <b>-</b>     | <b>-</b>   | <b>18</b>    |
| Annualization of FY 2023 Pay Raise 4.6%             | 2,668                     | -            | -          | -            |
| Annualization of FY 2023 FTE                        | 2,947                     | -            | -          | 18           |
| FY 2024 Pay Raise 5.2%                              | 9,053                     | -            | -          | -            |
| One More Compensable Day (261 days)                 | 920                       | -            | -          | -            |
| Non-Pay Inflation 1.3%                              | 889                       | -            | -          | -            |
| Working Capital Fund                                | 446                       | -            | -          | -            |
| <b>Discretionary Adjustments</b>                    | <b>\$10,188</b>           | <b>83</b>    | <b>108</b> | <b>72</b>    |
| Address Aircraft Certification Reform Legislation   | 252                       | 3            | -          | 2            |
| Enhance Sustainability                              | 767                       | 4            | -          | 2            |
| Increase Diversity and Inclusion in FAA's Workforce | 1,340                     | 13           | -          | 7            |
| Aviation and Aerospace Talent Development           | 3,653                     | 10           | 108        | 34           |
| Chief Counsel Staffing                              | 4,176                     | 53           | -          | 27           |
| <b>Base Transfers</b>                               | <b>4,500</b>              | <b>22</b>    | <b>-</b>   | <b>22</b>    |
| Chief Counsel Staffing                              | 4,500                     | 22           | -          | 22           |
| <b>FY 2024 Request</b>                              | <b>\$330,585</b>          | <b>1,271</b> | <b>339</b> | <b>1,348</b> |

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

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**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 underpart 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 available under this heading, including aircraft for aviation regulation and certification; to be derived from the Airport and Airway Trust Fund, [\$2,945,000,000]\$3,462,000,000, of which [\$570,000,000] \$635,000,000 is for personnel and related expenses and shall remain available until September 30, [2024] 2025, [\$2,221,200,000] \$2,754,850,000 shall remain available until September 30, [2025]2026, and [\$153,800,000]\$72,150,000 is for terminal facilities and shall remain available until September 30, [2027] 2028: 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 shall transmit to the Congress an investment plan for the Federal Aviation Administration which includes funding for each budget line item for fiscal years [2024] 2025 through [2028]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. [Provided further, That section 405 of this Act shall apply to amounts made available under this heading in title VIII of the Infrastructure Investments and Jobs Appropriations Act (division J of Public Law 117–58): Provided further, That the amounts in the table entitled "Allocation of Funds for FAA Facilities and Equipment from the Infrastructure Investment and Jobs Act—Fiscal Year 2023" in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act) shall be the baseline for application of reprogramming and transfer authorities for the current fiscal year pursuant to paragraph (7) of such section 405 for amounts referred to in the preceding proviso: Provided further, That, notwithstanding paragraphs (5) and (6) of such section 405, unless prior approval is received from the House and Senate Committees on Appropriations, not to exceed 10 percent of any funding level specified for projects and activities in the table referred to in the preceding proviso may be transferred to any other funding level specified for projects and activities in such table and no transfer of such funding levels may increase or decrease any funding level in such table by more than 10 percent: Provided further, That of the amounts made available under this heading for terminal facilities, \$45,000,000 shall be made available for the purposes, and in amounts, specified for

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Community Project Funding/Congressionally Directed Spending in the table entitled "Community Project Funding/Congressionally Directed Spending" included in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act)]

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**Program and Financing**  
(in millions of dollars)

|  |   | FY 2022 | FY 2023  | FY 2024  |
|--|---|---------|----------|----------|
| Identification code: 69-8107-0-7-402                           |   | Actual  | Estimate | Estimate |
| <b>Obligations by program activity:</b>                        |   |         |          |          |
| 0001   | Engineering, development, test and evaluation .....                     | 179     | 164      | 198      |
| 0002   | Procurement and modernization of (ATC) facilities and equipment .....   | 1,736   | 1,579    | 1,835    |
| 0003   | Procurement and modernization of non-ATC facilities and equipment ..... | 240     | 185      | 224      |
| 0004   | Mission support.....  | 239     | 206      | 250      |
| 0005   | Personnel and related expenses.....                                     | 556     | 578      | 638      |
| 0006   | NAS Modernization Acceleration.....                                     | .....   | .....    | 85       |
| 0008   | 2017 Hurricanes/2018 Supplemental .....                                 | 11      | 1        | 12       |
| 0100   | Subtotal, direct program.....   | 2,961   | 2,713    | 3,242    |
| 0799   | Total Direct obligations .....  | 2,961   | 2,713    | 3,242    |
| 0801   | Facilities and Equipment (Airport and Airways Trust Fund).....          | 60      | 79       | 79       |
| 0900   | Total new obligations, unexpired accounts .....                         | 3,021   | 2,792    | 3,321    |
| <b>Budgetary Resources:</b>                                    |   |         |          |          |
| Unobligated balance:   |   |         |          |          |
| 1000   | Unobligated balance brought forward, Oct 1 .....                        | 2,207   | 2,206    | 2,426    |
| 1001   | Discretionary unobligated balance brought fwd Oct 1 .....               | 2,207   | 2,206    | .....    |
| 1021   | Recoveries of prior year unpaid obligations .....                       | 63      | .....    | .....    |
| 1070   | Unobligated balance (total).....  | 2,270   | 2,206    | 2,426    |
| <b>Budgetary Authority:</b>                                    |   |         |          |          |
| Appropriations, discretionary:                                 |   |         |          |          |
| 1101   | Appropriation (special or trust fund) .....                             | 2,893   | 2,945    | 3,462    |
| Spending authority from offsetting collections, discretionary: |   |         |          |          |
| 1700   | Collected .....   | 56      | 67       | 67       |
| 1701   | Change in uncollected payment, Federal sources ....                     | 13      | .....    | .....    |
| 1750   | Spending authority from offsetting collections, disc (total) .....      | 69      | 67       | 67       |
| 1900   | Budget authority (total).....   | 2,962   | 3,012    | 3,529    |
| 1930   | Total budgetary resources available.....                                | 5,232   | 5,218    | 5,955    |
| Memorandum (non – add) entries:                                |   |         |          |          |
| 1940   | Unobligated balance expiring .....                                      | -5      | .....    | .....    |
| 1941   | Unexpired Unobligated balance, end of year.....                         | 2,206   | 2,426    | 2,634    |
| Special and non-revolving trust funds:                         |   |         |          |          |
| 1950   | Other balances withdrawn and returned to unappropriated receipts .....  | 32      | .....    | .....    |
| 1951   | Unobligated balance expiring .....                                      | 5       | .....    | .....    |

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|  |   | FY 2022 | FY 2023  | FY 2024  |
|--|---|---------|----------|----------|
|  |   | Actual  | Estimate | Estimate |
| Identification code: 69-8107-0-7-402                       |   |         |          |          |
| 1952   | Expired Unobligated balance, start of year .....                    | 86      | 79       | 79       |
| 1953   | Expired Unobligated balance, end of year .....                      | 74      | 79       | 79       |
| 1954   | Unobligated balance canceling .....                                 | 32      | .....    | .....    |
| <b>Change in obligated balances:</b>                       |   |         |          |          |
| Unpaid Obligations:  |   |         |          |          |
| 3000   | Unpaid obligations, brought forward, Oct 1 .....                    | 2,371   | 2,182    | 1,853    |
| 3010   | New obligations, unexpired accounts .....                           | 3,021   | 2,792    | 3,321    |
| 3011   | Obligations (upwards adjustments), expired accounts                 | 1       | .....    | .....    |
| 3020   | Outlays (gross) .....   | -3,127  | -3,121   | -3,319   |
| 3040   | Recoveries of prior year unpaid obligations,<br>unexpired .....     | -63     | .....    | .....    |
| 3041   | Recoveries of prior year unpaid obligations, expired..              | -21     | .....    | .....    |
| 3050   | Unpaid obligations, end of year .....                               | 2,182   | 1,853    | 1,855    |
| Uncollected payments:                                      |   |         |          |          |
| 3060   | Uncollected pymts, Fed sources, brought forward,<br>Oct 1 .....     | -46     | -42      | -42      |
| 3070   | Change in uncollected pymts, Fed sources,<br>unexpired .....        | -13     | .....    | .....    |
| 3071   | Change in uncollected pymts, Fed sources, expired ...               | 17      | .....    | .....    |
| 3090   | Uncollected pymts, Fed sources, end of year .....                   | -42     | -42      | -42      |
| Memorandum (non-add) entries:                              |   |         |          |          |
| 3100   | Obligated balance, start of year .....                              | 2,325   | 2,140    | 1,811    |
| 3200   | Obligated balance, end of year .....                                | 2,140   | 1,811    | 1,813    |
| <b>Budget Authority and outlays, net:</b>                  |   |         |          |          |
| Discretionary:   |   |         |          |          |
| 4000   | Budget authority, gross .....                                       | 2,962   | 3,012    | 3,529    |
| Outlay gross:  |   |         |          |          |
| 4010   | Outlays from new discretionary authority .....                      | 915     | 1,020    | 1,173    |
| 4011   | Outlays from discretionary balances .....                           | 2,211   | 2,101    | 2,146    |
| 4020   | Outlays, gross (total) .....  | 3,126   | 3,121    | 3,319    |
| Offsets against gross budget authority and outlays:        |   |         |          |          |
| Offsetting collections (collected) from:                   |   |         |          |          |
| 4030   | Federal sources .....   | -34     | -36      | -36      |
| 4033   | Non-Federal sources .....   | -38     | -31      | -31      |
| 4040   | Offsets against gross budget authority and outlays<br>(total) ..... | -72     | -67      | -67      |
| Additional offsets against gross budget authority<br>only: |   |         |          |          |
| 4050   | Change in uncollected pymts, Fed sources,<br>unexpired .....        | -13     | .....    | .....    |
| 4052   | Offsetting collections credited to expired accounts ....            | 16      | .....    | .....    |
| 4060   | Additional offsets against budget authority only<br>(total) .....   | 3       | .....    | .....    |
| 4070   | Budget authority, net (discretionary) .....                         | 2,893   | 2,945    | 3,462    |

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|  | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|--|-------------------|---------------------|---------------------|
| Identification code: 69-8107-0-7-402                                   |                   |                     |                     |
| 4080 Outlay, net (discretionary).....                                  | 3,055             | 3,054               | 3,252               |
| Mandatory:   |                   |                     |                     |
| Outlays, gross:  |                   |                     |                     |
| 4101 Outlays from mandatory balances .....                             | 1                 | .....               | .....               |
| 4180 Budget authority, net (total) .....                               | 2,893             | 2,945               | 3,462               |
| 4190 Outlay, net (total) .....   | 3,055             | 3,054               | 3,252               |
| <b>Memorandum (non-add) entries:</b>                                   |                   |                     |                     |
| 5090 Unexpired unavailable balance, SOY Offsetting<br>collections..... | 3                 | 3                   | 3                   |
| 5092 Unexpired unavailable balance, EOY Offsetting<br>collections..... | 3                 | 3                   | 3                   |

Funding in this account provides for the deployment of communications, navigation, surveillance, and related capabilities within the National Airspace System (NAS). This includes funding for several activities of the Next Generation Air Transportation System, a joint effort between the Department of Transportation, the National Aeronautics and Space Administration, and the Departments of Defense, Homeland Security, and Commerce 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 facilities services.

**Object Classification**  
(in millions of dollars)

|  | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|--|-------------------|---------------------|---------------------|
| Identification code: 69-8107-0-7-402                               |                   |                     |                     |
| Direct obligations:  |                   |                     |                     |
| 11.1 Personnel compensation: Full-time permanent.....              | 363               | 374                 | 421                 |
| 11.3 Other than full-time permanent.....                           | 2                 | 2                   | 2                   |
| 11.5 Other personnel compensation.....                             | 9                 | 9                   | 10                  |
| 11.9 Total personnel compensation .....                            | 374               | 385                 | 433                 |
| 12.1 Civilian personnel benefits .....                             | 134               | 138                 | 155                 |
| 21.0 Travel and transportation of persons.....                     | 36                | 39                  | 49                  |
| 22.0 Transportation of things.....                                 | 3                 | 1                   | 2                   |
| 23.2 Rental payments to others.....                                | 9                 | 34                  | 41                  |
| 23.3 Communications, utilities, and miscellaneous<br>charges ..... | 82                | 39                  | 47                  |
| 25.1 Advisory and assistance services.....                         | 1,523             | 1,485               | 1,796               |
| 25.2 Other services from non-Federal sources .....                 | 147               | 110                 | 128                 |
| 25.3 Other goods and services from Federal sources .....           | 24                | 37                  | 45                  |
| 25.4 Operation and maintenance of facilities.....                  | 109               | 69                  | 86                  |
| 25.5 Research and development contracts .....                      | 1                 | 1                   | 1                   |

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|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-8107-0-7-402 |  |         |          |          |
| 25.7                                 | Operation and maintenance of equipment ..... | 28      | 54       | 66       |
| 25.8                                 | Subsistence and support of persons .....     | 1       | 1        | 1        |
| 26.0                                 | Supplies and materials .....                 | 22      | 27       | 33       |
| 31.0                                 | Equipment .....                              | 379     | 172      | 213      |
| 32.0                                 | Land and structures .....                    | 89      | 118      | 143      |
| 41.0                                 | Grants, subsidies, and contributions .....   | .....   | 3        | 3        |
| 99.0                                 | Direct Obligations.....                      | 2,961   | 2,713    | 3,242    |
| 99.0                                 | Reimbursable Obligations.....                | 60      | 79       | 79       |
| 99.9                                 | Reimbursable Obligations.....                | 3,021   | 2,792    | 3,321    |

**Employment Summary**

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-8107-0-7-402 |  |         |          |          |
|                                      | Direct civilian full-time equivalent       |         |          |          |
| 1001                                 | employment.....                            | 2,717   | 2,740    | 2,982    |
|                                      | Reimbursable civilian full-time equivalent |         |          |          |
| 2001                                 | employment.....                            | 43      | 53       | 53       |



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**EXHIBIT III-1**

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

|  | <b>FY 2022<br/>ENACTED</b> | <b>FY 2023<br/>ENACTED</b> | <b>FY 2024<br/>REQUEST</b> |
|--|----------------------------|----------------------------|----------------------------|
| Engineering, Development, Test and Evaluation    | \$ 135,701                 | \$ 146,550                 | \$ 136,240                 |
| Air Traffic Control Facilities and Equipment     | \$ 1,778,033               | \$ 1,754,900               | \$ 2,122,481               |
| Non-Air Traffic Control Facilities and Equipment | \$ 219,754                 | \$ 221,200                 | \$ 206,829                 |
| Facilities and Equipment Mission Support         | \$ 209,400                 | \$ 252,350                 | \$ 246,450                 |
| Personnel and Related Expenses                   | \$ 550,000                 | \$ 570,000                 | \$ 635,000                 |
| NAS Modernization Acceleration                   | \$ -                       | \$ -                       | \$ 115,000                 |
| <b>TOTAL, Base appropriations</b>                | <b>\$ 2,892,888</b>        | <b>\$ 2,945,000</b>        | <b>\$ 3,462,000</b>        |
| FTEs   |                            |                            |                            |
| Direct Funded                                    | 2,717                      | 2,740                      | 2,982                      |
| Reimbursable, allocated, other                   | 43                         | 53                         | 53                         |
| <b>Supplemental Funding</b>                      |                            |                            |                            |
| <b>COVID-19 Supplementals</b>                    |                            |                            |                            |
| CRRSA  |                            |                            |                            |
| Relief for Airports (ARPA)                       |                            |                            |                            |
| Employee Leave Fund (ARPA)                       |                            |                            |                            |
| <b>IIJA Supplemental (Division J)</b>            |                            |                            |                            |
| Facilities & Equipment                           | \$ 1,000,000               | \$ 1,000,000               | \$ 1,000,000               |
| Airport Infrastructure Grants                    |                            |                            |                            |
| Airport Terminal Program                         |                            |                            |                            |
| <b>TOTAL, Base appropriations</b>                | <b>\$ 1,000,000</b>        | <b>\$ 1,000,000</b>        | <b>\$ 1,000,000</b>        |
| FTEs   |                            |                            |                            |
| Direct Funded                                    | 52                         | 196                        | 330                        |
| Reimbursable, allocated, other                   |                            |                            |                            |
| <b>Account</b>                                   | <b>\$ 3,892,888</b>        | <b>\$ 3,945,000</b>        | <b>\$ 4,462,000</b>        |

**Program and Performance Statement**

This account provides funds for programs that improve operational efficiency, constrain costs, modernize automation and communication technology and systems, and deal with aging facilities. Particular emphasis is placed on en route and terminal air traffic control, satellite navigation and landing systems, and communications. The FY 2024 President's Budget Requests includes a new Activity 6 for National Airspace

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System Modernization and Acceleration. Activity 6 will target programs for a prospective approach for unforeseeable events.

Funding is organized within the following activity areas of FAA:

Activity 1: Engineering, Development, Test and Evaluation

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

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

Activity 4: Facilities and Equipment Mission Support

Activity 5: Personnel and Related Expenses

Activity 6: NAS Modernization Acceleration

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**EXHIBIT III-1a**

**FACILITIES and EQUIPMENT  
SUMMARY ANALYSIS OF CHANGE FROM FY 2023 TO FY 2024  
Appropriations, Obligations Limitations, and Exempt Obligations  
(\$000)**

|  | <b><u>\$000</u></b>       |  | <b><u>FTE</u></b>   |
|--|---------------------------|--|---------------------|
|  |                           |  |                     |
| <b>FY 2023 ENACTED</b>                           | <b><u>\$2,945,000</u></b> |  | <b><u>2,740</u></b> |
|  |                           |  |                     |
| <b>ADJUSTMENTS TO BASE:</b>                      |                           |  |                     |
| Annualization of Prior Pay Raise(s)              | \$5,834                   |  |                     |
| FY 2024 Pay Raise                                | \$20,386                  |  |                     |
| Inflation and Other Adjustments to Base          | \$6,617                   |  |                     |
| Adjustment for Compensable Days                  | \$2,163                   |  |                     |
| <b>SUBTOTAL, ADJUSTMENTS TO BASE</b>             | <b>\$35,000</b>           |  | <b>0</b>            |
|  |                           |  |                     |
| <b>PROGRAM REDUCTIONS</b>                        |                           |  |                     |
| Engineering, Development, Test and Evaluation    | (\$10,310)                |  |                     |
| Non-Air Traffic Control Facilities and Equipment | (\$14,371)                |  |                     |
| Facilities and Equipment Mission Support         | (\$5,900)                 |  |                     |
| <b>SUBTOTAL, PROGRAM REDUCTIONS</b>              | <b>(\$30,581)</b>         |  | <b>0</b>            |
|  |                           |  |                     |
| <b>PROGRAM INCREASES</b>                         |                           |  |                     |
| Air Traffic Control Facilities and Equipment     | \$367,581                 |  |                     |
| Personnel and Related Expenses                   | \$30,000                  |  | 150                 |
| NAS Modernization Acceleration                   | \$115,000                 |  | 92                  |
| <b>SUBTOTAL, PROGRAM INCREASES</b>               | <b>\$512,581</b>          |  | <b>242</b>          |
|  |                           |  |                     |
| <b>FY 2024 REQUEST</b>                           | <b>\$3,462,000</b>        |  | <b>2,982</b>        |
|  |                           |  |                     |
| <b>Supplemental Appropriations</b>               | <b>\$1,000,000</b>        |  | <b>330</b>          |
|  |                           |  |                     |
| <b>TOTAL</b>                                     | <b>\$4,462,000</b>        |  | <b>3,312</b>        |

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**Facilities and Equipment (F&E) Index**

|  |  | <b>Amount</b>        | <b>Page</b> |
|--|--|----------------------|-------------|
| <b>Activity 1, Engineering, Development, Test and Evaluation</b>                                 |  |                      |             |
| 1A01   | Advanced Technology Development and Prototyping  | \$34,440,000         | 17          |
| 1A02   | William J. Hughes Technical Center Laboratory Sustainment                              | \$16,900,000         | 23          |
| 1A03   | William J. Hughes Technical Center Infrastructure Sustainment                          | \$10,000,000         | 26          |
| 1A04   | NextGen – Separation Management Portfolio  | \$14,400,000         | 28          |
| 1A05   | NextGen – Traffic Flow Management Portfolio  | \$10,000,000         | 32          |
| 1A06   | NextGen – On Demand NAS Portfolio  | \$8,500,000          | 36          |
| 1A07   | NextGen – NAS Infrastructure Portfolio   | \$12,000,000         | 39          |
| 1A08   | NextGen – NextGen Support Portfolio  | \$5,000,000          | 42          |
| 1A09   | NextGen – Unmanned Aircraft Systems  | \$14,000,000         | 44          |
| 1A10   | NextGen – Enterprise, Concept Development, Human Factors, and Demonstrations Portfolio | \$11,000,000         | 47          |
| <b>Total, Activity 1</b>   |  | <b>\$136,240,000</b> |             |
| <b>Activity 2, Procurement and Modernization of Air Traffic Control Facilities and Equipment</b> |  |                      |             |
| 2A01   | En Route Modernization (ERAM) – System Enhancements and Technology Refresh             | \$75,500,000         | 50          |
| 2A02   | Next Generation Weather Radar (NEXRAD)   | \$3,000,000          | 52          |
| 2A03   | ARTCC and CCF Building Improvements  | \$106,231,194        | 54          |
| 2A04   | Air/Ground Communications Infrastructure   | \$5,700,000          | 57          |
| 2A05   | Air Traffic Control En Route Radar Facilities Improvements                             | \$5,977,630          | 59          |
| 2A06   | Oceanic Automation System  | \$6,550,000          | 61          |
| 2A07   | Next Generation Very High Frequency Air/Ground Communications System (NEXCOM)          | \$64,000,000         | 63          |
| 2A08   | System-Wide Information Management (SWIM)  | \$52,500,000         | 65          |
| 2A09   | ADS-B NAS Wide Implementation  | \$138,400,000        | 68          |
| 2A10   | Air Traffic Management Implementation Portfolio  | \$32,100,000         | 72          |
| 2A11   | Time Based Flow Management Portfolio (TBFM)  | \$33,000,000         | 75          |
| 2A12   | Next Generation Weather Processor  | \$48,700,000         | 78          |
| 2A13   | Data Communications in Support of NextGen  | \$69,950,000         | 81          |
| 2A14   | Offshore Automation  | \$59,600,000         | 84          |
| 2A15   | Reduced Oceanic Separation   | \$2,000,000          | 87          |
| 2A16   | En Route Service Improvements  | \$2,000,000          | 89          |
| 2A17   | Commercial Space Integration   | \$1,000,000          | 90          |
| 2B01   | Standard Terminal Automation Replacement System (STARS) (TAMR Phase 1)                 | \$90,100,000         | 92          |
| 2B02   | Terminal Automation Program  | \$5,100,000          | 95          |
| 2B03   | Terminal Air Traffic Control Facilities – Replace                                      | \$5,150,000          | 98          |

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|                          |   | <b>Amount</b>           | <b>Page</b> |
|--------------------------|---|-------------------------|-------------|
| 2B04                     | ATCT/Terminal Radar Approach Control (TRACON) Facilities – Improve    | \$67,000,000            | 100         |
| 2B05                     | NAS Facilities OSHA and Environmental Standards Compliance            | \$38,908,000            | 102         |
| 2B06                     | Integrated Display System (IDS)                                       | \$55,250,000            | 105         |
| 2B07                     | Terminal Flight Data Manager (TFDM)                                   | \$45,200,000            | 108         |
| 2B08                     | Performance Based Navigation Support Portfolio                        | \$8,000,000             | 112         |
| 2B09                     | Unmanned Aircraft System (UAS) Implementation                         | \$5,000,000             | 114         |
| 2B10                     | Air Ground Surveillance Portfolio                                     | \$33,200,000            | 116         |
| 2B11                     | Terminal and En Route Surveillance Portfolio                          | \$107,300,000           | 119         |
| 2B12                     | Terminal and En Route Voice Switch and Recorder Portfolio             | \$75,050,000            | 126         |
| 2B13                     | Enterprise Information Platform                                       | \$11,000,000            | 130         |
| 2B14                     | Remote Towers   | \$3,000,000             | 132         |
| 2C01                     | Future Flight Service Program (FFSP)                                  | \$1,500,000             | 134         |
| 2C02                     | Alaska Flight Service Facilities Modernization (AFSFM)                | \$2,700,000             | 136         |
| 2C03                     | Weather Camera Program  | \$3,000,000             | 138         |
| 2C04                     | Weather Systems Portfolio   | \$25,300,000            | 140         |
| 2D01                     | VHF Omnidirectional Radio Range (VOR) Minimum Operation Network (MON) | \$6,000,000             | 144         |
| 2D02                     | Wide Area Augmentation System (WAAS) for GPS                          | \$92,100,000            | 146         |
| 2D03                     | Instrument Flight Procedures Automation (IFPA)                        | \$2,000,000             | 149         |
| 2D04                     | Runway Safety Areas – Navigational Mitigation                         | \$1,000,000             | 151         |
| 2D05                     | Landing and Lighting Portfolio  | \$56,760,000            | 153         |
| 2D06                     | DME, VORTAC, TACAN, Sustainment Portfolio                             | \$10,000,000            | 159         |
| 2E01                     | Fuel Storage Tank Replacement and Management                          | \$24,032,500            | 161         |
| 2E02                     | Unstaffed Infrastructure Sustainment                                  | \$57,903,550            | 163         |
| 2E03                     | Aircraft Replacement and Related Equipment Program                    | \$62,000,000            | 165         |
| 2E04                     | Airport Cable Loop Systems – Sustained Support                        | \$10,000,000            | 167         |
| 2E05                     | Alaskan Satellite Telecommunications Infrastructure (ASTI)            | \$750,000               | 169         |
| 2E06                     | Real Property Disposition   | \$6,000,000             | 171         |
| 2E07                     | Electrical Power System – Sustain/Support                             | \$143,212,753           | 173         |
| 2E08                     | Energy Management and Compliance (ECM)                                | \$5,355,000             | 177         |
| 2E09                     | Child Care Center Sustainment   | \$1,600,000             | 179         |
| 2E10                     | FAA Telecommunications Infrastructure                                 | \$340,800,000           | 181         |
| 2E11                     | Operational Analysis and Reporting Systems                            | \$15,000,000            | 184         |
| <b>Total, Activity 2</b> |   | <b>\$ 2,122,480,627</b> |             |

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|  |  | <b>Amount</b>           | <b>Page</b> |
|--|--|-------------------------|-------------|
| <b>Activity 3, Procurement and Modernization of Non-Air Traffic Control Facilities and Equipment</b> |  |                         |             |
| 3A01   | Hazardous Materials Management                                       | \$30,629,373            | 187         |
| 3A02   | Aviation Safety Analysis System (ASAS)                               | \$28,000,000            | 189         |
| 3A03   | National Air Space Recovery Communications (RCOM)                    | \$12,000,000            | 192         |
| 3A04   | Facility Security Risk Management                                    | \$18,000,000            | 194         |
| 3A05   | Information Security   | \$32,000,000            | 196         |
| 3A06   | System Approach for Safety Oversight (SASO)                          | \$21,000,000            | 199         |
| 3A07   | NextGen - System Safety Management Portfolio                         | \$6,000,000             | 201         |
| 3A08   | National Test Equipment Program (NTEP)                               | \$3,000,000             | 204         |
| 3A09   | Mobile Assets Management Program                                     | \$2,400,000             | 206         |
| 3A10   | Configuration, Logistics, and Maintenance Resource Solutions (CLMRS) | \$26,800,000            | 208         |
| 3A11   | Tower Simulation System (TSS) – Tower Training Simulator             | \$6,000,000             | 211         |
| 3B01   | Aeronautical Center Infrastructure Modernization                     | \$20,000,000            | 213         |
| 3B02   | Distance Learning  | \$1,000,000             | 215         |
|  | <b>Total, Activity 3</b>   | <b>\$206,829,373</b>    |             |
| <b>Activity 4, Facilities and Equipment Mission Support</b>  |  |                         |             |
| 4A01   | System Engineering and Development Support                           | \$36,500,000            | 217         |
| 4A02   | Program Support Leases   | \$45,000,000            | 220         |
| 4A03   | Logistics Support Services (LSS)                                     | \$12,000,000            | 222         |
| 4A04   | Mike Monroney Aeronautical Center Leases                             | \$16,400,000            | 224         |
| 4A05   | Transition Engineering Support                                       | \$19,000,000            | 226         |
| 4A06   | Technical Support Services Contract (TSSC)                           | \$28,000,000            | 228         |
| 4A07   | Resource Tracking Program (RTP)                                      | \$13,000,000            | 230         |
| 4A08   | Center for Advanced Aviation System Development (CAASD)              | \$57,000,000            | 232         |
| 4A09   | Aeronautical Information Management Program                          | \$19,550,000            | 235         |
|  | <b>Total, Activity 4</b>   | <b>\$246,450,000</b>    |             |
| 5A01   | <b>Personnel and Related Expenses</b>                                | <b>\$635,000,000</b>    | 238         |
| 6A01   | <b>National Airspace System Modernization Acceleration</b>           | <b>\$115,000,000</b>    | 240         |
|  | <b>Total, All Activities</b>   | <b>\$ 3,462,000,000</b> |             |

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

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

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The FY 2024 President's Budget requests \$3.462 billion to enable FAA to sustain the national airspace's aging infrastructure while embarking on a comprehensive modernization effort to transform its telecommunications and airspace systems. Investment in these major programs enables the FAA to reduce the risk of system outages that can often lead to delays to the flying public. This amount represents an increase of \$517 million above the FY 2023 enacted appropriation of \$2.945 billion. In addition, the third fiscal year of 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 \$4.462 billion.

#### **Activity 1 - Engineering, Development, Test and Evaluation**

For Activity 1, the FAA requests \$136.2 million to sustain the laboratories and facility infrastructure at the William J Hughes Technical Center and for Pre-Implementation innovation work. This represents a decrease of \$10.3 million below the FY 2023 enacted appropriation of \$146.6 million. The primary reason for the decrease is that innovation work for the future is not as high a priority as the sustainment work in Activity 2.

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

For Activity 2, the FAA requests \$2.1 billion to perform 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 \$367.6 million above the FY 2023 enacted appropriation of \$1.8 billion.

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:

- Upgrades to existing equipment
- Acquiring production systems to replace existing systems, extend serviceable life, or technology refresh of system components
- Deploying systems for installation or transition to operational status
- Sustaining satellite-based infrastructure such as Automatic Dependent Surveillance-Broadcast and Wide Area Augmentation Systems

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- Deploying communications infrastructure to provide surveillance and navigation services
- Replacing or modernizing manned and unmanned air traffic control facilities
- Replacing or modernizing automation, communications, navigation, surveillance/weather infrastructure, systems, and equipment
- Decommissioning and disposal of the systems and facilities that have been replaced

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

For Activity 3, the FAA requests \$206.8 million for the modernization of non-air traffic control facilities, business systems, and equipment. This represents a decrease of \$14.4 million below the FY 2023 enacted appropriation. 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**

For Activity 4, the FAA requests \$246.5 million to provide system wide integration, transition engineering, and technical contractual support in direct support of system acquisition or installation. This request is a decrease of \$5.9 million below the FY 2023 enacted appropriation. The funding in this activity will provide for the following:

- Transition engineering, integration, and support
- NAS integrated logistics support
- Technical support services for implementation
- Program Support and Aeronautical Center Leases

**Activity 5 - Personnel, Compensation, Benefits, and Travel**

For Activity 5, the FAA requests \$635.0 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 \$65.0 million above the FY 2023 enacted appropriation. This increase will support inflation and pay raises and FERS increases in FY 2024 and includes \$30.0 million for the sustainment of the FAA's telecommunications infrastructure.

**Activity 6 – National Airspace Systems Modernization Acceleration**

For Activity 6, the FAA requests \$115.0 million to accelerate modernization of NAS systems through targeted investments. This funding will allow the FAA flexibility to adjust to current events in operations and increase capital investments where needed. Potential modernization acceleration programs in FY 2024 include Aeronautical



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Information Management to continue the modernization of NOTAMS, Enterprise - Integrated Display System to accelerate dissemination of supporting information to air traffic controllers across the nation, and other investments under evaluation.

**NAS Facility Infrastructure Sustainment**

FAA has an approximately \$5.3 billion sustainment backlog for facilities that directly support national air space operations. The request includes \$510.8 million toward this backlog. Projects planned with prior year money that are not yet completed are not included in the sustainment backlog estimate. Current unexpended/unobligated balances for sustainment programs are \$1.2 billion (as of March 6, 2023). This infrastructure funding will improve the Facility Condition Index ratings at FAA facilities that provide the backbone for the National Airspace System.

In FY 2024, the IIJA provides \$1.0 billion in funding towards capital improvements that will improve, sustain, and replace FAA's staffed and unstaffed FAA facilities. Combined with the FY 2024 President's Budget Request, \$1.5 billion will be available for facilities replacements and infrastructure work. \$138.0 million will support sustainment work to reduce the backlog and \$662.0 million will support the replacement of outdated facilities. Projects planned with IIJA funding from FY 2021 through FY 2023 that are not yet completed are not included in the sustainment backlog estimate. Current unexpended/unobligated balances for sustainment are \$1.3 billion (as of March 6, 2023).

**Core Systems Infrastructure**

The budget request includes \$1.4 billion in support of core systems infrastructure providing communications, navigations, surveillance, and other programs that make up our national airspace system.

These systems allow the National Airspace System to operate at the highest safety standards and provide airline operators and general aviation the dependable Air Traffic Control services they require. Providing continued safe and expected services to these users requires sustainment of the aging systems infrastructure. The inventory of radios supporting terminal communications is between 40 to 50 years old, voice switches used to communicate between pilots and air traffic controllers are 17 to 22 years of age, and on-airport radars are more than 20 years old. Of the 1,200 Instrument Landing Systems in operation today, 125 are over 25 years old. Funding is requested to replace unsupportable components and systems for this system infrastructure. As FAA progresses to satellite-based services and technology, a number of these systems will continue to provide required support for advanced NextGen capabilities or to provide redundant and safety backup capabilities in the event of satellite service outages and interference.

## **NextGen**

The FY 2024 budget request includes \$701.9 million in support of NextGen programs. The 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).

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

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The procurement and modernization of the nation's air traffic control system was first highlighted in 1980 with the publication of the first National Airspace System Modernization Plan. Since that time, FAA has replaced old technologies with new systems that perform required functions better and more efficiently. During this period, aviation services were extended to new, small and medium-sized localities through the expanded deployment of updated air traffic control technologies, equipment, and infrastructure at these locations.

FAA has met most of the cost and schedule goals for the programs within F&E. F&E programs contribute to the success of metrics that show a safe and efficient airspace system and include runway incursion reduction, Air Traffic Control system operational availability, and National Airspace System on-time arrivals.

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**Detailed Justification for - 1A01 Advanced Technology Development and Prototyping**

(\$000)

| <b>Activity/Component</b>                       | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Advanced Technology Development and Prototyping | \$24,000                   | \$25,300                   | \$34,440                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>  | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Runway Incursion Reduction Program                            | ---                            | \$3,500.0                         |
| B. System Capacity Planning and Improvements                     | ---                            | 1,500.0                           |
| 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                                      | ---                            | 6,700.0                           |
| G. Operational Modeling Analysis and Data                        | ---                            | 2,000.0                           |
| H. Enterprise, Management, Integration, Planning and Performance | ---                            | 4,000.0                           |
| I. Integrated Services and Analysis                              | ---                            | 1,900.0                           |
| J. In-Service Engineering  | ---                            | 2,300.0                           |
| K. Strategic Initiative Analysis and Validation                  | ---                            | 2,040.0                           |

**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 2024, a total of \$34.4 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 an unauthorized object in the Runway Safety Area at every airport, and deliver a directive cue to the individual who can take corrective action.

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Consistent with standing National Transportation Safety Board recommendations, Runway Incursion Reduction research emphasis will remain on testing the application of technology for the 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 2024, \$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. The Runway Incursion Reduction Program objective is to discover research and innovative technologies that will detect the incorrect presence of an object in the Runway Safety Area at every airport, and deliver a directive cue to the individual who can take corrective action.

**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 is able to quantify the efficiency of the National Airspace System to form the basis of 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 2024, \$1.5 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

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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 2024, \$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 2024, \$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 can 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 can 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 2024, \$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 make optimum decisions based on best business practices. These tools and support will provide verification 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
- Monitor resource information associated with deployment of Capital Programs

For FY 2024, \$6.7 million is requested to sustain and enhance the automated tracking and reporting systems for facilities and equipment projects. Managers and engineers have up-to-date reliable data on projects and productivity continues to improve under 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 of the Air Traffic Organization operational units, operational and capital investment planning, as well as post operational modeling and analysis.

For FY 2024, \$2.0 million is requested to modernize and integrate the NAS Data Warehouse and the Aviation System Performance Metrics systems. A shortfall in available analytical products has been identified that this program will address through the creation of a database to capture operational events associated with individual

flights. This database project is called Wilbur. This will improve the timeliness of operational analyses and reduce cost. This program will develop and publish standardized operational events data on a per-flight basis and by facility (e.g. airport). This program will also make the data products available to the FAA Enterprise

#### **H. Enterprise, Management, Integration, Planning and Evaluation for NAS/NextGen**

The Enterprise Management, Integration, Planning and Performance 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 2024 \$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.
- Delivers acquisition and programmatic expertise, artifacts, best practices and partnering services to support investments as they navigate through the Acquisition Management System processes.
- Generates both individual program and enterprise-level recommendations to mitigate risks and capitalize upon opportunities and further promote the health of today's and future implementation programs.
- Provides 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.

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For FY 2024, \$1.9 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 PMO's programs.

**J. In-Service Engineering**

In-service engineering allows for immediate response and tactical distribution of resources to emerging technology solutions. For FY 2024, \$2.3 million is requested for ongoing engineering support of all prototyping efforts.

**K. Strategic Initiatives Analysis and Validation**

For FY 2024, \$2.04 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?**

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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.



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**Detailed Justification for - 1A02 William J. Hughes Technical Center  
Laboratory Sustainment**

(\$000)

| Activity/Component                                    | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|---|--------------------|--------------------|--------------------|
| William J. Hughes Technical<br>Laboratory Sustainment | \$16,900           | \$16,900           | \$16,900           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>   | <u>Locations/</u><br><u>Quantity</u> | <u>Estimated Cost</u><br><u>(\$000)</u> |
|---|--------------------------------------|---|
| William J. Hughes Technical Center Infrastructure Sustainment | ---                                  | \$16,900.0                              |

**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 field sites that currently exist or are planned for the future. 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 2024, \$16.9 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; technical services; laboratory networking; test and simulation services; laboratory maintenance; scheduling support for multi-user laboratories; and laboratory management.

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- **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; 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 2024 portion of this plan will continue the laboratory reconfiguration and modernization on the 3<sup>rd</sup> floor of Bldg. 300 as well as initiate investigation into a Cybersecurity laboratory. After taking some additional time to formally analyze the available options, construction will begin on the space for the relocation and consolidation of the Cockpit Simulation Facility.
- **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?**

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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 that will be installed to correct the problem.

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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.

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**Detailed Justification for - 1A03 William J. Hughes Technical Center  
Infrastructure Sustainment**

(\$000)

| <b>Activity/Component</b>                                     | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| William J. Hughes Technical Center Infrastructure Sustainment | \$10,701                   | \$15,000                   | \$10,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>   | <u>Locations/ Quantity</u> | <u>Estimated Cost (\$000)</u> |
|---|----------------------------|-------------------------------|
| William J. Hughes Technical Center Infrastructure Sustainment | 1                          | \$10,000.0                    |

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

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This program sustains the William J Hughes Technical Center (WJHTC) 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 WJHTC is at the forefront of the FAA's challenge to modernize the U.S. air transportation system. For FY 2024, \$10.0 million is requested to accomplish the following projects that promote sustainment of the FAA's infrastructure at the WJHTC:

- **Mold Remediation Program at Technical and Administrative Building - Building 300.** Construction and design efforts required to replace Heating, Ventilation and Air Conditioning equipment. The air-handling units in this building are more than 35 years old and have exceeded the industry standard lifecycle of 20 years.
- **Main Electrical Utility Sub Station 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.

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- **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.

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

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Infrastructure sustainment at the WJHTC saves taxpayer money by reducing expenses associated with ongoing operation and maintenance activities as well as reducing the frequency of expenses associated with system replacement. System updates reduce energy consumption, and cost, on a per-square-foot basis, thus supporting current Federal Energy Management requirements for sustainability and energy consumption.

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**Detailed Justification for - 1A04 NextGen - Separation Management Portfolio**

(\$000)

| <b>Activity/Component</b>                 | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| NextGen - Separation Management Portfolio | \$20,500                   | \$17,000                   | \$14,400                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>   | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Separation Automation System Engineering   | ---                            | \$4,000.0                         |
| B. Closely Spaced Parallel Runway Operations  | ---                            | 1,000.0                           |
| C. Concept Development for Integrated National Airspace<br>Design and Procedures Planning | ---                            | 1,400.0                           |
| D. Space Integration Capabilities (SIC)   | ---                            | 2,000.0                           |
| E. Unmanned Aircraft Systems (UAS) Upper Airspace   | ---                            | 2,000.0                           |
| F. Common Trajectory Models   | ---                            | 4,000.0                           |

**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 2024, \$4.0 million is requested to complete artifacts and activities in support of the Final Investment Decision for En Route Automation Modernization Enhancement 3. This program will also conduct engineering analysis in support of oceanic air traffic management systems.

### **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 2024, \$1.0 million is requested for safety analysis completion for final approach, continued support of existing program concepts, as well as to identify further concepts for closely spaced parallel operations.

### **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. This initiative leverages the EoR concept and extends it from single airport usage to multiple airport operations. Multiple Airport Route Separation safety analysis requires six extended phases to explore the concept of arrival and departure paths for air traffic at adjacent airports. The EoR Independent Simultaneous Parallel Operations Safety Analysis and related Technical Transfer have been completed. One safety analysis remains to further study the EoR national airspace system-wide Dependent Operations.

For FY 2024, \$1.4 million is requested to complete concept validation at one or more developmental launch sites, commence the next Performance Based Navigation safety analysis, update implementation guidance and compile safety risk management artifacts to support national airspace system-wide changes to the air traffic controller handbook.

#### **D. Space Integration Capabilities**

This program will ensure the availability of airspace for space launch and reentry operations while minimizing the effect of these operations on other national airspace system stakeholders. Given the growing number of stakeholders involved with space launch and reentry operations, the current use of non-integrated systems to manage operation's safe access to airspace does not exist. This program will define and mature a set of capabilities to facilitate the integration of operations into the national airspace system. Requirements will be prioritized and bundled into a set of phased acquisitions for Air Traffic Services with the required upgrades. The program will leverage work already completed to support decisions for modified policies, procedures, acquisitions, or other activities to support Air Traffic Services. For FY 2024, \$2.0 million is requested to achieve the following activities:

- Complete documentation to support the Concept and Requirements Definition Readiness Decision activities including a Preliminary Shortfall Analysis and Concept and Requirements Definition Plan
- Develop Proof of Concept and Engineering Support

#### **E. UAS Class E Upper Airspace**

This program will investigate future operations above 60,000 feet, where demand for this airspace is projected to increase. 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. This program will analyze communications and surveillance requirements needed to integrate these types of operations (i.e. geostationary, extreme velocity, and long duration). Activities will include engineering and assessments of communications 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 2024, \$2.0 million is requested to complete the initial report on engineering exploration activities after conducting our Human in the Loop Tests, provide preliminary analysis and initial report on NAS automation systems, conduct multiple technical evaluations, and continue requirements maturation for Communications and Surveillance requirements for Class E Upper Airspace.

#### **F. 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



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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 2024, \$4.0 million is requested for work that includes the following activities:

- Develop use cases, data architecture, and business rules for enterprise trajectory information management and modeling.
- Complete enterprise trajectory information management and modeling test analysis and document results.
- Evaluate the use of artificial intelligence and machine learning to improve trajectory modeling as well as the extension of conflict probe to provide functions in other air traffic management domains.
- Create a final prototype applying automated speech recognition technologies to the national airspace system separation automation systems.

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

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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.

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**Detailed Justification for - 1A05 NextGen – Traffic Flow Management (TFM)  
Portfolio**

(\$000)

| <b>Activity/Component</b>                         | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| NextGen – Traffic Flow Management (TFM) Portfolio | \$13,000                   | \$15,000                   | \$10,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Surface Tactical Flow                             | ---                            | \$2,000.0                         |
| B. Strategic Flow Management Application             | ---                            | 3,000.0                           |
| C. Strategic Flow Management Engineering Enhancement | ---                            | 3,000.0                           |
| D. Advanced Methods                                  | ---                            | 2,000.0                           |

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

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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 the collaboration and decision-making among the 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.

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For FY 2024, \$2.0 million is requested for activities that include:

- Exploring emerging technology for applications or services for surface movements and standardized information exchange into FAA flow systems for strategic planning
- Engineering analysis of mobile applications for integration with future NAS infrastructure
- Field demonstration and evaluation of Electronic Call for Release (CFR) in Non-Terminal Flight Data Manager Airports
- Mobile Instrument Flight Rules Services analysis and standards exploration

**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 2024, \$3.0 million will be used for activities that include:

- Development of services to support airspace and congestion management by applying data analytics to early intent data
- Research and development of a prototype service and procedures for in-flight coordination and strategic reroute between pilots

**C. Strategic Flow Management Engineering Enhancement**

This multi-year project will support future work packages for Traffic Flow Management enhancements. The concept engineering work for the individual capabilities that comprise these future work packages will be conducted primarily through the Strategic Flow Management Application and Advanced Methods programs. This project will be responsible for using the capability-level concept engineering artifacts developed in Strategic Flow Management Application and

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Advanced Methods to develop the full suite of future Traffic Flow Management Acquisition Management System artifacts that will ultimately support a Final Investment Decision of the new Flow Management Data and Services Program.

Flow Management Data and Services will be the replacement system for the current Traffic Flow Management System. Flow Management Data and Services will be designed with a new architecture to maximize efficiency and flexibility, while making the best use of the existing Traffic Flow Management capabilities. Each day, Traffic Managers use the Traffic Flow Management System to maintain near real-time situational awareness and predict geographic areas that may experience congestion due to capacity reductions or unusual demand increase. The system is used to facilitate collaborative planning and decision making to proactively plan alternate routes around the congestion between the Air Traffic Control System Command Center (ATCSCC), Traffic Management Units at all major Air Traffic Control facilities (80 sites), and flight operators.

For FY 2024, \$3.0 million is requested to develop the following acquisition products in support of the Final Investment Decision (FID) for Flow Management Data and Services:

- Final system engineering documentation including:
  - Program Requirements Document
  - Enterprise Architecture artifacts
  - Safety Risk Management Document
  - Information System Security Assessment
- Final Screening Information Request (SIR)

**D. 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 2024, \$2.0 million is requested for activities that include:

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- Complete prototype capability for an Artificial Intelligence Traffic Flow Management application.
- Demonstration of prototype for Artificial Intelligence Traffic Flow Management Application
- Recommendations report on Artificial Intelligence Traffic Flow Management Applications
- Analyze future flight and flow services to identify areas applications for technologies such as Machine Learning and document in an engineering report

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

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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.

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**Detailed Justification for - 1A06 NextGen – On Demand National Airspace  
System Portfolio**

(\$000)

| <b>Activity/Component</b>                              | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| NextGen – On Demand National Airspace System Portfolio | \$9,000                    | \$8,500                    | \$8,500                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                        | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Flight Object                             | ---                            | \$3,500.0                         |
| B. Common Status and Structural Data         | ---                            | 1,000.0                           |
| 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 exchange of flight information that is redundant or inconsistently defined. 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 2024, \$3.5 million is requested to demonstrate and mature Flight Object capabilities including service to support new flight information from the new entrants. The 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 2024, \$1.0 million is requested to facilitate alignment and inclusion of new requirements into the Aeronautical Information Exchange Model and to develop preliminary program requirements for Aeronautical Information Management Modernization Enhancement 2.

## **C. Dynamic Airspace**

The project will create a future vision where 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.

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For FY 2024, \$1.0 million is requested to develop Concept of Operations for a resilient infrastructure in support of an Information Centric NAS Vision and initiate planning for laboratory evaluation or proof of concept activity 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 2024, \$3.0 million is requested to complete flight deck clearance application development/testing, conduct engineering analysis on information architecture to support information exchange with flight crew, 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?**

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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 enables more efficient decision making. Accelerated recovery following system outages accompanied by systemic reduction in delays allows for continuous, efficient use of available airspace capacity.



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**Detailed Justification for - 1A07 NextGen – NAS Infrastructure Portfolio**

(\$000)

| <b>Activity/Component</b>              | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| NextGen – NAS Infrastructure Portfolio | \$10,500                   | \$20,850                   | \$12,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                            | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Weather Forecast Improvements                 | ---                            | \$3,000.0                         |
| B. New Air Traffic Management (ATM) Requirements | ---                            | 6,000.0                           |
| C. Information Management                        | ---                            | 3,000.0                           |

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

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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 2024, \$3.0 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.

- Prepare analysis products in support of future investment decisions for NextGen Weather Processor and Common Support Services - Weather.
- 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 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 Procedures, Command and Control in a Cloud Environment, Next Generation Input Devices, Internet Protocol Based Command and Control Data Links, Surveillance Portfolio Analysis, Automation Evolution Strategy, and Ubiquitous Communications. For FY 2024, \$6.0 million will support work that includes:

- Development of improved weather performance requirements that enable enhanced forecasting capabilities in support of FAA operational decision-making
- Develop requirements for hardware application and link performance requirements to support the potential use of internet based data exchange for command and control applications
- Developing initial performance requirements for Ubiquitous Communications framework
- Identify, evaluate, and document National Airspace Systems potentially suitable for command and control in a cloud environment
- Identification and replacement of obsolete weather products with more efficient weather information already available from the meteorological community to ensure capability with existing FAA systems
- Conduct analyses and develop future surveillance services including assessment of surveillance data distribution and required surveillance performance.

- Develop a to-be architecture of the future Air Traffic Management systems that leverage innovation such as edge computing, cloud platform and microservices for separation and flow services.

### **C. Information Management**

This program is performing engineering analysis on the information infrastructure to address future requirements for System Wide Information Management. Information Management will merge the information sharing needs with additional requirements from upcoming NextGen initiatives and capabilities. The research initiated within the Information Management program will identify gaps, business needs, alternatives, and tradeoffs that exist in the transition from the current System Wide Information Management program and define the functional requirements for future enhancements to System Wide Information Management to support information sharing with National Airspace systems and users. Research will also assess the factors related to information sharing such as bandwidth restrictions, security, performance requirements, and an increasing number of various types of users. The work performed within Information Management will be useful in resolving questions pertaining to the efficient management of information within the FAA and users.

For FY 2024, \$3.0 million is requested to identify candidate solutions that can be assessed through the Enterprise Services Infrastructure framework, perform analysis for additional requirements and additional enhancements to the information sharing infrastructure, and develop the products to support in the Investment Analysis Readiness Decision for System Wide Information Management Enhancement 2. This work will also include further exploration of Microservice Architectures including further developments of the Microservice Architecture Framework.

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

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The work under the National Airspace System Infrastructure portfolio supports the goals of improved capacity, efficiency, and safety through 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 span multiple areas including communications, information management, and weather. The benefits delivered by these efforts support 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. This program will also provide the American public greater access to desired data housed within the FAA.

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**Detailed Justification for - 1A08 NextGen Support Portfolio**

(\$000)

| <b>Activity/Component</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------|----------------------------|----------------------------|----------------------------|
| NextGen Support Portfolio | \$5,000                    | \$5,000                    | \$5,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u> | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|-----------------------|---|----------------|
| NextGen Laboratories  | Various                                       | \$5,000.0      |

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

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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 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 or concerns. This work supports studies that measure and validate concept feasibility, human performance, usability, changes in workload, and safety.

The Florida Test Bed laboratory is located at the Daytona Beach International Airport and provides a platform where early stage 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 Test Bed provides the ability for industry to bring and integrate new concepts and technologies.

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For FY 2024, \$5.0 million is requested for the annual operation, maintenance and upgrade of both laboratories and to support impact assessments of national airspace requirements and capabilities as they become available in an operational environment. Additionally, the funding will support the development and hosting of microservices prototypes on the research cloud platform.

The Enterprise Operational Performance Analysis task focuses on continued analysis of historical data both for assessing past implementations as well as identifying future benefits. Post operational analyses include those key implementations supporting the Joint Analysis Team 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 national airspace system and must be better understood in the historical data sets.

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

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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.

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**Detailed Justification for - 1A09 NextGen – Unmanned Aircraft Systems (UAS)**  
**(\$000)**

| <b>Activity/Component</b>                 | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| NextGen – Unmanned Aircraft Systems (UAS) | \$15,500                   | \$13,000                   | \$14,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                           | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|--|---------------------------------------|--|
| A. UAS Concept Validation and Requirements Development | ---                                   | \$4,000.0                                |
| B. UAS Flight Information Management                   | ---                                   | 5,000.0                                  |
| C. Urban Air Mobility                                  | ---                                   | 5,000.0                                  |

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

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These projects will allow integration of 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. This project will analyze cross cutting constructs by collecting information, 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 2024, \$4.0 million is requested to:

- Develop information management infrastructure and services to support Large UAS beyond visual line of site operations
- Explore communications architecture and ubiquitous services to deliver globally harmonized Air Traffic Management communications
- Support a crosscutting operations strategy and technical assessment reference architecture updates.

## **B. UAS Flight Information Management**

The UAS Flight Information Management project supports multiple UAS operations in the national airspace to keep the airspace safe from aviation-related known and potential hazards and provide adequate notification to users. The FAA must be aware of when and where UAS operations are occurring in order to operate an effective and safe National Airspace.

Focusing on Integrated UAS Traffic Management and Urban Operations enables the FAA to develop infrastructure to support various UAS Traffic Management functionalities across the FAA that is specifically designed to handle increases in capacity resulting from increasing UAS traffic.

For FY 2024, \$5.0 million will support work that includes:

- Complete the Update of Unmanned Traffic Management Data Exchange Requirements Version 4.0 to include Beyond Visual Line of Sight and Security
- Develop Safety Risk Management Plan Version 3.0
- Complete Final System/Subsystem Specifications Version 3.0

## **C. Urban Air Mobility**

While the increase in urbanization over the recent past has led to increasing transportation congestion and environmental stress, it also offers an opportunity to explore solutions to transportation related problems in the national airspace. The aviation industry is exploring the feasibility of manned and unmanned aerial cargo and air passenger vehicles such as air taxis and air ambulances under the Urban Air Mobility concept.

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. This project will explore the safe integration of Urban Air Mobility operations into the national airspace, which may need to operate within both UAS Traffic Management and Air Traffic Management environments. This includes

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efforts associated with Airborne Collision Avoidance System- Rotorcraft for aerial cargo and air passenger vehicles.

For FY 2024, \$5.0 million will provide the following:

- Concept of Operations 3.0
- Complete initial Urban Air Mobility data exchange model with operational performance requirements on the information
- Complete final operational analysis for Urban Air Mobility
- Complete initial prototype
- Complete safety and operational suitability analysis report for Airborne Collision Avoidance System Remotely piloted aircraft systems
- Formalize standards for Airborne Collision Avoidance System ACAS Remotely piloted aircraft systems

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

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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. 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.



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**Detailed Justification for - 1A10 NextGen – Enterprise, Concept Development,  
Human Factors, and Demonstrations Portfolio**

(\$000)

| <b>Activity/Component</b>  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Enterprise, Concept Development, Human Factors, and Demonstrations Portfolio | \$10,600                   | \$11,000                   | \$11,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                  | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Enterprise Concept Development      | ---                            | \$1,500.0                         |
| B. Enterprise Human Factor Development | ---                            | 1,500.0                           |
| C. Stakeholder Demonstrations          | ---                            | 8,000.0                           |

**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 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, 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 2024, \$1.5 million is requested to support concept development and validation activities, research, concept engineering, and concept analysis. It will include developing and updating the concept of operations for the National Airspace System (NAS) Vision 2035, developing a concept of operations for Smart Airports, completing concept analysis activities for Artificial Intelligence for the NAS, and developing a concept of operations for Artificial Intelligence for the NAS.

### **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 2024, \$1.5 million is requested to continue research into human factors performance considerations for modernization of the national airspace system and future requirements.

### **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 FY 2024, \$8.0 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 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 equipment will provide insight for those aircraft technology configurations on the critical path for meeting 2030 and 2040 timeframe equipment levels.

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

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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 the national airspace system for air traffic operations in 2035 and beyond.

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**Detailed Justification for - 2A01 En Route Automation Modernization (ERAM)  
System Enhancements and Technology Refresh**

(\$000)

| <b>Activity/Component</b>                       | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| ERAM System Enhancements and Technology Refresh | \$104,450                  | \$108,150                  | \$75,500                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>     | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|----------------------------------|---------------------------------------|--|
| A. ERAM Sustainment 3            | ---                                   | \$58,500.0                               |
| B. ERAM Operating System Upgrade | ---                                   | 17,000.0                                 |

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

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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. The ERAM system 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 project 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 2024, \$58.5 million is requested to support the following activities:

- Complete deployment of Enterprise Storage System and Tape Backup units hardware to remaining waterfall sites
- Complete test, deployment and integration of William J. Hughes Technical Center replacement ERAM Software Integration and Test Facility systems

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- Implementation activities for items planned for deployment (servers, workstations, monitors, network equipment and other associated items)
  - Complete operations test of software for deployment
  - Complete procurement of hardware for operational sites
  - Coordinate site preparation activities for deployment
- Implementation of security upgrades to align with network communication and the FAA telecommunication systems

**B. ERAM Operating System Upgrade**

During FY 2024 the ERAM Program will embark on 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 2024, \$17.0 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 2024, the funding will cover the labor costs to do prototyping/early engineering.

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

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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.

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**Detailed Justification for - 2A02 Next Generation Weather Radar (NEXRAD)**

(\$000)

| Activity/Component                     | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--|--------------------|--------------------|--------------------|
| Next Generation Weather Radar (NEXRAD) | \$3,900            | \$3,000            | \$3,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|--|---|----------------|
| Next Generation Weather Radar (NEXRAD) Sustainment 2 | ---   | \$3,000.0      |

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

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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 Departments of Transportation, Defense, and Commerce, with 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 2024, \$3.0 million is requested to support 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.

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

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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.

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**Detailed Justification for - 2A03 Air Route Traffic Control Center (ARTCC)  
and Combined Control Facility (CCF) Building  
Improvements**

(\$000)

| <b>Activity/Component</b>       | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------------|----------------------------|----------------------------|----------------------------|
| ARTCC/CCF Building Improvements | \$38,000                   | \$81,700                   | \$106,231                  |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>          | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|---------------------------------------|---------------------------------------|--|
| A. ARTCC and CCF Facility Sustainment | 23                                    | \$89,531.0                               |
| B. Enterprise Facilities Sustainment  | 11                                    | 14,400.0                                 |
| 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 11 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 \$399.5 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



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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 2024, \$89.5 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 work force.

The FY 2024 major improvement project:

- **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.

**FY 2024 Projects**

- Construct Environmental Wing – Cleveland, OH and Oakland, CA ARTCCs.
- Design Environmental Wing – Chicago, IL ARTCC.

Specific mission critical and local sustainment projects will also be accomplished at each ARTCC/CCF facility to replace old and/or obsolete building infrastructure and equipment that support air traffic operations.

For FY 2024, \$14.4 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 2024 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 2024, \$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?**

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This program sustains 21 ARTCC and two CCF facilities, as well as 10 Enterprise Facilities that are critical and vital to facilitate 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 ARTCC's, 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.

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**Detailed Justification for - 2A04 Air/Ground Communications Infrastructure**

(\$000)

| <b>Activity/Component</b>                | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Air/Ground Communications Infrastructure | \$7,815                    | \$9,400                    | \$5,700                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                    | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Communications Facilities Sustainment | ---                            | \$4,000.0                         |
| 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 2024, \$4.0 million is requested to initiate the expansion/relocation sites as determined by the Air-To-Ground Integrated Requirements Team Meeting in FY 2024. 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 2024, \$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 2024, \$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?**

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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.

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**Detailed Justification for - 2A05 Air Traffic Control En Route Radar Facilities  
Improvements**

(\$000)

| <b>Activity/Component</b>                                     | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Air Traffic Control En Route<br>Radar Facilities Improvements | \$3,000                    | \$6,700                    | \$5,978                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                   | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|--|---------------------------------------|--|
| A. Long Range Radar Infrastructure Sustainment | 54                                    | \$5,278.0                                |
| B. In-Service Engineering                      | ---                                   | 700.0                                    |

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

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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 77.8 percent, which is below the minimum 90 percent required for such facilities. This surveillance equipment must remain operational for the foreseeable future.

For FY 2024, \$5.3 million is requested to sustain approximately 54 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 and towers: 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.

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For FY 2024, \$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?**

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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.

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**Detailed Justification for - 2A06 Oceanic Automation System**

(\$000)

| <b>Activity/Component</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------|----------------------------|----------------------------|----------------------------|
| Oceanic Automation System | \$10,400                   | \$12,250                   | \$6,550                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                     | <u>Locations/<br/>Quantity</u> | <u>Estimate Cost<br/>(\$000)</u> |
|---|--------------------------------|----------------------------------|
| A. Oceanic Improvements                                   | ---                            | \$1,000.0                        |
| B. Advanced Technologies/Oceanic Procedures Enhancement 1 | ---                            | 4,900.0                          |
| C. Independent Operational Assessment                     | ---                            | 650.0                            |

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

From 2005 to 2007, the Advanced Technologies and 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 and 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 2024, \$1.0 million is requested for analysis and solution implementation activities that improve the delivery of oceanic domain services.

**B. Advanced Technologies and Oceanic Procedures Enhancement 1**

Addresses the operational shortfalls of the current oceanic system as the FAA moves forward with new initiatives and other national airspace system upgrades. The Automatic Dependent Surveillance - Contract Reduced Oceanic Separation

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modification will provide controllers the automated tools to safely apply and monitor reduced oceanic separation minima. The change will reduce the current standard from 30 Nautical Mile Lateral and 30 Nautical Mile Longitudinal to 23 Nautical Mile Lateral and 20 Nautical Mile Longitudinal separation standards.

For FY 2024, \$4.9 million is requested for the Advanced Technologies & Oceanic Procedures Enhancement 1 program. This request will support software development and testing to move the existing weather data to the System Wide Information Management interface. Once established on the System Wide Information Management interface, new services for retrieving the published weather data will streamline and automate manual processes of inputting weather data into the system. This change is planned to be delivered in 2024 and deployed at all sites by 2025.

**C. Independent Operational Assessment**

For FY 2024, \$650,000 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?**

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The new enhancements will provide airlines and general aviation with reduced operating costs and system delays by delivering improved coordination and user request capabilities that support optimum flight profiles, increasing the likelihood of on-time arrivals.



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**Detailed Justification for - 2A07 Next Generation Very High Frequency (VHF)/  
Ultra High Frequency (UHF) Air/Ground  
Communications System (NEXCOM)**

(\$000)

| <b>Activity/Component</b>  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Next Generation Very High Frequency Air/Ground Communications System | \$46,000                   | \$57,000                   | \$64,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                 | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Next Generation VHF/UHF A/G Communications Phase 2 | ---                            | \$48,500.0                        |
| B. Next Generation VHF/UHF A/G Communications Phase 3 | ---                            | 15,500.0                          |

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

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For FY 2024, \$48.5 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 2024, \$15.5 million is requested to support in 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.

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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?**

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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.

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**Detailed Justification for - 2A08 System-Wide Information Management (SWIM)**

(\$000)

| <b>Activity/Component</b>                 | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| System-Wide Information Management (SWIM) | \$33,973                   | \$10,200                   | \$52,500                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| Locations/ Estimated Cost             |                 |                |
|---------------------------------------|-----------------|----------------|
| <u>Activity Tasks</u>                 | <u>Quantity</u> | <u>(\$000)</u> |
| A. SWIM – Segment 2C                  | ---             | \$21,500.0     |
| B. Enhanced SWIM Cloud Service        | ---             | 4,000.0        |
| C. National Cloud Integration Service | ---             | 2,000.0        |
| C. SWIM – Segment 2D                  | ---             | 25,000.0       |

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

The SWIM is an information management and data sharing system. SWIM 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.

**A. 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:

- **Enterprise Service Monitoring:** Collects and provides centralized situational awareness data from multiple sources; allows single point data access that helps expedite fault isolation and service restoration, enabling near real-time end-to-end monitoring and reporting of enterprise SWIM services.

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- **Identity and Access Management:** Establishes an authorization capability, which allows SWIM and other national air space programs to centralize management of access privileges to national air space data on different platforms. This authorization capability reduces cyber security vulnerabilities by ensuring enforcement of proper security policies when creating, managing, and revoking access privileges.
- **SWIM Cloud Distribution Service with SWIM Industry FAA Team portal technology insertion:** This portal is a publicly accessible cloud-based infrastructure that provides scalable platform and data distribution services for external consumers thus relieving the strain on the national air space Enterprise Security Gateway.
- **SWIM Terminal Data Distribution System:** Provides a solution to meet the needs of SWIM internal users for no data loss. This solution also serves as a stepping stone towards elevating SWIM to efficiency critical operations.

For FY 2024, \$21.5 million is requested to continue technology refresh of national airspace system Enterprise Messaging Service infrastructure and to deploy SWIM Terminal Data Distribution System software at key sites in September 2024.

**B. Enhanced SWIM Cloud Service**

Enhanced SWIM Cloud Service provides scalable cloud solution that enables two-way message services between national air space and business partner services; simplifies producer and consumer on-boarding process; increases security controls to protect sensitive data, and establishes highly available messaging service infrastructure providing the foundation to enable future support for efficiency-critical services.

For FY 2024, \$4.0 million is requested to continue building a scalable cloud service solution for aviation partners, internal producers and consumers that will enable bi-directional communications, platform cloud engineering, and security controls to protect sensitive data.

**C. National Cloud Integration Service**

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 2024, \$2.0 million is requested to continue maintaining and enhancing the National Cloud Integration Service Sandbox Environment. It provides programs with

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the ability to prototype architecture that will support their future cloud operations. Additionally, the National Cloud Integration Service will continue to refine the security authorization process for national airspace systems utilizing cloud infrastructure. These efforts are critical in supporting the agency's exploration into cloud services.

**D. System-Wide Information Management (SWIM) - Segment 2D**

SWIM Segment 2D addresses the operational shortfalls associated with the ending FAA Telecommunications Infrastructure Services and 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.

For FY 2024, \$25.0 million is requested to continue transition of SWIM services and capabilities to the new 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 planning and user outreach.

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

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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.

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**Detailed Justification for - 2A09 Automatic Dependent Surveillance – Broadcast  
(ADS-B) NAS Wide Implementation**

(\$000)

| <b>Activity/Component</b>     | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------------|----------------------------|----------------------------|----------------------------|
| ADS-B NAS Wide Implementation | \$155,133                  | \$155,200                  | \$138,400                  |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                     | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|--|---------------------------------------|--|
| A. ADS-B Sustain Leased Services                 | ---                                   | \$132,400.0                              |
| B. ADS-B NAS Wide Implementation – Enhancement 1 | ---                                   | 6,000.0                                  |

**What is this program and what does the 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 are 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 Sustain Leased Services**

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For FY 2024, \$132.4 million is requested to provide for the continued implementation and operation of the following baseline applications:

- ADS-B Separation Services
- Pilot Advisory Services
- Traffic Information Services – Broadcast
- Flight Information Services – Broadcast
- Automated Dependent Surveillance – Rebroadcast
- Weather and National Airspace System Situation Awareness

The funding will also allow continued operation of Wide Area Multilateration surveillance services capabilities that provides aircraft location information to the automation systems at Denver Air Route Traffic Control Center, Southern California Terminal Radar Approach Control, and Charlotte Terminal Radar Approach Control. Additionally, the funding will allow for critical engineering and implementation activities including:

- Continued engineering and design 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 software builds supporting En Route Automation Modernization (ERAM) fused display mode to enable 3 nautical mile separation above 23,000 feet
- 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 FAA air traffic control services with Gulf of Mexico helicopter operators and energy platform owners, as agreed upon in respective Memoranda of Agreement. This funding will be used to:

- Remove and refurbish facilities and equipment from active energy platforms when platform owners decide to shut them down

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- Identify and evaluate an appropriate site to restore lost services
- Install new or refurbished systems on strategically located energy platforms
- Install equipment in new facilities on other strategically located partner energy platforms.

Funding will also continue ADS-B Baseline Services, utilizing subscription fees for ADS-B infrastructure owned and operated by the prime contractor. The anticipated FY 2024 activities are expected to:

- Provide and maintain ADS-B baseline services and applications.
- Pay subscription fees
- Provide enhancements to ADS-B pre-flight Service Availability Prediction Tool.
- Provide enhancements to ADS-B Performance Monitor tool.

The program will also utilize funding for service contract re-compete and award activities, including costs associated with Investment Analysis requirements, for the next baseline period.

**B. ADS-B Enhancement 1**

For FY 2024, \$6.0 million is requested to support the operational enhancement of this 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 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 (FIPS199) moderate to high categorization.



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

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Benefits provided by ADS-B to the American public include more efficient use of airspace capacity, fewer flight delays, and more optimal routing for aircraft. Other efficiency benefits include reduced weather deviations and fewer cancellations during inclement weather conditions resulting from increased access to some Alaskan regions and Gulf of Mexico oil platforms. 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.

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**Detailed Justification for - 2A10 Air Traffic Management Implementation Portfolio**

(\$000)

| <b>Activity/Component</b>                       | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Air Traffic Management Implementation Portfolio | \$10,000                   | \$7,400                    | \$32,100                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                              | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Traffic Flow Management Improvements            | ---                            | \$2,500.0                         |
| B. Traffic Flow Management System Sustainment 3    | ---                            | 21,500.0                          |
| C. Flow Management Data and Services               | ---                            | 6,100.0                           |
| 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. TFMS becomes especially important when external factors, such as adverse weather, reduces 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 was implemented to respond 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

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activities designed to improve the delivery of Traffic Flow Management services. For FY 2024, \$2.5 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 contains activities that are urgently needed to stabilize and sustain the system. For FY 2024, funding is requested to begin the technology refresh of extending the service life of existing hardware and corresponding software that is currently beyond the End-of-Life/End-of-Service stage. This effort will bridge the gap between TFMS and a new concept of operations proposed in Flow Management Data and Services (FMDS). The Sustainment 3 investment also includes risk mitigation activities to stabilize further an already overburdened TFMS Core, which will lessen the likelihood of any service interruptions or other impacts to the vast Traffic Flow Management user community. For FY 2024, \$21.5 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 to 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 2024, \$6.1 million is requested to begin the development of the Flow Management Data and Services system specifically to seek/award a primary development contract and prepare an initial 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 2024, \$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?**

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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 delay as well as retain TFMS users trust.
- Decrease maintenance and repair activities, thereby reducing time to repair which will reduce the impact of outages as well as avoid increased TFMS operational and support costs.

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**Detailed Justification for - 2A11 Time Based Flow Management (TBFM)  
Portfolio**

(\$000)

| <b>Activity/Component</b>                   | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Time Based Flow Management (TBFM) Portfolio | \$20,000                   | \$21,300                   | \$33,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                          | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|---|---------------------------------------|--|
| A. Time Based Flow Management Sustainment 1           | ---                                   | 31,700.0                                 |
| B. Initial Trajectory Based Operations Implementation | ---                                   | 1,000.0                                  |
| C. Independent Operational Assessment                 | ---                                   | 300.0                                    |

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

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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 2024, \$33.0 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

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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 2024, \$32.7 million is requested to:

- Complete System Engineering and Analysis to support IP address version 6 (IPv6) upgrade to meet security requirements.
- Conduct System Engineering and Analysis for the Red Hat Linux upgrade for new hardware selection.
- Complete hardware procurement.
- Complete hardware operational integration at remaining Air Route Traffic Control Centers and associated Towers and Terminal Radar Approach Control Facilities.

**B. Initial Trajectory Based Operations Implementation**

Initial Trajectory Based Operations (TBO) is an Air Traffic Management method for strategically planning, managing, and optimizing flights throughout the national airspace by using time-based management, information exchange between air and ground systems, and the aircraft's ability to fly precise paths in time and space. Four regional operating areas spanning multiple air traffic facilities and airports are targeted for initial TBO implementation (which is comprised of a series of milestones). The regional operating areas include the North East Corridor area (which is aligned with the NextGen Advisory Committee Northeast Corridor initiative to reduce flight congestion from Washington D.C to Boston Massachusetts). The three other areas are Northwest Mountain area (with focus on Denver International Airport), the Southwest area (with focus on Los Angeles International Airport), and the Mid-Atlantic area (with focus on Hartsfield-Jackson Atlanta International Airport).

For FY 2024, \$1.0 million is requested to expand metering at additional Air Route Traffic Control Centers.

**C. Independent Operational Assessment**

For FY 2024, \$300,000 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?**

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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 portfolio provides core capabilities and implementation support and resources for TBO to support trajectory based operations and implementation in the national airspace. The implementation approach will deliver the right tools at the right sites in a logical sequence, while conducting the appropriate training and change management to ensure acceptance and sustained use of deployed capabilities.

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.

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**Detailed Justification for - 2A12 Next Generation Weather Processor (NWP)**

(\$000)

| <b>Activity/Component</b>               | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Next Generation Weather Processor (NWP) | \$48,200                   | \$30,700                   | \$48,700                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                 | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---------------------------------------|--------------------------------|-----------------------------------|
| A. NextGen Weather Processor (NWP)    | ---                            | \$28,100.0                        |
| B. Common Support Services Weather    | ---                            | 20,000.0                          |
| C. Independent Operational Assessment | ---                            | 600.0                             |

**What is this program and what does the 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 host 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 2024, \$28.1 million is requested to provide the following:



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- Continue NWP Solution Development and Implementation activities
- Execute Project Management oversight by the government and its support organizations
- Complete NWP Integration Testing and System Testing
- Complete NWP Operational Test at WJHTC
- Complete Key Site Contractor Acceptance Inspection
- Complete Operational Test at Key Site
- Complete Functional Configuration Audit / Physical Configuration Audit
- Achieve NWP Key Site Initial Operating Capability

**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 2024, \$20.0 million is requested to:

- Continue Common Support Services-Weather Solution Development and Implementation activities

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- Execute Project Management oversight by the government and its support organizations
- Complete CSS-Wx Integration Testing and System Testing
- Complete Key Site Contractor Acceptance Inspection
- Complete CSS-Wx Operational Test
- Complete Functional Configuration Audit / Physical Configuration Audit
- Achieve CSS-Wx Key Site Initial Operating Capability

**C. Independent Operational Assessment**

Additionally, for FY 2024, \$600,000 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?**

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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.

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**Detailed Justification for - 2A13 Data Communications in Support of  
NextGen Air Transportation System**

(\$000)

| <b>Activity/Component</b>   | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Data Communications in Support of NextGen Air Transportation System | \$110,300                  | \$103,050                  | \$69,950                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                 | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Data Communications Network Services (DCNS) Future | ---                            | 69,300.0                          |
| B. Independent Operational Assessment                 | ---                            | 650.0                             |

**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

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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 less fuel burn and fewer emissions
- Reduces direct operating cost savings from increased throughput realized through reduced delays and improved communications

For FY 2024, \$69.95 million is requested for the Data Comm program. This funding supports the Data Comm Network Services. In addition, the request may fund software upgrades for the avionics that enable Data Comm communications possible on the flight deck.

**A. Data Communications Network Service (DCNS) Future**

For FY 2024, \$69.3 million is requested for network services. This funding will provide the Very High Frequency Data Link Mode 2 air ground network service that provides connectivity between the controllers and the cockpit. The Data Comm Network Services also include operations and maintenance, monitoring and control, network engineering and security, and certification suite activities. This Data Comm Network Service supports both Tower and En Route operations.

**B. Independent Operational Assessment**

For FY 2024, \$650,000 is requested for an assessment to identify any safety hazards and/or operational concerns with Data Comm system capabilities.

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

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The Data Communications (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.

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**Detailed Justification for - 2A14 Offshore Automation (OA)**

(\$000)

| Activity/Component       | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--------------------------|--------------------|--------------------|--------------------|
| Offshore Automation (OA) | \$10,000           | \$48,000           | \$59,600           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>  | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|------------------------|---|----------------|
| A. Offshore Automation | ---   | \$ 59,600      |

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

The OA 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 (ERAM) or a Standard Terminal Automation Replacement System (STARS) system to perform automation information for the air traffic controllers. The program plans to address the sustainability concern associated with the Offshore Flight Data Processing System at Honolulu Control Facility that is reaching an end of life status. This problem is the result of hardware limitations with the mainframe computer as well as retention of legacy expertise.

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 OA program is executing a segmented approach to address program affordability and sustainability concerns with the Offshore Flight Data Processing System in Honolulu Control Facility. Segment 1 will complete alignment of Anchorage Air Route Traffic Control Center and Honolulu Control Facility with National Air Space

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ERAM capabilities; fully addressing sustainability concerns at Honolulu and replacing the Flight Data Processing System at Anchorage. Full standardization of these two offshore sites will reduce the number of one-off legacy systems and offer the highest degree of integration with NextGen. Initial Operating Capability (IOC) at Honolulu and Anchorage is expected by FY 2026 Q1 and FY 2027 Q3, respectively.

FY 2024, \$59.6 million is requested for the following:

- Software Development for both ERAM and Micro En Route Automated Radar Tracking System (Micro-EARTS) to complete and address offshore functions; systems engineering and program management for the associated development effort
- Test and evaluation activities continue through FY 2024
- New support infrastructure training will be developed for air traffic controllers and Air Traffic Managers, Technical Operations, and Second Level Engineering as well as initial hands-on training is anticipated to commence
- Engineering and software development support to develop the interface between Micro-EARTS and ERAM, software and hardware deployment at Honolulu, and En Route Communication Gateway (ECG Activation) support will be provided
- Contractor support to provide program management, financial management, operational support and integration support as well as Second Level Engineering support
- Logistics activities: supply support, technical data, implementation planning, site activation activities are planned for FY 2024
- Physical infrastructure improvements (beginning in FY 2023) will continue through FY 2024 to prepare the sites for hardware installation
- Honolulu site planning is anticipated to finish in FY 2024
- First hardware delivery is expected in FY 2024

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

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Offshore Automation 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

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Control facilities. The program will address sustainability risk; provide greater workforce efficiency and flexibility; and allow access to NextGen technologies.



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**Detailed Justification for - 2A15 Reduced Oceanic Separation**

(\$000)

| <b>Activity/Component</b>  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|----------------------------|----------------------------|----------------------------|----------------------------|
| Reduced Oceanic Separation | \$12,000                   | \$2,050                    | \$2,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                                 | <u><b>Quantity</b></u> | <u><b>Locations/ Estimated Cost<br/>(\$000)</b></u> |
|--|------------------------|---|
| Advanced Surveillance Enhanced Procedural Separation (ASEPS) | ---                    | \$2,000.0   |

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

---

The Advanced Surveillance Enhanced Procedural Separation (ASEPS) program analyzes and evaluates enhancements in surveillance technology that can support reduced separation between aircraft and provide safety and efficiency benefits in oceanic Flight Information Regions.

In September 2022, the FAA's Joint Resources Council (JRC) decided to suspend ongoing and planned investment activities associated with the effort.

SBA may have the potential to provide some marginal benefits for various applications evaluated (including air traffic control and air traffic management); however, the currently available SBA system is not sufficiently mature to warrant entry into AMS Investment Analysis because it fails to meet the FAA's technical requirements and does not deliver sufficient benefits to justify its costs compared to the available benefits.

For FY 2024, \$2.0 million is requested in support of Space-based Automatic Dependent Surveillance – Broadcast (ADS-B) services initiatives. The funding will be used to perform close out activities, continued support for standards development with International Civil Aviation Organization (ICAO), completion of Automatic Dependent Surveillance – Contract (ADS-C) reduced separation on the Advanced Technologies & Oceanic Procedures (ATOP) automation system and industry engagement through a market survey.

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

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The FAA will focus its resources on industry engagement around Space-Based ADS-B technology to reassess market capabilities and determine if other implementation approaches are viable for future investment considerations.

In addition to market research activities, program funds will be used to finalize implementation of reduced oceanic separation using Automatic Dependent Surveillance – Contract (ADS-C) that will enable improved airspace management at all three of the U.S. oceanic areas within ZAN, ZOA and ZNY.

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**Detailed Justification for - 2A16 En Route Service Improvements**

(\$000)

| <b>Activity/Component</b>     | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------------|----------------------------|----------------------------|----------------------------|
| En Route Service Improvements | \$2,000                    | \$1,000                    | \$2,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>         | <u>Locations/</u><br><u>Quantity</u> | <u>Estimated Cost</u><br><u>(\$000)</u> |
|-------------------------------|--------------------------------------|---|
| 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 are limited to operational changes that do not require significant capital investments or involve significant systems complexity or system interdependencies. For FY 2024, \$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.

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**Detailed Justification for - 2A17 Commercial Space Integration**

(\$000)

| Activity/Component           | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|------------------------------|--------------------|--------------------|--------------------|
| Commercial Space Integration | \$6,500            | \$5,000            | \$1,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>              | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|------------------------------------|---|----------------|
| NAS Space Integration Capabilities | ---   | \$1,000.0      |

**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.

For FY 2024, \$1.0 million is necessary to continue supporting the Space Data Integrator operational prototype, and to conduct detailed design and initial system development on En Route Automation Modernization, Standard Terminal Automation Replacement System and enhancements needed for the Space Data Integrator operational prototype. Implementation of National Airspace Space Integration capabilities will enable space data to be displayed on these 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.

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

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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.

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**Detailed Justification for - 2B01 Standard Terminal Automation Replacement System (STARS)**

(\$000)

| <b>Activity/Component</b>                               | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Standard Terminal Automation Replacement System (STARS) | \$63,697                   | \$68,000                   | \$90,100                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                  | <u><b>Locations/ Quantity</b></u> | <u><b>Estimated Cost (\$000)</b></u> |
|---|-----------------------------------|--------------------------------------|
| A. STARS Sustainment 3                        | ---                               | \$51,100.0                           |
| B. STARS Sustainment 4                        | ---                               | 35,000.0                             |
| C. Terminal Precipitation on the Glass (TPoG) | ---                               | 4,000.0                              |

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

STARS 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:

- 147 FAA and 91 Department of Defense (DoD) Terminal Radar Approach Control facilities totaling 238
- 432 FAA and 173 DoD Air Traffic Control Tower facilities totaling 605
- More than 100 systems installed and maintained at the STARS support sites that include Operational Support Facilities and the FAA Academy.

**A. STARS – Sustainment 3**

This program will enable the FAA to replace key elements of STARS 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 STARS reliability, maintainability, and availability. Continued sustainment investments for STARS are necessary to

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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 2024, \$51.1 million is requested for the following work:

- Deployment of the new Operating System
- Deployment of Digital Video
- Deployment of X4000 Replacement Processors
- Preparing STARS 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. STARS – Sustainment 4**

This investment will provide engineering, development and deployment activities that will enable the FAA to replace key components of STARS that have reached their end of life and are no longer compatible with current commercial offerings. Continued sustainment investments for STARS 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 with modern technology.

For FY 2024, \$35.0 million is requested to fund development activities associated with the next investment of sustainment activities for STARS. The program will evaluate and implement:

- Updates to the STARS Operating System
- New Terminal Control Workstations
- A set of qualification activities and corresponding Bulk Buys for replacement for various End of Life STARS components including:
  - Main Display Monitor
  - Processor and Data Recording Device
  - Local Area Network Switch

**B. 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 2024, \$4.0 million is requested in order to initiate implementation activities to mitigate shortfalls with existing precipitation information currently realized on STARS.

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

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STARS infrastructure can be expanded and sustained to meet increased traffic demands and accommodate the introduction of new automation functions necessary for improved safety, efficiency, and capacity. STARS is the principal tool used by air traffic controllers in and around airport terminal facilities for controlling aircraft.

Terminal Precipitation on the Glass will heighten air traffic controllers' situational awareness of precipitation, enabling them to make decisions that benefit other controllers, pilots, and flying community. With precipitation that is more accurate air traffic controllers can issue higher quality weather advisories to pilots. Controllers will have an increased ability to anticipate alterations to traffic patterns and implement separation strategies based on pilot deviation request. With this enhanced information, air traffic controllers can be pro-active in providing instruction around precipitation as opposed to tactically adjusting in real time, thereby increasing safety and efficiency of the National Airspace System.



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**Detailed Justification for - 2B02 Terminal Automation Program**

(\$000)

| Activity/Component          | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|-----------------------------|--------------------|--------------------|--------------------|
| Terminal Automation Program | \$3,000            | \$3,000            | \$5,100            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                          | <u>Locations/</u><br><u>Quantity</u> | <u>Estimated Cost</u><br><u>(\$000)</u> |
|--|--------------------------------------|---|
| A. Flight Data Input/Output Sustainment        | ---                                  | \$2,100.0                               |
| B. Terminal Improvements                       | ---                                  | 2,000.0                                 |
| C. Tower Data Link Services (TDLS) Sustainment | ---                                  | 1,000.0                                 |

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

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**A. Flight Data Input/Output (FDIO) Replacement**

The FDIO 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. FDIO also provides Flight Data Service to Honolulu and San Juan Combined Control Facilities. The FDIO system interfaces to several En Route Automation Systems (EAS) including En Route Automation Modernization (ERAM), Flight Data Processing System (FDPS), Alaska Flight Data Processing System, and Offshore Flight Data Processing system (OFDPS) where it provides flight data information to National Air Space Terminal facilities.

In addition, FDIO provides flight data information to other mission-critical terminal automation systems. This information assists controllers in tracking aircraft, providing departure clearances, traffic metering, and anticipating the arrival of the aircraft in the sector under their control. FDIO provides drop tube capability with, or without Terminal Flight Data Manager, which allows for the replacement of Electronic Flight Strip Transfer System and mechanical drop tubes. This drop tube service is called Flight Data Transfer Service and is part of the FDIO baseline. The FDIO system also receives data from the Terminal Radar Approach Control facilities, Air Traffic Control

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Tower, and Radar Approach Control controllers and relays this information back to the En Route Automation Systems. The FDIO Sustainment program is based on a 5-year replacement cycle for the various components in order to maintain system operational availability while implementing an Ethernet-based architecture in support of future En Route Automation Modernization, FDIO, and the Terminal Flight Data Manager requirements. The FDIO program implements new requirements and functionality in support of NAS modernization. The program replaces end-of-life/obsolete FDIO equipment with fully compatible commercial off the shelf and modified COTS equipment.

For FY 2024, \$2.1 million is requested to continue the procurement of hardware and software, provide program management support, procurement and installation of replacement FDIO components at Federal Aviation Administration and Department of Defense air traffic control facilities, and all related logistics. This funding will also cover console modifications due to the new baselined equipment. The FDIO Tech Refresh of equipment will include the refresh of Flight Data Transfer Service equipment to include Electronic Flight Strip Transfer System and drop tube replacements, Operational Internet Protocol support, cables and end-of-life equipment.

**B. Terminal Automation Modernization 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 2024 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 or 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

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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.

An amount of \$1.0 million is requested in FY 2024 to support upgrades to reduce several critical and high vulnerabilities, maintain technological currency, and maintain performance and stability standards for air traffic control. These efforts include:

- Upgrading network equipment that is obsolete and affecting the mitigation of security vulnerabilities
- Upgrade the Tower Information Management System (a subset of the Tower Data Link Services Enterprise) servers and storage units at the William J. Hughes Technical Center and one test system in Oklahoma City
- Upgrade the Oracle database to the currently supported version
- Upgrading the operating system to the currently supported version

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

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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.

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**Detailed Justification for - 2B03 Terminal Air Traffic Control Facilities  
Replacement**

(\$000)

| <b>Activity/Component</b>                           | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Terminal Air Traffic Control Facilities Replacement | \$331,165                  | \$100,000                  | \$5,150 <sup>1</sup>       |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                               | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|---|---|----------------|
| Terminal Air Traffic Control Facilities Replacement | ---   | \$5,150.0      |

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

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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. The average age of Air Traffic Control Towers in the FAA portfolio is 33 years, and the average age of a Terminal Radar Approach Control facility is 26 years. There are facilities that are 65 years old. In some cases, Air Traffic Control Towers and Terminal Radar Approach Control facilities built 20 years ago do not meet today's Occupational Safety and Health Administration, operational, and building requirements. The FAA now manages a \$627.0 million backlog of Terminal Facilities projects.

FAA has a number of 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

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<sup>1</sup> There is an additional \$662.0 million in FY 2024 IIJA funding for the facilities replacement program.

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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 \$5.15 million is requested for FY 2024 to support advance 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, 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 advance engineering considerations.

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

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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 Index of terminal facilities by providing new buildings that meet current codes

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**Detailed Justification for - 2B04 Air Traffic Control Tower (ATCT)/Terminal  
Radar Approach Control (TRACON) Facilities –  
Improve**

(\$000)

| <b>Activity/Component</b>           | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------------------|----------------------------|----------------------------|----------------------------|
| ATCT/TRACON Facilities –<br>Improve | \$31,000                   | \$53,800                   | \$67,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>      | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|----------------------------|--------------------------------|-----------------------------------|
| A. ATCT/TRACON Sustainment | ---                            | \$66,000.0                        |
| B. In-Service Engineering  | ---                            | 1,000.0                           |

**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 \$615.6 million backlog of Terminal Facilities projects and that increases the risk of facility outages. For FY 2024, \$67.0 million is requested for the following:

**A. ATCT/TRACON Sustainment**

For FY 2024, \$66.0 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

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support the national airspace system, modernization strategy to achieve efficient aerospace systems and operations. Facility improvements must incorporate new requirements for relocated or replaced equipment with minimal impact to 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 from 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 2024, \$1.0 million 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?**

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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.

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**Detailed Justification for - 2B05 National Airspace System Facilities  
Occupational Safety and Health Administration  
(OSHA) and Environmental Standards Compliance**

(\$000)

| <b>Activity/Component</b>   | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| National Airspace System Facilities OSHA and Environmental Standards Compliance | \$10,000                   | \$24,200                   | \$38,908                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>  | <u><b>Locations/ Quantity</b></u> | <u><b>Estimated Cost (\$000)</b></u> |
|---|-----------------------------------|--------------------------------------|
| National Airspace System Facilities OSHA and Environmental Standards Compliance | ---                               | \$38,908.0                           |

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

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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



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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 2024, \$38.9 million is requested to provide technical compliance expertise to address 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

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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. They 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?**

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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 applicable Federal and State compliance regulations.

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**Detailed Justification for - 2B06 Integrated Display System (IDS)**

(\$000)

| <b>Activity/Component</b>       | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------------|----------------------------|----------------------------|----------------------------|
| Integrated Display System (IDS) | \$30,000                   | \$52,000                   | \$55,250                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                    | <u>Locations/</u><br><u>Quantity</u> | <u>Estimated Cost</u><br><u>(\$000)</u> |
|--|--------------------------------------|---|
| A. Enterprise Information Display System (E-IDS) Phase 1 | ---                                  | \$55,000.0                              |
| B. E-IDS Independent Operational Assessment (IOA)        | ---                                  | 250.0                                   |

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

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**A. Enterprise Information Display System (E-IDS) Phase 1**

In the national airspace system, 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 of each. 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.

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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 Information 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 Airmen, Special Activity Airspace schedule information, weather products, Pilot Reports, and facility-specific information entered by users.

For FY 2024, \$55.0 million is requested to support multiple prime contractor and program office activities: prime software development, completion of development test activities, 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 such as budget, scheduling, earned value management, risk management, testing, implementation, systems engineering, and logistics. Enterprise-IDS plans to achieve Development Test milestone in FY 2024.

**B. E-IDS - Independent Operational Assessment (IOA)**

For FY 2024, \$250,000 is requested for an assessment to identify any safety hazards and/or operational concerns with Enterprise Information Display System capabilities.

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

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Enterprise-IDS will provide multiple safety benefits to the American public. It will provide increased productivity, user efficiency, and national airspace system safety by

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displaying, entering, and distributing Notices to Airmen, 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.

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**Detailed Justification for - 2B07 Terminal Flight Data Manager (TFDM)**

(\$000)

| Activity/Component                  | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|-------------------------------------|--------------------|--------------------|--------------------|
| Terminal Flight Data Manager (TFDM) | \$85,400           | \$61,800           | \$45,200           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                  | <u>Locations/ Quantity</u> | <u>Estimated Cost (\$000)</u> |
|--|----------------------------|-------------------------------|
| A. Terminal Flight Data Manager (TFDM) | ---                        | \$44,800.0                    |
| B. Independent Operational Assessment  | ---                        | 400.0                         |

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

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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

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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 greenhouse gas emissions.

The Final Investment Decision was approved and the prime contract was awarded in June 2016. The program's implementation plan is based on a two software build approach (Build 1 and Build 2) and deployment to 49 airports starting in FY 2022 to FY 2031 (based on current COVID recovery plan dates). 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 in the Development and Testing phase and starting the implementation activities. The program has completed the following key milestones:

**Build 1 Key Milestones:**

- System Requirements Review
- Critical Design Review
- Development Test Complete
- Operational Test Start

**Build 2 Key Milestones**

- System Requirements Review
- Critical Design Review
- Development Test Complete

The COVID-19 pandemic significantly impacted the program stopping all travel and facility access completely which stopped all implementation activities. The Terminal Flight Data Manager program did establish remote access into the Leidos (development contractor) lab and William J. Hughes Technical Center Labs to allow software development and system test to continue. Terminal Flight Data Manager missed three major milestones in FY 2020 (Build 1 Operational Test completion / First Key Site Cleveland Initial Operations / Build 1 Initial Operational Assessment). This has rippled through all future milestones with a current twenty-three month impact since the onset of COVID. The Terminal Flight Data Manager recovery plan in place

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has Build 1 Operational Test planned for August 2022 and First Key Site Cleveland Initial Operations planned for November 2022.

**A. Terminal Flight Data Manager**

For FY 2024, \$44.8 million is requested for the Implementation of Terminal Flight Data Manager Build 1 and to complete System Development and Testing of Terminal Flight Data Manager Build 2. The Prime Contract costs for FY 2024 will cover the anticipated key milestones outlined below. They 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. The remaining Fiscal Year 2024 funding will provide the Terminal Flight Data Manager Program Office with the test resources required to complete the formal system test activities and conduct the Operational Test.

Additionally, Terminal Flight Data Manager will integrate into the national air space system and will have 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 Fiscal Year 2024, Terminal Flight Data Manager will complete funding for these other system interfaces.

Lastly, the funding will provide resources needed to support further preparation for the implementation of the Terminal Flight Data Manager system into the national airspace system.

The Federal Aviation Administration is continuing to evaluate the impact of the Pandemic on program schedules. Anticipated key milestones for Fiscal Year 2024 are summarized below:

- Complete site surveys at four sites
- Complete hardware installations at four sites
- Complete Build 1 Initial Operational Capability at four additional sites
- Achieve Build 2 Operational Test (Acquisition Program Baseline milestone)
- Achieve Build 2 Key-Site Charlotte Initial Operational Capability (Acquisition Program Baseline milestone)

**B. Independent Operational Assessment**

For FY 2024, \$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?**

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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 both 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.

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**Detailed Justification for - 2B08 NextGen – Performance Based Navigation (PBN) Support Portfolio**

(\$000)

| <b>Activity/Component</b>                            | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Performance Based Navigation (PBN) Support Portfolio | \$8,000                    | \$8,000                    | \$8,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                        | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| Distance Measuring Equipment Support for PBN | 12                             | \$8,000.0                         |

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

Performance Based Navigation (PBN) uses Area Navigation and Required Navigation Performance to improve access and flexibility in the national airspace system with the goal of providing the most direct and efficient aircraft routes possible. This begins with leaving the departure runway to arriving at the destination runway while also enabling right-sizing of conventional procedures and navigation infrastructure. PBN defines the requirements for routes and procedures that enable aircraft to navigate with greater precision and accuracy. It provides a basis for designing and implementing new flight paths, redesigning airspace, and providing safe obstacle clearance. In support of PBN, the objective of NextGen Distance Measuring Equipment is to provide a resilient network to continue PBN operations during a Global Navigation Satellite System disruption. The program will add Distance Measuring Equipment systems to the existing network to eliminate single points of failure and fill coverage gaps to enable Area Navigation aircraft.

For FY 2024, \$8.0 million is requested to fund program management, system engineering, logistics support, Distance Measuring Equipment service volume class changes, to procure five Distance Measuring Equipment systems for installation, and complete the installation of seven Distance Measuring Equipment Systems.

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

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These resources benefit the American public by allowing pilots flying aircraft equipped with Area Navigation avionics to continue PBN operations in the event of a Global Navigation Satellite System outage. This will significantly maintain flight efficiency, reduce delays and reduce carbon emissions and noise, thereby providing an environmental benefit. DME/DME Area Navigation service will be available to the 30 percent of commercial aircraft that are not equipped with an Inertial Reference Unit, (a capability which enables the aircraft to navigate through coverage gaps up to 33 nautical miles), significantly reducing the impact on pilot/controller workload during Global Navigation Satellite System disruptions, thereby improving safety. The NextGen Distance Measuring Equipment program will discontinue existing Distance Measuring Equipment facilities that are not needed for Area Navigation, thereby reducing maintenance costs for equipment, facilities, and instrument flight procedures.

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**Detailed Justification for - 2B09 Unmanned Aircraft System (UAS)  
Implementation**

(\$000)

| Activity/Component                            | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|---|--------------------|--------------------|--------------------|
| Unmanned Aircraft System (UAS) Implementation | \$26,600           | \$5,000            | \$5,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                | <u>Locations/<br/>Quantity</u> | <u>Estimated<br/>(\$000)</u> |
|--|--------------------------------|------------------------------|
| Small Unmanned Aircraft Systems (UAS) Implementation | ---                            | \$5,000.0                    |

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

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The FAA introduced new and updated regulations to manage the influx of Small UAS into the national airspace system. As a result, of these new regulations, rapid implementation was necessary to manage public interactions and expedite internal FAA business processes. These projects will create the framework needed to allow UAS to operate safely without impact to manned aircraft operations or creating disruptions and delays.

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 2024 are Low Altitude Authorization and Notification Capability, Remote Identification, and Drone Zone. The FAA Drone Zone platform supports the backend Information Technology systems that run the Low Altitude Authorization and Notification Capability program. Drone Zone supports the UAS Traffic Management operating environment by allowing registered UAS to be identified to stakeholders.

UAS Services are a supporting complement of enterprise and secondary services developed in support of Low Altitude Authorization and Notification Capability and future UAS data exchanges, including support to FAA implementation of Remote Identification. This includes enhancements/integration of Drone Zone within the FAA

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Enterprise Infrastructure and UAS Traffic Management capacities supporting emerging rules and policies. For FY 2024, \$5.0 million is requested to support:

- LAANC application enhancement
- Operationalize services supporting FAA implementation of Remote Identification
- Enhancement of UAS Traffic Management infrastructure for security compliance
- Development of UAS Traffic Management capabilities for beyond visual line of sight operations
- Drone Zone capabilities enhancement

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

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The UAS programs play a critical role in enabling UAS operations in the national airspace system 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.

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**Detailed Justification for - 2B10 Airport Ground Surveillance Portfolio**

(\$000)

| <b>Activity/Component</b>             | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------------------|----------------------------|----------------------------|----------------------------|
| Airport Ground Surveillance Portfolio | \$28,400                   | \$18,000                   | \$33,200                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>  | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Airport Surface Detection Equipment – Sustainment                                   | ---                            | \$12,700.0                        |
| B. Runway Status Lights Sustainment  | ---                            | 6,900.0                           |
| C. Navigation Aids Monitoring Equipment  | ---                            | 4,400.0                           |
| D. Runway Incursion Device (RID)   | ---                            | 3,000.0                           |
| E. Airport Surface Detection Equipment – Model 3<br>Surface Movement Radar Replacement | ---                            | 6,200.0                           |

**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**

This 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 35 airports and Airport Surface Surveillance Capability systems at nine 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 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

For FY 2024, \$12.7 million is requested to support several 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**

This sustainment 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 2024, \$6.9 million is requested to support testing of replacement hardware, software, and site implementation activities. 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

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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 2024, \$4.4 million is requested to support Program Management, Systems Engineering, Logistics, Implementation Planning, NAS Engineering Support, and 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 2024, \$3.0 million is requested to support acquisition, development, and test of the updated runway incursion devices.

**E. Airport Surface Detection Equipment – Model 3 Surface Movement Radar Replacement**

The 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 2024, \$6.2 million is requested to support site preparation, design, development, and test of the new surface surveillance radar.

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

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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 aviation safety initiatives.



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**Detailed Justification for - 2B11 Terminal and En Route Surveillance Portfolio**

(\$000)

| <b>Activity/Component</b>                    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Terminal and En Route Surveillance Portfolio | \$43,373                   | \$113,00                   | \$107,300                  |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                                   | <u><b>Quantity</b></u> | <u><b>Locations/ Estimated Cost<br/>(\$000)</b></u> |
|--|------------------------|---|
| A. Air Traffic Control Beacon Interrogator Model 6 Sustainment | ---                    | \$4,380.0   |
| B. Air Traffic Control Beacon Interrogator Model 5 Sustainment | ---                    | 200.0   |
| C. Airport Surveillance Radar Model 9 Sustainment 3            | ---                    | 8,000.0   |
| D. Airport Surveillance Radar Model 9 Sustainment 4            | ---                    | 11,540.0  |
| E. Airport Surveillance Radar Model 8 Sustainment 1            | ---                    | 7,280.0   |
| F. Airport Surveillance Radar Model 11 Sustainment 3           | ---                    | 15,400.0  |
| G. Mode Select Replacement Phase 1A                            | ---                    | 16,800.0  |
| H. Mode Select Beacon Replacement System Phase 1B              | ---                    | 28,000.0  |
| I. Mode Select Sustainment 4                                   | ---                    | 3,600.0   |
| J. Airport Surveillance Radar Model 11 Sustainment 4           | ---                    | 6,400.0   |
| K. In-Service Engineering                                      | ---                    | 1,700.0   |
| L. Strategic Initiatives Analysis and Validation               | ---                    | 4,000.0   |

**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 preventing 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 2024, \$4.38 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
- Modulation and Monitoring Board
- Video and Timing Board
- Position Adjustable Range Reference Orientation Transponder Site Monitoring Hardware

**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 2024, \$200,000 is requested for contractor support, program management support, 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 2024, \$8.0 million is requested for implementation of data communication equipment, program management, second level engineering support and FAA Telecommunications Infrastructure Communication Lines.

### **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 2024, \$9.54 million is requested for contractor support, program management, second level engineering analysis, and portfolio acquisition activities. This work will include support for the following projects:

- Antenna Control Box Replacement
- Remote Maintenance Sub-system Computer Replacement
- Waveguide Pressurization System Monitoring production buy
- Directional Couplers Refresh
- Multi-voltage power supply drawer redesign

Additionally, \$2.0 million is requested for concept development, alternative analysis and artifact development for Airspace non-cooperative Surveillance Radar. Investment Analysis Readiness Decision is planned in June 2024.

### **E. Airport Surveillance Radar Model 8 Sustainment 1**

The Airport Surveillance Radar Model 8 technology refresh project is needed to sustain these non-cooperative surveillance radar systems until divested or replaced. 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. Forty-five of these radar systems currently remain in use in the national airspace system. 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. The Sustainment 1 will replace or redesign obsolete hardware and software. For FY 2024, \$7.28 million is requested for contractor support, program management, second level engineering analysis, portfolio acquisition activities and procurement activities supporting projects that include:

- Radio Frequency Input Redesign
- ASR-8 Processor redesign, 24 volt pre-regulator redesign
- System control panel and power supplies
- Remote maintenance monitoring

### **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 2024, \$15.4 million is requested for design and development, test, initial hardware procurements contractor support, and program management.

### **G. 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 2024, \$16.8 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.

#### **H. 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 2024, \$28.0 million is requested to start the procurement of systems. The Mode S Beacon Replacement Systems program is planning to return to the JRC for Phase 1B approval upon successful completion of Phase 1A Site Acceptance Test event (FY 2023) at a key site. Funding for investment analysis has been provided within Phase 1A. Phase 1B Final Investment Decision is planned for June 2023.

#### **I. 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 2024, \$3.6 million is requested for contractor support, program management, second level engineering analysis, portfolio acquisition activities and procurement activities supporting the following projects: Global Positioning System Clock, Common Digitizer 2 System Monitor Redesign, Time Division Multiplexing-to-Internet Protocol transition and power supply replacement as well as projects approved by the Terminal and EnRoute Surveillance Portfolio Stakeholder Governing Body.

#### **J. 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 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 2024, \$6.4 million is requested for design and development, test, and hardware procurements. Additionally, funding will be used for Windfarm Mitigation engineering analysis.

#### **K. In-Service Engineering**

In addition, \$1.7 million is requested to allow immediate response and tactical distribution of in-service engineering resources to emerging technology solutions across the entire surveillance portfolio.

#### **L. Strategic Initiatives Analysis and Validation**

For FY 2024, \$4.0 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.

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

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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:

- Extend the service life of the surveillance systems
- Decrease system maintenance

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- Reduce outages
- Increase equipment and service availability
- Decrease operating costs

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**Detailed Justification for - 2B12 Terminal and En Route Voice Switch  
Recorder Portfolio**

(\$000)

| <b>Activity/Component</b>                             | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Terminal and En Route Voice Switch Recorder Portfolio | \$49,496                   | \$40,100                   | \$75,050                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                        | <u><b>Quantity</b></u> | <u><b>Locations/ Estimated Cost<br/>(\$000)</b></u> |
|---|------------------------|---|
| A. Voice Switching and Control System Sustainment 4 | ---                    | \$12,500.0  |
| B. Terminal Voice Switch Sustainment                | ---                    | 6,600.0   |
| C. NAS Voice Recorder                               | ---                    | 5,000.0   |
| D. Voice Communication Systems – Phase 1            | ---                    | 44,700.0  |
| E. Voice Communication Systems – Phase 2            | ---                    | 2,000.0   |
| F. In Service Engineering                           | ---                    | 250.0   |
| G. Strategic Initiatives Analysis and Validation    | ---                    | 4,000.0   |

**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 controller and controllers to pilots is vital 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 voice communication services that allow the En route air traffic controllers to communicate with other controllers, pilots, ground personnel and other locations 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.



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For FY 2024, \$12.5 million is requested for sustainment activities, which may include VSCS common switch power supply replacement and VSCS control subsystem server technology refresh. 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 Sustainment**

Involves sustaining the aging, obsolete voice switches in Air Traffic Control Tower and Terminal Radar Approach Control facilities. Terminal voice switches provide voice communication services to air traffic controllers in the airport towers and Terminal Radar Approach Control facilities. This allows the terminal air traffic controllers to communicate with other controllers, pilots, ground personnel and other locations while separating, managing and directing air traffic.

The Terminal Voice Switch – Legacy Voice Switch Sustainment project 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 components of the existing voice switches that pose the greatest risk to affecting the operational availability to the FAA's voice communications.

For FY 2024, \$6.6 million is requested for terminal voice switch sustainment activities, including the continued procurement and 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, power supply replacements and/or refurbishment of other high risk components to extend the service life of the existing equipment.

**C. National Air Space 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 Infrastructure enterprise Network Time Protocol.

As the 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

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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 in order to maintain Operational Availability.

For FY 2024, \$5.0 million is requested for site preparation and installation of approximately one hundred systems, vendor program management, telecommunications services, and training.

**D. Voice Communication Systems – Phase 1**

Will provide interface equipment to resolve Radio Control Equipment obsolescence issues as well as add the capability to convert analog signals transmitted from the existing voice switch equipment into the approved international Voice over Internet Protocol standard. Phase 1 will include procurements for Air-to-Ground Protocol Converters (APC) and Ground-to-Ground Protocol Converters (GPC). The APCs will replace the end-of-life Radio Control Equipment and can operate in Voice over Internet Protocol or in legacy analog mode. The APC and GPC equipment will also simplify the future replacement of the legacy voice switches in Phase 2 by allowing the use of protocol converters to communicate with FAA analog interfaces.

For FY 2024, \$44.7 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. Additionally funds will be used for ongoing investment analysis efforts for the GPC contract.

**E. Voice Communication Systems – Phase 2**

Will focus on the procurement of Internet Protocol-based voice switches. For FY 2024, \$2.0 million is requested for investment analysis activities.

**F. In Service Engineering**

In addition, \$250,000 is requested to allow immediate response and tactical distribution of resources to emerging technology solutions across this portfolio.

**G. Strategic Initiatives Analysis and Validation**

For FY 2024, \$4.0 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.

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

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Direct voice communication between the air traffic controllers and pilots is critical to safe 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 voice communication services. The sustainment projects focus on reducing obsolescence and maintaining 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 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 used in the investigation of accidents, incidents, 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.

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**Detailed Justification for - 2B13 Enterprise Information Platform**

(\$000)

| Activity/Component              | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|---------------------------------|--------------------|--------------------|--------------------|
| Enterprise Information Platform | \$17,600           | \$9,000            | \$11,000           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                         | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Common Support Services – Flight Data      | ---                            | \$4,000.0                         |
| B. Enterprise Information Management Platform | ---                            | 7,000.0                           |

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

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**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). 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 Sharing**– Provides a single common reference, Flight and Flow Information for a Collaborative Environment facilitating operational flight data sharing/exchanges across the national airspace system ecosystem in accordance with centralized and managed business rules.

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For FY 2024, \$4.0 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 2024, \$7.0 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 10 additional data processing capabilities that transform the data to add value or enhance usability.
- Provide 10 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?**

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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.

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**Detailed Justification for - 2B14 Remote Towers**

(\$000)

| Activity/Component | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--------------------|--------------------|--------------------|--------------------|
| Remote Towers      | \$4,900            | \$3,000            | \$3,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u> | <u>Locations/ Quantity</u> | <u>Estimated Cost (\$000)</u> |
|-----------------------|----------------------------|-------------------------------|
| 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 construction and recurring maintenance. As mandated by congress, 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. Additional demonstrations will be conducted to develop standards for systems approved for use at higher density traffic airports in Class B or Class C airspace and initiate research to evaluate the optimal location of remote tower technologies at specific airports.

For FY 2024, \$3.0 million is requested to support the following activities:

- The FAA Remote Tower Pilot Program efforts (e.g., system evaluations) will be conducted at the William J. Hughes Technical Center and Atlantic City International Airport (ACY). The National Aviation Research Technology Park (NARTP) will house the remote tower equipment.

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

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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.

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**Detailed Justification for - 2C01 Future Flight Services Program (FFSP)**

(\$000)

| <b>Activity/Component</b>             | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------------------|----------------------------|----------------------------|----------------------------|
| Future Flight Services Program (FFSP) | \$3,000                    | \$1,500                    | \$1,500                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                                  | <u><b>Locations/ Quantity</b></u> | <u><b>Estimated Cost (\$000)</b></u> |
|---|-----------------------------------|--------------------------------------|
| Future Flight Services Program – Alaska Automation Capability | ---                               | \$1,500.0                            |

**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.

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 2024, \$1.5 million is requested to start the work on acquiring FAA Telecommunication and Air-to-Ground Media Gateway infrastructure that is needed to support the Alaska Automation Capability.



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

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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.

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**Detailed Justification for - 2C02 Alaska Flight Service Facility Modernization  
(AFSFM)**

(\$000)

| <b>Activity/Component</b>                            | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Alaska Flight Service Facility Modernization (AFSFM) | \$2,700                    | \$2,700                    | \$2,700                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                            | <u><b>Quantity</b></u> | <u><b>Locations/ Estimated Cost<br/>(\$000)</b></u> |
|---|------------------------|---|
| 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?**

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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 2024, \$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.

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

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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.

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**Detailed Justification for - 2C03 Weather Camera Program**

(\$000)

| Activity/Component     | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|------------------------|--------------------|--------------------|--------------------|
| Weather Camera Program | \$2,000            | \$1,200            | \$3,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>        | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|------------------------------|---|----------------|
| Weather Camera Enhancement 1 | ---   | \$3,000.0      |

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

The Weather Camera overall mission is to improve aviation safety and efficiencies by reducing weather-related aviation accidents and flight interruptions, reducing weather related 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 330 camera locations in Alaska and the continental United States.

In FY 2024, \$3.0 million is requested for the expansion of camera systems in Alaska and the continental United States. The program will conduct site surveys and begin implementation. 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.

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

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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 Air Space will see increases in safety and efficiencies consistent with those achieved during the original Weather Camera implementation in Alaska.

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**Detailed Justification for - 2C04 Weather Systems Portfolio**

(\$000)

| Activity/Component        | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2023<br>Request |
|---------------------------|--------------------|--------------------|--------------------|
| Weather Systems Portfolio | \$0                | \$0                | \$25,300           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>   | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Aviation Surface Weather Observation Network Sustainment 2 | ---                            | \$14,000.0                        |
| B. Juneau Airport Wind System (JAWS) Sustainment              | ---                            | 2,300.0                           |
| C. Terminal Doppler Weather Radar (TDWR) Sustainment 3        | ---                            | 4,000.0                           |
| D. Wind Shear Detection System (WSDS) Sustainment 2           | ---                            | 5,000.0                           |

**What is this program and what does the 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 Sensor 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.

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For FY 2024, \$14.0 million is requested for the implementation of the ASWON Sustainment 2 projects. The projects will award contracts to acquire replacement sensors and hardware components required to sustain operational capabilities provided by this network.

**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 2024, \$2.3 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 2024, \$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 activities that include:

- Funding for Logistical support and engineering to the system and projects

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- Contract Support for TDWR Subject Matter Experts, who provide technical support to the program
- Massachusetts Institute of Technology (MIT) / Lincoln Labs Technical Support for Radar Data Acquisition and Radar Product Generator
- Funding for Second Level Engineering Experts for software testing and integration, Prototype design and testing, and specification development
- Funding for 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 2024, \$5.0 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 to start procurement and testing of hardware components required to replace obsolete and unsupportable legacy hardware.

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

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The Weather Sensors 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:



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- Extend the service life of the systems
- Decrease system maintenance and operating cost
- Reduce outages
- Increase equipment and service availability

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**Detailed Justification for - 2D01 Very High Frequency (VHF) Omnidirectional  
Radio Range (VOR) Minimum Operational Network  
(MON)**

(\$000)

| <b>Activity/Component</b>  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Very High Frequency (VHF)<br>Omnidirectional Radio Range<br>(VOR) Minimum Operating<br>Network (MON) | \$5,900                    | \$7,100                    | \$6,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                 | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| VOR Minimum Operational Network (MON) Program Phase 2 | ---                            | \$6,000.0                         |

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

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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
- Very High Frequency Omnidirectional Range Standard Service Volumes Retransmit of co-located services before discontinuance
- Discontinue Very High Frequency Omnidirectional Ranges

The program will transition the legacy network of 896 Very High Frequency Omnidirectional Ranges in the Contiguous United States to a Minimum Operational

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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; however, the planned backup capability will be less than the current network.

As the need for Very High Frequency Omnidirectional Range based procedures and 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 2024, \$6.0 million is requested to continue Phase 2 activities. The program will discontinue up to nine (9) Very High Frequency Omnidirectional Ranges.

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

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The FAA is transitioning the National Airspace System to more efficient Performance Based Navigation routes and procedures, therefore fewer Very High Frequency Omnidirectional Ranges are needed. The benefits of reducing Very High Frequency Omnidirectional Ranges include opportunities for reduced operations and maintenance costs of instrument flight procedures, flight inspection, and opportunities to avoid potential recapitalization costs. 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.

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**Detailed Justification for - 2D02 Wide Area Augmentation System (WAAS) for GPS**

(\$000)

| <b>Activity/Component</b>                    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2023<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Wide Area Augmentation System (WAAS) for GPS | \$92,143                   | \$91,800                   | \$92,100                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>           | <u><b>Locations/ Estimated Cost<br/>Quantity</b></u> | <u><b>(\$000)</b></u> |
|--|--|-----------------------|
| Wide Area Augmentation System Phase 4B | ---  | \$92,100.0            |

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

---

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 (NAS). User receivers process the messages to obtain a precise navigation position suitable to precision approach operations.

The 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 2024, the Program Office will conduct the second year of WAAS Phase 4B. The program will continue developing the initial Dual Frequency (DF) Service test capability that will enable testing and prototyping of the future operational satellite

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signal. Additionally, new Geostationary Uplink Station Receivers will be integrated. WAAS will also continue development for the replacement of legacy IBM AIX-based processors with new Linux-based processors along with automated testing capabilities to reduce release deployment time to support open security requirements. Architecture studies and analysis for transition to FAA Enterprise Network Services Internet Protocol services will also continue.

**A. WAAS Phase 4B**

For FY 2024, \$92.1 million is requested to execute planned tasks that include:

- Maintain existing three geostationary satellite leases.
- Under Dual Frequency Operations Segment 2 Contract, complete processor upgrade design and initiate development.
- Initiate automated testing capability development and testing.
- Initiate Internet Protocol Solution architecture analysis using FAA Enterprise Network provided services
- Complete WAAS Automated Testing design.
- Continue security upgrade development to support open network.
- Field the Geostationary Uplink Station receiver replacement.
- 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/Localizer Performance minima.
- Support preliminary safety studies for Vertical ARAIM capability, while maintaining the existing WAAS threat model reports, ionospheric effects analysis and monitoring global SBAS signals and resiliencies.
- Continue aviation safety assurance review of GPS modernization activities.
- Complete update of the enterprise-level GPS aviation safety and security integrity failure modes and effects analysis and provides reports.
- Conduct system engineering and program support to include:

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- System Engineering, Hardware and Software development oversight assurance
- Hazardously Misleading Information analysis and Reliability-Maintainability-Availability analysis
- System performance assessment
- Complete Fiscal Year 2024 Security Authorization

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

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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, which restrict aircraft paths and available airspace. GPS operations remove the requirement for a direct link between aircraft navigation and a Navigation Aid, 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 148,000 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.

The Dual Frequency Operations 2 Prime contract award as part of Phase 4B will provide the vehicle for the implementation of dual frequency satellite operations. Dual Frequency allows for greater safety as well as a higher chance of completing an approach in inclement weather conditions. 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.

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Real time data and plots, daily plots, performance videos and performance analysis is available at the following website: <http://www.nstb.tc.faa.gov/>.

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**Detailed Justification for - 2D03 Instrument Flight Procedure  
Automation (IFPA)**

(\$000)

| <b>Activity/Component</b>                        | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Instrument Flight Procedure<br>Automation (IFPA) | \$1,000                    | \$3,600                    | \$2,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>              | <u><b>Locations/ Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|---|-----------------------------------|--|
| Instrument Flight Procedure Sustainment 3 | ---                               | \$2,000.0                                |

**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 2024, \$2.0 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) tool for Instrument Flight Procedure design/development capabilities, and enhance IFPA Documentation systems to include Standard Terminal Arrival procedures. The TARGETS tool, one of the IFPA suite's information technology tools, provides three-dimensional design capabilities for Performance Based Navigation, which is satellite based, and conventional, which is ground based, navigation for design/development of Instrument Flight Procedures. IFPA will begin the technological modernization of the IFPA Program system architecture (hosting).

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

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The IFPA suite provided 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 generation time, and obstacle evaluation time have all been reduced. These efficiency gains are multiplied by the hundreds and thousands of these products produced and maintained on an annual basis and they 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 arrival capacity for the nation's busiest airports and metropolitan areas when visibility is restricted. IFPA increases automated capabilities for all types of precision and non-precision flight procedures including Performance Based Navigation and conventional navigation.



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**Detailed Justification for - 2D04 Runway Safety Areas (RSA) – Navigational Mitigation**

(\$000)

| Activity/Component                                     | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--|--------------------|--------------------|--------------------|
| Runway Safety Areas (RSA) –<br>Navigational Mitigation | \$800              | \$2,500            | \$1,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>             | <u>Locations/ Quantity</u> | <u>Estimated Cost (\$000)</u> |
|-----------------------------------|----------------------------|-------------------------------|
| Runway Safety Areas (RSA) Phase 2 | ---                        | \$1,000.0                     |

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

For FY 2024, \$1.0 million is requested to supply the RSA Phase II Program with additional funds. This amount will fully fund approximately four projects across three service areas and to be completed in FY 2024.

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

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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.

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**Detailed Justification for - 2D05 Landing and Lighting Portfolio**

(\$000)

| <b>Activity/Component</b>      | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--------------------------------|----------------------------|----------------------------|----------------------------|
| Landing and Lighting Portfolio | \$67,888                   | \$72,900                   | \$56,760                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>   | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|--|---------------------------------------|--|
| A. Very High Frequency Omni Directional Range collocated with Tactical Air Navigation                            | 10                                    | \$1,480.0                                |
| B. Instrument Landing System Sustainment   | 1                                     | 6,270.0                                  |
| C. Distance Measuring Equipment Sustainment  | 27                                    | 7,320.0                                  |
| D. Navigational Aids Sustainment   | 5                                     | 10,660.0                                 |
| E. Visual Navigation Aids for New Qualifiers   | 1                                     | 1,510.0                                  |
| F. Runway Visual Range Sustainment   | 59                                    | 17,820.0                                 |
| G. Approach Lighting System Safety Enhancement   | 1                                     | 4,180.0                                  |
| H. Replace Visual Approach Slope Indicator with Precision Path Approach Indicator                                | 2                                     | 2,370.0                                  |
| I. Replace Incandescent Lamps with Light Emitting Diode (LED) Lamps in Medium-Intensity Approach Lighting System | 180                                   | 3,000.0                                  |
| I. 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 2024, \$1.48 million is requested for engineering and technical services/support, complete nine TACAN, to DME Conversion, and complete one on-going 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 FY 2024, \$6.27 million is requested for engineering and technical services/support, and to complete one Carryover Project.

### **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 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 FY 2024, \$7.32 million is requested for engineering/technical services support, procure 10 DME systems, and complete 17 DME establish/sustainment projects.

### **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 2024, \$10.66 million is requested for engineering and technical services support, to procure ancillary and Semi-Flush equipment for two (2) Approach Lighting Systems, to complete one (1) Runway End Indicator Lights replacement

project, and to complete two (2) 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 2024, \$1.51 million is requested for engineering and technical services support and 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 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 2024, \$17.82 million is requested for engineering and technical services support, fund 37 carryover projects, and to procure additional Runway Visual Range equipment to support 22 site installations.

### **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 provides visual information on runway alignment, height perception, roll guidance, horizontal references for Category I Precision, and Special Authorization Category II Approaches. For FY 2024, \$4.18 million is requested for engineering and technical services/support, to procure Medium Approach Lighting System with Runway Alignment Indicator Lights replacement control cabinets and low voltage individual control cabinets, 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 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 2024, \$2.37 million is requested for engineering and technical services support, to procure Precision Approach Path Indicator depot spares, and to complete two (2) replacement projects.

### **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 2024, \$3.0 million is requested to procure Light

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Emitting Diode lamps for 180 systems, and support the award of the Light Emitting Diode Lamp Production Contract.

**J. In-Service Engineering**

For FY 2024, \$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?**

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The FAA is transitioning the national airspace system to more efficient Performance Based Navigation routes and procedures that rely on satellite technology. To achieve the transition, FAA is aggressively pursuing the implementation of satellite navigation and the sustainment of the ground based navigation infrastructure.

Ground Based Navigational Aids will continue to provide a backup function, as required, in the event of a Global Positioning System outage to ensure consistent and reliable landing operations and provide resiliency in the navigation domain.

Visual Navigation Aids 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.



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**Detailed Justification for - 2D06 Distance Measuring Equipment (DME), Very High Frequency (VHF) Omni-Directional Range (VOR), Tactical Air Navigational (TACAN) (DVT) Sustainment Portfolio**

(\$000)

| <b>Activity/Component</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------|----------------------------|----------------------------|----------------------------|
| DVT Sustainment Portfolio | \$10,000                   | \$10,000                   | \$10,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>     | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---------------------------|--------------------------------|-----------------------------------|
| DVT Sustainment Portfolio | ---                            | \$10,000.0                        |

**What is this program, and what does the funding level support?**

The FAA is committed to ensuring that the national airspace system navigational infrastructure remains safe, secure, sustainable, and resilient. This program system are over 30 years old and must be sustained/replaced to provide resiliency during any Global Positioning System service interruptions. The DVT Sustainment Program intends to provide long-term sustainment/replacement of Distance Measuring Equipment, Very High-Frequency Omni-Directional Range, and Tactical Air Navigation services.

Distance Measuring Equipment provides slant range (Distance) information to all aircraft and enables area navigation service for air carrier aircraft. Area navigation service is a method of instrument flight rules navigation that allows an aircraft to choose any course within a network of navigation beacons rather than navigate point to point.

Very High-Frequency Omni-Directional Range systems provide azimuth (position) information for En route navigation and approach services. This Navigation Aid allows aircraft to fly point to point along established airways between systems.

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Tactical Air Navigational systems provide azimuth information to military aircraft and slant range information to military and civilian aircraft.

The DVT Sustainment Program will sustain/replace Distance Measuring Equipment, Very-High Frequency Omni-Directional Range and Tactical Air Navigational systems installed in the National Airspace System, and there are approximately 1500 systems at approximately 1000 locations included in the DVT sustainment program.

The FY 2024, \$10.0 million is requested to support the following Program activities:

- Program management support – for all the activities related to the management of the program, contractual documentation and procurement planning
- Continue the TACAN Antenna Contract Activities
- Site Assessment for operational test sites
- Award the DVT Sustainment Contract

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

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The DVT Sustainment Program will ensure this resilient navigational backup infrastructure is available for the foreseeable future by providing effective, cost-efficient operations and maintenance solutions that improve Navigation Aid reliability and availability and address long term sustainment challenges.

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**Detailed Justification for - 2E01 Fuel Storage Tank Replacement and Management**

(\$000)

| Activity/Component                           | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--|--------------------|--------------------|--------------------|
| Fuel Storage Tank Replacement and Management | \$12,000           | \$26,200           | \$24,033           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                        | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| Fuel Storage Tank Replacement and Management | 68                             | \$24,033.0                        |

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

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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

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- 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 2024, \$24.03 million is requested to fund tank unit replacements, modernizations, and upgrades at approximately two Prime Power and 66 General National Airspace System locations across the national airspace system. In coordination with the Electrical Power Systems – Sustain/Support budget line item, the FST program will perform power systems modifications, engine systems replacement, or engine system removal when circumstances are warranted to save funding and align schedules across dependent programs for FST and power systems implementation work at the same facilities.

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

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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.

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**Detailed Justification for- 2E02 Unstaffed Infrastructure Sustainment (UIS)**

(\$000)

| <b>Activity/Component</b>                  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Unstaffed Infrastructure Sustainment (UIS) | \$21,800                   | \$45,300                   | \$57,904 <sup>1</sup>      |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>   | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Unstaffed Infrastructure Sustainment (UIS)                 | 120                            | \$55,488.0                        |
| B. FAA Employee Housing & Life Safety Shelter System Services | ---                            | 116.0                             |
| 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 includes 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; 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

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<sup>1</sup> The IJA provides \$55.0 million in FY 2024 for the UIS program.

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- 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 2024, \$55.5 million is requested to complete 120 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 2024, \$116,000 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 also 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 2024, \$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?**

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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.

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**Detailed Justification for - 2E03 Aircraft Replacement and Related Equipment Program**

(\$000)

| <b>Activity/Component</b>                          | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Aircraft Replacement and Related Equipment Program | \$35,000                   | \$46,200                   | \$62,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                         | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Aircraft Related Equipment Sustainment     | ---                            | \$7,000.0                         |
| B. Flight Program Fleet Modernization Phase 2 | ---                            | 55,000.0                          |

**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 2024, \$7.0 million is requested for ongoing operational sustainment, modifications and upgrades to aircraft, avionics, mission equipment, and operational infrastructure.

**B. Flight Program Fleet Modernization Phase 1:**

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

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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 flyability, 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 2024, \$55.0 million is requested for procurement and modification of three aircraft in accordance with the Flight Program Operations fleet modernization strategy, aircraft modifications, and program support and acquisition planning.

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

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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 sustainment, and provide improved continuity of service.



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**Detailed Justification for - 2E04 Airport Cable Loop Systems – Sustained  
Support**

(\$000)

| <b>Activity/Component</b>                      | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Airport Cable Loop Systems – Sustained Support | \$10,000                   | \$10,000                   | \$10,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                 | <u><b>Locations/ Quantity</b></u> | <u><b>Estimated Cost (\$000)</b></u> |
|--|-----------------------------------|--------------------------------------|
| Airport Cable Loop Systems Sustained Support | ---                               | \$10,000.0                           |

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

For FY 2024, \$10.0 million is requested for advanced engineering, construction activities, and Fiber Optic Transmission Systems equipment installations. 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 in FY 2024.

The program replaces existing on-airport, copper-based, signal/control cable lines that have deteriorated. A portion of the FY 2024 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.

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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. The House Committee has made additional requests on addressing this issue.

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?**

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Airport Cable Loop Systems Sustainment is presently reducing on-airport telecommunication infrastructure related delays of core airports by approximately 3% annually. System reliability and safety are enhanced due to increased system performance from redundant or diverse pathways provided by the cable loop system. Standardizing requirements will simplify and reduce operation requirements for logistics, configuration management, training, procurement, and depot support, which saves taxpayer dollars.

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**Detailed Justification for - 2E05 Alaskan Satellite Telecommunications  
Infrastructure**

(\$000)

| <b>Activity/Component</b>                                 | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Alaskan Satellite<br>Telecommunications<br>Infrastructure | \$0                        | \$500                      | \$750                      |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                        | <u><b>Locations/ Estimated Cost<br/>Quantity</b></u> | <u><b>(\$000)</b></u> |
|---|--|-----------------------|
| Alaskan Satellite Telecommunications Infrastructure | ---  | \$750.0               |

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

Alaskan Satellite Telecommunications Infrastructure program modernized the Alaskan NAS Interfacility Communications System to support NAS Systems and Services. The Alaskan NAS Interfacility Communications System provided 90 percent of the communications to En Route, Terminal Air Traffic Control, and Flight Service in Alaska and the associated oceanic airspace for critical, essential, and routine Air Traffic Control services in Alaska. The Alaskan Satellite Telecommunications Infrastructure accommodated legacy serial interfaces for NAS systems and provided ability to migrate to modern interfaces. This infrastructure leverages existing FAA owned infrastructure (antennas, etc.) and overcomes a lack of available commercial terrestrial infrastructure.

The objective of the Alaskan Satellite Telecommunications Infrastructure Sustainment program is to keep the deployed Alaskan Satellite Telecommunications Infrastructure system maintainable, operational and reliable throughout the system lifecycle. The program will address non-core requirements that were not included in the original Alaskan Satellite Telecommunications Infrastructure modernization program, along with replacing End-of-Life hardware/software components. The program will upgrade and repair critical Radio Frequency ground station antenna infrastructure that was not addressed in the Modernization Program.

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In FY 2024 \$750,000 will be used to cover FAA Program Management Contract Support including Maintaining/Executing budget, Antennas, Antennas Controllers implementation, and Engineering Service field/technical support. The associated hardware (Antenna controllers, and antenna) have already been purchased but need to be installed.

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

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The objective of the Alaskan Satellite Telecommunications Infrastructure Sustainment program is to keep the deployed Alaskan Satellite Telecommunications Infrastructure system maintainable, operational and reliable throughout the system lifecycle. The program will address non-core requirements that were not included in the original Alaskan Satellite Telecommunications Infrastructure modernization program, along with replacing End-of-Life hardware/software components. The program will upgrade and repair critical Radio Frequency infrastructure that was not addressed in the Modernization Program. Additionally, the program will keep the system current with evolving network security requirements by funding updates to software and systems as security requirements evolve. Finally, the program will be researching system architecture changes to support evolving Internet Protocol transport requirements needed to support future NAS system changes.

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**Detailed Justification for - 2E06 Real Property Disposition**

(\$000)

| <b>Activity/Component</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------|----------------------------|----------------------------|----------------------------|
| Real Property Disposition | \$3,000                    | \$4,500                    | \$6,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>     | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---------------------------|--------------------------------|-----------------------------------|
| Real Property Disposition | 45                             | \$6,000.0                         |

**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 ground based sites are being minimized in the national airspace system as the FAA moves 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

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- 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 2024, \$6.0 million is requested to fund the final disposition of decommissioned infrastructure at approximately 45 sites.

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

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The program provides cost savings by reducing operations and maintenance costs (e.g. grass cutting, snow removal, utility fees, communications frequency 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 2021, the Real Property Disposition Program disposed of 1,963 facilities at a 10-year cost avoidance of \$59.5 million and generated \$6.4 million from land and asset sales.

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**Detailed Justification for - 2E07 Electrical Power System – Sustain/Support**

(\$000)

| <b>Activity/Component</b>                 | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Electrical Power System – Sustain/Support | \$55,000                   | \$110,000                  | \$143,213 <sup>1</sup>     |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                     | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|---|---|----------------|
| Electrical Power System – Sustain/Support | 309   | \$143,212.7    |

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

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For FY 2024, \$143.2 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 that include primary power, 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. The requested funding will address a large backlog and systemic problems by replacing obsolete equipment and electrical systems that power all national airspace systems.

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.

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<sup>1</sup> The IJA provides \$60.0 million in FY 2024 for Electrical Power Systems programs.

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- Engine Generators: provides backup power when commercial power is unavailable or becomes unreliable. Engine generators have a 20 year expected system operational life. In coordination with the Fuel Storage Tank program, the program performs fuel systems modifications, fuel tank replacement, or fuel tank removal when circumstances are warranted to save funding and align schedules across dependent programs at the same facilities.
- Power Conditioning System and Uninterruptible Power Supply: provides a short-duration Alternating Current power source that prevents commercial power disruptions and surges from adversely affecting electronic system performance and critical national airspace services. This equipment has an expected system operation life of up to 15 years.
- Lightning Protection, Grounding, Bonding and Shielding: 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.
- Direct Current Backup Systems: Using commercial power as the source, Direct Current Backup Systems provides and distributes conditioned Alternating Current and Direct Current power to national airspace electronic equipment. It provides a medium term power source at facilities with limited power needs. These systems have an expected operational life of up to 15 years.
- National Airspace System Batteries: large “stationary” battery banks that support Power Conditioning Systems, Direct Current Back up Systems, Very High Frequency Omnidirectional Range, Backup Emergency Communication and selected Surveillance, General National Airspace Systems, Communications and Navigation equipment. The Program tracks stationary batteries for National Airspace System equipment, replacing battery banks that have a service life that is less than the equipment it supports or experience degradation.
- Electrical Line Distribution: consists of underground distribution cables, transformers, and switchgear at airports and ancillary facilities that distribute utility level electrical power to national airspace facilities.
- ARTCC Critical and Essential Power Systems: provides high-quality and high-reliability power to 21 En Route ARTCC's and three large Terminal Radar Approach Control (TRACONs) Facilities. The system consists of engine generators, switchgear, and uninterruptable power supply systems. Most of this equipment is obsolete with engine generators having an average age greater than 50 years, which is beyond its expected system operational life of 20 years. The uninterruptable power supplies are more than 20 years old, obsolete, out of



production and unsupportable. ARTCC Critical and Essential Power Systems represent the largest portion of the Power Systems sustainment backlog.

- Critical Power Distribution System: supports FAA mission critical Terminal facilities such as Combined Control Facilities, large TRACONs and most significant Air Traffic Control Towers. It provides a highly reliable power system with multiple by-pass points that support efficient maintainability. It significantly improves personal safety during maintenance activities, addresses obsolescence, ensures effective national training, and timely logistics. This system consists of electrical distribution equipment, transfer switches, engine generators, uninterruptable power supplies, and batteries. The Power program maintains design and configuration control of all of these systems throughout the national airspace system.
- Environmental Remote Monitoring System: provides power system sensors and interfaces to the Environmental Remote Monitoring System 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.
- Alternative Energy Systems: sustains and supports a broad range of clean energy technologies to meet national airspace operational demands. These technologies reduce the FAA's carbon footprint and help to achieve the goals of Executive Order 13693, Federal Leadership in Environmental, Energy, and Economic Performance. These systems reduce fossil fuel dependencies and include solar energy, wind energy, fuel cell, and geothermal. This project sustains the electronics at 10 years and photocells at 20 years.
- Visual Navigational Aids Cabling: provides power through dedicated, long runs of underground cables supporting Visual Navigational Aid systems at airports. These systems include Approach Lighting System with Sequenced Flashing Lights and Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights. Visual Navigational Aids provide guidance information to help pilots locate the runway and land safely. Outages can affect Instrument Flight Rules equipped aircraft in limited visibility weather conditions.

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

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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.

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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 in terms of estimate is based on an August 15, 2016 En Route Automation Aircraft Direct Operating Costs and Passenger Value of Time savings. This Modernization (ERAM) outage event at the District of Columbia ARTCC. This 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.

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**Detailed Justification for - 2E08 Energy Management and Compliance (EMC)**

(\$000)

| <b>Activity/Component</b>         | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-----------------------------------|----------------------------|----------------------------|----------------------------|
| Energy Maintenance and Compliance | \$1,100                    | \$6,900                    | \$5,355                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>            | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|----------------------------------|--------------------------------|-----------------------------------|
| Energy Management and Compliance | 11                             | \$5,355.0                         |

**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 2024, \$5.4 million is requested to support the following:

- Perform energy and water improvements at nine high energy using facilities
- Perform advanced meter installation at two 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

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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?**

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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 cost savings that are the result of those efforts.

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**Detailed Justification for - 2E09 Child Care Center Sustainment**

(\$000)

| <b>Activity/Component</b>     | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------------|----------------------------|----------------------------|----------------------------|
| Child Care Center Sustainment | \$1,000                    | \$1,200                    | \$1,600                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>         | <u>Locations/</u><br><u>Quantity</u> | <u>Estimated Cost</u><br><u>(\$000)</u> |
|-------------------------------|--------------------------------------|---|
| Child Care Center Sustainment | 12                                   | \$1,600.0                               |

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

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This project was implemented to respond to stakeholder-identified inefficiencies in FAA-owned child care centers. The scope of these sustainments 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 child care 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 2024, \$1.6 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 child care roof replacements, fire suppression system repairs, parking lot repairs, security camera installation and playground

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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?**

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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.

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**Detailed Justification for - 2E10 FAA Telecommunications Infrastructure**

(\$000)

| <b>Activity/Component</b>             | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------------------|----------------------------|----------------------------|----------------------------|
| FAA Telecommunications Infrastructure | \$64,200                   | \$69,000                   | \$340,800                  |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>  | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. FAA Enterprise Network Services                               | ---                            | \$ 200,000.0                      |
| B. FAA Telecommunications Infrastructure Sustainment 2           | ---                            | 17,700.0                          |
| C. Time Division Multiplexing – to – Internet Protocol Migration | ---                            | 120,500.0                         |
| D. Time Division Multiplexing – to – Internet Protocol ERAM      | ---                            | 2,600.0                           |

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

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**A. FAA Enterprise Network Services (FENS)**

This project is the successor to the existing FAA Telecommunications Infrastructure program, which provides the majority 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 is capable of meeting 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.

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The new network infrastructure will support the connectivity requirements of programs such as System Wide Information Management and Data Communications.

For FY 2024, \$235.9 million is requested to fund the necessary resources, program, and contract support to:

- Develop FAA Enterprise Network Services enterprise-level networking functions
- Establish prime tools and FAA tools for network management and operations, service ordering and invoicing tracking
- Conduct requirements review on the solution development
- Support communications network planning and engineering, security management and operations

**B. FAA Telecommunications Infrastructure 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 2024, \$17.7 million is requested to mitigate the network backbone from equipment failures and target replacements of security boundary, network controls, and obsolescent parts 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 wires, and increasingly outdated, unsupportable equipment that is labor intensive and costly to sustain. Commercial telecommunications carriers are moving to modern broadband internet-based technology and the pace of Carriers 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 technology that is being discontinued by commercial telecommunication providers nationwide.



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- Replace communication carrier copper with fiber where cost effective and available.
- Reduce the risk to National Airspace System operations related to the sun setting of Time Division Multiplexing.

For FY 2024, \$84.6 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.

**D. Time Division Multiplexing – to – Internet Protocol ERAM**

For FY 2024, \$2.6 million is requested for the transition of Time Division Multiplexing to Internet Protocol for the En Route Automation Modernization system ahead of the delivery of FAA's new Enterprise Network Service using ASTERIX IP software implementation.

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

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The FAA Telecommunications Infrastructure program will benefit the American Public directly and indirectly:

- Ensure 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.
- Reduce telecommunications service delivery timeframes so that new capabilities can be put into operation more quickly to support the flying public and air carriers.
- Provide enhanced network service monitoring, control, and security capabilities that improve visibility in outage impacts and reduce restoration times.
- Provide 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.

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**Detailed Justification for - 2E11 Operational Analysis and Reporting Systems**

(\$000)

| <b>Activity/Component</b>                 | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Operational Analysis and Reporting System | \$15,500                   | \$6,100                    | \$15,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                                | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| A. Operations Analysis and Reporting System Phase 1  | ---                            | 1,000.0                           |
| B. Operational Analysis and Reporting System Phase 2 | ---                            | 14,000.0                          |

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

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**A. Operational Analysis and Reporting System Phase 1**

This project will provide the Air Traffic Organization with data-sharing capability among legacy and future systems used for safety risk analysis. The result will provide the end-user with quick and easy access to consistent, accurate, and timely data to allow more efficient, comprehensive, and proactive analyses of risk in the national airspace system. The Operational Analysis and Reporting System will be delivered in multiple phases. Phase 1 will develop a single portal user interface to all current legacy safety tools and improve the login and security features for over 45,000 users. Phase 1 will also re-host selected legacy applications from on premises servers into the FAA's cloud infrastructure. The legacy applications to be re-hosted in Phase 1 are:

- Comprehensive Electronic Data Analysis and Reporting
- Falcon Rapid Air Traffic Replay Tool
- Risk Analysis Process Tools (Surface and Service Integrity)
- Search and Rescue database

For FY 2024, \$1.0 million is requested for operational support of the Phase 1 portal.

## **B. Operational Analysis and Reporting System Phase 2**

Phase 2 will build upon the foundational capabilities delivered in Phase 1, including the Operational Analysis and Reporting System portal with single-sign-on and role-based access control capabilities. Phase 2 will deliver the application that will replace the legacy safety tools re-hosted in Phase 1 with safety application services, including Safety Event Acquisition, Quality Assurance and Control, Replay, Barrier Analysis Review, and Combined Safety Barrier Review.

Phase 2 will provide a consolidated, integrated, maintainable, and expandable service. The Operational Analysis and Reporting System application will accept transfer and integration of additional analytical functions over time. Phase 2 will provide controllable, tiered levels of access to safety data aggregated from multiple safety databases.

Phase 2 will also re-host a second set of legacy tools and data onto the Federal Cloud Services Platform:

- Compliance Verification Tools
- Runway Safety Tool
- Runway Safety Tracking System
- Safety Management Tracking System
- Accident Package Generator Tool

For FY 2024, \$14.0 million is requested to continue development of the Operational Analysis and Reporting System application that will replace key legacy applications with modern cloud-based application services, as well as re-host additional legacy applications to the cloud environment.

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

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Planning for facility and system enhancements requires the ability to track, monitor, and analyze the daily national airspace system operations information. The modernization of the systems in this portfolio will provide a modernized enterprise cloud solution inclusive of data processing, visualization, and reporting. FAA will realize efficiencies by modernizing and enhancing air traffic control services after determining root causes for performance and risk issues in the national airspace system as identified and monitored by information in these systems. Additionally,

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FAA will realize productivity gains for the personnel that track and monitor the information provided by these systems.

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**Detailed Justification for - 3A01 Hazardous Materials (HAZMAT) Management**

(\$000)

| <b>Activity/Component</b>                  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Hazardous Materials<br>(HAZMAT) Management | \$9,500                    | \$24,300                   | \$30,629 <sup>1</sup>      |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                   | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|---|---|----------------|
| Hazardous Materials (HAZMAT) Management | 81  | \$30,629       |

**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 587 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 2024, \$30.6 million is requested to continue the management and remediation of 587 contaminated areas of concern, as of October 2021. During FY 2020, the HAZMAT program both removed 145 areas of concern and added 55 more to the program.

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<sup>1</sup> The IJA provides \$23.0 million in FY 2024 for the hazardous materials 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 statutes. Noncompliance with these statutes 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.

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

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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 2021, the HAZMAT management program has closed 1,290 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 \$218.0 million.

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**Detailed Justification for - 3A02 Aviation Safety Analysis System (ASAS)**

(\$000)

| <b>Activity/Component</b>              | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Aviation Safety Analysis System (ASAS) | \$30,502                   | \$28,200                   | \$28,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>  | <u>Locations/</u><br><u>Quantity</u> | <u>Estimated Cost</u><br><u>(\$000)</u> |
|--|--------------------------------------|---|
| A. Regulation and Certification Infrastructure for System Safety | ---                                  | \$20,000.0                              |
| B. FAA Critical Infrastructure for System Safety                 | ---                                  | 8,000.0                                 |

**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 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.

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- Safety and Business Application Hosting Services: Hardware infrastructure, as well as cloud services, that is used to host business applications.
- 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 data is safeguarded against loss by providing a secure, reliable and timely back up of data.

**A. Regulation and Certification Infrastructure for System Safety**

For FY 2024, \$20.0 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 6,400-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, Aviation Safety Knowledge Management Environment, and the Aerospace Medicine Safety Information System. It will also allow access to all other Aviation Safety national safety programs including Civil Aviation Registry Electronic Services and the Pilot Records Database.

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.



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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 2024, \$8.0 million is requested to begin 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. 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 and prone to failures that can cause disruption to operations.

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

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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 data will be enhanced.

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**Detailed Justification for - 3A03 National Air Space Recovery Communications  
(RCOM)**

(\$000)

| <b>Activity/Component</b>                        | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| National Air Space Recovery Communication (RCOM) | \$12,338                   | \$12,000                   | \$12,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                     | <u><b>Locations/ Quantity</b></u> | <u><b>Estimated Cost (\$000)</b></u> |
|--|-----------------------------------|--------------------------------------|
| National Air Space Recovery Communication (RCOM) | ---                               | \$12,000.0                           |

**What is this program and what does the 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. To achieve this mandate, 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, protect national security, and enable the continuity of FAA operations. Facilities, equipment and services provided by the RCOM program to fulfill its program mission and Presidential and Congressional mandates include, but is not limited to:

- Equipping air traffic technical operations and emergency response personnel with Very High Frequency/Frequency Modulated radio networks, communication fly away kits, and a fully-equipped Emergency Response Vehicle to assist with ground 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.

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- Installing 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.
- Providing decision-makers and emergency response personnel with information technology infrastructure and applications via the FAA's Emergency Operations Network to facilitate the exchange and visualization of data during emergencies, such as the FAA COVID-19 dashboard developed to inform FAA decision-making and FAA employees regarding COVID-19 statistics related to U.S. Government "Opening Up America Again" guidelines.
- Maintaining a national High Frequency radio, Microwave and information technology networks, for use by FAA and other Federal agencies and Departments in the National Capital Region, and Emergency Operations Facilities to ensure compliance with Presidential Policy Directive 40, National Continuity Policy. Most recently, FAA used its Emergency Operations capabilities and Facilities for COVID-19 response, to accommodate social distancing of essential emergency response personnel, and to provide a safe and secure work environment during demonstrations and civil unrest in the Washington, D.C. area.
- 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 National Airspace System.

For FY 2024, \$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?**

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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 FAA's RCOM program enable the FAA to bypass disrupted common carrier communication circuits and systems to coordinate National Airspace System 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.

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**Detailed Justification for - 3A04 Facility Security Risk Management (FSRM)**

(\$000)

| <b>Activity/Component</b>                | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Facility Security Risk Management (FSRM) | \$7,800                    | \$14,000                   | \$18,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                    | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| Facility Security Risk Management (FSRM) | 27                             | \$18,000.0                        |

**What is this program and what does the 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 provide maintenance services to existing 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 the FAA efficiently and cost effectively implements all issued Presidential Directives aimed at securing Federal facilities and personnel. For FY 2024, \$18.0 million is requested to support the following efforts that will result in increased security at FAA-staffed facilities.

- Construction/Installation for security upgrades

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- 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?**

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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.

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**Detailed Justification for - 3A05 Information Security**

(\$000)

| <b>Activity/Component</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------|----------------------------|----------------------------|----------------------------|
| Information Security      | \$21,320                   | \$23,000                   | \$32,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>  | <u><b>Quantity</b></u> | <u><b>Locations/ Estimated Cost<br/>(\$000)</b></u> |
|---|------------------------|---|
| A. Information Systems Security Enhancements                              | ---                    | \$12,000.0  |
| B. National Airspace System Critical Infrastructure<br>Cyber Enhancements | ---                    | 20,000.0  |

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

The Federal Information Security Management Act of 2014 requires that the FAA must identify and provide information security protection. FAA must prevent unauthorized access, use, disclosure, disruption, modification, or destruction of information that supports the Agency, aviation safety and security, and the national airspace system. This includes detection of alerts and attacks generated against the FAA/DOT infrastructure, mitigation of cyber events, and prevention of privacy breaches. 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**

The Information Systems Security Enhancement program fortifies the security of the FAA's networks and infrastructure by developing and ensuring compliance with

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Information Technology security and privacy policies and controls. The scope of this program is to protect the confidentiality, integrity, and availability of all FAA information and systems. 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. For FY 2024 \$12.0 million is requested to complete the following program enhancements:

- Cybersecurity Operations (includes FAA Security Operation Center): provides a threat intelligence solution to support Department of Homeland Security's reporting requirements, align to Watchtower methodology and modernize existing security tools that are approaching end-of-life.
- FAA's Cybersecurity Test Facility (CyTF) and Secure Enterprise CyberTest Range (SECTR): evaluates security controls for high value assets, supports cloud solutions and integration of new security technologies, and evaluates new security capabilities and solutions.
- Cybersecurity Risk Model provides an enterprise-wide strategy for identifying and assessing the impacts of cyber threats to agency services required to maintain a safe and efficient airspace. The model will support the integration of threat information from the FAA Cyber Threat Intelligence process to improve cyber risk metrics.
- Zero Trust Architecture (ZTA): a comprehensive network security model that requires strict identity verification for every user and device attempting to access FAA networks, applications and data by restricting access and granting only the minimum privileges needed to perform the mission.

**B. National Airspace System Critical Infrastructure Cybersecurity Enhancement**

For FY 2024, \$20.0 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 Tools: provide centralized capabilities that support the monitoring of National Airspace System networking and computing environments to identify

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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?**

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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.



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**Detailed Justification for - 3A06 System Approach for Safety Oversight (SASO)**

(\$000)

| <b>Activity/Component</b>                   | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| System Approach for Safety Oversight (SASO) | \$35,400                   | \$26,700                   | \$21,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                        | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|---|---------------------------------------|--|
| System Approach for Safety Oversight (SASO) Phase 4 | ---                                   | 21,000.0                                 |

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

For FY 2024, the System Approach for Safety Oversight program requests a total of \$21.0 million for continued development of the Safety Assurance System.

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 4,800 FAA Aviation Safety employees across headquarters and approximately 100 field offices, 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.

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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. The primary product is the Safety Assurance System. Flight Standards Service uses this system to more efficiently manage its statutory responsibility to oversee National Airspace System certificate holders, and as a hazard identification and risk assessment tool to formulate surveillance plans and target Flight Standards Service resources to the highest risk areas in the National Airspace System.

The Safety Assurance System is being implemented in phases due to its complexity. The core functionality (Phase 2) was first deployed in FY 2016 for oversight of three Title 14 Code of Federal Regulations parts, a subset of Flight Standards Service overall responsibility. Phase 3, scheduled to complete in FY 2023, implemented the requirements associated with safety oversight of aviation training schools and adds an interface with the Designee Management System. Phase 3 enhanced the Safety Assurance System functionality in the areas of activity recording, office workload list, risk profile, and the Certification Services Oversight Process. Finally, Phase 3 developed Safety Management System safety educational materials and support systems for general aviation certificate holders.

During FY 2024, the program continues its third full year in Phase 4. Phase 4 will improve Flight Standards Service 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. The required funding supports further Safety Assurance System automation development, policy updates, training, and implementation to achieve the full oversight capabilities and benefits as envisioned during the business process re-engineering analysis and design phase of the program.

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

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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 to focus its resources on the highest risk areas in the National Airspace System.

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**Detailed Justification for - 3A07 NextGen – System Safety Management  
Portfolio**

(\$000)

| <b>Activity/Component</b>          | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|------------------------------------|----------------------------|----------------------------|----------------------------|
| System Safety Management Portfolio | \$18,294                   | \$17,000                   | \$6,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                        | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|---|---------------------------------------|--|
| A. Aviation Safety Information Analysis and Sharing | ---                                   | \$5,000.0                                |
| B. System Safety Management Transformation          | ---                                   | 1,000.0                                  |

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

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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 amount 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. 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, universities and others) who contribute data for use in safety analyses. This funding includes efforts to address risks in collaboration with the aviation community.

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For FY 2024, \$5.0 million is requested to:

- Implement processes to prioritize requests for the program's safety information, to address aviation hazards across the passenger, cargo, general aviation, and rotorcraft communities.
- Provide an aviation data repository with limited information from new sources such as the general aviation and rotorcraft communities, to analyze safety issues.
- Deliver existing safety metrics based on radar surveillance data, digital flight data, and aircrew safety reports, using tools, algorithms and models to analyze key safety issues.
- Conduct investment analysis and procurement activities for the next generation Aviation Safety Information Analysis and Sharing system.

**B. System Safety Management Transformation**

System Safety Management Transformation is a stakeholder-driven, cross-functional program that supports the development and implementation of integrated safety management systems across the air transportation system to ensure that safety risk throughout the system is managed to an acceptable level. System Safety Management Transformation incorporates integrated safety risk models, enables customization of models from the National Airspace System to a single operator or region, and provides identification of, data about, and replay of detected candidate safety events for surface and En route operations.

For FY 2024, \$1.0 million is requested to provide the following:

- Validate and verify safety risk models and lead safety risk assessments for FAA Lines of Business. The selected model(s) will be created or, if existing, restructured, quantified with the best available data to reflect baseline risk in FY 2024 and will be based on emergent safety risks identified by the FAA as critical for FY 2024 National Airspace System operations.
- Align existing automated methods for quantification of commercial aviation safety risk baseline with updated/new FAA data sources and Enterprise Information Management requirements and maintain quantification of commercial safety risk models necessary for ongoing safety risk assessment of NextGen Operational Improvements.
- Expand capabilities to detect, report, and replay candidate safety events across the National Airspace System to inform safety analyses, support accident and incident investigations and provide safety risk metrics to programs such as Aviation Safety Information Analysis and Sharing.

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- Continue joint development with EUROCONTROL of integrated safety risk assessment models and candidate safety event detection tools for commercial aviation.

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

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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.

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**Detailed Justification for - 3A08 National Test Equipment Program (NTEP)**

(\$000)

| <b>Activity/Component</b>              | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| National Test Equipment Program (NTEP) | \$3,000                    | \$3,000                    | \$3,000                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                  | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| National Test Equipment Program (NTEP) | ---                            | \$3,000.0                         |

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

The National Test Equipment Sustainment program manages the modernization, distribution, calibration, and inventory of test equipment. This 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 2024, \$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 its end of life cycle and can no longer be maintained or repaired by the FAA Logistic Center or the Original Equipment Manufacturer.

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

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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.

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**Detailed Justification for – 3A09 Mobile Assets Management Program**

(\$000)

| <b>Activity/Component</b>        | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|----------------------------------|----------------------------|----------------------------|----------------------------|
| Mobile Assets Management Program | \$1,000                    | \$1,900                    | \$2,400                    |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>     | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---------------------------|--------------------------------|-----------------------------------|
| Mobile Assets Sustainment | ---                            | \$2,400.0                         |

**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 2024, \$2.4 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.



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

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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.

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**Detailed Justification for -3A10 Configuration, Logistics, and Maintenance  
Resource Solutions (CLMRS)**

(\$000)

| <b>Activity/Component</b>  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Configuration, Logistics, and Maintenance Resource Solutions (CLMRS) | \$23,500                   | \$19,700                   | \$26,800                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>   | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|---|--------------------------------|-----------------------------------|
| A. Logistics Support Systems and Facilities Segment 3                   | ---                            | \$9,500.0                         |
| B. Automated Maintenance Management System                              | ---                            | 12,300.0                          |
| C. National Remote Maintenance Monitoring<br>Network Technology Refresh | ---                            | 4,000.0                           |
| D. Configurations Management Automation (CMA)                           | ---                            | 1,000.0                           |

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

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**A. Logistics Support Systems & Facilities - Logistics Center Support System  
Segment 3 Enhancement 1 and Enhancement 2**

The FAA Logistics Center manages the central National Airspace System inventory, warehouses and distribution facilities for the FAA. It provides logistics support for more than 48,000 systems nationwide, providing parts, services, supplies, and emergency restoration services. The FAA Logistics Center tracks and accounts for over 62,000 national stock numbers with a total value of \$900.0 million. It provides routine and emergency logistics products and services to 8,091 FAA customers at facilities nationwide, as well as additional customers in the Department of Defense, state agencies, and foreign countries. The Logistics Support Systems & Facilities - Logistics Center Support System Enhancement 1 and Enhancement 2 program will address business process inefficiencies by incorporating inventory planning and warehouse modules and migrating logistics data. These changes will enable a more effective FAA supply chain through increased functionality.

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For FY 2024, \$1.9 million is requested for investment analysis under LCSS Enhancements 1 and \$7.6 million is requested for software licenses, program management and contract support to help development of enhancements to the Logistics Center Support System platform and to start the implementation of the business process efficiencies under LCSS Enhancements 2. The total FY 2024 request is \$9.5 million.

**B. Automated Maintenance Management System**

The Automated Maintenance Management System will modernize and further automate existing maintenance logging systems so that Operations Control Specialists and Airway Facility System Specialists can perform their maintenance activities as efficiently as possible by:

- Streamlining access to obtain the necessary data needed to maintain the National Air Space
- 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 2024, \$12.3 million is requested to perform software and hardware engineering activities to continue solution implementation. The enhancement capabilities in FY 2024 will focus on:

- Control Center Event Coordination for the Tech Ops Activity Portal browser-based logging system
- Incorporating parts ordering and barcoding into the browser-based logging system and iPhone application. This capability will allow users to order parts and scan parts in and out during maintenance activities
- Credentials and Training for the iPhone application, allowing managers to correlate a maintenance activity with a technician's qualifications. Creating organized records

**C. National Remote Maintenance Monitoring Network Tech Refresh**

The program will modernize the Remote Maintenance Monitoring and Control domain including the Remote Monitoring and Logging System and Remote Monitoring Subsystems. This will ensure adequate Remote Maintenance Monitoring and Control capability and scale for future National Airspace System systems that will be deployed with enhanced Remote Maintenance Monitoring capabilities and the expansion of maintenance data collection from systems that currently exist within the National Airspace System. The National Remote Maintenance Monitoring Network architecture

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moves the current architecture from Time-Dimension Multiplex-based to Internet Protocol, which increases the capacity of Internet Protocol connections and data throughput so that it is in line with the National Airspace System Requirements for outage reporting. The architecture also increases the diversity and frequency for which maintenance data is processed, enhancing the FAA's ability to rapidly detect system outages. This investment also increases the National Remote Maintenance Monitoring Network's resiliency through enhanced failover capability.

For FY 2024, \$4.0 million is requested to perform software and hardware engineering activities.

**D. Configuration Management Automation**

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. In addition, Configuration Management requires documentation for all proposed and actual changes to these systems in order for maintenance technicians and replacement programs to have accurate and up to date information for maintaining or replacing existing systems. 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 2024, \$1.0 million is requested for transition activities such as program office support, IFS License, software maintenance, and FAA Cloud Services.

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

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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.

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**Detailed Justification for - 3A11 Tower Simulation System (TSS)**

(\$000)

| Activity/Component                         | FY 2022<br>Actual | FY 2023<br>Enacted | FY 2024<br>Request |
|--|-------------------|--------------------|--------------------|
| Tower Simulation System (TSS) <sup>1</sup> | \$-               | \$-                | \$6,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| Cost<br><u>Activity Tasks</u>   | <u>Locations/<br/>Quantity</u> | <u>Estimated<br/>(\$000)</u> |
|---|--------------------------------|------------------------------|
| Tower Simulation System (TSS) Tower -<br>Training Simulator Enhancement 1 | 111                            | \$6,000.0                    |

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



For FY 2024, \$6.0 million is requested to modernize the hardware and software of the Tower Simulation System (TSS). Beginning in FY 2024, and continuing in FY 2024, the TSS program office will procure updated simulation training software and hardware and begin implementing upgrades for each of the 59 fixed systems. This modernization will address program shortfalls including lack of software enhancement and modifications due to proprietary nature and hardware obsolescence.

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,

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<sup>1</sup> FY 2022 and FY 2023 funding was enacted under the distance learning BLI 3B02

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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 mobile simulators deployed throughout the country. The TSS Program supports training at 235 airports.

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.

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

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The TSS software was last updated in 2015 and is beyond end-of-life. Security patches can no longer be applied, as the software is no longer supported. New training requirements, such as electronic flight strips, cannot be implemented through unsupported software. The hardware was installed in 2018 and is starting to fail.

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.

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.

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**Detailed Justification for: 3B01 Aeronautical Center Infrastructure Sustainment**

(\$000)

| Activity/Component                               | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--|--------------------|--------------------|--------------------|
| Aeronautical Center Infrastructure Modernization | \$14,400           | \$20,000           | \$20,000           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                          | <u>Locations/<br/>Quantity</u> | <u>Estimated Cost<br/>(\$000)</u> |
|--|--------------------------------|-----------------------------------|
| Aeronautical Center Infrastructure Sustainment | 1                              | \$20,000.0                        |

**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 2024, \$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

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- 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 contracts for the renovation construction of Building #25 Radar Training Facility.
- Award construction contracts for the Airport Surveillance Radar Model-9 and tower relocation.
- Award contract for Digital Airport Surveillance Radar Model-11 mechanical upgrades.

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

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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.



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**Detailed Justification for - 3B02 Distance Learning**

(\$000)

| Activity/Component             | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--------------------------------|--------------------|--------------------|--------------------|
| Distance Learning <sup>1</sup> | \$1,000            | \$1,200            | \$1,000            |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u> | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|-----------------------|---|----------------|
| Distance Learning     | ---   | \$1,000.0      |

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

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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.

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<sup>1</sup> FY 2022 includes \$9.3 million for TSS and FY 2023 includes \$15.4 million for TSS (3A11).

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

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This project allow 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.

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**Detailed Justification for - 4A01 System Engineering and Development Support**

(\$000)

| <b>Activity/Component</b>                  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| System Engineering and Development Support | \$37,000                   | \$38,000                   | \$36,500                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                  | <u><b>Locations/</b></u><br><u><b>Quantity</b></u> | <u><b>Estimated Cost</b></u><br><u><b>(\$000)</b></u> |
|---|--|---|
| A. System Engineering Support                 | ---  | \$35,000.0  |
| B. ATC/AFN Systems Support Program Evaluation | ---  | 1,500.0   |

For FY 2024, \$36.5 million is requested to provide technical contract support services, which will ensure sound systems engineering practices and business case development processes that are instrumental to the safety, efficiency, and security of the National Airspace System.

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 blue print 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. This includes 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 requirements. These include Research, Mission Analysis, and System Engineering requirements and this reduces 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.

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- 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
  - Other management tools

**B. Air Traffic Control/Finance and Management Systems Support**

- Supports technical analysis and oversight of acquisition program goals and performance reporting.

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

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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.

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**Detailed Justification for - 4A02 Program Support Leases**

(\$000)

| Activity/Component     | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|------------------------|--------------------|--------------------|--------------------|
| Program Support Leases | \$15,000           | \$45,000           | \$45,000           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>  | <u>Locations/ Quantity</u> | <u>Estimated Cost (\$000)</u> |
|------------------------|----------------------------|-------------------------------|
| Program Support Leases | ---                        | \$45,000.0                    |

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

For FY 2024 \$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)

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- 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?**

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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.

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**Detailed Justification for - 4A03 Logistics and Acquisition Support Services**

(\$000)

| <b>Activity/Component</b>                  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Logistics and Acquisition Support Services | \$12,000                   | \$12,000                   | \$12,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                      | <u>Locations/ Estimated Cost<br/>Quantity</u> | <u>(\$000)</u> |
|--|---|----------------|
| Logistics and Acquisition Support Services | ---   | \$12,000.0     |

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

For FY 2024, \$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:



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- 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?**

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Maintaining appropriate oversight of the acquisition and management of these assets will ensure that tax payer dollars are utilized in the most prudent and transparent manner.

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**Detailed Justification for - 4A04 Mike Monroney Aeronautical Center (MMAC)  
Lease**

(\$000)

| Activity/Component                             | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--|--------------------|--------------------|--------------------|
| Mike Monroney Aeronautical Center (MMAC) Lease | \$14,600           | \$16,000           | \$16,400           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                          | <u>Locations/ Quantity</u> | <u>Estimated Cost (\$000)</u> |
|--|----------------------------|-------------------------------|
| Mike Monroney Aeronautical Center (MMAC) Lease | 1                          | \$16,400.0                    |

**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 2024, \$16.4 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

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- 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?**

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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.

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**Detailed Justification for - 4A05 Transition Engineering Support**

(\$000)

| Activity/Component             | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>Request |
|--------------------------------|--------------------|--------------------|--------------------|
| Transition Engineering Support | \$17,000           | \$19,000           | \$19,000           |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>            | <u>Locations/ Quantity</u> | <u>Estimated Cost (\$000)</u> |
|----------------------------------|----------------------------|-------------------------------|
| 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 2024, \$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 \$1.4 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.

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

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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.

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**Detailed Justification for - 4A06 Technical Support Services Contract (TSSC)**

(\$000)

| <b>Activity/Component</b>                  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| Technical Support Services Contract (TSSC) | \$28,000                   | \$28,000                   | \$28,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u>Activity Tasks</u>                      | <u>Locations/</u><br><u>Quantity</u> | <u>Estimated Cost</u><br><u>(\$000)</u> |
|--|--------------------------------------|---|
| Technical Support Services Contract (TSSC) | ---                                  | \$28,000.0                              |

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

---

For FY 2024, \$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

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- The prime contractor's costs to award and administer subcontracts to accomplish \$62.2 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?**

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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.

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**Detailed Justification for - 4A07 Resource Tracking Program (RTP)**

(\$000)

| <b>Activity/Component</b>       | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---------------------------------|----------------------------|----------------------------|----------------------------|
| Resource Tracking Program (RTP) | \$8,000                    | \$8,000                    | \$13,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>    | <u><b>Locations/ Estimated Cost<br/>Quantity</b></u> | <u><b>(\$000)</b></u> |
|---------------------------------|--|-----------------------|
| Resource Tracking Program (RTP) | ---  | \$13,000.0            |

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

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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 2024, \$13.0 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



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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?**

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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.

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**Detailed Justification for - 4A08 Center for Advanced Aviation System  
Development (CAASD)**

(\$000)

| <b>Activity/Component</b>                               | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Center for Advanced Aviation System Development (CAASD) | \$57,000                   | \$57,000                   | \$57,000                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                            | <u><b>Locations/ Quantity</b></u> | <u><b>Estimated Cost (\$000)</b></u> |
|---|-----------------------------------|--------------------------------------|
| 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.

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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. 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 is the only entity that can develop system architecture, conduct comprehensive research, development, and system engineering services. 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 2024, \$57.0 million is requested to fund technical, engineering, as well as research and development support for the CAASD program. The FY 2023 funding will support core MITRE research and systems engineering work as well as technical and operational analyses. Efforts to be supported in FY 2024 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.
- 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.

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- Assessment of Industry equipment (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?**

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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 equipment, 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

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**Detailed Justification for - 4A09 Aeronautical Information Management Program**

(\$000)

| <b>Activity/Component</b>                   | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| Aeronautical Information Management Program | \$20,800                   | \$29,350                   | \$19,550                   |

**COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR**

| <u><b>Activity Tasks</b></u>                                       | <u><b>Locations/<br/>Quantity</b></u> | <u><b>Estimated Cost<br/>(\$000)</b></u> |
|--|---------------------------------------|--|
| A. Federal Notices to Air Missions System Sustainment              | ---                                   | \$8,900.0                                |
| B. Aeronautical Information Management Modernization Enhancement 1 | ---                                   | 10,000.0                                 |
| C. Independent Operational Assessment                              | ---                                   | 650.0                                    |

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

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**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 2024, \$8.9 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: International Civil Aviation Organization requirements, 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.

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- 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 2024, \$10.0 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 automation portion of the remaining 2018 Reauthorization mandates; achieve FAA commitments made to stakeholders and aviation industry; and address one of FAA's Top Five Safety Priorities.

### **C. Independent Operational Assessment**

For FY 2024, \$650,000 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?**

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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. The Federal Aviation Administration will realize costs 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.

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**Detailed Justification for – 5A01 Personnel and Related Expenses**

(\$000)

| <b>Activity/Component</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY2024<br/>Request</b>    |
|---------------------------|----------------------------|----------------------------|------------------------------|
| Salaries and Benefits     | 515,247                    | \$522,698                  | \$573,581                    |
| Non-Pay                   | 34,753                     | \$47,302                   | \$61,419                     |
| <b>Total</b>              | <b>\$550,000</b>           | <b>\$570,000</b>           | <b>\$635,000<sup>1</sup></b> |
| <b>FTE</b>                | 2,815                      | 2,740                      | 2,890                        |

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

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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). 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:**

(Dollars in Thousands)

| <b>Organization</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY2024<br/>Request</b> |
|---------------------|----------------------------|----------------------------|---------------------------|
| ATO                 | \$396,256                  | \$405,012                  | \$459,873                 |
| AVS                 | \$12,362                   | \$12,794                   | \$13,583                  |
| AFN                 | \$39,665                   | \$46,260                   | \$49,527                  |
| ANG                 | \$101,482                  | \$105,194                  | \$111,237                 |
| ASH                 | 235                        | 740                        | 780                       |
| <b>Total</b>        | <b>\$550,000</b>           | <b>\$570,000</b>           | <b>\$635,000</b>          |

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<sup>1</sup> The IJA provides \$200.0 million in FY 2024 for administrative expenses/PCB&T.



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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.

The FY 2024 Activity 5 request also includes \$30.0 million for personnel and relates expenses to support BLI 2E10 for the modernization of the FAA Telecommunications Infrastructure.

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

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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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**Detailed Justification for – 6A01 National Airspace System Modernization Acceleration**

(\$000)

| Activity/Component  | FY 2022<br>Enacted | FY 2023<br>Enacted | FY2024<br>Request |
|---|--------------------|--------------------|-------------------|
| National Airspace System (NAS) Modernization Acceleration | \$0                | \$0                | \$115,000         |

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

| <u>Activity Tasks</u>                                  | <u>Locations/<br/>Quantity</u> | <u>Estimated<br/>Cost<br/>(\$000)</u> |
|--|--------------------------------|---------------------------------------|
| A. National Airspace System Modernization Acceleration | ---                            | 100,000.0                             |
| B. PCB&T   | ---                            | 15,000.0                              |

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

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This program targets modernization and sustainment of the NAS. Potential modernization acceleration program areas for FY 2024 are Traffic Flight Data Manager (TFDM), Integrated Display System (IDS), Aeronautical Information Management (AIM), and Enterprise Information Platform (EIM). In addition to these programs, other potential investment areas are telecommunications infrastructure, surveillance radars, and radio replacements as examples. The main focus of the FY 2024 budget item is to create flexibility to adjust to real-time issues in operations and increase capital investments where needed.

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). 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.

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| <b><u>Activity/Component</u></b> | <b><u>FY 2022 Enacted</u></b> | <b><u>FY 2023 Enacted</u></b> | <b><u>FY2024 Request</u></b> |
|----------------------------------|-------------------------------|-------------------------------|------------------------------|
| Salaries and Benefits            | \$0                           | \$0                           | \$13,800                     |
| Non-Pay                          | \$0                           | \$0                           | \$1,200                      |
| <b>Total</b>                     | <b>\$0</b>                    | <b>\$0</b>                    | <b>\$15,000</b>              |
| FTE                              | <u>0</u>                      | <u>0</u>                      | 92                           |

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

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The FAA's NAS System infrastructure has redundancy and resiliency to ensure safety. The FAA will mitigate all risks as much as possible through long-term planning, but unanticipated risks to ATC automation, communication, surveillance and other systems could emerge during the fiscal year and this line item is introduced to respond quickly to those risks.

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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, [\$255,000,000] \$255,130,000, to be derived from the Airport and Airway Trust Fund and to remain available until September 30, [2025] 2026: 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 [: Provided further, That amounts made available under this heading shall be used in accordance with the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act): Provided further, That not to exceed 10 percent of any funding level specified under this heading in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act) may be transferred to any other funding level specified under this heading in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act): Provided further, That no transfer may increase or decrease any funding level by more than 10 percent: Provided further, That any transfer in excess of 10 percent shall be treated as a reprogramming of funds under section 405 of this Act and shall not be available for obligation or expenditure except in compliance with the procedures set forth in that section].

**Federal Aviation Administration  
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**Program and Financing (in millions of dollars)**

|   | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|---|-------------------|---------------------|---------------------|
| Identification code: 69-8108-0-7-402  |                   |                     |                     |
| <b>Obligations by program activity:</b>   |                   |                     |                     |
| 0011 Improve aviation safety .....  | 29                | .....               | .....               |
| 0013 Reduce environmental impact of aviation .....  | 3                 | .....               | .....               |
| 0014 Improve the efficiency of mission support .....  | 10                | .....               | .....               |
| 0015 Research, Engineering and Development .....  | 163               | 239                 | 264                 |
| 0100 Subtotal, direct program .....   | 205               | 239                 | 264                 |
| 0799 Total direct obligations .....   | 205               | 234                 | 264                 |
| 0801 Research, Engineering & Development (Airport & Airway<br>Trust Fund (Reimbursable))..... | 11                | 16                  | 16                  |
| 0900 Total new obligations (total) .....  | 216               | 255                 | 280                 |
| <b>Budgetary resources available for obligation:</b>  |                   |                     |                     |
| 1000 Unobligated balance brought forward, Oct 1 .....   | 149               | 195                 | 204                 |
| 1021 Recoveries of prior year unpaid obligations .....  | 2                 | .....               | .....               |
| 1070 Unobligated balance (total) .....  | 151               | 195                 | 204                 |
| <b>New budget authority (gross), detail:</b>  |                   |                     |                     |
| Appropriation, discretionary:   |                   |                     |                     |
| 1101 Appropriation (special or trust fund) .....  | 249               | 255                 | 255                 |
| Spending authority from offsetting collections,<br>discretionary:                             |                   |                     |                     |
| 1700 collected .....  | 9                 | 9                   | 9                   |
| 1701 Change in uncollected payments, Federal<br>sources .....                                 | 3                 | .....               | .....               |
| 1750 Spending Auth from offsetting collections, disc<br>(total) .....                         | 12                | 9                   | 9                   |
| 1900 Budget authority (total) .....   | 261               | 264                 | 264                 |
| 1930 Total budgetary resources available .....  | 412               | 459                 | 468                 |
| Memorandum (non -add) entries:  |                   |                     |                     |
| 1940 Unobligated balance expiring .....   | -1                | .....               | .....               |
| 1941 Unexpired Unobligated balance, end of year .....   | 195               | 204                 | 188                 |
| Special and non-revolving trust funds:  |                   |                     |                     |
| 1950 Other balances withdrawn and returned to unappropriated<br>receipts .....                | 1                 | .....               | .....               |
| 1951 Unobligated balance expiring .....   | 1                 | .....               | .....               |
| 1952 Expired Unobligated balance, start of year .....   | 6                 | 8                   | 8                   |
| 1953 Expired Unobligated balance, end of year .....   | 7                 | 8                   | 8                   |
| 1954 Unobligated balance canceling .....  | 1                 | .....               | .....               |
| <b>Change in obligated balances:</b>  |                   |                     |                     |
| Unpaid obligations:   |                   |                     |                     |
| 3000 Unpaid obligations, brought forward, Oct 1 (gross) .....                                 | 225               | 229                 | 236                 |
| 3010 New obligations incurred, unexpired accounts .....                                       | 216               | 255                 | 280                 |
| 3020 Outlays (gross) .....  | -208              | -248                | -264                |

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|  | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|--|-------------------|---------------------|---------------------|
| Identification code: 69-8108-0-7-402                                       |                   |                     |                     |
| 3040 Recoveries of prior year unpaid obligations, unexpired....            | -2                | .....               | .....               |
| 3041 Recoveries of prior year unpaid obligations, expired.....             | -2                | .....               | .....               |
| 3050 Unpaid obligations, end of year.....                                  | 229               | 236                 | 252                 |
| Uncollected payments:  |                   |                     |                     |
| 3060 Uncollected payments, Federal Sources, brought forward,<br>Oct 1..... | -9                | -9                  | -9                  |
| 3070 Change in uncollected pymts, Fed sources,<br>unexpired.....           | -3                | .....               | .....               |
| 3071 Change in uncollected pymts, Fed sources,<br>expired.....             | 3                 | .....               | .....               |
| 3090 Uncollected payments, Federal sources, end of year .....              | -9                | -9                  | -9                  |
| Memorandum (non-add) entries:  |                   |                     |                     |
| 3100 Obligated balance, start of year .....                                | 216               | 220                 | 227                 |
| 3200 Obligated balance, end of year .....                                  | 220               | 227                 | 243                 |
| <b>Budget Authority and outlays, net:</b>                                  |                   |                     |                     |
| Discretionary:   |                   |                     |                     |
| 4000 Budget authority, gross.....  | 261               | 264                 | 264                 |
| Outlays, gross:  |                   |                     |                     |
| 4010 Outlays from new discretionary authority .....                        | 46                | 121                 | 121                 |
| 4011 Outlays from discretionary 0balances .....                            | 162               | 127                 | 143                 |
| 4020 Outlays, gross (total) .....  | 208               | 248                 | 264                 |
| <b>Offsets against gross budget authority and outlays</b>                  |                   |                     |                     |
| Offsetting collections (collected) from:                                   |                   |                     |                     |
| 4030 Federal sources .....   | -12               | -9                  | -9                  |
| 4040 Offsets against gross budget authority and outlays (total)            | -12               | -9                  | -9                  |
| Additional offsets against gross budget authority only:                    |                   |                     |                     |
| 4050 Change in uncollected pymts, Fed sources,<br>unexpired.....           | -3                | .....               | .....               |
| 4052 Offsetting collections credited to expired accounts.....              | 3                 | .....               | .....               |
| 4070 Budget Authority, net<br>(discretionary).....                         | 249               | 255                 | 255                 |
| 4080 Outlays, net<br>(discretionary).....                                  | 196               | 239                 | 255                 |
| 4180 Budget authority, net (total) .....                                   | 249               | 255                 | 255                 |
| 4190 Outlays, net (total) .....  | 196               | 239                 | 255                 |

This account provides funding to conduct research, engineering, and development 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.



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**Object Classification** (in millions of dollars)

|                                      |   | 2022   | 2023     | 2024     |
|--------------------------------------|---|--------|----------|----------|
| Identification code: 69-8108-0-7-402 |   | Actual | Estimate | Estimate |
| Direct obligations:                  |   |        |          |          |
| Personnel compensation               |   |        |          |          |
| 11.1                                 | Full-time permanent .....                       | 28     | 35       | 37       |
| 12.1                                 | Civilian personnel benefits .....               | 10     | 12       | 14       |
| 21.0                                 | Travel and transportation of persons.....       | .....  | 1        | 1        |
| 25.1                                 | Advisory and assistance services .....          | 35     | 40       | 45       |
| 25.2                                 | Other services from non-Federal sources .....   | 52     | 60       | 66       |
| 25.3                                 | Other services from Federal sources.....        | 8      | 9        | 10       |
| 25.5                                 | Research and Development Contracts              | 13     | 15       | 17       |
| 25.7                                 | Operation and maintenance of equipment .....    | 1      | 1        | 1        |
| 26.0                                 | Supplies and materials .....                    | 1      | 1        | .....    |
| 31.0                                 | Equipment .....                                 | 2      | 2        | 3        |
| 41.0                                 | Grants, subsidies, and contributions .....      | 55     | 63       | 70       |
| 99.0                                 | Direct obligations.....                         | 205    | 239      | 264      |
| 99.0                                 | Reimbursable obligations.....                   | 11     | 16       | 16       |
| 99.9                                 | Total new obligations, unexpired accounts ..... | 216    | 255      | 280      |

**Employment Summary**

|                                      |   | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|---|---------|----------|----------|
| Identification code: 69-8108-0-7-402 |   | Actual  | Estimate | Estimate |
| 1001                                 | Direct civilian full-time equivalent employment | 196     | 226      | 233      |

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**EXHIBIT III-1  
Research, Engineering and Development  
Summary by Program Activity  
Appropriations, Obligation Limitations, and Exempt Obligations  
(\$000)**

|                                       | <b>FY 2022<br/>ENACTED</b> | <b>FY 2023<br/>ENACTED</b> | <b>FY 2024<br/>REQUEST</b> |
|---------------------------------------|----------------------------|----------------------------|----------------------------|
| Research, Engineering and Development | \$ 248,500                 | \$ 255,000                 | \$ 255,130                 |
| <b>TOTAL BASE</b>                     | <b>\$ 248,500</b>          | <b>\$ 255,000</b>          | <b>\$ 255,130</b>          |
| FTEs                                  | 217                        | 226                        | 233                        |
| Direct Funded                         |                            |                            |                            |
| Reimbursable, allocated, other        |                            |                            |                            |
| <b>Supplemental Funding</b>           |                            |                            |                            |
| <b>COVID-19 Supplementals</b>         |                            |                            |                            |
| CRRSA                                 |                            |                            |                            |
| Relief for Airports (ARPA)            |                            |                            |                            |
| Employee Leave Fund (ARPA)            |                            |                            |                            |
| <b>IIJA Supplemental (Division J)</b> |                            |                            |                            |
| Facilities & Equipment                |                            |                            |                            |
| Airport Infrastructure Grants         |                            |                            |                            |
| Airport Terminal Program              |                            |                            |                            |
| <b>TOTAL, Base appropriations</b>     | <b>\$ -</b>                | <b>\$ -</b>                | <b>\$ -</b>                |
| FTEs                                  |                            |                            |                            |
| Direct Funded                         |                            |                            |                            |
| Reimbursable, allocated, other        |                            |                            |                            |
| <b>Account</b>                        | <b>\$ 248,500</b>          | <b>\$ 255,000</b>          | <b>\$ 255,130</b>          |

**Program and Performance Statement**

This account provides funding for establishing and overseeing FAA's Research and Development (R&D) policies and plans. Its diverse scientific, engineering and technical workforce supports all aspects of aviation from research on materials to development of new products and procedures.

In partnership with both domestic and international entities within the aviation community, the FAA RE&D programs provide world leadership by conducting high-priority research and developing innovative technologies to support a safe, efficient, and environmentally acceptable global aviation system.

**Federal Aviation Administration  
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**EXHIBIT III-1a  
Research, Engineering and Development  
SUMMARY ANALYSIS OF CHANGE FROM FY 2023 TO FY 2024  
Appropriations, Obligations, Limitations, and Exempt Obligations  
(\$000)**

|                                       | <b><u>\$000</u></b> | <b><u>FTE</u></b> |
|---------------------------------------|---------------------|-------------------|
| <b>FY 2023 ENACTED</b>                | <u>\$255,000</u>    | <u>226</u>        |
| <b>ADJUSTMENTS TO BASE:</b>           |                     |                   |
| Annualization of FY 2023 FTE          | 1,446               | 7                 |
| Annualization of Prior Pay Raise(s)   | 537                 |                   |
| FY 2024 Pay Raise                     | 1,841               |                   |
| Adjustment for Compensable Days       | 151                 |                   |
| GSA Rent                              |                     |                   |
| Working Capital Fund                  |                     |                   |
| FERS Increase in FY 2024              | 0                   |                   |
| Non-Pay Inflation                     | 2,805               |                   |
| etc.                                  |                     |                   |
| <b>SUBTOTAL, ADJUSTMENTS TO BASE</b>  | <b>6,780</b>        | <b>233</b>        |
| <b>PROGRAM REDUCTIONS</b>             |                     |                   |
| <b>SUBTOTAL, PROGRAM REDUCTIONS</b>   | <b>0</b>            | <b>0</b>          |
| <b>PROGRAM INCREASES</b>              |                     |                   |
| Research, Engineering and Development | -6,650              |                   |
| <b>SUBTOTAL, PROGRAM INCREASES</b>    | <b>-6,650</b>       | <b>0</b>          |
| <b>FY 2024 REQUEST</b>                | <b>255,130</b>      | <b>233</b>        |

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|  | <b>FY 2024<br/>REQUEST</b> | <b>Page</b> |
|--|----------------------------|-------------|
| <b>FEDERAL AVIATION ADMINISTRATION</b>                             |                            |             |
| <b>A. Research, Engineering and Development</b>                    | <b>255,130</b>             |             |
| a. Fire Research and Safety  | 7,722                      | 8           |
| b. Propulsion and Fuel Systems                                     | 6,374                      | 12          |
| c. Advanced Materials/Structural Safety                            | 2,526                      | 15          |
| d. Aircraft Icing  | 3,960                      | 18          |
| e. Digital System Safety   | 7,109                      | 20          |
| f. Continued Airworthiness   | 8,425                      | 23          |
| g. Flight Deck/Maintenance/System Integration Human Factors        | 15,646                     | 26          |
| h. System Safety Management/Terminal Area Safety                   | 9,349                      | 29          |
| i. Air Traffic Control Technical Operations Human Factors          | 6,389                      | 32          |
| j. Aeromedical Research  | 12,205                     | 35          |
| k. Weather Program   | 19,220                     | 38          |
| l. Unmanned Aircraft Systems Research                              | 21,128                     | 41          |
| m. Alternative Fuels for General Aviation                          | 11,201                     | 44          |
| n. Commercial Space Transportation Safety                          | 6,157                      | 47          |
| o. NextGen Wake Turbulence   | 4,680                      | 50          |
| p. Information/Cyber Security                                      | 6,415                      | 52          |
| q. Environment and Energy  | 21,305                     | 55          |
| r. NextGen Environmental Research: Aircraft Technologies and Fuels | 70,774                     | 58          |
| s. System Planning and Resource Management                         | 5,097                      | 62          |
| t. Aviation Grant Management                                       | 2,001                      | 64          |
| u. William J. Hughes Technical Center Laboratory Facility          | 5,447                      | 66          |
| v. Aviation Accessibility Research                                 | 2,000                      | 69          |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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**Detailed Justification for A11.a Fire Research and Safety**

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**FY 2024 – A11.a Fire Research and Safety – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 4,520                      | 4,663                      | 4,850                                     |
| Program Costs              | 2,616                      | 2,473                      | 2,872                                     |
| <b>Total</b>               | <b>7,136</b>               | <b>7,136</b>               | <b>7,722</b>                              |
| <b>FTE (if applicable)</b> | <b>24</b>                  | <b>24</b>                  | <b>24</b>                                 |

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

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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. Researchers in this program conduct tests to evaluate potential fire threats from the integration of new aerospace technologies and develop procedures, standardized test methods, and data to support the certification of aircraft systems and materials. 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.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**Major Activities Planned:**

| <b>Major Activities</b>             | <b>Objective</b>   | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                             |
|-------------------------------------|--|---|--|--|
| Aircraft and Occupant Survivability | To prevent or minimize the effects of inflight or post-crash fire on occupant survivability given evolving aircraft technology   | <p>Reports and datasets that describe:</p> <ul style="list-style-type: none"> <li>- New and updated fire test methods</li> <li>- Evaluations of non-Halon handheld and lavatory fire extinguishers,</li> <li>- Methods for safe extinguishment of portable electronic devices, and</li> <li>- Methods for detecting changes in material formulation that practically impact flammability performance</li> </ul>   | Reduction in the occurrence of inflight fire accidents and improved post-crash survivability | Second year of an ongoing five year activity |
| Cargo Safety                        | Reduce the risks associated with cargo fires by testing to support development of new standards for fire detection, 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. | <p>Reports and datasets that describe:</p> <ul style="list-style-type: none"> <li>- The relative hazard of hazardous materials and various lithium batteries</li> <li>- Effectiveness of non-Halon fire suppression agents for cargo fire applications</li> <li>- Effectiveness of fire-resistant cargo containers and covers</li> <li>- Container-based fire detection and suppression systems</li> <li>- Information for public education on the hazards associated with the shipment of lithium batteries and hazardous materials</li> </ul> | Reduce hazards and risks of in-flight fires in large cargo and passenger transport aircraft  | Second year of an ongoing five year activity |

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| <b>Major Activities</b>                | <b>Objective</b>  | <b>Expected Outputs</b>  | <b>Value Statement</b>   | <b>Timeframe</b>                             |
|--|---|--|--|--|
| 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 | <ul style="list-style-type: none"> <li>- Development of consensus-based fire test standards for engine components,</li> <li>- Evaluation of new engine fire suppression agents,</li> <li>- Evaluation of in-flight fire threats posed by on-board power sources including hydrogen and lithium batteries</li> <li>- Evaluation of post-crash fire threat posed by on-board power sources including hydrogen and lithium batteries</li> </ul> | Maintained or improved level of safety for aircraft incorporating novel or hybrid propulsion systems | Second 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?**

Aircraft fires throughout history have often resulted in catastrophic outcomes with significant loss of life. The research conducted in this program is 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, thereby benefitting 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 the 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. Practical insight gleaned from testing experience will be used to publish information for the American public on the hazards associated with the transport of lithium batteries and battery-powered portable electronic devices.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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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.



**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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**Detailed Justification for A11.b Propulsion and Fuel Systems**

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**FY 2024 – A11.b Propulsion and Fuel Systems – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 2,099                      | 2,295                      | 2,386                                     |
| Program Costs              | 901                        | 705                        | 3,988                                     |
| <b>Total</b>               | <b>3,000</b>               | <b>3,000</b>               | <b>6,374</b>                              |
| <b>FTE (if applicable)</b> | <b>10</b>                  | <b>11</b>                  | <b>12</b>                                 |

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

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The Propulsion and Fuel Systems Program supports the Administration's principles regarding Safety, and Climate and Resilience. It does this by conducting research on new and legacy aircraft propulsion systems in order 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. Uncontained failures 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 operation of the aircraft. Since 2016, nearly two dozen such uncontained events have occurred, with one instance from a fractured fan blade resulting in the first fatality on a major US 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. This includes blade release vulnerability assessments of open rotor (unducted) turbine engines as well as the durability, endurance and reliability of electric engines.

This program conducts research on advanced damage tolerance design methods, improved manufacturing practices, and nondestructive evaluation (NDE) methods to reduce and eliminate the 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 take into account 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. An engine health monitoring task will establish safety thresholds for engine health and deterioration parameters and the methodology to generate safety alerts for the crews when the engine is in an unsafe operating condition or close to it. Finally, this program supports electric propulsion by developing means of compliance methods for the durability, endurance, and reliability of electric engines.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**Major Activities Planned:**

| <b>Major Activities</b>   | <b>Objective</b>   | <b>Expected Outputs</b>   | <b>Value Statement</b>  | <b>Timeframe</b>   |
|---|--|---|---|--|
| 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   | <ul style="list-style-type: none"> <li>- Enhanced version of the DARWIN engine design code to address nickel material anomalies</li> <li>- Advisory materials to determine engine part life limits</li> </ul>   | Program outputs will provide a standardized, publicly available means to accurately predict the service life of critical engine parts                                   | Final year of four year activity focused on nickel damage tolerance                            |
| Improved Nondestructive Evaluation (NDE) to Prevent Uncontained Engine Failures               | Reduce the risk of in-service failures of critical jet engine parts  | <ul style="list-style-type: none"> <li>- Inspection methods and industry standards for nickel alloy materials in both the billet and forged product state with increased sensitivity over conventional methods</li> </ul>   | Program output will ensure the integrity of critical engine parts by enabling more sensitive inspections to detect hidden flaws prior to failure                        | Complete nickel billet activity in FY 2023 and initiate new activity for nickel rotor forgings |
| 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 <ul style="list-style-type: none"> <li>- Metal and composite material data</li> <li>- User guidance, test cases and technical reports</li> </ul> Uncontained Engine Debris Damage Assessment Model support <ul style="list-style-type: none"> <li>- Engine debris fragment model updates</li> </ul> | Program outputs provide industry with FAA certification standards with publicly available tools, data, and methods to advance engine fragment analysis capability       | Ongoing, fourth year of activity final phase, to be completed in FY 2025                       |
| Engine Safety Event Prevention thru Engine Health Monitoring (EHM)                            | To monitor engine operating parameters and thresholds to forewarn of an impending engine failure, allowing preventative corrective action to occur | <ul style="list-style-type: none"> <li>- Review of current EHM capabilities</li> <li>- A robust methodology to detect abnormal engine performance deterioration in flight, enabling the crew to trigger maintenance inspections prior to next flight</li> </ul>   | Program outputs will facilitate EHM using analytics and artificial intelligence to detect unsafe conditions and precursors before they propagate to major engine events | Second year of a four year activity  |

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| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                    |
|--|---|---|--|-------------------------------------|
| 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 the development of standards and guidance material for the safe implementation of electric propulsion systems for aircraft | The output of the research supports the DOT priority to develop performance-based safety rules and the priority to reduce greenhouse gas and work towards a sustainable energy source for aviation | Second year of a four year activity |

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

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The benefit to the American public is 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 shut downs attributable to rotor design, manufacturing, and service-induced defects.

The safety benefits from this program come 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 analysis of other material conditions. Benefits from the Containment and Risk Mitigation of Uncontained Rotor and Blade Failures task come from the tools developed here which aid in the design and certification of safer engine containment systems when these parts are impacted by failed engine fragments. Benefits from the Electric Propulsion task aid in the design and certification of electric engines.

As civil aviation is continuously changing, so must the analytical tools and research data that are 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.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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**Detailed Justification for A11.c Advanced Materials/Structural Safety**

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**FY 2024 – A11.c Advanced Materials/Structural Safety – Budget Request**

(\$000)

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 1,020                      | 1,086                      | 1,129                                     |
| Program Costs              | 13,700                     | 13,634                     | 1,397                                     |
| <b>Total</b>               | <b>14,720</b>              | <b>14,720</b>              | <b>2,526</b>                              |
| <b>FTE (if applicable)</b> | <b>6</b>                   | <b>6</b>                   | <b>6</b>                                  |

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

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This program supports the Administration's principle of Safety. Recent years have seen the first use of composites in critical, primary structure, the introduction of additive manufactured parts as well as the introduction of other novel materials, fabrication techniques all of which are rapidly evolving. It is part of the FAA's safety oversight responsibility to ensure that these new technologies are safe when they enter service and remain safe as they age. This program takes a proactive approach, developing an understanding of these technologies in the laboratory so that the certification process can mitigate the associated risks to the flying public.

This program is needed by FAA personnel to develop policy, guidance, and training, drive industry group engagement, and inform continued safety evaluations. As materials and structures are a common technology across all product types and new applications such as advanced air mobility, the program supports multiple FAA strategic plan objectives, including systemic safety approach, development and deployment of innovation, and regulatory reform.

This level of funding will support: development of guidelines for new materials, such as discontinues fiber composites and additive manufacturing to improve certification efficiency; evaluation of long-term behavior of advanced materials and associated maintenance practices to ensure safety; evaluation of crashworthiness behavior of new materials and their new applications such as composite seats and urban air mobility; development of efficient methods for characterizing new materials; development of industry standards, educational initiatives, and to maintain the FAA/U.S. Department of Transportation Joint Centers of Excellence for Advanced Materials. All of these efforts support continued operational safety, certification effectiveness and efficiency, ensuring that safety risks to the flying public are eliminated in the certification process while minimizing the time and resources required.

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**Major Activities Planned:**

| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>  | <b>Value Statement</b>  | <b>Timeframe</b>   |
|--|---|--|---|--|
| Evaluate Long-Term Aging Behavior of Advanced Materials and Associated Maintenance Practices   | Investigate in-service aging behaviors of adhesively-bonded structure in composite helicopter rotor blades                                      | <ul style="list-style-type: none"> <li>- Industry best practices for estimating the effect of long-term service on composite and metal bonded structures</li> <li>- Test standards for estimating design life of helicopter rotor blades</li> </ul>      | Facilitate development of industry standards and guidance and promote associated performance-based safety rules   | Multiple coordinated projects. Third year of ongoing seven year activity |
| 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        | <ul style="list-style-type: none"> <li>- Public test data and findings documented in technical reports and published by the FAA-sponsored Composite Materials Handbook -17</li> </ul>  | Program outputs will facilitate improved safety, increased efficiency, and provide validated procedures to implement bonded composite structure design and repair technology in a safe and efficient manner | Fourth year of ongoing five year activity                                |
| Evaluate and Characterize Crashworthiness Performance of Composite Aircraft Seats to Drive New Test and Certification Standards and Guidelines | Construct analytical seat models for the proposed composite material systems. Conduct tests to verify and validate these seat models            | <ul style="list-style-type: none"> <li>- Data and findings published in a technical report to support modification of existing FAA guidance for acceptance of analytical results in the seat certification process using composite components</li> </ul> | Current certification guidance needs to be expanded for composite seating systems   | Second year of a three 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 | <ul style="list-style-type: none"> <li>- Public databases for new materials and technical reports documenting the process of generating the data</li> <li>- Test data to establish acceptable minimum criteria</li> </ul>                                | Development of a standardized approach to generate material property databases for new materials that industry can follow   | Multiple coordinated projects. Third year of ongoing seven year activity |

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

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The use of advanced materials is central to a vibrant aviation industry in the United States. While traditional composites (generally, continuous fiber epoxy material systems) have been used in non-critical aircraft structure for some time, that use is now changing rapidly. Composites are now used in critical structure, non-traditional composites such as those with discontinuous fibers or thermoplastics, as well as other advanced materials and processes such as additive manufacturing, are increasingly being used in aviation products.

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 research addresses this gap in knowledge and supports standardization of industry practices. This both makes the certification process more effective in ensuring the safety of these technologies and more efficient by shortening the time and cost to introducing new structures made with advanced materials.

A National Transportation Safety Board (NTSB) review of accidents provides additional impetus to understand advanced materials as new technologies emerge. The applied research performed by this program has identified and investigated many issues that were either unknown or poorly understood. By taking a proactive approach, it 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 coordinates its efforts with industry to support the FAA's oversight role of ensuring new technologies are adopted safely, as well as meeting its mandate not to place an undue burden on industry while keeping the American public safe.

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**Detailed Justification for A11.d - Aircraft Icing**

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**FY 2024 – A11.d Aircraft Icing – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 1,009                      | 1,191                      | 1,238                                     |
| Program Costs              | 1,463                      | 1,281                      | 2,722                                     |
| <b>Total</b>               | <b>2,472</b>               | <b>2,472</b>               | <b>3,960</b>                              |
| <b>FTE (if applicable)</b> | <b>6</b>                   | <b>6</b>                   | <b>6</b>                                  |

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

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The FAA Aircraft Icing Research Program supports the Administration's principle of Safety and focuses on ground and inflight icing effects on all types of aircraft, including innovative aircraft such as urban air mobility vehicles, aiming to reduce the risk of icing incidence and accidents. Icing continues to be a factor in accidents and serious incidence involving large commercial transports, small general aviation airplanes, and rotorcraft. It affects all phases of flight, from takeoff to landing. Research focuses on deicing and anti-icing methods and decision-making as well as the aerodynamic and operational effects of icing on different aircraft designs and engines. Industry and Academia experts have very little knowledge of the ice-crystal ice formations within turbine engines. Ice crystal icing research directly addresses these shortfalls using innovative research to advance our understanding in this area, which is needed to develop and validate ice crystal icing analytical tools, and provide policy and guidance relative to ice crystal icing.

Funding will support research to maintain safe winter ground operations, evaluate the effects of changing ground operations, and develop testing and analysis methods to support these changes. Holdover time is the term for the time of protection provided by an anti-icing fluid applied to aircraft during winter weather conditions such as snow, freezing rain, freezing drizzle, freezing fog, and frost. FAA research supports the development of holdover time tables which are used by airlines worldwide, enabling their pilots to determine if a fluid has exceeded its time of protection and another application of anti-icing fluid is needed. The FAA mandates the use of these tables and leads the provision of vital information on new issues through FAA leadership in an international ground deicing committee. This program provides funds for modifications and improvements of research facilities and the purchase of research equipment to support this critical icing research at the FAA's William J. Hughes Technical Center. This program is necessary for the FAA to continue to be the international leader in ground icing research.

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**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 time tables   | <ul style="list-style-type: none"> <li>- Frequency of mixed phase conditions in order to determine which are candidates for inclusion in hold over time tables</li> <li>- Methods of simulation for these conditions</li> </ul> | Facilitate formation of policy and guidance relative to the modification of holdover time tables | Third 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   | <ul style="list-style-type: none"> <li>- Results of a model vertical stabilizer in an icing wind tunnel with and without fluid protection test</li> <li>- Risk assessment through data analysis</li> </ul>                      | Facilitate formation of policy and guidance relative to protection of the vertical stabilizer    | Final year of a five year activity |
| 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 | <ul style="list-style-type: none"> <li>- Results of ICE-MACR rotating rig test</li> <li>- Validated analytical tools</li> <li>- Expanded knowledge of ice accretion and shed parameters</li> </ul>                              | Policy and guidance relative to ICI environments   | Fifth year of a six year activity  |

**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. This program enables research to help prevent future aircraft icing incidence and accidents and ultimately reduce the icing risk to all aircraft. The American public benefits from this program in that 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.



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**Detailed Justification for A11.e Digital System Safety**

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**FY 2024 – A11.e Digital System Safety – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 1,636                      | 1,836                      | 1,909                                     |
| Program Costs              | 2,053                      | 1,853                      | 5,200                                     |
| <b>Total</b>               | <b>3,689</b>               | <b>3,689</b>               | <b>7,109</b>                              |
| <b>FTE (if applicable)</b> | <b>8</b>                   | <b>8</b>                   | <b>7</b>                                  |

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

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Complex Digital Systems: The advent of new architectures, tools, and technologies such as artificial intelligence and machine learning (AI/ML) have been considered by the developers to implement into new aircraft systems and operations. This research program conducts an early exploratory and pilot studies to advance the understanding of the safety and assurance of advanced technology applications in safety-critical digital systems. The application of advanced digital technologies such as AI/ML in safety-critical airborne systems will enable increasingly efficient and safe flight management and ultimately lead to safer air travel and predictability.

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 that industry proposes. This research provides FAA's Office of Aviation Safety with data/reports needed to support the use of these technologies. These reports will identify ways of certifying systems that contain newer technologies such as AI/ML applications. Additionally, these reports will identify ways to certify systems that are comprised of multiple domains and issues in certifying a product using newer 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 and ultimately lead to safer air travel and predictability.

Aircraft Positioning, Navigation and Timing (PNT) Cyber Safety Resiliency: This research enables 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. Avionics authentication and advanced antenna preclude aircraft inadvertent use of threat signals including signals produced by unsophisticated, low-cost software defined radios (SDRs) and maintenance test equipment that can manipulate and synthesize "false" (i.e., counterfeit) GPS and wide area augmentation system (WAAS)/SBAS signals and data messages.

This aircraft PNT cyber safety research protects aircraft operations from the use of counterfeit radio frequency signals and digital data messages by assessing and baselining signal and data

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message authentication and civil anti-spoof antenna requirements to recognize and reject manipulated and simulated/counterfeit signals and data messages.

**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:<br>- Risk Assessment<br>- Mitigation Measures<br><br>Assurance Criteria   | Program outputs will facilitate safe implementation of AI/ML in safety-critical digital airborne systems   | Third 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   | Third 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 Aircraft Systems (UAS) 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., DataComm) and aircraft safety systems | First year of ongoing eighteen month activity |

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

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**Complex Digital Systems:** Multifold public benefits associated with the application of emerging technology such as AI/ML in aircraft digital systems can be realized only if the FAA can assure the safety and security of such implementations. The research efforts supported by this program will position the FAA to develop the requisite assurance criteria and methods and thus enable the timely and safe introduction of advanced digital technologies for air transportation.

Aircraft manufacturers are installing and modifying complex digital systems with newer technologies such as AI/ML. This research is necessary to find the potential hazards, gaps in the current guidance and standards and enable safe introduction of newer technologies on-board and is consistent with the 2019 Executive Order on Maintaining American Leadership in AI<sup>1</sup>. If digital systems are developed without the updated standards or thorough understanding, the safety of the flying public is at risk.

**Aircraft PNT Cyber Safety Resiliency:** This research is critical to ensuring resiliency to publically acknowledged, intentional and unintentional threats to aircraft operational and safety systems including performance based navigation (PBN), ADS-B positioning, data communications, terrain awareness and warning systems (TAWS), and numerous other aircraft specific systems in both domestic and international operations. This research validates avionics and aircraft requirements and standards for the protection of aircraft and aircraft operations from disrupted or manipulated, unencrypted/unauthenticated data received via radio frequency links.

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<sup>1</sup> E.O. 13859 of Feb 11, 2019 (<https://www.federalregister.gov/documents/2019/02/14/2019-02544/maintaining-american-leadership-in-artificial-intelligence>)

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**Detailed Justification for A11.f Continued Airworthiness**

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**FY 2024 – A11.f Continued Airworthiness – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 3,550                      | 3,685                      | 3,832                                     |
| Program Costs              | 5,279                      | 5,144                      | 4,593                                     |
| <b>Total</b>               | <b>8,829</b>               | <b>8,829</b>               | <b>8,425</b>                              |
| <b>FTE (if applicable)</b> | <b>15</b>                  | <b>15</b>                  | <b>16</b>                                 |

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

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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. The Continued Airworthiness research program accomplishes this by uncovering potential aging issues so that the certification process can ensure that risks are adequately addressed in operations, maintenance, and inspection 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 2024, 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; 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; and, rotorcraft systems.

**Major Activities Planned:**

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| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>  | <b>Timeframe</b>                    |
|--|---|---|---|-------------------------------------|
| Develop Prototype Wire-cutting Device and Detection Sensors for Rotorcraft to Prevent Wire Strikes | Test the wire cutting and detection technologies in laboratory and operational settings | <ul style="list-style-type: none"><li>- Test results</li><li>- Prototype designs for candidate technologies to prevent wire strikes</li></ul> | Provide regulators with test data to update guidance material | First year of a three year activity |

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| <b>Major Activities</b>   | <b>Objective</b>   | <b>Expected Outputs</b>   | <b>Value Statement</b>  | <b>Timeframe</b>                         |
|---|--|---|---|--|
| 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        | First year of a two year activity        |
| High 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:<br>- Developing FAA regulatory standards, associated guidance and policy material<br>- 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 | Third 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 GA aircraft and/or optionally piloted aircraft capable of vertical or short takeoff and landing  | The activity will enable critical Automation Policy development   | 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?**

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The continued Airworthiness Research program is key to the FAA's ability to maintain the safety of the flying public by ensuring the safety of new aircraft technologies as they are deployed. After 80 years of relatively slow evolution, aircraft technologies have begun to change very 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; 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

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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 process 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.

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**Detailed Justification for A11.g Flight Deck/Maintenance/System Integration Human Factors Program**

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**FY 2024 – A11.g Flight Deck/Maintenance/System Integration Human Factors Program  
– Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 4,236                      | 5,446                      | 6,227                                     |
| Program Costs              | 10,065                     | 8,855                      | 9,419                                     |
| <b>Total</b>               | <b>14,301</b>              | <b>14,301</b>              | <b>15,646</b>                             |
| <b>FTE (if applicable)</b> | <b>26</b>                  | <b>29</b>                  | <b>29</b>                                 |

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

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The Flight Deck/Maintenance/System Integration Human Factors program addresses research and development requirements defined by technical sponsors in the FAA's Aviation Safety Organization. This human-centered approach will address the issues associated with regulatory aspects of design, training, operations, and maintenance, including complex systems and human-system integration, and it will provide strategic solutions to improve aviation safety. Program outputs provide the research foundation to update and maintain human factors related regulations, guidance material, procedures, orders, standards, job aids, and other aviation safety documentation. For this purpose, the Flight Deck/Maintenance/System Integration Human Factors program directly aligns and supports the U.S. Department of Transportation's (DOT's) strategic goal of 'Safety.'

The revolution in digital avionics has changed flight deck design and operational practices and enabled new advanced vision system technologies, surface moving maps, electronic flight bags, advanced controls, communications, navigation, surveillance systems, and tools for aircraft system management. With these advances come important human performance and human factors implications which must be understood and applied in the appropriate guidance material developed for policy, procedures, operations, and training. This research supports FAA's Office of Aviation Safety in regulating the development of these products. Human error continues to be a major contributor to aircraft accidents and incidents both in commercial and general aviation. Current research is proactive in identifying error tendencies and thereby enhancing the safe and effective introduction of new technologies and procedures into the National Airspace System (NAS).

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**Major Activities Planned:**

| Major Activities  | Objective   | Expected Outputs  | Value Statement  | Timeframe                            |
|---|---|---|--|--------------------------------------|
| 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                                   | <ul style="list-style-type: none"> <li>- Flight deck alerting systems changes and gaps</li> <li>- Technical Report</li> </ul>                       | Integration of human factors in design, evaluation, and certification of modern aircraft, operations, procedures, and training | First 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 | <ul style="list-style-type: none"> <li>- Planned changes to control and information automation</li> <li>- Technical Report</li> </ul>               | Integration of human factors in design, evaluation, and certification of modern aircraft, operations, procedures, and training | Second year of a three year activity |
| Integration of Human Factors into Operational Evaluations and Flight Standardization Board Process  | Provide human factors scientific and operational data in support of aircraft evaluation division (AED) tasks for operational suitability assessments of a new or changed product      | <ul style="list-style-type: none"> <li>- Integration of Human Factors in Operational Suitability Assessments</li> <li>- Technical Report</li> </ul> | Improved integration of human factors in training development, checking, and evaluation of aviation personnel                  | Last year of a two year activity     |

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

The American flying public depends on FAA to ensure the safety of flight operations. The Flight Deck/Maintenance/System Integration Human Factors program provides scientific and technical information to those responsible for regulations and guidance that ensure safe pilot and maintainer performance. Recent NTSB data show that human error is a significant contributory factor in aircraft accidents. Tragic accidents such as Asiana<sup>2</sup>, Colgan Air<sup>3</sup>, and the Boeing 737 MAX<sup>4</sup> incidents emphasize a continuing need to address flight crew performance and human factors in aviation system design and evaluation. Including human factors early in operational evaluation and certification processes will allow for safer and more efficient integration of new technologies and advancements in aircraft capabilities.

<sup>2</sup> <https://www.nts.gov/investigations/accidentreports/reports/aar1401.pdf>

<sup>3</sup> <https://www.nts.gov/investigations/accidentreports/reports/aar1001.pdf>

<sup>4</sup> <https://www.nts.gov/news/press-releases/Pages/NR20230124.aspx>



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This program addresses some of the most critical areas for flight safety directly relevant to the flying public. Human factors research and engineering data from this program inform FAA personnel responsible for developing and maintaining aviation safety related regulations, standards, and guidance material. This information is used by field personnel to evaluate, approve, and oversee training and qualification, flight operations, inspections, maintenance, and certification.

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**Detailed Justification for A11.h System Safety Management/Terminal Area Safety**

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**FY 2024 – A11.h System Safety Management/Terminal Area Safety – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 2,973                      | 2,769                      | 2,879                                     |
| Program Costs              | 4,027                      | 6,483                      | 6,470                                     |
| <b>Total</b>               | <b>7,000</b>               | <b>9,252</b>               | <b>9,349</b>                              |
| <b>FTE (if applicable)</b> | <b>13</b>                  | <b>13</b>                  | <b>13</b>                                 |

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

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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.

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 and fill aviation safety research gaps identified in NTSB's Safety Recommendations such as A-07-003<sup>5</sup>, A-04-62<sup>6</sup>, A-07-064<sup>7</sup>, and A-01-069<sup>8</sup>.

Both programs enable analysis of safety trends 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 programs complement traditional safety analyses, which only examine hazards made known by severe events, by identifying emerging risk and the precursors that can lead to severe events.

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<sup>5</sup>

[https://www.nts.gov/investigations/accidentreports/\\_layouts/nts.gov/recsearch/recommendation.aspx?rec=a-07-003](https://www.nts.gov/investigations/accidentreports/_layouts/nts.gov/recsearch/recommendation.aspx?rec=a-07-003)

<sup>6</sup> [https://www.nts.gov/safety/safety-recs/recletters/A04\\_56\\_62.pdf](https://www.nts.gov/safety/safety-recs/recletters/A04_56_62.pdf)

<sup>7</sup> [https://www.nts.gov/SAFETY/SAFETY-RECS/\\_layouts/nts.gov/recsearch/Recommendation.aspx?Rec=A-07-064](https://www.nts.gov/SAFETY/SAFETY-RECS/_layouts/nts.gov/recsearch/Recommendation.aspx?Rec=A-07-064)

<sup>8</sup> [https://www.nts.gov/SAFETY/SAFETY-RECS/\\_layouts/nts.gov/recsearch/Recommendation.aspx?Rec=A-01-069](https://www.nts.gov/SAFETY/SAFETY-RECS/_layouts/nts.gov/recsearch/Recommendation.aspx?Rec=A-01-069)

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**Major Activities Planned:**

| <b>Major Activities</b>  | <b>Objective</b>   | <b>Expected Outputs</b>  | <b>Value Statement</b>   | <b>Timeframe</b>                             |
|--|--|--|--|--|
| 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, first hand, that typical human failings can apply to well-trained pilots | Technical Reports:<br><ul style="list-style-type: none"> <li>- Evaluation of simulated ATC systems and virtual reality flight simulators products under a variety of experimental conditions</li> <li>- Comprehensive analysis of biases that effect pilot performance from interviews with academia and training practitioners</li> </ul> | 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 | Second year of a three to four year activity |
| Develop Runway Safety Monitoring and Surveillance Tool and Sector Risk Profile for Airport Surface Safety and Develop Predictive Analytics | Develop metrics to analyze runway operations safety performance trends and predict safety risk exposure  | Technical Report:<br><ul style="list-style-type: none"> <li>- Documenting the Safety Monitoring and Surveillance Tool</li> </ul>   | Support FAA's safety oversight professionals in predicting and mitigating risk exposure for runway operations  | Final year of an ongoing activity            |

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| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                     |
|--|---|---|--|--------------------------------------|
| 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 pilots, detect safety events, implement AI/ML for effective safety studies, improve terminal operations safety | Technical Report:<br>- Detailing the prototype implementation and testing<br><br>- Collision Risk Model tool  | Facilitate FAA's safety risk analysis and NAS safety monitoring/safety event detection   | Third year of a five year activity   |
| 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<br><br>- Safety analysis tools, metrics, and capabilities for analyzing helicopter safety data<br><br>- 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 | Fifth 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.

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**Detailed Justification for A11.i Air Traffic Control/Technical Operations Human Factors**

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**FY 2024 – A11.i Air Traffic Control Technical Operations Human Factors – Budget  
Request (\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 3,213                      | 3,676                      | 3,823                                     |
| Program Costs              | 2,698                      | 2,235                      | 2,566                                     |
| <b>Total</b>               | <b>5,911</b>               | <b>5,911</b>               | <b>6,389</b>                              |
| <b>FTE (if applicable)</b> | <b>22</b>                  | <b>22</b>                  | <b>22</b>                                 |

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

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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 the FAA's Research and Development (R&D) goal to improve human performance in the system by addressing 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 strives to provide useful human factors R&D results that support the ATO's development and implementation of new technologies and procedures in the NAS, in accordance with FAA Order 9550.8 *Human Factors Policy*<sup>9</sup>: *"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."*

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<sup>9</sup> <https://www.faa.gov/documentLibrary/media/Order/9550.8.pdf>

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**Major Activities Planned:**

| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                            |
|--|---|---|--|---|
| Address Human Factors Implications of Emerging Transportation Technologies   | Human factors handbook for ATC system designers: guidance on advanced automation with artificial intelligence (AI) and machine learning (ML) capabilities                                       | System design characteristics and functions for the NAS that yield effective human-system performance   | Improved design for performance will reduce error likelihood and increase efficiency   | Second year of a two year activity          |
| Apply Human Factors Research to Support Adoption and Implementation of New ATC Technologies and Innovative Practices | Human factors suitability evaluation of virtual and augmented reality applications to support ATC and Technical Operations personnel training and remote maintenance technical support services | Human factors assessment method and recommended approaches for the adoption and implementation of virtual reality (VR)/augmented reality (AR) technologies for ATC and Technical Operations | These technologies may significantly reduce training costs and time required to achieve full performance levels in these critical aviation occupations | Second year of a three year activity        |
| Compare Training Effectiveness of Various ATC Training Technologies and Methods                                      | Evaluate and compare controller training alternatives including full fidelity simulation, computer-based instruction with embedded simulations, and team training                               | Report and plan to conduct controller training effectiveness evaluations, including team training for basic radar skills and advanced trajectory-based operations                           | Improve effectiveness and efficiency in controller Academy and field facility training using a variety of available training technologies and methods  | 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?**

In Title 49 United States Code, Section 445, the law mandates that FAA conduct human factors research in several areas to support Air Traffic Control and Technical Operations. Since the NAS is a human-centered enterprise, human performance is a key factor in total system performance, and our research will continue to contribute to enhancing the system's performance, reducing errors, and reducing life cycle ownership costs. The program provides the human factors expertise upon which FAA system development programs rely to ensure that FAA ATC/Technical Operations systems are acceptable to the user community and can achieve maximum operational benefit.

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For example, FAA's work on the development of consensus standards for job task performance for controllers and technical operations personnel will help the FAA to standardize performance measurement across the operation. The FAA also identify and develop scientific information and recommended mitigations for human factors challenges in the design of new and enhanced NAS systems and capabilities. For example, a project will develop training and procedural guidance recommendations for mitigating the potential deskilling effects of long-term use of automation. The FAA also continue work to provide the latest guidance and expertise to acquisition program personnel, ensuring that they address human factors aspects in each new and updated ATC system and capability. This includes updates to the FAA's Human Factors Design Standard, the Human Factors Job Aid, and human factors practitioner training to provide human factors guidance and expertise to the Program Management Office within the Air Traffic Organization. In these ways, the flying public benefits from the application of our research products that enables improvements to system design, procedures, and training that enhance air traffic safety and efficiency.

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**Detailed Justification for A11.j Aeromedical Research**

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**FY 2024 – A11.j Aeromedical Research – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 4,382                      | 4,899                      | 5,094                                     |
| Program Costs              | 6,618                      | 4,101                      | 7,111                                     |
| <b>Total</b>               | <b>11,000</b>              | <b>9,000</b>               | <b>12,205</b>                             |
| <b>FTE (if applicable)</b> | <b>30</b>                  | <b>30</b>                  | <b>30</b>                                 |

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

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The Aeromedical Research program focuses on safety sensitive personnel and airline passenger, and commercial space vehicle occupant 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.

The Aeromedical Research program supports the Administration's principle of Safety. It also supports the FAA's R&D goal to identify, develop and validate new technologies, policies, training methodologies, personnel selection tools and procedures to improve the performance of humans in the operation of aerospace systems. The program has three lines of effort, aligned to aviation safety, and addressing a data-driven, risk-based systemic safety approach. Individual lines of effort center on 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 NAS.



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**Major Activities Planned:**

| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                           |
|--|---|---|--|--|
| Fatigue Biomarker Panel: Identify a Metric for Performance Impairment from Sleep Loss  | Develop a biomarker panel metric for performance impairment from fatigue, and apply it to postmortem analysis. End result will be a biomarker sleep analyzer for accident investigation and prevention                            | Technical Reports;<br><ul style="list-style-type: none"> <li>- RNA biomarker fatigue impairment panel</li> <li>- RNA biomarkers with response to Modafinil</li> <li>- DNA biomarkers for individual fatigue susceptibility</li> <li>- Initial biorepository (both samples and biodata)</li> </ul> | Program outputs will facilitate increased detection of fatigue and improved FAA forensic accident reports  | Fourth year of ongoing nine year activity  |
| Precision-based, Data-driven Aeromedical Standards: Next Generation Aeromedical Certification Safety Management System (SMS) | Develop and validate tools, techniques, and procedures, particularly in the areas of big data and machine learning, which will form the technological foundations to implement a next generation airman medical certification SMS | Technical Reports:<br><ul style="list-style-type: none"> <li>- Evidence Based Risk Assessment (EBRA) process and associated requirements and implementation plan</li> <li>- Probabilistic Risk Assessment (PRA) process and associated requirements and implementation plan</li> </ul>            | Program outputs will facilitate better use of agency medical data and enable use of other government and private sector medical data for timely, risk-based airman medical certification decision-making | Fourth year of ongoing five year activity  |
| Develop Safety Standards for Omnidirectional Seats 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:<br><ul style="list-style-type: none"> <li>- Injury criteria</li> <li>- Test method(s)</li> </ul>  | Project outputs will facilitate the rightsizing of crashworthiness standards, including passenger seat design  | Second year of ongoing three year activity |
| Determine the Influence of Delta-wing Design on Egress Paths and Evacuation Efficiency for Supersonic Transports             | Determine the influence of delta-wing design on egress paths and evacuation efficiency to streamline future supersonic transport certification efforts  | Technical Report:<br><ul style="list-style-type: none"> <li>- Egress test results</li> <li>- Proposed regulatory guidance</li> </ul>  | Project outputs will equip airworthiness certification with data regarding how many passengers each exit could allow to safely evacuate from an aircraft in an emergency                                 | Second year of ongoing two year activity   |

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

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The public will benefit from better protection and survival for themselves 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.

In order to successfully support the DOT goals of safety and innovation, the FAA must keep abreast of emerging health and safety issues brought on by technological innovations and changes in the characteristics of population participating in aerospace operations. 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.

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**Detailed Justification for A11.k Weather Program**

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**FY 2024 – A11.k Weather Program – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 1,005                      | 1,136                      | 2,491                                     |
| Program Costs              | 12,781                     | 12,650                     | 16,729                                    |
| <b>Total</b>               | <b>13,786</b>              | <b>13,786</b>              | <b>19,220</b>                             |
| <b>FTE (if applicable)</b> | <b>4</b>                   | <b>4</b>                   | <b>9</b>                                  |

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

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Beginning in FY 2024, the Weather Program will consist of two research programs: 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 NAS as well as in oceanic and remote regions. The Weather Program supports the FAA Strategic Plan's Goal of Safety and the Administration's principles of Safety and Climate and Resilience to reduce the impacts of weather on aviation and enhance safety of flight. 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 direct 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. Weather is a contributing factor in 35% of all general aviation (GA) accidents with 75% of these accidents having fatalities. Avoiding such hazards requires timely, accurate and effective presentation of current and predicted weather information to pilots, controllers and airline operations personnel.

The AWRP 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. The AWRP provides research, analyses, development and demonstrations aimed at advancing capabilities to observe and predict the onset of weather conditions that affect aviation operations. The program leverages advances in meteorological science to enhance observation methods, improve weather prediction models, and produce increasingly accurate forecasts of convective weather, turbulence, icing, and low ceiling and visibility conditions. Timely dissemination and presentation of such information provide decision support input to enable traffic flow managers, 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.

The WTIC program addresses the need for enhanced cockpit weather technology, information, and human factors principals to achieve NextGen objectives of improved operational efficiency and safety, and reduced flight delays and gaseous emissions in adverse weather. Using research,

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innovation, and demonstrations, the program develops techniques and technologies to resolve cockpit meteorological gaps, including: objective turbulence information, convective information in oceanic and remote regions, identification of degrading visibility and ceiling, and wind information. The program identifies human factors and training enhancements to improve pilot adverse weather decision making, and assesses new technologies, artificial intelligence, and data sources for applications to achieve program objectives.

**Major Activities Planned:**

| Major Activities  | Objective   | Expected Outputs  | Value Statement   | Timeframe                           |
|---|---|---|---|-------------------------------------|
| Improve Convective Weather Forecasts for Aviation and Resolve Convective Weather Information Gaps in Cockpits | Increase the accuracy of convective weather forecasts, particularly in the NAS sensitive/high demand regions  | <ul style="list-style-type: none"> <li>- Onset, duration, dissipation, and locations assessments of convective weather hazards in specific regions</li> <li>- Effective integration into cockpit weather displays and decision support tools for ease of use by pilots</li> </ul>   | Improving the accuracy of convective weather forecasts will increase NAS efficiency, enhance the safety of aircrews and passengers and minimize environmental impacts through reduced fuel burn   | Fourth year of a five year activity |
| Improve Frequency of Ceiling and Visibility (C&V) Forecast Guidance and Enhance Observation Data in Cockpits  | Provide C&V forecast guidance in 15-minute time-steps to better support decision making for low altitude NAS users including helicopters, drones, and other small aircraft  | <ul style="list-style-type: none"> <li>- Gridded and station-based forecasts of high impact C&amp;V and flight category info for CONUS out to 3-6 hours, updated every 15 minutes</li> <li>- Data incorporation in cockpit displays or decision support tools for ease of pilot use</li> </ul>  | Improved safety for helicopters, drones, and other small aircraft through the availability of more frequently updated weather information   | Final year of a five year activity  |
| Improving Turbulence Avoidance  | Develop capability to derive turbulence reports from the data already contained in downlinked ADS-B reports; correlate various turbulence measuring methods to enable unambiguous understanding of shared information by pilot, controllers, and weather models | <ul style="list-style-type: none"> <li>- Technical transfer package of algorithms that derive turbulence information from aircraft already equipped with ADS-B, with considerable increase in accuracy versus Pilot Reports (PIREPs)</li> <li>- Report providing results of the correlation between turbulence reporting methods</li> </ul> | Automated, derived turbulence data from existing ADS-B downlinked reports will increase the number of turbulence reports 10-fold over existing methods, providing better situational awareness to pilots and reducing injuries to aircrews and passengers | Final year of a five year activity  |

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| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>  | <b>Timeframe</b>                   |
|--|---|---|---|------------------------------------|
| Resolving Cockpit Weather Information Gaps - ADS-B and Hands-Free PIREP Submittals | Accelerate the use and benefits of equipping aircraft with ADS-B by producing a standard and cockpit interface that will enable ADS-B to downlink pilot reports | <ul style="list-style-type: none"> <li>- Complete end-to-end demonstration and final report of a cockpit interface to ADS-B</li> <li>- Hands-free/minimized entry technology to downlink PIREPs from GA aircraft</li> </ul> | 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 | 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?**

Although the U.S. commercial airline industry has not suffered a weather-related fatality in almost 15 years, research in this vital area carries on. The aviation industry, including UAS/UAM and Commercial Space, continues to innovate to meet the requirements for more efficient, safe and climate-friendly travel. This request will enable the AWRP 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 AWRP'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.

In addition, the AWRP 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 program will work closely with RTCA special committees, FAA Flight Standards, and other standards-development committees to further program objectives, as well as harmonize globally 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<sub>2</sub> 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 operations will significantly enhance the economic benefit expected from this aviation sector.

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**Detailed Justification for A11.I Unmanned Aircraft Systems Research**

**FY 2024 – A11.I Unmanned Aircraft Systems Research – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 1,543                      | 1,667                      | 1,733                                     |
| Program Costs              | 20,534                     | 20,410                     | 19,395                                    |
| <b>Total</b>               | <b>22,077</b>              | <b>22,077</b>              | <b>21,128</b>                             |
| <b>FTE (if applicable)</b> | <b>7</b>                   | <b>7</b>                   | <b>7</b>                                  |

**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 BLI 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 and phased by operational capabilities, providing a streamlined pathway to safe and secure UAS and AAM integration. This research 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 integration of UAS into the NAS is moving forward and progressing from operations within visual line of sight to missions beyond visual line of sight. These advances are enabling package delivery operations, and operations on airport surfaces, and will someday enable fully integrated operations and the transport of passengers.

**Major Activities Planned:**

| <b>Major Activities</b>  | <b>Objective</b>   | <b>Expected Outputs</b>  | <b>Value Statement</b>  | <b>Timeframe</b>                    |
|--|--|--|---|-------------------------------------|
| Conduct Science Technology Engineering and Math (STEM) Outreach to Minority K-12 Students Using Unmanned Aircraft Systems (UAS) as a Learning Platform | Ensure that underrepresented communities are engaged in STEM and help in the development of future workforce | - Research to inform the advancement of all UAS operational capabilities and increase students' interest in the UAS/STEM field | This research facilitates future workforce development by encouraging and exposing students to aviation and Unmanned Aircraft Systems careers | Fifth year of a seven year activity |

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| <b>Major Activities</b>   | <b>Objective</b>   | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                    |
|---|--|---|--|-------------------------------------|
| Evaluate UAS Disaster Preparedness and Emergency Response Operations                            | To advance the safe integration of UAS into the NAS through the expansion of disaster preparedness and emergency response              | Coordination procedures:<br><ul style="list-style-type: none"> <li>- UAS operators from within federal agencies</li> <li>- Local and state disaster preparedness and emergency response organizations</li> </ul>    | Program outputs will accelerate use of UAS during disasters and emergency response operations  | Fourth year of a five year activity |
| Demonstrate and Assess Technologies for Detecting and Mitigating Unauthorized UAS Near Airports | Enhance the safety, security, and performance of the Nation's transportation system  | <ul style="list-style-type: none"> <li>- Recommendations for the implementation of counter UAS systems in and around airports</li> </ul>  | Program outputs will inform requirements for counter UAS systems in and around airports to ensure safe UAS integration                       | Last year of a three year activity  |
| Assess the Challenges of Retrofitting Technologies for Urban Air Mobility (UAM)                 | Develop and deploy innovative practices and technologies that improve the safety and performance of the nation's transportation system | <ul style="list-style-type: none"> <li>- UAS standards, FAA policies, and Technical Standard Orders (TSOs)</li> <li>- Potential future industry standards applicable to Advanced Air Mobility (AAM)/UAM</li> </ul>  | Program outputs will inform regulations and certification requirements for passenger transport vehicles                                      | Last year of a two year activity    |
| Assess the Risk of Collision between Unmanned Air Mobility (UAM) Vehicles and Unmanned Aircraft | Assess the risk of introducing and operating a UAM   | <ul style="list-style-type: none"> <li>- Inform policy decisions, provide Safety Risk Management (SRM) decisions</li> <li>- Enhance the completion of the UAS/UAM Risk Assessment Automated Tool (URAAT)</li> </ul> | Program outputs will contribute to UAM operational risk identification in the NAS, and will contribute to mitigating accidents involving UAM | 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 into the NAS is a significant challenge. Current UAS research contributes and informs technical and regulatory standards, policy guidance, and operational procedures on which successful UAS integration depends. These research efforts

significantly contribute to addressing the challenges of integrating UAS into the NAS by leveraging studies of UAS operations and associated technologies. These research programs will help develop unmanned aircraft systems, training, technology, and procedures that increase the safety of UAS operations and increase the confidence of the American public that UAS flights can safely and efficiently integrated into national airspace. The research will facilitate approval and use of systems that prevent accidents and help reduce the severity of UAS accidents in the NAS.

The program will significantly contribute to addressing the challenges of integrating UAS into the NAS by leveraging studies of UAS operations and associated technologies. These research programs will help develop unmanned aircraft systems, training, technology, and procedures that increase the safety of UAS operations and the confidence of the American public that UAS flights operate safely and efficiently in the NAS.

The research will facilitate approval and use of systems that prevent and help reduce the severity of UAS accidents. Research results will continue to drive the FAA's decision-making process, inform rulemaking, enhance operational procedures and air traffic management, and maintain safety.



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**Detailed Justification for A11.m Alternative Fuels for General Aviation**

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**FY 2024 – A11.m Alternative Fuels for General Aviation – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 0                          | 0                          | 0   |
| Program Costs              | 5,434                      | 10,000                     | 11,201                                    |
| <b>Total</b>               | <b>5,434</b>               | <b>10,000</b>              | <b>11,201</b>                             |
| <b>FTE (if applicable)</b> | <b>0</b>                   | <b>0</b>                   | <b>0</b>                                  |

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

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This program supports the Administration's principles of Safety, Climate, and Resilience by conducting research to mitigate climate pollution from general aviation (GA) using multiple cleaner alternatives. In addition, this program supports the FAA EAGLE (Eliminating AvGas Lead Emissions) initiative.

Under EAGLE, this research supports the replacement of current leaded aviation gasoline (avgas), which 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' that leads to engine failures. However, there is no known safe exposure level of lead to humans, and multiple studies have documented the health impacts to urban and other disadvantaged communities of lead exposure. The Environmental Protection Agency (EPA) reports that GA aircraft contribute approximately 70 percent of total airborne lead emissions<sup>10</sup>. There is only one remaining producer of the lead additive used in avgas worldwide. A combination of one or more of U.S. Environmental Protection Agency action, European REACH regulation, and market forces will eliminate the availability of leaded avgas in the near future. Alternatives that maintain the operating safety of the GA fleet, must be in place before this occurs.

These investments will enhance laboratory capabilities and advance research in the areas of unleaded and sustainable aviation fuels, as well as aircraft and engine modifications to allow safe operation on reduced octane unleaded fuels. Additionally, the program will support the accelerated development of leading edge aircraft technologies, including electric, electric hybrid propulsion, and also support collaborative research on other technologies that reduce harmful emissions. A key element of the FAA's role in this effort, is the testing of aircraft, engines, components, and energy sources at the William J. Hughes Technical Center. The research enabled by this program will build on prior collaboration with industry, academia, and partner federal agencies, and will be expanded under the EAGLE initiative to include the broadest selection of air transportation stakeholders.

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<sup>10</sup> <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>

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**Major Activities Planned:**

| <b>Major Activities</b>  | <b>Objective</b>   | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                     |
|--|--|---|--|--------------------------------------|
| 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 <ul style="list-style-type: none"> <li>- Engine performance</li> <li>- Engine detonation</li> <li>- Engine durability characteristics</li> <li>- Laboratory fuel performance properties</li> </ul> | Support Aircraft Certification for fuel safety   | Fourth 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   | Technical reports of comparative testing between unleaded fuels and current leaded fuels <ul style="list-style-type: none"> <li>- Normal day</li> <li>- Hot day</li> <li>- Cold day</li> <li>- Ground handling</li> </ul>             | Support Aircraft Certification for fuel safety   | Second 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: <ul style="list-style-type: none"> <li>- The safety of engine technologies and sustainable or renewable fuels</li> <li>- Components that can be used in the GA fleet</li> </ul>                       | Enable general aviation to reduce fuel burn and emissions through the use of safe technologies and alternative fuels                             | Second year of a three year activity |
| Evaluate Key Certification Considerations for Electric Propulsion Systems, Including Development of Energy Reserve Requirements, Environmental | Evaluate technical and safety criteria for high-voltage electric engine controls, fault protection features, and equipment physical  | <ul style="list-style-type: none"> <li>- Research reports to establish, determine, or verify reliability rates for safety-critical features and functions of electrical propulsion systems</li> </ul>                                 | Establish standardized testing criteria to evaluate safety of electric engines that are used for propulsion and control surfaces in electric and | Second year of a five year activity  |

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| Major Activities   | Objective  | Expected Outputs | Value Statement          | Timeframe |
|--|--|------------------|--------------------------|-----------|
| Effects, Electromagnetic Compatibility, and Other Requirements | limitations associated with electric engine technology |                  | electric-hybrid aircraft |           |

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

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The GA fleet of aircraft is a significant and integral element of the NAS and of 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 (\$75B).<sup>11</sup> The GA community has access to more than 16,000 public and private airports and landing facilities nationwide. Over 170,000 GA aircraft in the U.S. and 230,000 worldwide rely on leaded aviation gasoline for safe operation. The EPA reports that general aviation is the single largest contributor to airborne lead emissions in the U.S.

Market and/or regulatory forces in the U.S. and Europe will eliminate the availability of leaded fuel in the future. GA, its economic contributions, and other benefits are at risk unless the fleet can transition to unleaded fuels. The FAA has charted a path forward under the EAGLE initiative to safely eliminate the use of leaded aviation fuel by the end of 2030. This research will support multiple pillars of EAGLE into unleaded fuels, engine modifications and technologies to allow broader use of unleaded fuels, renewable and sustainable fuels for GA, as well as next generation electrical propulsion technologies. Reductions in lead and other emissions from this research, will improve the environment for at-risk children and all Americans. All of these research areas will maintain and enhance U.S. leadership and competitiveness in the global aviation industry. Lastly, the availability of well-vetted unleaded replacement fuels will eliminate the need for operators to seek less safe alternative fuels causing safety of flight issues in the NAS.

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<sup>11</sup> General Aviation Manufacturers Association (GAMA) study conducted in 2020 ([https://gama.aero/wp-content/uploads/GAMA\\_2019Databook\\_Final-2020-03-20.pdf](https://gama.aero/wp-content/uploads/GAMA_2019Databook_Final-2020-03-20.pdf))

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**Detailed Justification for A11.n Commercial Space Transportation Safety**

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**FY 2024 – A11.n Commercial Space Transportation Safety – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 0                          | 0                          | 0   |
| Program Costs              | 5,708                      | 4,708                      | 6,157                                     |
| <b>Total</b>               | <b>5,708</b>               | <b>4,708</b>               | <b>6,157</b>                              |
| <b>FTE (if applicable)</b> | <b>0</b>                   | <b>0</b>                   | <b>0</b>                                  |

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

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Commercial Space Transportation (CST) public safety research priorities align with those of the FAA and DOT, including (1) Safety (FAA and DOT) – of all commercial space operations, including integration into the NAS and spaceports, (2) Operational Excellence (FAA)/Transformation (DOT) – incorporating systemic safety initiatives and regulatory reform, (3) People (FAA)/Equity (DOT) – maximizing the diversity of research performers through less restrictive acquisition instruments, and (4) Global Leadership (FAA)/Economic Strength & Global Competitiveness (DOT) – 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.

The FY 2024 requested funding amount for CST research renews and continues funding of launch vehicles operations, technologies, and human spaceflight projects across multiple industry segments. Research projects include (1) Explosive Yield Testing for the Heavy lift launch vehicle (HLV) industry segment, (2) Aircraft Vulnerability to Rocket Vehicle Debris testing for the HLV and small LV industry segments, and (3) In-flight Performance and Medical Issues Research related to the Orbital and Suborbital Tourism industry segments.

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**Major Activities Planned:**

| <b>Major Activities</b>                | <b>Objective</b>   | <b>Expected Accomplishments/Outputs</b>  | <b>Value Statement</b>                                  | <b>Timeframe</b>                           |
|--|--|--|---|--|
| Explosive Yield Research Project       | Improve the FAA's ability to predict public risk due to an explosion from vehicle impact when loaded with methane fuel | <ul style="list-style-type: none"> <li>- Results from drop tests of propellant tanks under a variety of test conditions</li> <li>- Analysis improvements of explosive yield</li> </ul> | Increased safety to the uninvolved public               | First year of a three to six year activity |
| Human Spaceflight Participant Research | Identify optimal test data collection methods and storage architectures for spaceflight participant biometric data     | <ul style="list-style-type: none"> <li>- Guidance for data collection methods, specific data elements, and a database architecture</li> </ul>  | Increased safety, for spaceflight crew and participants | First year of a two to four year activity  |

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

Benefits of the Explosive Yield Research in the Heavy lift Earth-to-Orbit launch vehicle industry segment include improved safety analyses of potential damage caused by distant field over pressure effects from an exploding rocket with significant propellants aboard.

Benefits of the Orbital Spaceflight Participant Research in the Orbital Tourism industry segment include improved understanding of physiological effects due to short-term and long-term exposures to conditions of microgravity and cosmic radiation.

Benefits of the Small Satellite Earth to Orbit Launch Vehicle Industry Segment/Innovation Foresight Research include improved understanding of the emergence needs of the Small Satellite Launch Vehicle industry segment and how FAA can adapt to changes introduced by that segment to minimize impact on the industry and improve safety of the uninvolved public.

Although, the R&D conducted to support commercial space transportation is not specifically mandated by statute, the mission of the FAA/AST is directed by statute. Title 51 of the USC in §50901 states:

1. "the United States should encourage private sector launches, reentries, and associated services and, only to the extent necessary, regulate those launches, reentries, and services to ensure compliance with international obligations of the United States and to protect the public health and safety, safety of property, and national security and foreign policy interests of the United States."

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2. “providing launch services and reentry services by the private sector is consistent with the national security and foreign policy interests of the United States and would be facilitated by stable, minimal, and appropriate regulatory guidelines that are fairly and expeditiously applied.”
3. “the goal of safely opening space to the American people and their private commercial, scientific, and cultural enterprises should guide Federal space investments, policies, and regulations.”
4. “private applications of space technology have achieved a significant level of commercial and economic activity and offer the potential for growth in the future, particularly in the United States.”

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**Detailed Justification for A11.o NextGen - Wake Turbulence**

**FY 2024 – A11.o NextGen - Wake Turbulence – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 890                        | 880                        | 915                                       |
| Program Costs              | 2,838                      | 2,848                      | 3,765                                     |
| <b>Total</b>               | <b>3,728</b>               | <b>3,728</b>               | <b>4,680</b>                              |
| <b>FTE (if applicable)</b> | <b>4</b>                   | <b>4</b>                   | <b>4</b>                                  |

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

The Wake Turbulence program supports the Administration's principles of Safety and Efficiency by providing safety assessments of wake encounter risk mitigating procedures and solutions. The program maintains its wake turbulence data collection infrastructure technology current and adds improved technology as it becomes available, to increase data collection of aircraft-generated wake turbulence over a wider range of atmospheric conditions. The program uses the data to develop safety assessments of ATC wake encounter risk mitigating procedures and solutions in current and future ATC separation operations, and provides wake separation recommendations for new aircraft entering service in the NAS.

The program supports improving the wake risk mitigation services ATC provides to the NAS user and will also provide the required FAA Safety Risk Management (SRM) wake safety assessments for proposed improvements in ATC operations. Additionally, the program provides wake generation and resistance to wake encounter upset assessments for new aircraft types (piloted and large UAS) that will be operating in the NAS and requiring ATC separation services.

**Major Activities Planned:**

| <b>Major Activities</b>   | <b>Objective</b>   | <b>Expected Outputs</b>   | <b>Value Statement</b>  | <b>Timeframe</b>                      |
|---|--|---|---|---------------------------------------|
| Assessment of Wake Separations Needed for New Aircraft Types Entering the NAS | Provide wake separation recommendations for use in the terminal area | <ul style="list-style-type: none"><li>- Initial wake separation criteria for an estimated 50 new aircraft types</li><li>- Re-evaluation of 10 to 20 aircraft types based on collected wake track data</li></ul> | Provide wake separations to maintain capacity and efficiency in the terminal area | Ongoing as new aircraft enter service |

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| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>  | <b>Value Statement</b>  | <b>Timeframe</b> |
|--|---|--|---|------------------|
| Wake Mitigation Solutions and Associated Infrastructure Modification Recommendations | Assess ATC changes for wake safety to maintain acceptable safety levels                         | <ul style="list-style-type: none"> <li>- Wake risk assessments of ATC separation standards</li> <li>- Procedure changes</li> </ul> | Facilitate efficient operations in the terminal area for future NAS operations                    | Ongoing          |
| Ground-based Wake Track Data Collection and Analysis                                 | Collect actionable data to improve historical wake track database to include new aircraft types | <ul style="list-style-type: none"> <li>- Assessment of the 80,000 aircraft wake tracks at two major airports</li> </ul>            | Provide wake separation recommendations and inform concept development to maintain NAS efficiency | Ongoing          |

**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 periods of peak demand in the NAS. Research products - when implemented either directly into ATC operations or through follow-on engineering development programs - have provided and will in the future provide the American flying public:

- Reduced flight delays for passengers and air cargo flights when ATC is using instrument flight rule wake risk mitigation procedures because weather or other conditions occur during rush periods at an airport.
- Decreased time in the air for passengers due to more ATC flight capacity efficient en route wake risk using enhanced wake risk mitigation procedures.

The program collects/analyses the necessary data and accomplishes the modeling to provide ATC with safe, capacity efficient aircraft-to-aircraft wake separation recommendations for its operational use. Additionally, it provides the research and concept developments to advance capacity-efficient ATC wake risk mitigation solutions that will allow more flights during periods of peak demand at our nation's airports and in crowded air corridors.



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**Detailed Justification for A11.p Information/Cyber Security**

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**FY 2024 – A11.p Information/Cyber Security – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 0                          | 0                          | 701                                       |
| Program Costs              | 4,769                      | 4,769                      | 5,714                                     |
| <b>Total</b>               | <b>4,769</b>               | <b>4,769</b>               | <b>6,415</b>                              |
| <b>FTE (if applicable)</b> | <b>0</b>                   | <b>0</b>                   | <b>3</b>                                  |

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

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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 and machine learning (AI/ML). The research is conducted collaboratively with aviation industry stakeholders for the primary purpose of addressing specific areas of stakeholder cybersecurity concerns. Application of CSDS with AI/ML concepts to individual industry challenges, through prototyping and demonstration, will enable greater industry collaboration and assist industry in CSDS implementation decisions. The research goal is to accelerate industry efforts toward time-critical enhancement of aviation infrastructure cybersecurity for the airline, airport and aircraft elements of the national aviation ecosystem. Research results will lead to an aviation ecosystem that is more resilient against cybersecurity threats, increasing safety for the flying public.

The CSDS research supports FAA research objectives associated with technology advancement, outreach and partnership, as well as core work. In support of those objectives and the end goals of the multi-year research, the program considers multiple aspects of the cybersecurity chain, including data, sensors, analyzers, collectors, curation and advanced analytics. These are managed in terms of "core" and "applied" research. 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 Lateral Movement Defense (with anomaly detection), Predictive Analytics, Context-Aware Behavioral AI and Explainable AI. These fundamental CSDS components are then applied to specific aviation industry concerns to accelerate the time-critical need to enhance cybersecurity for the aviation ecosystem. Outreach and partnerships with multiple stakeholders representing airlines and aircraft (integrators and manufacturers) will be conducted, resulting in information and guidance products that will influence ecosystem cybersecurity technology advancements.

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**Major Activities Planned:**

| Major Activities   | Objective  | Expected Outputs   | Value Statement   | Timeframe                           |
|--|--|--|---|-------------------------------------|
| Context Aware Behavioral AI Algorithm Adaptation and Initial Software Prototype Development                    | To correlate cyber events with other data and network activities to improve the cyber analyst performance                      | Specific guidance for: <ul style="list-style-type: none"> <li>- Industry cybersecurity standardization</li> <li>- Architecture/system designs</li> <li>- Cybersecurity best practices</li> </ul>   | Provides continuous monitoring and automatic classification that encompasses the full range of requirements for the aviation ecosystem security landscape | Third year of a four year activity  |
| Predictive Analytics Prototype Development and Demonstration   | Determine possible threats and attack vectors of malicious actors  | Specific guidance for: <ul style="list-style-type: none"> <li>- Industry cybersecurity standardization</li> <li>- Architecture/system designs</li> <li>- Cybersecurity best practices</li> </ul>   | Provides enhanced capabilities for a more resilient, safe, and secure aviation system   | Last year of a four year activity   |
| Mature Aviation Architecture Framework (AAF)   | Complete validation and verification of multiple versions of the AAF   | <ul style="list-style-type: none"> <li>- Documentation and guidance defining the AAF that can be used by industry to transform cyber security solutions</li> </ul>   | Availability of the AAF will provide a guide for analysis of current threats and future strategy validation   | Fourth year of a five year activity |
| Evaluate Industry - Specific Use Case Scenarios in Collaboration with Aircraft, Airlines, and Airport Partners | Mature research using the FRE to validate and create industry- specific cybersecurity algorithms, processes and best practices | Specific guidance for: <ul style="list-style-type: none"> <li>- Industry cybersecurity standardization</li> <li>- Architecture/system designs</li> <li>- Cybersecurity best practices to accelerate the adoption and adaptation of CSDS AI/ML</li> </ul> | Rapid transformation of cyber security threat detection and mitigation strategies   | Fourth year of ongoing activity     |

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

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The aviation ecosystem is in a constant state of change, increasing in connectivity and complexity, continually opening more avenues to cyber threats. These advance persistent threats (APTs) come from numerous malicious individual and state/political actors that are deliberately working to develop new methods of cyber-attacks to control and destroy aviation systems.

OMB Memorandum M-20-29 (14 Aug 2020)<sup>12</sup>, prioritizes AI/ML (including explainability). Additionally, two "priority crosscutting actions" that "underpin the five R&D priorities" include number 3 "facilitate multisector partnerships and technology transfer" and number 4 "leverage the power of data". The National Strategy for Aviation Security (Dec 2018), broadens 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.

This research program is responsive to these directives and will produce specific guidance for industry cybersecurity standardization, architecture/system designs and cybersecurity best practices that will help accelerate the adoption and adaptation of CSDS AI/ML technologies by the aviation industry to enhance the aviation ecosystem ability to better counter evolving cybersecurity threats.

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<sup>12</sup> <https://www.whitehouse.gov/wp-content/uploads/2020/08/M-20-29.pdf>

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**Detailed Justification for A11.q Environment & Energy**

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**FY 2024 – A11.q Environment & Energy – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 2,910                      | 2,906                      | 3,022                                     |
| Program Costs              | 19,090                     | 18,094                     | 18,283                                    |
| <b>Total</b>               | <b>22,000</b>              | <b>21,000</b>              | <b>21,305</b>                             |
| <b>FTE (if applicable)</b> | <b>12</b>                  | <b>12</b>                  | <b>12</b>                                 |

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

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This 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 (<https://www.faa.gov/sustainability/aviation-climate-action-plan>).

The FAA's long-term vision is to remove environmental constraints on aviation growth by achieving quiet, clean, and efficient air transportation. This Program supports this vision by advancing our 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 U.S. DOT 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. The research in this budget line item 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 contributed to increased and expanded airport community concerns regarding noise. This challenge is anticipated to grow 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 we address the effects of noise and emissions.

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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). 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:**

| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>  | <b>Value Statement</b>  | <b>Timeframe</b>                             |
|--|---|--|---|--|
| 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   | Develop the data and information needed to support decision making on both domestic policy and international environmental standards at ICAO CAEP | Third 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                             |

|               | <b>FY 2022 Enacted</b> | <b>FY 2023 Enacted</b> | <b>FY 2024 President's Budget</b> |
|---------------|------------------------|------------------------|-----------------------------------|
| CLEEN Program | \$0                    | \$0                    | \$0                               |
| ASCENT COE    | \$8,500,000            | \$7,500,000            | \$7,500,000                       |

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

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Civil aviation is evolving continuously, and so must our thinking about its environmental consequences. This request would continue efforts to advance our scientific understanding of the environmental impacts of civil aviation, develop tools to quantify these impacts, and then 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 aviation across the globe.

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 ACENT not only produce world-class research, but they are also developing a workforce that will help aviation overcome challenges posed by aviation noise and emissions. Thus far, ASCENT and its predecessor PARTNER have supported over 675 students in their research efforts.

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**Detailed Justification for A11.r NextGen – Environmental Research – Aircraft Technologies and Fuels**

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**FY 2024 – A11.r NextGen – Environmental Research – Aircraft Technologies and Fuels –  
Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 901                        | 2,130                      | 2,995                                     |
| Program Costs              | 66,599                     | 65,870                     | 67,779                                    |
| <b>Total</b>               | <b>67,500</b>              | <b>68,000</b>              | <b>70,774</b>                             |
| <b>FTE (if applicable)</b> | <b>4</b>                   | <b>9</b>                   | <b>12</b>                                 |

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

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This 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 (<https://www.faa.gov/sustainability/aviation-climate-action-plan>).

In partnership with industry through the Continuous Lower Energy, Emissions and Noise (CLEEN) program and universities through the Aviation Sustainability Center (ASCENT), the "NextGen – Environmental Research–Aircraft Technologies and Fuels 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 ICAO Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Additionally, the efforts of this program 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, the FAA Center of Excellence (COE) for Alternative Jet Fuels and Environment, a cooperative research organization that also has a cost share requirement. In addition, the Program supports the Commercial Aviation Alternative Fuels Initiative (CAAFI) in engaging with both the commercial aviation and emerging alternative fuels industries.

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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 and leverage private sector resources.

**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 that could 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 first year of the five year CLEEN Phase IV activity |
| ASCENT Technology 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                    | Support the approval of novel jet fuel pathways within the ASTM International certification process through testing and coordination to ensure fuel safety                            | Research reports to:<br>– Demonstrate the safety of novel jet fuel pathways for certification by ASTM<br>– Streamline the ASTM certification process to reduce the time and cost of certification | The development and approval of new fuel pathways will expand the opportunities to move towards cost-effective environmental sustainability | Ongoing activity   |
| Move Beyond the 50% SAF Blend Wall and Enable 100% SAF Use | Develop and test sustainable aviation fuels through ASCENT, CAAFI, and CLEEN that could be safely used in jet engines without blending with conventional petroleum-based jet fuel     | – Research reports to demonstrate the safety of sustainable aviation fuel pathways that can be used without blending for certification by ASTM International                                      | Eliminate current limitations on environmental benefits of SAF due to current blending constraints  | Ongoing activity   |
| Maximize Environmental Benefits of                         | Evaluate aviation fuel supply chains within ASCENT to reduce the  | – Analyses and data to support actions by industry and  | Enable the aviation industry to cost effectively reach  | Ongoing activity   |



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| Major Activities   | Objective   | Expected Outputs   | Value Statement  | Timeframe        |
|--|---|--|--|------------------|
| Sustainable Aviation Fuels                                     | cost to produce sustainable aviation fuels and maximize their environmental benefits  | government to cost-effectively produce sustainable aviation fuels with minimal life cycle greenhouse gas emissions   | net zero CO <sub>2</sub> emissions through the use of sustainable aviation fuels   |                  |
| Support Inclusion of Sustainable Aviation Fuels in ICAO CORSIA | Support the inclusion of sustainable aviation fuels created from waste and renewable feedstocks, and lower carbon aviation fuels created from fossil feedstocks, within the ICAO CORSIA framework | <ul style="list-style-type: none"> <li>– Develop robust lifecycle greenhouse gas emissions values and methods for alternative fuel pathways</li> <li>– Develop sustainability criteria for use in ICAO CORSIA</li> </ul> | High integrity international standards are needed to ensure that sustainable aviation fuels provide CO <sub>2</sub> reductions in a sustainable manner | Ongoing activity |

|               | FY 2022 Enacted | FY 2023 Enacted | FY 2024 President's Budget |
|---------------|-----------------|-----------------|----------------------------|
| CLEEN Program | \$37,500,000    | \$38,000,000    | \$38,000,000               |
| ASCENT COE    | \$26,565,000    | \$26,565,000    | \$26,500,000               |

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

Tackling climate change is a top national priority and the efforts of this Program are a key component of the plan to address climate change. In the September 2021 Sustainable Aviation Round Table event, the United States Government and aviation industry outlined commitments to work together to advance sustainable aviation through efforts on SAF and technology development that are supported by this Program (<https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/09/fact-sheet-biden-administration-advances-the-future-of-sustainable-fuels-in-american-aviation/>).

The U.S. Aviation Climate Action Plan that was announced by the Secretary of Transportation in November 2021 (<https://www.faa.gov/sustainability/aviation-climate-action-plan>) captures these commitments and underscores the importance of technology and SAF to reducing emissions that contribute to climate change. Through the SAF Grand Challenge, the Departments of Transportation, Energy and Agriculture committed to advancing the development and deployment of high integrity sustainable aviation fuels. Achieving sufficient SAF production and technology development to achieve the net zero emissions goal will require focused federal investments on high value and high potential initiatives that will accelerate and enable progress in meeting this national objective. This project provides this support.

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Historically, advances in aircraft technology have been the main factor in reducing aviation's environmental impacts. Because of advancements in technology, 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 remains a considerable issue. This 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<sub>2</sub> 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. In addition to addressing concerns about the environment, 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, thus ensuring that these fuels are contributing to meaningful CO<sub>2</sub> reductions across the globe.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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**Detailed Justification for A11.s System Planning and Resource Management**

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**FY 2024 – A11.s System Planning and Resource Management – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 1,209                      | 1,728                      | 1,797                                     |
| Program Costs              | 2,091                      | 2,413                      | 3,300                                     |
| <b>Total</b>               | <b>3,300</b>               | <b>4,141</b>               | <b>5,097</b>                              |
| <b>FTE (if applicable)</b> | <b>6</b>                   | <b>6</b>                   | <b>6</b>                                  |

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

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The System Planning and Resource Management program leads the planning, coordination, development, presentation, and review of the FAA's 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:**

| <b>Major Activities</b>                   | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>  | <b>Timeframe</b> |
|---|---|---|---|------------------|
| Annual Statutory Deliverables to Congress | Ensure that research enables and safely advances aviation | Development of reports: <ul style="list-style-type: none"><li>- National Aviation Research Plan (NARP)</li><li>- R&amp;D Annual Review</li><li>- RE&amp;D Budget Narratives</li></ul> | Program outputs are required, as specified in U.S. Code 49 (Section 44505(c)) | Ongoing          |

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| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b> |
|--|---|---|--|------------------|
| 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: <ul style="list-style-type: none"> <li>- Annual Modal Research Plan</li> <li>- OST Spend Plan</li> <li>- OST Quarterly PMR</li> <li>- RD&amp;T Annual Funding Report</li> <li>- RD&amp;T Annual Performance Plan</li> </ul> | Program outputs are required, as specified in the Fixing America's Surface Transportation Act (Pub. L. No. 114-94) | Ongoing          |
| Development and Submission of the FAA's R&D Investment Portfolio               | Administer the congressionally mandated (P.L. 100-591 Section 6 Advisory Committee) REDAC and maximize the impact of federally funded R&D by accelerating the transfer of innovative technologies to the commercial marketplace | <ul style="list-style-type: none"> <li>- Reports</li> <li>- Guidance</li> <li>- Transmittals</li> </ul>   | 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 the public by making aviation safer and smarter while enhancing U.S. global leadership in aviation.

**Federal Aviation Administration  
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**Detailed Justification for A11.t Aviation Grant Management**

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**FY 2024 – A11.t Aviation Grant Management – Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 0                          | 704                        | 732                                       |
| Program Costs              | 10,000                     | 14,296                     | 1,269                                     |
| <b>Total</b>               | <b>10,000</b>              | <b>15,000</b>              | <b>2,001</b>                              |
| <b>FTE (if applicable)</b> | <b>0</b>                   | <b>3</b>                   | <b>3</b>                                  |

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

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This program supports the Administration's principles of Rebalancing Investments to Meet Racial Equity and Economic Inclusion Goals and also Executive Order 13985<sup>13</sup> "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government" by pursuing a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.

The aviation grant management program provides support for the administration and management of pre-award, post-award, closeout, records management, program management and information technology support.

The aviation grant management process is always evolving and includes various lifecycle tasks through the unique award phases. The program priorities meet FAA's strategic goals by ensuring a comprehensive approach to achieving the award of grants to equip the next generation of aviation professionals.

The goal of this program is to build an infrastructure that encompasses the entire lifecycle of grant management.

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<sup>13</sup> <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>

**Federal Aviation Administration  
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**Major Activities Planned:**

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| <b>Major Activities</b>                | <b>Objective</b>   | <b>Expected Outputs</b>                                   | <b>Value Statement</b>   | <b>Timeframe</b> |
|--|--|---|--|------------------|
| Aviation Research and Workforce Grants | Award grants and provide grant administration to equip the next generation of aviation 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 | Ongoing activity |

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

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The aviation grant management program provides support for the administration and management of pre-award, post-award, closeout, records management, and program management and information technology. Through the aviation grant management program, this program will aid in the development of building an infrastructure that encompasses the entire lifecycle of grant management. This program will benefit the public by ensuring a robust grant management process that will meet the needs of the next generation of aviation professionals.

**Federal Aviation Administration  
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**Detailed Justification for A11.u William J. Hughes Technical Center Laboratory Facilities**

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**FY 2024 – A11.u William J. Hughes Technical Center Laboratory Facilities – Budget  
Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 2,425                      | 2,723                      | 2,841                                     |
| Program Costs              | 3,056                      | 2,758                      | 2,606                                     |
| <b>Total</b>               | <b>5,481</b>               | <b>5,481</b>               | <b>5,447</b>                              |
| <b>FTE (if applicable)</b> | <b>12</b>                  | <b>12</b>                  | <b>12</b>                                 |

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

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The FAA's 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 are utilized to support R&D program goals and objectives.

The WJHTC R&D laboratories are fully integrated with other WJHTC, FAA, and partner capabilities, which provides 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, allow 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.

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**Major Activities Planned:**

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| Major Activities   | Objective   | Expected Outputs  | Value Statement  | Timeframe        |
|--|---|---|--|------------------|
| Research Development and Human Factors Laboratory enhancements | Enhance simulation and data reduction software to take advantage of new advances in biometric data collection (i.e. smart watches and eye tracking)   | <ul style="list-style-type: none"> <li>- Less intrusive data collection techniques that decrease impact on human study participant's performance</li> <li>- Improved validity and more accurate data collected</li> </ul>   | 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 academia partners | <ul style="list-style-type: none"> <li>- Further mature the existing FAA Research and Development Network Domain participants to include additional FAA resources from the WJHTC and the Mike Monroney Aeronautical Center</li> <li>- Establish/update secure network connections with Department of Defense for joint Cyber Security activities</li> </ul> | Provide 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?**

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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 ability to partner and collaborate with Government, Academia, and Industry fosters innovation in aviation. 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. 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.

This program is necessary to provide 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



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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 innovation in aviation. 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. 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.

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**Detailed Justification for A11.v Aviation Accessibility Research**

**FY 2024 – A11.v Aviation Accessibility Research Budget Request  
(\$000)**

| <b>Program Activity</b>    | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>President's<br/>Budget</b> |
|----------------------------|----------------------------|----------------------------|---|
| Salaries and Expenses      | 0                          | 0                          | 0   |
| Program Costs              | 0                          | 0                          | 2,000                                     |
| <b>Total</b>               | <b>0</b>                   | <b>0</b>                   | <b>2,000</b>                              |
| <b>FTE (if applicable)</b> | <b>0</b>                   | <b>0</b>                   | <b>0</b>                                  |

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

This program supports the Administration's Safety and promoting Economic Growth, Equity and Inclusion priorities. In accordance with the Air Carrier Access Act<sup>14</sup> (14 CFR Part 382), and pursuant to requests from members of the disability community, this program investigates the feasibility of enabling passengers to stay in their personal wheelchairs while travelling on commercial aircraft. Specifically, this program builds on the Access Board / Transportation Research Board (TRB) Report on the Feasibility of Wheelchair Securement Systems on Passenger Aircraft to support potential future rulemaking by the FAA. The research will evaluate occupant safety/ crashworthiness aspects of installing wheelchairs on commercial aircraft.

**Major Activities Planned:**

| <b>Major Activities</b>  | <b>Objective</b>  | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                        |
|--|---|---|--|---|
| Validate findings of the Access Board / TRB Report on the Feasibility of Wheelchair Securement Systems on Passenger Aircraft | Determine if a wheelchair attached to the aircraft following RESNA guidelines will meet FAA Part 25.562c1-4 | - Report of the results of testing the crashworthiness of selected wheelchairs when affixed using one or more of the recommended methods of affixing them to the aircraft floor | Program outputs will facilitate future rulemaking to enable passengers to stay in their personal wheelchairs while travelling on commercial aircraft | Second year of on-going 3-year activity |

<sup>14</sup>

<https://www.transportation.gov/airconsumer/disabilitybillofrights#The%20Right%20to%20Travel%20with%20an%20Assistive%20Device%20or%20Service%20Animal>  
and  
<https://www.transportation.gov/airconsumer/passengers-disabilities>

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| <b>Major Activities</b>   | <b>Objective</b>   | <b>Expected Outputs</b>   | <b>Value Statement</b>   | <b>Timeframe</b>                        |
|---|--|---|--|---|
| Evaluate possible physical/engineering evacuation issues introduced by including a secured wheelchair into the aircraft cabin | Assess possible installation locations with the aircraft cabin and determine the potential for the wheelchair to deform or deploy into egress paths, as well as the potential for protrusions or surfaces along an egress path that a person could be caught on  | - Report on the physical/engineering aspects of aircraft evacuation issues that may be introduced by the introduction of securing personal wheelchairs into aircraft cabins | Program outputs will facilitate future rulemaking to enable passengers to stay in their personal wheelchairs while travelling on commercial aircraft | Second year of on-going 3 year activity |
| Evaluate possible social/psychological evacuation issues introduced by including a secured wheelchair into the aircraft cabin | (1) Explore the effect of passenger-introduced impediments to evacuation caused by social or psychological factors (e.g., other passengers attempting to help an evacuate-in-place passenger close to an exit and slowing the overall evacuation).<br>(2) Evaluate possible cabin crew interventions to mitigate passenger introduced evacuation impediments | - Report on the physical/engineering aspects of aircraft evacuation issues that may be introduced by the introduction of securing personal wheelchairs into aircraft cabins | Program outputs will facilitate future rulemaking to enable passengers to stay in their personal wheelchairs while travelling on commercial aircraft | Second year of on-going 3 year activity |

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

People who use wheelchairs currently experience several burdens that can make air travel inconvenient, uncomfortable, unhealthy, and potentially unsafe. This program will potentially benefit travelers using wheelchairs should it demonstrate that they could safely remain seated in their personal wheelchairs during flight. This program supports the DOT strategic goal of Safety and Equity. It supports the FAA's R&D goal of improving the operation of the human component of the system, specifically in terms of optimizing human protection and survival in aerospace operations.



**GRANTS-IN-AID FOR AIRPORTS**

**(LIQUIDATION OF CONTRACT AUTHORIZATION)  
(LIMITATION ON OBLIGATIONS)  
(AIRPORT AND AIRWAY TRUST FUND)  
[INCLUDING TRANSFER OF FUNDS]**

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 [2023] 2024, 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 section 47109(a) of title 49, United States Code, the Government's share of allowable project costs under paragraph (2) of such section for subgrants or paragraph (3) of such section shall be 95 percent for a project at other than a large or medium hub airport that is a successive phase of a multiphase construction project for which the project sponsor received a grant in fiscal year 2011 for the construction project: ] *Provided further*, That notwithstanding any other provision of law, of amounts limited under this heading, not less than [\$137,372,000] \$157,475,000 [shall be available for administration, \$15,000,000 shall be available for the Airport Cooperative Research Program, [\$40,828,000] and \$41,801,000 shall be available for Airport Technology Research [, and \$10,000,000, to remain available until expended, shall be available and transferred to "Office of the Secretary, Salaries and Expenses" to carry out the Small Community Air Service Development Program: *Provided further*, That in addition to airports eligible under section 41743 of title 49, United States Code, such program may include the participation of an airport that serves a community or consortium that is not larger than a small hub airport, according to FAA hub classifications effective at the time the Office of the Secretary issues a request for proposals].

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**Program and Financing**  
(in millions of dollars)

|   |   | FY2022        | FY 2023       | FY 2024       |
|---|---|---------------|---------------|---------------|
|   |   | Actual        | Estimate      | Estimate      |
| Identification code: 69-8106-0-7-402                        |   |               |               |               |
| <b>Obligations by program activity:</b>                     |   |               |               |               |
| 0001  | Grants-in-aid for airports .....  | 3,329         | 3,147         | 3,136         |
| 0002  | Personnel and related expenses.....   | 127           | 137           | 157           |
| 0003  | Airport technology research.....  | 41            | 41            | 42            |
| 0005  | Small community air service .....   | 13            | 10            | ....          |
| 0006  | Airport Cooperative Research.....   | 15            | 15            | 15            |
| 0007  | Grants - General Fund   |               |               |               |
|   | Appropriation.....  | 354           | 119           | ....          |
| 0008  | Administrative Expenses – General Fund Approp.                                  | ....          | ....          | ....          |
| 0009  | Coronavirus Aid, Relief, and Economic Security Act,<br>P.L. 116–136             | 199           | 124           | ....          |
| 0100  | Total direct program  | <u>4,078</u>  | <u>3,593</u>  | <u>3,350</u>  |
| 0799  | Total direct obligations .....  | 4,078         | 3,593         | 3,350         |
| 0801  | Grants-in-aid for Airports (Airport and Airway Trust<br>Fund) Reimbursable..... | 2             | 2             | 2             |
| 0900  | Total new obligations, unexpired accounts.....                                  | <u>4,080</u>  | <u>3,595</u>  | <u>3,352</u>  |
| <b>Budgetary Resources:</b>                                 |   |               |               |               |
| Unobligated balance:  |   |               |               |               |
| 1000  | Unobligated balance carried forward, Oct 1 .....                                | 706           | 265           | 22            |
| 1001  | Discretionary unobligated balance brought fwd, Oct<br>1.....                    | 687           | ....          | ....          |
| 1021  | Recoveries of prior year unpaid obligations .....                               | 287           | ....          | ....          |
| 1033  | Recoveries of prior year paid obligations .....                                 | 1             | ....          | ....          |
| 1070  | Unobligated balance (total).....  | <u>994</u>    | <u>265</u>    | <u>22</u>     |
| Budget Authority:   |   |               |               |               |
| Appropriations, discretionary:                              |   |               |               |               |
| 1101  | Appropriation (special or trust fund) .....                                     | 3,350         | 3,350         | 3,350         |
| 1138  | Appropriation applied to liquidate contract authority.                          | <u>-3,350</u> | <u>-3,350</u> | <u>-3,350</u> |
| Contract authority, mandatory:                              |   |               |               |               |
| 1600  | Contract authority (Reauthorization) .....                                      | 3,350         | 3,350         | 3,350         |
| Spending authority from offsetting coll.,<br>Discretionary: |   |               |               |               |
| 1700  | Collected .....   | 1             | 2             | 2             |
| 1900  | Budget authority (total).....   | 3,351         | 3,352         | 3,352         |
| 1930  | Total Budgetary Resources Available   | 4,345         | 3,617         | 3,374         |
| Memorandum (non-add) entries:                               |   |               |               |               |
| 1941  | Unexpired unobligated balance, end of year.....                                 | 265           | 22            | 22            |
| Special and non-revolving trust funds:                      |   |               |               |               |
| 1952  | Expired unobligated balances, start of year                                     | 3             | 10            | 10            |

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|  | FY2022       | FY 2023      | FY 2024      |
|--|--------------|--------------|--------------|
|  | Actual       | Estimate     | Estimate     |
| Identification code: 69-8106-0-7-402                                       |              |              |              |
| 1953 Expired unobligated balances, end of year                             | 10           | 10           | 10           |
| <b>Change in obligated balances:</b>                                       |              |              |              |
| Unpaid obligations:  |              |              |              |
| 3000 Unpaid obligations, brought forward, Oct 1 .....                      | 10,332       | 8,372        | 6,807        |
| 3010 New Obligations, unexpired accounts .....                             | 4,080        | 3,595        | 3,352        |
| 3020 Outlays (gross) .....   | -5,746       | -5,160       | -4,492       |
| 3040 Recoveries of prior year unpaid obligations,<br>unexpired.....        | -287         | ....         | ....         |
| 3041 Recoveries of prior year paid obligations, expired .....              | -7           | ....         | ....         |
| 3050 Unpaid obligations, end of year .....                                 | 8,372        | 6,807        | 5,667        |
| Memorandum (non-add) entries:  |              |              |              |
| 3100 Obligated balance, start of year .....                                | 10,332       | 8,372        | 6,807        |
| 3200 Obligated balance, end of year.....                                   | 8,372        | 6,807        | 5,667        |
| <b>Budget authority and outlays, net:</b>                                  |              |              |              |
| Discretionary:   |              |              |              |
| 4000 Budget authority, gross .....   | 1            | 2            | 2            |
| Outlays, gross:  |              |              |              |
| 4010 Outlays from new discretionary authority .....                        | 334          | 469          | 483          |
| 4011 Outlays from discretionary balances.....                              | <u>5,412</u> | <u>4,691</u> | <u>4,009</u> |
| 4020 Outlays, gross (total)  | 5,746        | 5,160        | 4,492        |
| Offsets against gross budget authority and outlays:                        |              |              |              |
| Offsetting collections (collected) from:                                   |              |              |              |
| 4033 Non-federal sources .....   | -2           | -2           | -2           |
| 4040 Offsets against gross budget authority and outlays<br>(total)         | -2           | -2           | -2           |
| Additional collections (collected) from:                                   |              |              |              |
| 4053 Recoveries of prior year paid obligations, unexpired<br>accounts..... | <u>1</u>     | <u>....</u>  | <u>....</u>  |
| 4080 Outlays, net (discretionary).....                                     | 5,744        | 5,158        | 4,490        |
| Mandatory  |              |              |              |
| 4090 Budget authority, gross.....  | 3,350        | 3,350        | 3,350        |
| 4180 Budget authority, net (total).....                                    | 3,350        | 3,350        | 3,350        |
| 4190 Outlays, net (total)  | 5,744        | 5,158        | 4,490        |
| .....  |              |              |              |
| <b>Memorandum (non-add) entries:</b>                                       |              |              |              |
| 5052 Obligated balance, SOY: Contract authority .....                      | 4,164        | 4,164        | 4,164        |
| 5053 Obligated balance, EOY: Contract authority .....                      | 4,164        | 4,164        | 4,164        |
| 5061 Limitation on obligations (Aviation Trust Funds) .....                | 3,350        | 3,350        | 3,350        |

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Subchapter I of chapter 471, title 49, U.S. Code provides for airport improvement grants, including those emphasizing capacity development, safety, and security needs; and chapter 475 of title 49 provides for grants for aircraft noise compatibility planning and programs.

**Object Classification** (in millions of dollars)

|                                      |   | 2022   | 2023     | 2024     |
|--------------------------------------|---|--------|----------|----------|
| Identification code: 69-8106-0-7-402 |   | Actual | Estimate | Estimate |
| Direct obligations:                  |   |        |          |          |
| Personnel compensation               |   |        |          |          |
| 11.1                                 | Full-time permanent .....                       | 79     | 83       | 99       |
| 11.3                                 | Other than full-time permanent .....            | 1      | 1        | 1        |
| 11.5                                 | Other personnel compensation .....              | 1      | 1        | 1        |
| 11.9                                 | Total personnel compensation .....              | 81     | 85       | 101      |
| 12.1                                 | Civilian personnel benefits .....               | 30     | 36       | 40       |
| 21.0                                 | Travel and transportation of persons.....       | 1      | 3        | 3        |
| 23.2                                 | Rental payments to others.....                  | 1      | 1        | 1        |
| 25.1                                 | Advisory and assistance services .....          | 34     | 33       | 33       |
| 25.2                                 | Other services from non-Federal sources .....   | 1      | 1        | 2        |
| 25.3                                 | Other services from Federal sources.....        | 24     | 39       | 40       |
| 25.5                                 | Research and Development Contracts .....        | 1      | 1        | 1        |
| 25.7                                 | Operation and maintenance of equipment .....    | 6      | 7        | 6        |
| 26.0                                 | Supplies and materials .....                    | 1      | 1        | 1        |
| 31.0                                 | Equipment .....                                 | 4      | 1        | 1        |
| 32.0                                 | Land and Structure .....                        | 1      | 1        | 1        |
| 41.0                                 | Grants, subsidies, and contributions .....      | 3,882  | 3,373    | 3,119    |
| 44.0                                 | Refunds .....                                   | 1      | 1        | 1        |
| 94.0                                 | Financial Transfers.....                        | 10     | 10       | ....     |
| 99.0                                 | Direct obligations.....                         | 4,078  | 3,593    | 3,350    |
| 41.0                                 | Reimbursable obligations.....                   | 2      | 2        | 2        |
| 99.9                                 | Total new obligations, unexpired accounts ..... | 4,080  | 3,595    | 3,352    |

**Employment Summary**

|                                      |   | 2022   | 2023     | 2024     |
|--------------------------------------|---|--------|----------|----------|
| Identification code: 69-8106-0-7-402 |   | Actual | Estimate | Estimate |
| 1001                                 | Direct: Civilian full-time equivalent employment....        | 597    | 637      | 684      |
| 1001                                 | Direct: Civilian full-time equivalent employment....        | ....   | 1        | 1        |
| 2001                                 | Reimbursable: Civilian full-time equivalent employment..... | 4      | 2        | 4        |



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**EXHIBIT III-1  
GRANTS-IN-AID FOR AIRPORTS  
Summary by Program Activity  
Appropriations, Obligation Limitations, and Exempt Obligations  
(\$000)**

|   | <b>FY 2022<br/>ENACTED</b> | <b>FY 2023<br/>ENACTED</b> | <b>FY 2024<br/>PRES.<br/>BUD.</b> |
|---|----------------------------|----------------------------|-----------------------------------|
| Grants-in-Aid for Airports  | \$ 3,711,054               | \$ 3,705,355               | \$3,135,724                       |
| Personnel & Related Expenses  | \$ 127,165                 | \$ 137,372                 | \$ 157,475                        |
| Airport Technology Research   | \$ 40,961                  | \$ 40,828                  | \$ 41,801                         |
| Airport Cooperative Research  | \$ 15,000                  | \$ 15,000                  | \$ 15,000                         |
| Small Community Air Service   | \$ 10,000                  | \$ 10,000                  | \$ -                              |
| <b>TOTAL, Base appropriations</b>                                   | <b>\$ 3,904,180</b>        | <b>\$ 3,908,555</b>        | <b>\$3,350,000</b>                |
| FTEs  |                            |                            |                                   |
| Direct Funded   | 594                        | 637                        | 684                               |
| Reimbursable, allocated, other                                      | 4                          | 2                          | 4                                 |
| <b>IIJA Supplemental (Division J and<br/>Advance Appropriation)</b> |                            |                            |                                   |
| Airport Infrastructure Grants                                       |                            |                            |                                   |
| Airport Terminal Program  |                            |                            |                                   |
| <b>TOTAL, Base appropriations</b>                                   | <b>\$ -</b>                | <b>\$ -</b>                | <b>\$ -</b>                       |
| FTEs  |                            |                            |                                   |
| Direct Funded (CARES Act, ARPA)                                     | 3                          | 1                          | 1                                 |
| Relief for Airports (ARPA)  | 7                          | 3                          | 2                                 |
| <b>Account</b>  | <b>\$ 3,904,180</b>        | <b>\$ 3,908,555</b>        | <b>\$3,350,000</b>                |

**Program and Performance Statement**

This account provides funds for planning and developing a safe and efficient national airport system to satisfy the needs of the aviation interests of the United States, with due consideration for economics, environmental compatibility, local proprietary rights and safeguarding the public investment.

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**EXHIBIT III-1a**

**GRANTS-IN-AID FOR AIRPORTS**  
**SUMMARY ANALYSIS OF CHANGE FROM FY 2023 TO FY 2024**  
**Appropriations, Obligations, Limitations, and Exempt Obligations**  
**(\$000)**

|   | <b><u>\$000</u></b> | <b><u>FTE</u></b> |
|---|---------------------|-------------------|
| <b>FY 2023 ENACTED</b>  | <u>\$3,908,555</u>  | <u>637</u>        |
| <b>ADJUSTMENTS TO BASE:</b>   |                     |                   |
| Annualization of FY 2023 FTE  | 2,277               | 23                |
| Annualization of Prior Pay Raise(s)   | 1,391               |                   |
| FY 2024 Pay Raise   | 4,714               |                   |
| Adjustment for Compensable Days   | 447                 |                   |
| Adjustment in Working Capital Fund  | -13                 |                   |
| Non-Pay Inflation   | 1,148               |                   |
| <b>SUBTOTAL, ADJUSTMENTS TO BASE</b>  | <b>9,964</b>        | <b>23</b>         |
| <b>PROGRAM REDUCTIONS</b>   |                     |                   |
| Reduction to SCASDP Program   | -10,000             |                   |
| Reductions to Grants program to offset uncontrollable increases and increases for Admin program   | -9,959              |                   |
| Reduction to Grants to offset costs of new positions  | -11,118             |                   |
| Reduction to ACRP to retain \$15 million target amount  | -5                  |                   |
| Reduction of funding for Supplement Grants  | -558,555            |                   |
| <b>SUBTOTAL, PROGRAM REDUCTIONS</b>   | <b>-589,637</b>     | <b>0</b>          |
| <b>PROGRAM INCREASES</b>  |                     |                   |
| 47 new positions in Admin   | 6,768               | 24                |
| Adjustment in Admin program to offset higher pay increases than the economic assumptions provided | 4,350               |                   |
| Discretionary \$10 million increase to Grants program from the reduction of SCASDP                | 10,000              |                   |
| <b>SUBTOTAL, PROGRAM INCREASES</b>  | <b>21,118</b>       | <b>24</b>         |
| <b>FY 2024 REQUEST</b>  | <b>3,350,000</b>    | <b>684</b>        |
| <b>Supplemental Appropriations</b>  | <b>0</b>            | <b>0</b>          |
| <b>TOTAL</b>  | <b>3,350,000</b>    | <b>684</b>        |

## **Executive Summary**

### **What Is the Request and What Funds are Currently Spent on the Program?**

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For FY 2024, the President's 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 (Pub.L. 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 billion and the Airport Infrastructure Grants (AIG) program with an annual advance appropriation of \$3 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 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?**

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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?**

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Every two years, as required by statute, the FAA publishes the National Plan of Integrated Airport Systems (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.

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**What Benefits will be Provided to the American Public Through This Request?**

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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.

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**Detailed Justification for Grants-in-Aid for Airports**

**FY 2024 Grants-in-Aid for Airports Budget Request (\$000)**

| <b>Program Activity</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------|----------------------------|----------------------------|----------------------------|
| Salaries and Expenses   |                            |                            |                            |
| Program Costs           | 3,156,874                  | 3,146,800                  | 3,135,724                  |
| <b>Total</b>            | <b>\$ 3,156,874</b>        | <b>\$ 3,146,800</b>        | <b>\$ 3,135,724</b>        |
| <b>FTE</b>              | 0                          | 0                          | 0                          |

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

---

For FY 2024, the President's Budget requests \$3.14 billion to fund the Grants-in-Aid for Airports program, known as the Airport Improvement Program (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 National Plan of Integrated Airport Systems (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.

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**Environmental Stewardship/Climate Change/Climate Resilience:** The FAA will continue to tackle the climate crisis, which is a high priority for the Agency, 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 (Pub.L. 117-58), also referred to as the Bipartisan Infrastructure Law (BIL), established the Airport Terminal Program (ATP) program with an annual appropriation of \$1.0 billion and the Airport Infrastructure Grants (AIG) program with an annual appropriation of \$3.0 billion, starting in FY 2022. These are separate and distinct programs from the Airport Improvement Program.

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 (Pub.L. 101-336) and expand accessibility for persons with disabilities; projects that improve airport access for historically disadvantaged populations; projects that improve energy

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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.<sup>1</sup> 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.<sup>2</sup> 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 2024 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;

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<sup>1</sup> 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](https://www.faa.gov/about/plans_reports/media/2020_jan_economic_impact_report.pdf)

<sup>2</sup> 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](https://www.faa.gov/about/plans_reports/media/2020_jan_economic_impact_report.pdf)

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- 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; and
- 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 vehicle/pedestrian deviations or by pilot error 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 at towered airports throughout the country. The FAA is in the process of mitigating incursions at more than 120 locations, and has completed mitigation activities more than 80 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 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



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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 the vast majority of 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.

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**GRANTS-IN-AID FOR AIRPORTS**

Grants-in-Aid for Airports  
(\$ in Thousands)

| <b>Item Title</b>   | <b>Dollars</b>   | <b>FTP</b> | <b>FTE</b> |
|---|------------------|------------|------------|
| <b>FY 2023 Enacted</b>  | <b>3,146,800</b> | <b>0</b>   | <b>0</b>   |
| <b>Total Adjustments to Base</b>  | <b>0</b>         | <b>0</b>   | <b>0</b>   |
| <b>Discretionary Increases/ Decreases</b>   |                  |            |            |
| 1. Discretionary decrease to offset uncontrollable adjustments, and discretionary increases in other programs | -21,076          |            |            |
| 2. Increase from reduction of SCASDP Grants   | 10,000           |            |            |
| <b>Total Discretionary Increases/Decreases</b>  | <b>-11,076</b>   | <b>0</b>   | <b>0</b>   |
| <b>FY 2024 Request</b>  | <b>3,135,724</b> | <b>0</b>   | <b>0</b>   |

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**Detailed Justification for Personnel and Related Expenses**

**FY 2024 Personnel and Related Expenses Budget Request (\$000)**

| <b>Program Activity</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------|----------------------------|----------------------------|----------------------------|
| Salaries and Expenses   | 107,663                    | 116,296                    | 135,991                    |
| Program Costs           | 19,502                     | 21,076                     | 21,484                     |
| <b>Total</b>            | <b>\$ 127,165</b>          | <b>\$ 137,372</b>          | <b>\$ 157,475</b>          |
| <b>FTE</b>              | 571                        | 609                        | 656                        |
| <b>CARES Act FTE</b>    | 1                          | 1                          | 1                          |

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

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For FY 2024, the President's Budget requests \$157.5 million, 681 positions and 656 FTEs 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).

The requested funding level will support 47 additional positions in FY 2024:

- 1 Management and Program Analyst;
- 1 Aircraft Rescue and Fire Fighting Specialist;
- 2 Airport Certification Safety Inspectors (ACSI);
- 1 Finance Manager;
- 4 Compliance Analysts;
- 1 National Resource;
- 1 Technical Writer;
- 4 State Block Grant Program (SBGP);
- 32 additional safety and frontline specialists to provide engineering, community planning, and environmental protection oversight.

One Management and Program Analyst position is requested to assist the regions with the aeronautical data processes, including the 5010 Airport Master Record data management and the data input into modules such as the Runway Safety Area Inventory, Runway Incursion Mitigation Inventory, and the Runway Airspace Management Tool. Data and document collection and management is a time consuming exercise, that while essential, places a heavy workload on program managers, planners, and engineers within the regional offices and airport district offices. Accurate airport data collection and management is essential to the safety and efficiency of the National Airspace System. Information such as an airport's location, the compliance status of its infrastructure, or whether or not the airport is still in existence or not can mean the difference between life and death with the traveling public. This position will provide much needed assistance with this initiative.

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One Aircraft Rescue and Fire Fighting Specialist position is needed to support the current and expanding program needs of aircraft rescue and firefighting to support new technology with new entrants and the transition to a Per- and Polyfluoroalkyl Substances (PFAS)-Free foam which will require significant technical expertise and program guidance. Additional experts are needed for guidance and policy regarding fire safety on airports to include existing and future types of aircraft utilizing other energy sources such as hydrogen and electrical charging stations on airports.

Two ACSI positions responsible for increased scope and complexity of operational issues especially in Emergency Operations functions; but would also include SMS, Runway Safety, Safety During Construction, and Safety Data Analysis. These positions are needed to handle the major increase in emergency operational issues for the Office of Airports, including; hurricane and wildfire crisis assistance and reporting, pandemic responses, aviation fuel disruptions and issuance of guidance during emergencies.

One Finance Manager and four Finance Compliance Analysts positions to handle the increasing workload from the single audit program, issues regarding the requirements of 2 CFR, Part 200 Uniform Administrative Requirements, increasing workload of airport finance reviews, and GAO and OIG audits of Airports programs.

One National Resource Expert in compliance to oversee the growing complexity of airport business operations and changing governance structures. This position requires expert level knowledge and experience of Federal Law and complex FAA airport compliance policy/issues to amend, develop, and provide policy recommendations and guidance to Airports organization leadership. This position would also assist with developing training standards for airport compliance personnel in the Airports organization.

One Technical Writer position responsible for the ever-increasing workload of the correspondence review and consolidation, FOIA inquiries, Congressional responses, Reports to Congress, etc.

Four new SBGP positions will support the States participating in that program. Under the SBGP, the FAA provides funds directly to participating States that in turn, prioritize, select, and fund AIP projects at non-primary airports. Department of Transportation's Office of Inspector General identified audit gaps in the FAA's Oversight of the AIP SBGP. These positions will ensure proper oversight of the SBGP to ensure compliance with FAA's requirements, policies, and practices.

Another 32 positions (based on growing demands for staffing needs among 31 offices located in nine Regions) are requested in response to increasing levels of AIP oversight and execution that has shifted to the Regions and Airport District Offices, limiting their ability to maintain their own program and audit responsibilities, and impacting their capacity to help airport sponsors navigate through the increasingly numerous and complex programs and processes. These frontline personnel are essential to improve airport safety through implementation of SMS, conduct wildlife hazard assessments or site visits at general aviation airports, and improvements to runway safety areas for over 3,300 NPIAS airports.

Positions are required to provide engineering, community planning, and environmental protection oversight. These additional positions are essential to provide safety and grant oversight at NPIAS

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airports. Additional resources are necessary because of increased workload, increased complexity and evolving new entrant needs. Sufficient resources will benefit the American public with increased guidance and support for NPIAS airport sponsors to advance the safest, most efficient airport system.

Included in this request is a one-time discretionary increase to offset payroll expenses that were higher than the estimated amounts. The requested payroll increases for FY 2020 and FY 2021 were consistent with the economic assumptions for future years, however the actual pay increases were higher than what was estimated. This has created hiring limitations in subsequent years to affordability rather than personnel requirements. This increase will provide the funding needed to stabilize the base payroll requirements and fully staff the program.

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

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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.

Additional resources are necessary because of increased workload and increased complexity. Sufficient resources will benefit the American public with increased guidance and support for NPIAS airport sponsors to advance the safest, most efficient airport system.

The new positions will increase efficiency and safety of the National Airspace System by providing national experts to address the implementation and oversight of funding programs, ensure compliance of Airport Sponsors, assist with integration of emerging entrants, strengthen airport data review processes, provide safety guidance and oversight during emergency operations, and provide additional needed resources to address airport planning, environmental, engineering and safety issues. In addition, the newly created positions will establish consistency across the nation, improve FAA partnership with the industry and improve the safety and efficiency of the airport system. After extensive review, the FAA concluded that none of this growing workload can be absorbed by existing staff without severe negative impacts to the various stakeholders like airports, airlines and other user-groups, neighboring and impacted communities, and the traveling public.

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**GRANTS-IN-AID FOR AIRPORTS**

Personnel and Related Expenses  
(\$ in Thousands)

| <b>Item Title</b>   | <b>Dollars</b> | <b>FTP</b> | <b>FTE</b> |
|---|----------------|------------|------------|
| <b>FY 2023 Enacted</b>  | <b>137,372</b> | <b>634</b> | <b>609</b> |
| <b>Adjustments to Base</b>  |                |            |            |
| 1. Annualization of FY 2023 FTE   | 2,277          |            | 23         |
| 2. Annualization of FY 2023 Pay Raise   | 1,337          |            |            |
| 3. FY 2024 Pay Raise  | 4,536          |            |            |
| 4. Adjustment for Number of Compensable Days  | 427            |            |            |
| 6. Decrease to Working Capital Fund   | -13            |            |            |
| 7. Non-Pay Inflation  | 421            |            |            |
| <b>Total Adjustments to Base</b>  | <b>8,985</b>   | <b>0</b>   | <b>23</b>  |
| <b>New or Expanded Programs</b>   |                |            |            |
| 1. 47 new positions (23.5 FTE) to perform various safety and oversight activities   | 6,768          | 47         | 24         |
| 2. Adjustment to offset higher pay increases than the economic assumptions provided | 4,350          |            |            |
| <b>Total Discretionary Increases</b>  | <b>11,118</b>  | <b>47</b>  | <b>24</b>  |
| <b>FY 2024 Request</b>  | <b>157,475</b> | <b>681</b> | <b>656</b> |

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**Detailed Justification for Airport Technology Research**

**FY 2024 Airport Technology Research Budget Request (\$000)**

| <b>Program Activity</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------|----------------------------|----------------------------|----------------------------|
| Salaries and Expenses   | 4,342                      | 4,504                      | 4,750                      |
| Program Costs           | 36,619                     | 36,324                     | 37,051                     |
| <b>Total</b>            | <b>\$ 40,961</b>           | <b>\$ 40,828</b>           | <b>\$ 41,801</b>           |
| <b>FTE</b>              | <b>24</b>                  | <b>26</b>                  | <b>26</b>                  |

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

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For FY 2024, the President's Budget requests \$41.8 million to fund the Airport Technology Research (ATR) program. 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.

Research areas include the development of infrastructure standards for Advanced Air Mobility vehicles; continued testing of new, environmentally-friendly firefighting agents; 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 a number of research projects related to climate solutions and resilience. For instance, in FY 2024 research will continue in the appropriate use of solar technology and in the safe applications of light emitting diode (LED) lighting at airports. 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.

In the areas of transformation and economic growth, the program will also include funding for the innovative Airport Pavement Technology Program to perform short-term applied research in collaboration with the Concrete Pavement and Asphalt Pavement industries, as authorized by Section 744 of the FAA Authorization Act of 2018 (Pub. L. 115-254).

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 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

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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 June 2021 ARP issued an updated Advisory Circular 150/5320-6G<sup>3</sup> Airport Pavement Design and Evaluation with corresponding pavement design software FAARFIELD 2.0, which is used widely 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 some research is conducted with specialized research private industry partners. 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?**

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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 number of 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 2024, integration and support of the databases will continue. Databases that are capable to be moved to FAA Cloud Services will be perused, 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 perfluoroalkyl or polyfluoroalkyl substances (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 2024, 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, ATR will continue testing newly developed fluorine-free foams to continue to push for greater extinguishing performance. ATR will also continue to investigate whether the incorporation of compressed air foam systems can increase the firefighting performance of the new fluorine-free foams.

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<sup>3</sup> Advisory Circular 150/5320-6G Airport Pavement Design and Evaluation. See [https://www.faa.gov/airports/resources/advisory\\_circulars/index.cfm/go/document.current/documentNumber/150\\_5320-6](https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5320-6)



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In the area of climate solutions, in FY 2024 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. Solar technology advancements present an opportunity for airports to produce on-site electricity and reduce long-term energy costs. In FY 2024, ATR will continue long-term performance analysis of prototype PV 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.

In the areas of equity, economic growth and climate solutions, in FY 2024, 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.

For FY 2024 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 and associated causal factors for the period of FY 2018 through FY 2023.

In the area of transformative technologies, in FY 2024, 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 2024 and will expand their research portfolio to include new applications.

In FY 2024, 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 2024, 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 established by Section 383 of the FAA Reauthorization Act of 2018. 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. This effort involves the test and evaluation of numerous UAS detection and mitigation technologies/systems at five airports in the United States, with the goal of developing performance standards for these types of technologies/systems. FY 2024 activities will include continued testing and evaluation of detection and mitigation technologies, completion of

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performance standards, and development of 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 2024, 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 2024, ATR will use a state-of-the-art materials 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.

Also in FY 2024, 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 pavements. This supports an overall goal of “sustainability” for the airport paving industry.

In FY 2024 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 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 2024, the ATR program will continue to improve public noise communication strategies and land-use compatibility policy to reduce community noise impacts. In order 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 2024 has been briefed to the FAA's Research, Engineering and Development Advisory Committee's Subcommittee on Airports (REDAC). The REDAC reviews the

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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.

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**GRANTS-IN-AID FOR AIRPORTS**

Airport Technology Research  
(\$ in Thousands)

| <b>Item Title</b>                     | <b>Dollars</b> | <b>FTP</b> | <b>FTE</b> |
|---------------------------------------|----------------|------------|------------|
| <b>FY 2023 Enacted</b>                | <b>40,828</b>  | <b>26</b>  | <b>26</b>  |
| <b>Adjustments to Base</b>            |                |            |            |
| 1. Annualization of FY 2023 Pay Raise | 52             |            |            |
| 2. FY 2024 Pay Raise                  | 176            |            |            |
| 3. Adjustment for compensable days    | 19             |            |            |
| 4. Non-Pay Inflation                  | 726            |            |            |
| <b>Total Adjustments to Base</b>      | <b>973</b>     | <b>0</b>   | <b>0</b>   |
| <b>Total Discretionary Increases</b>  | <b>0</b>       | <b>0</b>   | <b>0</b>   |
| <b>FY 2024 Request</b>                | <b>41,801</b>  | <b>26</b>  | <b>26</b>  |

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**Detailed Justification for Airport Cooperative Research Program**

**FY 2024 Airport Cooperative Research Program (\$000)**

| <b>Program Activity</b> | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|-------------------------|----------------------------|----------------------------|----------------------------|
| Salaries and Expenses   | 183                        | 189                        | 194                        |
| Program Costs           | 14,817                     | 14,811                     | 14,806                     |
| <b>Total</b>            | <b>\$ 15,000</b>           | <b>\$ 15,000</b>           | <b>\$ 15,000</b>           |
| <b>FTE</b>              | <b>1</b>                   | <b>2</b>                   | <b>2</b>                   |

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

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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. 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 2024, the President's Budget requests \$15.0 million for the program. Approximately 22 research topics will be funded under this request in FY 2024. 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?**

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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 other 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.

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**GRANTS-IN-AID FOR AIRPORTS**

Airport Cooperative Research  
(\$ in Thousands)

| <b>Item Title</b>  | <b>Dollars</b> | <b>FTP</b> | <b>FTE</b> |
|--|----------------|------------|------------|
| <b>FY 2023 Enacted</b>   | <b>15,000</b>  | <b>2</b>   | <b>2</b>   |
| <b>Adjustments to Base</b>                                     |                |            |            |
| 1. Annualization of FY 2023 Pay Raise                          | 2              |            |            |
| 2. FY 2024 Pay Raise   | 2              |            |            |
| 3. Adjustment for compensable days                             | 1              |            |            |
| <b>Total Adjustments to Base</b>                               | <b>5</b>       | <b>0</b>   | <b>0</b>   |
| <b>Discretionary Increases/ Decreases</b>                      |                |            |            |
| 1. Discretionary decrease of offset uncontrollable adjustments | -5             |            |            |
| <b>Total Discretionary Increases/Decreases</b>                 | <b>-5</b>      | <b>0</b>   | <b>0</b>   |
| <b>FY 2024 Request</b>   | <b>15,000</b>  | <b>2</b>   | <b>2</b>   |

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**AIRPORT IMPROVEMENT PROGRAM**  
Grants-in-Aid to Airports Planned Distribution  
\$000

|   | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|---|----------------------------|----------------------------|----------------------------|
| <b>Formula Grants</b>                               |                            |                            |                            |
| Primary Airports                                    | 944,590                    | 926,150                    | 944,590 2/                 |
| Cargo Service Airports                              | 110,491                    | 110,138                    | 109,750                    |
| Alaska  | 21,345                     | 21,345                     | 21,345                     |
| States (General Aviation)                           | 631,375                    | 629,360                    | 627,145                    |
| Carryover (from Formula Grants)                     | 705,669                    | 912,672                    | 776,361 3/                 |
| Subtotal, Formula Grants                            | 2,423,470                  | 2,599,665                  | 2,479,191                  |
| <b>Discretionary Grants</b>                         |                            |                            |                            |
| Discretionary Set – Aside: Noise Compatibility      | 53,207                     | 18,525                     | 23,564                     |
| Discretionary Set – Aside: Reliever                 | 1,003                      | 350                        | 444                        |
| Discretionary Set – Aside: Military Airport Program | 6,081                      | 2,117                      | 2,693                      |
| C/S/S/N (Capacity/Safety/Security/Noise)            | 68,796                     | 23,953                     | 30,469                     |
| Discretionary – AATF                                | 22,932                     | 7,984                      | 10,156                     |
| Discretionary – General Fund                        | 551,409 1/                 | 558,555 1/                 | 0                          |
| Subtotal, Discretionary Grants                      | 703,428                    | 611,484                    | 67,327 4/                  |
| Small Airport Fund                                  | 581,385                    | 494,206                    | 589,206                    |
| <b>Total Grants</b>                                 | <b>3,708,283</b>           | <b>3,715,355</b>           | <b>3,135,724</b>           |

1/ FY 2022 Funding provided by the Consolidated Appropriations Act, 2022. This act provides Supplemental Discretionary funding of \$547 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. FY 2023 Funding provided by the Consolidated Appropriations Act, 2023. This act provides Supplemental Discretionary funding of \$552 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 2023 and FY 2024 Primary Entitlements reflect the same forecast activity levels for FY 2022, because we do not yet have sufficient updated information to warrant any significant change.

3/ FY 2023 and FY 2024 carryover figures are estimated based on a five-year rolling average.

4/ Totals may not add due to rounding.

The FY 2024 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.



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Passenger Facility Charge (PFC) Approved Locations  
As of January 31, 2023  
(Whole Dollars)

**PFC APPROVED LOCATIONS**

| Associated City | State | Airport Name                                | LOC ID | Hub size | Level  | Start Date | Expiration Date | Total PFC Approved |
|-----------------|-------|---|--------|----------|--------|------------|-----------------|--------------------|
| Fairbanks       | AK    | Fairbanks International                     | FAI    | S        | \$3.00 | 10/1/2000  | 4/1/2004        |                    |
| Fairbanks       | AK    | Fairbanks International                     | FAI    | S        | \$4.50 | 4/1/2004   | 10/1/2026       | 38,413,252         |
| Juneau          | AK    | Juneau International                        | JNU    | N        | \$3.00 | 10/1/1998  | 2/1/2001        |                    |
| Juneau          | AK    | Juneau International                        | JNU    | N        | \$4.50 | 8/1/2001   | 7/1/2026        | 26,084,549         |
| Ketchikan       | AK    | Ketchikan International                     | KTN    | N        | \$3.00 | 2/1/1999   | 8/1/2001        |                    |
| Ketchikan       | AK    | Ketchikan International                     | KTN    | N        | \$4.50 | 8/1/2001   | 6/1/2018        |                    |
| Ketchikan       | AK    | Ketchikan International                     | KTN    | N        | \$4.50 | 4/1/2019   | 8/1/2028        | 10,587,010         |
| Sitka           | AK    | Sitka Rocky Gutierrez                       | SIT    | N        | \$4.50 | 7/1/2007   | 9/1/2013        |                    |
| Sitka           | AK    | Sitka Rocky Gutierrez                       | SIT    | N        | \$4.50 | 5/1/2018   | 5/1/2038        | 8,073,347          |
| Anchorage       | AK    | Ted Stevens Anchorage International         | ANC    | M        | \$3.00 | 10/1/2000  | 12/1/2026       | 106,043,173        |
| Birmingham      | AL    | Birmingham-Shuttlesworth International      | BHM    | S        | \$3.00 | 8/1/1997   | 11/1/2003       |                    |
| Birmingham      | AL    | Birmingham-Shuttlesworth International      | BHM    | S        | \$3.00 | 12/1/2003  | 10/1/2008       |                    |
| Birmingham      | AL    | Birmingham-Shuttlesworth International      | BHM    | S        | \$4.50 | 10/1/2008  | 2/1/2031        | 212,563,127        |
| Dothan          | AL    | Dothan Regional                             | DHN    | N        | \$3.00 | 2/1/1998   | 8/1/2001        |                    |
| Dothan          | AL    | Dothan Regional                             | DHN    | N        | \$4.50 | 8/1/2001   | 12/1/2025       | 5,144,021          |
| Huntsville      | AL    | Huntsville International-Carl T Jones Field | HSV    | S        | \$3.00 | 6/1/1992   | 9/1/2004        |                    |
| Huntsville      | AL    | Huntsville International-Carl T Jones Field | HSV    | S        | \$4.50 | 9/1/2004   | 6/1/2027        | 68,204,744         |
| Mobile          | AL    | Mobile International                        | BFM    | GA       | \$4.50 | 1/1/2020   | 11/1/2026       | 988,418            |
| Mobile          | AL    | Mobile Regional                             | MOB    | N        | \$3.00 | 12/1/1997  | 7/1/2004        |                    |
| Mobile          | AL    | Mobile Regional                             | MOB    | N        | \$3.00 | 3/1/2005   | 5/1/2013        |                    |
| Mobile          | AL    | Mobile Regional                             | MOB    | N        | \$3.00 | 6/1/2013   | 10/1/2017       |                    |
| Mobile          | AL    | Mobile Regional                             | MOB    | N        | \$4.50 | 10/1/2017  | 5/1/2026        | 22,156,953         |

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|--------------------------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| Montgomery                     | AL    | Montgomery Regional (Dannelly Field)     | MGM    | N        | \$4.50 | 5/1/2005   | 1/1/2027        | 28,404,900         |
| Muscle Shoals                  | AL    | Northwest Alabama Regional               | MSL    | CS       | \$3.00 | 6/1/1992   | 10/1/2003       |                    |
| Muscle Shoals                  | AL    | Northwest Alabama Regional               | MSL    | CS       | \$3.00 | 12/1/2004  | 4/1/2009        |                    |
| Muscle Shoals                  | AL    | Northwest Alabama Regional               | MSL    | CS       | \$4.50 | 4/1/2009   | 3/1/2022        |                    |
| Muscle Shoals                  | AL    | Northwest Alabama Regional               | MSL    | CS       | \$4.50 | 3/1/2023   | 2/1/2029        | 720,075            |
| Little Rock                    | AR    | Bill and Hillary Clinton Ntl/Adams Field | LIT    | S        | \$3.00 | 5/1/1995   | 9/1/2001        |                    |
| Little Rock                    | AR    | Bill and Hillary Clinton Ntl/Adams Field | LIT    | S        | \$4.50 | 9/1/2001   | 3/1/2025        | 136,288,892        |
| Fayetteville                   | AR    | Drake Field                              | FYV    | GA       | \$3.00 | 1/1/1996   | 1/1/2001        | 2,221,887          |
| Fort Smith                     | AR    | Fort Smith Regional                      | FSM    | N        | \$3.00 | 8/1/1994   | 2/1/2008        |                    |
| Fort Smith                     | AR    | Fort Smith Regional                      | FSM    | N        | \$4.50 | 2/1/2008   | 11/1/2028       | 9,938,242          |
| Fayetteville/Springdale/Rogers | AR    | Northwest Arkansas Ntl                   | XNA    | S        | \$3.00 | 12/1/1998  | 4/1/2001        |                    |
| Fayetteville/Springdale/Rogers | AR    | Northwest Arkansas Ntl                   | XNA    | S        | \$4.50 | 4/1/2001   | 9/1/2047        | 119,872,895        |
| Texarkana                      | AR    | Texarkana Regional-Webb Field            | TXK    | N        | \$3.00 | 2/1/1995   | 9/1/2001        |                    |
| Texarkana                      | AR    | Texarkana Regional-Webb Field            | TXK    | N        | \$4.50 | 9/1/2001   | 3/1/2005        |                    |
| Texarkana                      | AR    | Texarkana Regional-Webb Field            | TXK    | N        | \$4.50 | 7/1/2008   | 5/1/2014        |                    |
| Texarkana                      | AR    | Texarkana Regional-Webb Field            | TXK    | N        | \$4.50 | 4/1/2015   | 11/1/2017       |                    |
| 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    | CS       | \$3.00 | 7/1/1995   | 6/1/2000        |                    |
| Pago Pago                      | AS    | Pago Pago International                  | PPG    | CS       | \$4.50 | 9/1/2001   | 9/1/2005        |                    |
| Pago Pago                      | AS    | Pago Pago International                  | PPG    | CS       | \$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    | GA       | \$3.00 | 9/1/2004   | 9/1/2006        |                    |

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|-----------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| Peach Springs   | AZ    | Grand Canyon West                        | 1G4    | GA       | \$3.00 | 6/1/2008   | 1/1/2024        | 9,922,946          |
| Bullhead City   | AZ    | Laughlin/Bullhead International          | IFP    | GA       | \$2.00 | 5/1/2008   | 10/1/2012       |                    |
| Bullhead City   | AZ    | Laughlin/Bullhead International          | IFP    | GA       | \$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  | 7/1/2037        | 59,429,998         |
| 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        | 6,659,399          |
| 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  | 3/1/2024        | 251,441,879        |
| 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        |                    |

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|------------------|-------|--|--------|----------|--------|------------|-----------------|-----------------------|
| 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 Municipal                          | CIC    | GA       | \$3.00 | 12/1/1993  | 9/1/1998        |                       |
| Chico            | CA    | Chico Municipal                          | CIC    | GA       | \$3.00 | 6/1/1999   | 2/1/2001        |                       |
| Chico            | CA    | Chico Municipal                          | CIC    | GA       | \$3.00 | 11/1/2001  | 12/1/2009       |                       |
| Chico            | CA    | Chico Municipal                          | 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        | 67,102,125            |
| 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 | 9/1/2006   | 2/1/2009        |                       |
| 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  | 2/1/2025        | 899,295               |
| Santa Ana        | CA    | John Wayne/Orange County                 | SNA    | M        | \$4.50 | 7/1/2006   | 1/1/2024        | 311,602,130           |
| 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   | 8/1/2040        | 259,499,998           |
| 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   | 1/1/2038        | 6,039,314,452         |
| Mammoth Lakes    | CA    | Mammoth Yosemite                         | MMH    | GA       | \$3.00 | 9/1/1995   | 9/1/2005        |                       |
| Mammoth Lakes    | CA    | Mammoth Yosemite                         | MMH    | GA       | \$4.50 | 11/1/2009  | 9/1/2019        | 1,017,875             |

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|-----------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| Carlsbad        | CA    | McClellan-Palomar                      | CRQ    | GA       | \$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 Municipal                      | RDD    | N        | \$3.00 | 4/1/1997   | 4/1/2002        |                    |
| Redding         | CA    | Redding Municipal                      | RDD    | N        | \$4.50 | 4/1/2002   | 4/1/2007        |                    |
| Redding         | CA    | Redding Municipal                      | RDD    | N        | \$4.50 | 8/1/2007   | 1/1/2024        | 4,568,530          |
| 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        |                    |

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|------------------|-------|---|--------|----------|--------|------------|-----------------|--------------------|
| 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       | 941,334,833        |
| 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    | San Luis County Regional                      | SBP    | N        | \$3.00 | 2/1/1993   | 2/1/1995        |                    |
| San Luis Obispo  | CA    | San Luis County Regional                      | SBP    | N        | \$3.00 | 6/1/1995   | 9/1/2002        |                    |
| San Luis Obispo  | CA    | San Luis County Regional                      | SBP    | N        | \$4.50 | 9/1/2002   | 6/1/2011        |                    |
| San Luis Obispo  | CA    | San Luis County Regional                      | SBP    | N        | \$3.00 | 6/1/2011   | 6/1/2014        |                    |
| San Luis Obispo  | CA    | San Luis County Regional                      | 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   | 10/1/2024       | 20,619,853         |
| 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      |

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|-----------------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| 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   | 5/1/2024        | 13,256,863         |
| 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        | 4,214,518          |
| 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         |
| Fort Collins/Loveland | CO    | Northern Colorado Regional             | FNL    | CS       | \$3.00 | 10/1/1993  | 5/1/1999        |                    |
| Fort Collins/Loveland | CO    | Northern Colorado Regional             | FNL    | CS       | \$4.50 | 8/1/2004   | 12/1/2011       |                    |
| Fort Collins/Loveland | CO    | Northern Colorado Regional             | FNL    | CS       | \$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    | CS       | \$3.00 | 2/1/1993   | 4/1/2002        |                    |
| Telluride             | CO    | Telluride Regional                     | TEX    | CS       | \$4.50 | 4/1/2002   | 1/1/2019        |                    |

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|-----------------------------------|-------|---|--------|----------|--------|------------|-----------------|--------------------|
| Telluride                         | CO    | Telluride Regional                      | TEX    | CS       | \$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    | N        | \$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  | 5/1/2030        | 44,248,626         |
| 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  | 2/1/2035        | 2,023,359,886      |
| 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   | 7/1/2024        | 14,988,204         |
| 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   | 5/1/2028        | 366,466,682        |



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|-----------------|-------|---|--------|----------|--------|------------|-----------------|-----------------------|
| Key West        | FL    | Key West International                  | EYW    | S        | \$3.00 | 3/1/1993   | 8/1/1996        |                       |
| 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        |                       |

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|--------------------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| Punta Gorda              | FL    | Punta Gorda                                | PGD    | S        | \$4.50 | 1/1/2019   | 1/1/2026        | 18,831,198         |
| 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   | 4/1/2024        | 92,349,299         |
| 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  | 6/1/2023        | 53,301,547         |
| 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  | 9/1/2027        | 56,896,322         |
| 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       | 1,687,138,071      |
| 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        |                    |
| Augusta                  | GA    | Augusta Regional at Bush Field             | AGS    | N        | \$4.50 | 7/1/2001   | 12/1/2030       | 34,127,162         |
| 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   | 9/1/2033        | 6,522,561,593      |

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| 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    | N        | \$3.00 | 2/1/1993   | 11/1/2002       |                       |
| Guam            | GU    | Guam International                            | GUM    | N        | \$4.50 | 11/1/2002  | 3/1/2025        | 258,370,758           |
| Honolulu        | HI    | Daniel K Inouye International                 | HNL    | M        | \$3.00 | 10/1/2004  | 11/1/2008       |                       |
| Honolulu        | HI    | Daniel K Inouye International                 | HNL    | M        | \$4.50 | 11/1/2008  | 7/1/2029        | 608,622,145           |
| 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  | 7/1/2029        | 54,928,542            |
| 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   | 7/1/2029        | 4,774,857             |

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| Kahului         | HI    | Kahului                                  | OGG    | M        | \$3.00 | 10/1/2004  | 11/1/2008       |                       |
| Kahului         | HI    | Kahului                                  | OGG    | M        | \$4.50 | 11/1/2008  | 7/1/2029        | 162,914,905           |
| Lihue           | HI    | Lihue                                    | LIH    | S        | \$3.00 | 10/1/2004  | 11/1/2008       |                       |
| Lihue           | HI    | Lihue                                    | LIH    | S        | \$4.50 | 11/1/2008  | 7/1/2029        | 45,298,964            |
| 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       | 161,663,019           |
| 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   | 9/1/2025        | 60,866,105            |
| 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        |                       |

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| Waterloo               | IA    | Waterloo Regional                             | ALO    | N        | \$4.50 | 7/1/2001   | 11/1/2023       | 3,298,274             |
| Boise                  | ID    | Boise Air<br>Trml/Gowen Field                 | BOI    | M        | \$3.00 | 8/1/1994   | 8/1/2001        |                       |
| Boise                  | ID    | Boise Air<br>Trml/Gowen Field                 | BOI    | M        | \$4.50 | 8/1/2001   | 9/1/2015        |                       |
| Boise                  | ID    | Boise Air<br>Trml/Gowen Field                 | BOI    | M        | \$4.50 | 5/1/2020   | 10/1/2023       | 132,357,476           |
| Hailey                 | ID    | Friedman<br>Memorial                          | SUN    | N        | \$3.00 | 9/1/1993   | 10/1/1994       |                       |
| Hailey                 | ID    | Friedman<br>Memorial                          | SUN    | N        | \$3.00 | 3/1/1995   | 6/1/2005        |                       |
| Hailey                 | ID    | Friedman<br>Memorial                          | SUN    | N        | \$4.50 | 6/1/2005   | 7/1/2028        | 6,987,776             |
| Idaho Falls            | ID    | Idaho Falls<br>Regional                       | IDA    | N        | \$3.00 | 1/1/1993   | 1/1/1998        |                       |
| Idaho Falls            | ID    | Idaho Falls<br>Regional                       | IDA    | N        | \$3.00 | 2/1/1998   | 4/1/2001        |                       |
| Idaho Falls            | ID    | Idaho Falls<br>Regional                       | IDA    | N        | \$4.50 | 4/1/2001   | 1/1/2024        | 15,791,133            |
| Twin Falls             | ID    | Joslin Field/Magic<br>Valley Regional         | TWF    | N        | \$3.00 | 11/1/1992  | 6/1/2001        |                       |
| Twin Falls             | ID    | Joslin Field/Magic<br>Valley Regional         | TWF    | N        | \$4.50 | 6/1/2001   | 6/1/2007        |                       |
| Twin Falls             | ID    | Joslin Field/Magic<br>Valley Regional         | TWF    | N        | \$4.50 | 7/1/2007   | 1/1/2028        | 4,220,967             |
| Lewiston               | ID    | Lewiston/Nez<br>Perce County                  | LWS    | N        | \$3.00 | 5/1/1994   | 5/1/2001        |                       |
| Lewiston               | ID    | Lewiston/Nez<br>Perce County                  | LWS    | N        | \$4.50 | 5/1/2001   | 11/1/2018       |                       |
| Lewiston               | ID    | Lewiston/Nez<br>Perce County                  | LWS    | N        | \$4.50 | 2/1/2019   | 7/1/2022        |                       |
| Lewiston               | ID    | Lewiston/Nez<br>Perce County                  | LWS    | N        | \$4.50 | 9/1/2022   | 9/1/2023        | 6,137,966             |
| 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   | 5/1/2023        | 3,764,353             |
| Springfield            | IL    | Abraham Lincoln<br>Capital                    | SPI    | N        | \$3.00 | 6/1/1992   | 5/1/2002        |                       |
| Springfield            | IL    | Abraham Lincoln<br>Capital                    | SPI    | N        | \$4.50 | 5/1/2002   | 11/1/2035       | 13,950,565            |
| Bloomington/Nor<br>mal | IL    | Central Il<br>Regional/Bloomin<br>gton-Normal | BMI    | N        | \$3.00 | 11/1/1994  | 4/1/2001        |                       |
| Bloomington/Nor<br>mal | IL    | Central Il<br>Regional/Bloomin<br>gton-Normal | BMI    | N        | \$4.50 | 4/1/2001   | 11/1/2030       | 29,245,583            |
| Chicago                | IL    | Chicago Midway<br>International               | MDW    | L        | \$3.00 | 9/1/1993   | 1/1/2007        |                       |
| Chicago                | IL    | Chicago Midway<br>International               | MDW    | L        | \$4.50 | 1/1/2007   | 5/1/2056        | 2,477,196,685         |
| Chicago                | IL    | Chicago O'Hare<br>International               | ORD    | L        | \$3.00 | 9/1/1993   | 4/1/2001        |                       |

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| Associated City  | State | Airport Name                           | LOC ID | Hub size | Level  | Start Date | Expiration Date | Total PFC Approved |
|------------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| 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  | 9/1/2023        | 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  | 11/1/2028       | 10,495,789         |
| 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    | S        | \$3.00 | 7/1/1993   | 12/1/2005       |                    |
| Fort Wayne       | IN    | Fort Wayne International               | FWA    | S        | \$4.50 | 12/1/2005  | 10/1/2024       | 35,256,566         |
| Indianapolis     | IN    | Indianapolis International             | IND    | M        | \$3.00 | 9/1/1993   | 4/1/2001        |                    |

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|-----------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| 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    | S        | \$3.00 | 11/1/1994  | 7/1/2011        |                    |
| South Bend      | IN    | South Bend International                   | SBN    | S        | \$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        |                    |

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|-----------------|-------|---------------------------------------|--------|----------|--------|------------|-----------------|--------------------|
| 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       |                    |
| 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        | 168,945,649        |
| 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         |



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|--------------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| 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   | 1/1/2024        | 4,509,883          |
| 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        | 1,376,683          |
| 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          |
| 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   | 5/1/2037        | 1,496,190,848      |
| 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            |

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|-----------------|-------|--|--------|----------|--------|------------|-----------------|-----------------------|
| Hagerstown      | MD    | Hagerstown<br>Regional/Richard<br>A Henson Field | HGR    | N        | \$3.00 | 8/1/1999   | 3/1/2002        |                       |
| Hagerstown      | MD    | Hagerstown<br>Regional/Richard<br>A Henson Field | HGR    | N        | \$4.50 | 3/1/2002   | 8/1/2007        | 429,244               |
| Salisbury       | MD    | Salisbury-Ocean<br>City Wicomico<br>Regional     | SBY    | N        | \$3.00 | 2/1/2002   | 3/1/2008        |                       |
| Salisbury       | MD    | Salisbury-Ocean<br>City Wicomico<br>Regional     | SBY    | N        | \$4.50 | 3/1/2008   | 9/1/2026        | 5,108,326             |
| Bangor          | ME    | Bangor<br>International                          | BGR    | N        | \$3.00 | 6/1/1995   | 9/1/2010        |                       |
| Bangor          | ME    | Bangor<br>International                          | BGR    | N        | \$4.50 | 12/1/2010  | 5/1/2018        |                       |
| Bangor          | ME    | Bangor<br>International                          | BGR    | N        | \$4.50 | 7/1/2021   | 12/1/2024       | 20,533,329            |
| Rockland        | ME    | Knox County<br>Regional                          | RKD    | N        | \$4.50 | 1/1/2012   | 8/1/2022        | 329,549               |
| Portland        | ME    | Portland<br>International<br>Jetport             | PWM    | S        | \$3.00 | 2/1/1994   | 2/1/2009        |                       |
| Portland        | ME    | Portland<br>International<br>Jetport             | PWM    | S        | \$4.50 | 2/1/2009   | 4/1/2040        | 165,807,186           |
| Presque Isle    | ME    | Presque Isle<br>International                    | PQI    | N        | \$4.50 | 9/1/2004   | 6/1/2009        |                       |
| Presque Isle    | ME    | Presque Isle<br>International                    | PQI    | N        | \$4.50 | 8/1/2010   | 6/1/2018        |                       |
| Presque Isle    | ME    | Presque Isle<br>International                    | PQI    | N        | \$4.50 | 2/1/2019   | 8/1/2029        | 1,053,437             |
| Alpena          | MI    | Alpena County<br>Regional                        | APN    | N        | \$3.00 | 8/1/2001   | 12/1/2005       |                       |
| Alpena          | MI    | Alpena County<br>Regional                        | APN    | N        | \$4.50 | 12/1/2005  | 4/1/2022        |                       |
| Alpena          | MI    | Alpena County<br>Regional                        | APN    | N        | \$4.50 | 5/1/2022   | 1/1/2027        | 938,567               |
| Flint           | MI    | Bishop<br>International                          | FNT    | N        | \$3.00 | 9/1/1993   | 10/1/2001       |                       |
| Flint           | MI    | Bishop<br>International                          | FNT    | N        | \$4.50 | 10/1/2001  | 4/1/2025        | 44,665,870            |
| Lansing         | MI    | Capital Region<br>International                  | LAN    | N        | \$3.00 | 10/1/1993  | 7/1/2002        |                       |
| Lansing         | MI    | Capital Region<br>International                  | LAN    | N        | \$4.50 | 7/1/2002   | 4/1/2028        | 30,496,100            |
| 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            |

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| 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       |                       |
| 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   | 4/1/2023        | 475,705               |
| 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   | 9/1/2025        | 15,759,687            |

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| Manistee               | MI    | Manistee<br>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<br>Regional/Emmet<br>County      | PLN    | N        | \$3.00 | 3/1/1993   | 9/1/1997        |                       |
| Pellston               | MI    | Pellston<br>Regional/Emmet<br>County      | PLN    | N        | \$3.00 | 12/1/1997  | 7/1/2011        |                       |
| Pellston               | MI    | Pellston<br>Regional/Emmet<br>County      | PLN    | N        | \$4.50 | 7/1/2011   | 1/1/2025        | 2,794,669             |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$3.00 | 12/1/1992  | 12/1/1996       |                       |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$3.00 | 4/1/1998   | 7/1/2002        |                       |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$4.50 | 7/1/2002   | 9/1/2006        |                       |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$4.50 | 10/1/2006  | 5/1/2008        |                       |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$4.50 | 8/1/2008   | 8/1/2011        |                       |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$4.50 | 3/1/2012   | 3/1/2015        |                       |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$4.50 | 5/1/2015   | 5/1/2017        |                       |
| Marquette              | MI    | Sawyer<br>International                   | SAW    | N        | \$4.50 | 5/1/2019   | 10/1/2022       | 4,443,113             |
| 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<br>Regional                | BRD    | N        | \$3.00 | 8/1/1993   | 7/1/2001        |                       |
| Brainerd               | MN    | Brainerd Lakes<br>Regional                | BRD    | N        | \$4.50 | 7/1/2001   | 8/1/2033        | 2,147,011             |
| Duluth                 | MN    | Duluth<br>International                   | DLH    | N        | \$3.00 | 10/1/1994  | 4/1/2002        |                       |
| Duluth                 | MN    | Duluth<br>International                   | DLH    | N        | \$4.50 | 4/1/2002   | 11/1/2004       |                       |
| Duluth                 | MN    | Duluth<br>International                   | DLH    | N        | \$4.50 | 4/1/2005   | 6/1/2025        | 14,332,527            |
| International<br>Falls | MN    | Falls<br>International/Einar<br>son Field | INL    | CS       | \$3.00 | 12/1/1994  | 6/1/2002        |                       |

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|---------------------|-------|--|--------|----------|--------|------------|-----------------|--------------------|
| International Falls | MN    | Falls International/Einarson Field                 | INL    | CS       | \$4.50 | 6/1/2002   | 6/1/2005        |                    |
| International Falls | MN    | Falls International/Einarson Field                 | INL    | CS       | \$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   | 10/1/2023       | 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   | 6/1/2023        | 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        |                    |

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|-----------------------------|-------|--|--------|----------|--------|------------|-----------------|-----------------------|
| 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         |
| Rota Island                 | MP    | Benjamin Taisacan Manglona International | GRO    | CS       | \$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    | 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   | 10/1/2023       | 5,047,599             |
| Greenville                  | MS    | Greenville Mid-Delta                     | GLH    | CS       | \$3.00 | 10/1/1998  | 2/1/2003        |                       |
| Greenville                  | MS    | Greenville Mid-Delta                     | GLH    | CS       | \$3.00 | 4/1/2003   | 4/1/2005        |                       |
| Greenville                  | MS    | Greenville Mid-Delta                     | GLH    | CS       | \$4.50 | 4/1/2005   | 8/1/2011        |                       |
| Greenville                  | MS    | Greenville Mid-Delta                     | GLH    | CS       | \$4.50 | 9/1/2012   | 7/1/2018        |                       |
| Greenville                  | MS    | Greenville Mid-Delta                     | GLH    | CS       | \$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   | 1/1/2028        | 66,424,061            |
| 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  | 12/1/2025       | 68,069,655            |
| Meridian                    | MS    | Key Field                                | MEI    | N        | \$3.00 | 11/1/1992  | 8/1/1996        |                       |

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| 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        | 2,890,724          |
| 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    | S        | \$3.00 | 4/1/1994   | 9/1/2014        |                    |
| Billings         | MT    | Billings Logan International      | BIL    | S        | \$3.00 | 11/1/2016  | 10/1/2019       |                    |
| Billings         | MT    | Billings Logan International      | BIL    | S        | \$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    | S        | \$3.00 | 12/1/1993  | 4/1/2005        |                    |
| Kalispell        | MT    | Glacier Park International        | GPI    | S        | \$4.50 | 4/1/2005   | 9/1/2048        | 67,349,481         |
| 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    | N        | \$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   | 9/1/2032        | 16,302,907         |
| 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        |                    |

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|-----------------|-------|---------------------------------------|--------|----------|--------|------------|-----------------|--------------------|
| 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  | 5/1/2047        | 3,258,936,947      |
| 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   | 12/1/2023       | 12,158,435         |
| 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   | 10/1/2023       | 4,940,753          |
| 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   | 8/1/2028        | 50,197,145         |
| 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          |
| 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        |                    |



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| 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   | 9/1/2023        | 43,013,145            |
| 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   | 7/1/2024        | 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  | 10/1/2023       | 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       |                       |

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| 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   | 6/1/2025        | 1,872,100,940      |
| 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        | 661,102            |
| 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    | N        | \$3.00 | 9/1/1998   | 11/1/2003       |                    |
| Elko            | NV    | Elko Regional                     | EKO    | N        | \$4.50 | 11/1/2003  | 2/1/2021        |                    |
| Elko            | NV    | Elko Regional                     | EKO    | N        | \$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        |                    |

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| 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  | 11/1/2024       | 233,799,707           |
| 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   | 5/1/2033        | 159,989,895           |
| 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   | 5/1/2028        | 10,679,845            |
| Ithaca          | NY    | Ithaca Tompkins International                      | ITH    | N        | \$3.00 | 1/1/1993   | 3/1/2009        |                       |
| 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   | 7/1/2025        | 2,572,357,501         |
| 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   | 7/1/2025        | 1,495,745,863         |

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| 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   | 12/1/2025       | 97,256,614            |
| 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        | 22,250,900            |
| Niagara Falls   | NY    | Niagara Falls International          | IAG    | N        | \$4.50 | 11/1/2017  | 7/1/2024        | 3,662,905             |
| Ogdensburg      | NY    | Ogdensburg International             | OGS    | N        | \$3.00 | 4/1/1996   | 7/1/2016        |                       |
| Ogdensburg      | NY    | Ogdensburg International             | OGS    | N        | \$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   | 12/1/2050       | 42,143,361            |
| 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   | 10/1/2023       | 72,338,257            |
| 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   | 1/1/2024        | 582,345,829           |

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| 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   | 8/1/2023        | 18,846,604         |
| 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        |                    |
| Columbus          | OH    | John Glenn Columbus International | CMH    | M        | \$4.50 | 4/1/2002   | 12/1/2024       | 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       |                    |

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| 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  | 2/1/2033        | 902,869               |
| 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   | 5/1/2024        | 49,985,342            |
| 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  | 7/1/2036        | 1,200,914,626         |
| 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   | 8/1/2025        | 39,334,463            |
| 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        |                       |
| Altoona         | PA    | Altoona/Blair County                 | AOO    | CS       | \$4.50 | 8/1/2021   | 7/1/2023        | 716,045               |
| 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        |                       |

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| 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<br>International/Tom<br>Ridge Field   | ERI    | N        | \$3.00 | 10/1/1992  | 6/1/1997        |                       |
| Erie            | PA    | Erie<br>International/Tom<br>Ridge Field   | ERI    | N        | \$3.00 | 12/1/1997  | 5/1/2001        |                       |
| Erie            | PA    | Erie<br>International/Tom<br>Ridge Field   | ERI    | N        | \$4.50 | 8/1/2003   | 1/1/2005        |                       |
| Erie            | PA    | Erie<br>International/Tom<br>Ridge Field   | ERI    | N        | \$4.50 | 7/1/2005   | 5/1/2031        | 17,707,813            |
| Harrisburg      | PA    | Harrisburg<br>International                | MDT    | S        | \$3.00 | 2/1/1997   | 1/1/2003        |                       |
| Harrisburg      | PA    | Harrisburg<br>International                | MDT    | S        | \$4.50 | 1/1/2003   | 7/1/2034        | 136,117,114           |
| Johnstown       | PA    | John Murtha<br>Johnstown/Cambria<br>County | JST    | CS       | \$3.00 | 11/1/1993  | 12/1/1996       |                       |
| Johnstown       | PA    | John Murtha<br>Johnstown/Cambria<br>County | JST    | CS       | \$3.00 | 12/1/1997  | 5/1/2001        |                       |
| Johnstown       | PA    | John Murtha<br>Johnstown/Cambria<br>County | JST    | CS       | \$4.50 | 5/1/2001   | 1/1/2007        |                       |
| Johnstown       | PA    | John Murtha<br>Johnstown/Cambria<br>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   | 6/1/2024        | 695,464               |
| Allentown       | PA    | Lehigh Valley<br>International             | ABE    | S        | \$3.00 | 11/1/1992  | 2/1/2001        |                       |
| Allentown       | PA    | Lehigh Valley<br>International             | ABE    | S        | \$3.00 | 6/1/2001   | 11/1/2001       |                       |
| Allentown       | PA    | Lehigh Valley<br>International             | ABE    | S        | \$4.50 | 11/1/2001  | 1/1/2003        |                       |
| Allentown       | PA    | Lehigh Valley<br>International             | ABE    | S        | \$4.50 | 9/1/2003   | 6/1/2033        | 61,856,718            |
| Philadelphia    | PA    | Philadelphia<br>International              | PHL    | L        | \$3.00 | 9/1/1992   | 4/1/2001        |                       |
| Philadelphia    | PA    | Philadelphia<br>International              | PHL    | L        | \$4.50 | 4/1/2001   | 2/1/2013        |                       |
| Philadelphia    | PA    | Philadelphia<br>International              | PHL    | L        | \$3.00 | 2/1/2013   | 3/1/2013        |                       |
| Philadelphia    | PA    | Philadelphia<br>International              | PHL    | L        | \$4.50 | 3/1/2013   | 12/1/2023       | 1,564,269,848         |
| Pittsburgh      | PA    | Pittsburgh<br>International                | PIT    | M        | \$3.00 | 10/1/2001  | 12/1/2004       |                       |

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| Pittsburgh            | PA    | Pittsburgh International             | PIT    | M        | \$4.50 | 12/1/2004  | 9/1/2067        | 1,199,199,864      |
| Reading               | PA    | Reading Regional/Carl A Spaatz Field | RDG    | GA       | \$3.00 | 12/1/1994  | 7/1/2008        | 1,006,653          |
| State College         | PA    | University Park                      | UNV    | N        | \$3.00 | 11/1/1992  | 11/1/2003       |                    |
| State College         | PA    | University Park                      | 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        | 25,797,477         |
| Williamsport          | PA    | Williamsport Regional                | IPT    | CS       | \$3.00 | 5/1/1997   | 11/1/1998       |                    |
| Williamsport          | PA    | Williamsport Regional                | IPT    | CS       | \$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   | 9/1/2032        | 280,249,015        |
| 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   | 7/1/2023        | 16,505,571         |



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|---------------------------|-------|----------------------------|--------|----------|--------|------------|-----------------|--------------------|
| 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   | 12/1/2025       | 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   | 10/1/2023       | 2,282,913          |
| 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    | S        | \$3.00 | 8/1/1997   | 1/1/2000        |                    |
| Rapid City                | SD    | Rapid City Regional        | RAP    | S        | \$3.00 | 6/1/2000   | 6/1/2006        |                    |
| Rapid City                | SD    | Rapid City Regional        | RAP    | S        | \$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        | 43,566,208         |
| 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   | 3/1/2036        | 943,703,242        |
| Bristol/Johnson/Kingsport | TN    | Tri-Cities                 | TRI    | N        | \$3.00 | 2/1/1997   | 7/1/2007        |                    |

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| Bristol/Johnson/<br>Kingsport | TN    | Tri-Cities   | TRI    | N        | \$4.50 | 7/1/2007   | 10/1/2023       | 18,839,520            |
| 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        | 7,176,261             |
| Austin                        | TX    | Austin-Bergstrom<br>International                  | AUS    | L        | \$2.00 | 11/1/1993  | 2/1/1994        |                       |
| Austin                        | TX    | Austin-Bergstrom<br>International                  | AUS    | L        | \$3.00 | 2/1/1994   | 2/1/1995        |                       |
| Austin                        | TX    | Austin-Bergstrom<br>International                  | AUS    | L        | \$3.00 | 7/1/1995   | 4/1/2004        |                       |
| Austin                        | TX    | Austin-Bergstrom<br>International                  | AUS    | L        | \$4.50 | 4/1/2004   | 11/1/2034       | 831,089,379           |
| Brownsville                   | TX    | Brownsville/South<br>Padre Island<br>International | BRO    | N        | \$3.00 | 10/1/1997  | 5/1/2003        |                       |
| Brownsville                   | TX    | Brownsville/South<br>Padre Island<br>International | BRO    | N        | \$4.50 | 5/1/2003   | 8/1/2045        | 15,969,178            |
| Corpus Christi                | TX    | Corpus Christi<br>International                    | CRP    | N        | \$3.00 | 3/1/1994   | 3/1/2003        |                       |
| Corpus Christi                | TX    | Corpus Christi<br>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        | 507,477,926           |
| Dallas-Fort<br>Worth          | TX    | Dallas-Fort Worth<br>International                 | DFW    | L        | \$3.00 | 5/1/1994   | 6/1/1996        |                       |
| Dallas-Fort<br>Worth          | TX    | Dallas-Fort Worth<br>International                 | DFW    | L        | \$3.00 | 2/1/1997   | 7/1/2002        |                       |
| Dallas-Fort<br>Worth          | TX    | Dallas-Fort Worth<br>International                 | DFW    | L        | \$4.50 | 7/1/2002   | 10/1/2038       | 5,655,256,130         |
| Del Rio                       | TX    | Del Rio<br>International                           | DRT    | N        | \$4.50 | 2/1/2010   | 7/1/2025        | 794,239               |
| Longview                      | TX    | East Texas<br>Regional                             | GGG    | N        | \$3.00 | 9/1/1996   | 4/1/2002        |                       |
| Longview                      | TX    | East Texas<br>Regional                             | GGG    | N        | \$3.00 | 9/1/2002   | 9/1/2012        |                       |
| Longview                      | TX    | East Texas<br>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   | 2/1/2033        | 10,946,107            |
| El Paso                       | TX    | El Paso<br>International                           | ELP    | S        | \$3.00 | 1/1/1997   | 8/1/2010        |                       |
| El Paso                       | TX    | El Paso<br>International                           | ELP    | S        | \$4.50 | 8/1/2010   | 5/1/2013        |                       |
| El Paso                       | TX    | El Paso<br>International                           | ELP    | S        | \$4.50 | 6/1/2013   | 12/1/2024       | 146,723,170           |
| Houston                       | TX    | George Bush<br>Intcntl/Houston                     | IAH    | L        | \$3.00 | 12/1/2008  | 3/1/2015        |                       |

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| Houston                 | TX    | George Bush<br>Intcntl/Houston                 | IAH    | L        | \$4.50 | 3/1/2015   | 4/1/2039        | 2,809,691,307         |
| Beaumont/Port<br>Arthur | TX    | Jack Brooks<br>Regional                        | BPT    | N        | \$3.00 | 9/1/1994   | 3/1/2002        |                       |
| Beaumont/Port<br>Arthur | TX    | Jack Brooks<br>Regional                        | BPT    | N        | \$4.50 | 3/1/2002   | 3/1/2029        | 4,901,113             |
| Laredo                  | TX    | Laredo<br>International                        | LRD    | N        | \$3.00 | 10/1/1993  | 6/1/2009        |                       |
| Laredo                  | TX    | Laredo<br>International                        | LRD    | N        | \$4.50 | 6/1/2009   | 4/1/2040        | 20,779,276            |
| Lubbock                 | TX    | Lubbock Preston<br>Smith International         | LBB    | S        | \$3.00 | 10/1/1993  | 2/1/2005        |                       |
| Lubbock                 | TX    | Lubbock Preston<br>Smith International         | LBB    | S        | \$2.00 | 2/1/2005   | 2/1/2007        |                       |
| Lubbock                 | TX    | Lubbock Preston<br>Smith International         | LBB    | S        | \$3.00 | 2/1/2007   | 6/1/2008        |                       |
| Lubbock                 | TX    | Lubbock Preston<br>Smith International         | LBB    | S        | \$4.50 | 6/1/2008   | 12/1/2032       | 71,825,694            |
| McAllen                 | TX    | McAllen Miller<br>International                | MFE    | S        | \$3.00 | 4/1/1998   | 6/1/2011        |                       |
| McAllen                 | TX    | McAllen Miller<br>International                | MFE    | S        | \$4.50 | 6/1/2011   | 12/1/2027       | 38,570,954            |
| Midland                 | TX    | Midland<br>International Air<br>And Space Port | MAF    | S        | \$3.00 | 1/1/1993   | 9/1/2004        |                       |
| Midland                 | TX    | Midland<br>International Air<br>And Space Port | MAF    | S        | \$4.50 | 9/1/2004   | 1/1/2014        |                       |
| Midland                 | TX    | Midland<br>International Air<br>And Space Port | MAF    | S        | \$3.00 | 1/1/2014   | 11/1/2014       |                       |
| Midland                 | TX    | Midland<br>International Air<br>And Space Port | MAF    | S        | \$4.50 | 11/1/2014  | 12/1/2024       | 55,482,684            |
| Amarillo                | TX    | Rick Husband<br>Amarillo<br>International      | AMA    | N        | \$4.50 | 1/1/2009   | 3/1/2024        | 20,602,800            |
| Fort<br>Hood/Killeen    | TX    | Robert Gray AAF                                | GRK    | N        | \$3.00 | 1/1/1993   | 11/1/1994       |                       |
| Fort<br>Hood/Killeen    | TX    | Robert Gray AAF                                | GRK    | N        | \$3.00 | 4/1/1995   | 5/1/2001        |                       |
| Fort<br>Hood/Killeen    | TX    | Robert Gray AAF                                | GRK    | N        | \$4.50 | 5/1/2001   | 8/1/2003        |                       |
| Fort<br>Hood/Killeen    | TX    | Robert Gray AAF                                | GRK    | N        | \$4.50 | 12/1/2003  | 1/1/2006        |                       |
| Fort<br>Hood/Killeen    | TX    | Robert Gray AAF                                | GRK    | N        | \$4.50 | 6/1/2006   | 2/1/2026        | 15,878,586            |
| San Angelo              | TX    | San Angelo<br>Regional/Mathis<br>Field         | SJT    | N        | \$3.00 | 5/1/1993   | 4/1/2002        |                       |
| San Angelo              | TX    | San Angelo<br>Regional/Mathis<br>Field         | SJT    | N        | \$4.50 | 4/1/2002   | 1/1/2030        | 8,489,950             |

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| 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  | 1/1/2032        | 438,164,103        |
| 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        |                    |
| 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        | 2,089,765,683      |
| 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   | 6/1/2026        | 27,704,472         |
| Lynchburg       | VA    | Lynchburg Regional/Preston Glenn Field | LYH    | N        | \$3.00 | 7/1/1995   | 7/1/1996        |                    |

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| 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    | M        | \$3.00 | 5/1/1997   | 1/1/2010        |                    |
| Norfolk                          | VA    | Norfolk International                       | ORF    | M        | \$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   | 1/1/2028        | 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          |
| Burlington                       | VT    | Burlington International                    | BTV    | S        | \$3.00 | 4/1/1997   | 9/1/2003        |                    |

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| Burlington      | VT    | Burlington International       | BTV    | S        | \$4.50 | 9/1/2003   | 10/1/2009       |                       |
| Burlington      | VT    | 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  | 3/1/2067        | 11,133,088            |
| 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    | Snohomish County (Paine Field) | PAE    | N        | \$4.50 | 11/1/2020  | 2/1/2024        | 7,434,100             |
| 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   | 2/1/2034        | 253,152,931           |
| Pasco           | WA    | Tri-Cities                     | PSC    | S        | \$3.00 | 11/1/1993  | 10/1/2001       |                       |
| Pasco           | WA    | Tri-Cities                     | PSC    | S        | \$4.50 | 10/1/2001  | 6/1/2038        | 55,309,026            |
| Walla Walla     | WA    | Walla Walla Regional           | ALW    | N        | \$3.00 | 11/1/1993  | 10/1/2001       |                       |

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| Associated City | State | Airport Name                            | LOC ID | Hub size | Level  | Start Date | Expiration Date | Total PFC Approved |
|-----------------|-------|---|--------|----------|--------|------------|-----------------|--------------------|
| 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   | 12/1/2027       | 6,921,942          |
| Appleton        | WI    | Appleton International                  | ATW    | S        | \$3.00 | 7/1/1994   | 6/1/2006        |                    |
| Appleton        | WI    | Appleton International                  | ATW    | S        | \$4.50 | 6/1/2006   | 4/1/2008        |                    |
| Appleton        | WI    | Appleton International                  | ATW    | S        | \$3.00 | 4/1/2008   | 9/1/2008        |                    |
| Appleton        | WI    | Appleton International                  | ATW    | S        | \$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  | 10/1/2023       | 92,211,569         |
| 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         |

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| Associated City | State | Airport Name                                  | LOC ID | Hub size | Level  | Start Date | Expiration Date | Total PFC<br>Approved |
|-----------------|-------|---|--------|----------|--------|------------|-----------------|-----------------------|
| 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            |
| Rhineland       | WI    | Rhineland/Oneida County                       | RHI    | N        | \$3.00 | 1/1/1994   | 4/1/1996        |                       |
| Rhineland       | WI    | Rhineland/Oneida County                       | RHI    | N        | \$3.00 | 6/1/1996   | 9/1/2001        |                       |
| Rhineland       | WI    | Rhineland/Oneida County                       | RHI    | N        | \$4.50 | 9/1/2001   | 3/1/2022        |                       |
| Rhineland       | WI    | Rhineland/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        |                       |



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| Associated City | State | Airport Name                              | LOC ID | Hub size | Level  | Start Date | Expiration Date | Total PFC<br>Approved |
|-----------------|-------|---|--------|----------|--------|------------|-----------------|-----------------------|
| Casper          | WY    | Casper/Natrona<br>County<br>International | CPR    | N        | \$4.50 | 4/1/2001   | 3/1/2012        |                       |
| Casper          | WY    | Casper/Natrona<br>County<br>International | CPR    | N        | \$3.00 | 3/1/2012   | 10/1/2019       |                       |
| Casper          | WY    | Casper/Natrona<br>County<br>International | CPR    | N        | \$4.50 | 10/1/2019  | 7/1/2031        | 10,100,378            |
| Riverton        | WY    | Central Wyoming<br>Regional               | RIW    | N        | \$3.00 | 5/1/1995   | 4/1/2001        |                       |
| Riverton        | WY    | Central Wyoming<br>Regional               | RIW    | N        | \$4.50 | 4/1/2001   | 11/1/2036       | 1,180,133             |
| Cheyenne        | WY    | Cheyenne<br>Regional/Jerry<br>Olson Field | CYS    | CS       | \$3.00 | 11/1/1993  | 4/1/2001        |                       |
| Cheyenne        | WY    | Cheyenne<br>Regional/Jerry<br>Olson Field | CYS    | CS       | \$4.50 | 4/1/2001   | 9/1/2012        |                       |
| Cheyenne        | WY    | Cheyenne<br>Regional/Jerry<br>Olson Field | CYS    | CS       | \$4.50 | 9/1/2014   | 9/1/2024        | 1,804,637             |
| Jackson         | WY    | Jackson Hole                              | JAC    | S        | \$3.00 | 8/1/1993   | 4/1/2001        |                       |
| Jackson         | WY    | Jackson Hole                              | JAC    | S        | \$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   | 2/1/2024        | 847,142               |
| Gillette        | WY    | Northeast<br>Wyoming<br>Regional          | GCC    | N        | \$3.00 | 9/1/1993   | 12/1/2001       |                       |
| Gillette        | WY    | Northeast<br>Wyoming<br>Regional          | GCC    | N        | \$4.50 | 12/1/2001  | 6/1/2004        |                       |
| Gillette        | WY    | Northeast<br>Wyoming<br>Regional          | GCC    | N        | \$4.50 | 1/1/2005   | 1/1/2023        | 2,516,993             |
| 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  | 8/1/2035        | 1,388,712             |
| Rock Springs    | WY    | Southwest<br>Wyoming<br>Regional          | RKS    | N        | \$3.00 | 4/1/1995   | 4/1/2006        |                       |
| Rock Springs    | WY    | Southwest<br>Wyoming<br>Regional          | RKS    | N        | \$4.50 | 4/1/2006   | 12/1/2024       | 2,009,268             |
| Worland         | WY    | Worland<br>Municipal                      | WRL    | GA       | \$4.50 | 1/1/2003   | 3/1/2008        |                       |

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| Associated City       | State | Airport Name            | LOC ID | Hub size | Level  | Start Date | Expiration Date | Total PFC<br>Approved |
|-----------------------|-------|-------------------------|--------|----------|--------|------------|-----------------|-----------------------|
| Worland               | WY    | Worland<br>Municipal    | WRL    | GA       | \$4.50 | 8/1/2008   | 7/1/2022        | 265,060               |
| Cody                  | WY    | Yellowstone<br>Regional | COD    | N        | \$3.00 | 8/1/1997   | 7/1/2001        |                       |
| Cody                  | WY    | Yellowstone<br>Regional | COD    | N        | \$4.50 | 7/1/2001   | 4/1/2005        |                       |
| Cody                  | WY    | Yellowstone<br>Regional | COD    | N        | \$4.50 | 9/1/2005   | 6/1/2018        |                       |
| Cody                  | WY    | Yellowstone<br>Regional | COD    | N        | \$4.50 | 7/1/2018   | 2/1/2020        |                       |
| Cody                  | WY    | Yellowstone<br>Regional | COD    | N        | \$4.50 | 12/1/2020  | 7/1/2025        | 3,407,352             |
| Total PFC<br>Approved |       |                         |        |          |        |            |                 | \$119,200,949,016     |

# unique locations approved    404

NOTES: Total PFC approved includes all the collections at the location

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**Letter of Intent (LOI) Commitments by Fiscal Year**

| State  | City              | Airport Name                    | Discretionary<br>2023 | Entitlement<br>2023 | Discretionary<br>2024 | Entitlement<br>2024 |
|--------|-------------------|---------------------------------|-----------------------|---------------------|-----------------------|---------------------|
| 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 | 20,000,000            | 9,000,000           | 16,666,667            | 0                   |
| DC     | Washington*       | Ronald Reagan Washington Ntl    | 5,000,000             | 0                   | 10,000,000            | 0                   |
| Totals |                   |                                 | 65,000,000            | 9,000,000           | 66,666,667            | 0                   |

**Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)**

| State | City              | Airport Name                    | Discretionary<br>2025 | Entitlement<br>2025 | Discretionary<br>2026 | Entitlement<br>2026 |
|-------|-------------------|---------------------------------|-----------------------|---------------------|-----------------------|---------------------|
| CA    | San Diego         | San Diego International         | 10,000,000            | 0                   | 10,000,000            | 0                   |
| IL    | Chicago           | Chicago O'Hare International    | 30,000,000            | 0                   | 20,000,000            | 0                   |
| TX    | Dallas-Fort Worth | Dallas-Fort Worth International | 0                     | 0                   | 0                     | 0                   |
| DC    | Washington*       | Ronald Reagan Washington Ntl    | 10,000,000            | 0                   | 15,000,000            | 0                   |
| Total |                   |                                 | 50,000,000            | 0                   | 45,000,000            | 0                   |

**Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)**

| State | City              | Airport Name                    | Discretionary<br>2027 | Entitlement<br>2027 | Discretionary<br>2028 | Entitlement<br>2028 |
|-------|-------------------|---------------------------------|-----------------------|---------------------|-----------------------|---------------------|
| 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                   |

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**Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)**

| State | City              | Airport Name                    | Discretionary<br>2029 | Entitlement<br>2029 | Discretionary<br>2030 | Entitlement<br>2030 |
|-------|-------------------|---------------------------------|-----------------------|---------------------|-----------------------|---------------------|
| CA    | San Diego         | San Diego International         | 10,000,000            | 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    | 15,000,000            | 0                   | 13,000,000            | 0                   |
| Total |                   |                                 | 25,000,000            | 0                   | 28,000,000            | 0                   |

**Letter of Intent (LOI) Commitments by Fiscal Year (Cont'd)**

| State | City              | Airport Name                    | Discretionary<br>2031 | Entitlement<br>2031 | Discretionary<br>Total | Entitlement<br>Total |
|-------|-------------------|---------------------------------|-----------------------|---------------------|------------------------|----------------------|
| CA    | San Diego         | San Diego International         | 15,000,000            | 0                   | 100,000,000            | 0                    |
| IL    | Chicago           | Chicago O'Hare International    | 0                     | 0                   | 110,000,000            | 0                    |
| TX    | Dallas-Fort Worth | Dallas-Fort Worth International | 0                     | 0                   | 36,666,667             | 9,000,000            |
| DC    | Washington*       | Ronald Reagan Washington Ntl    | 0                     | 0                   | 98,000,000             | 0                    |
| Total |                   |                                 | 15,000,000            | 0                   | 344,666,667            | 9,000,000            |



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**FACILITIES AND EQUIPMENT**

**Program and Financing**  
(in millions of dollars)

|   |  | FY 2022 | FY 2023  | FY 2024  |
|---|--|---------|----------|----------|
| Identification code: 69-1308-0-1-402      |  | Actual  | Estimate | Estimate |
| <b>Obligations by program activity:</b>   |  |         |          |          |
| 0001                                      | Infrastructure Investment and Jobs Act, F&E..... | 317     | 671      | 878      |
| 0002                                      | Hurricane Ida .....                              | 8       | 50       | 40       |
| 0900                                      | Total new obligations, unexpired accounts .....  | 325     | 721      | 918      |
| <b>Budgetary Resources:</b>               |  |         |          |          |
| Unobligated balance:                      |  |         |          |          |
| 1000                                      | Unobligated balance brought forward, Oct 1 ..... | ....    | 775      | 1,054    |
| <b>Budget authority:</b>                  |  |         |          |          |
| Appropriations, discretionary:            |  |         |          |          |
| 1100                                      | Appropriation                                    | 1,100   | ....     | ....     |
| Advance appropriations, discretionary:    |  |         |          |          |
| 1170                                      | Advance Appropriation                            | ....    | 1,000    | 1,000    |
| 1900                                      | Budget authority (total)                         | 1,100   | 1,000    | 1,000    |
| 1930                                      | Total budgetary resources available              | 1,100   | 1,775    | 2,054    |
| Memorandum (non-add) entries:             |  |         |          |          |
| 1941                                      | Unexpired unobligated balance, end of year       | 775     | 1,054    | 1,136    |
| <b>Change in obligated balances:</b>      |  |         |          |          |
| Unpaid obligations:                       |  |         |          |          |
| 3000                                      | Unpaid obligations, brought forward, Oct 1 ..... | ....    | 284      | 641      |
| 3010                                      | New obligations, unexpired accounts .....        | 325     | 721      | 918      |
| 3020                                      | Outlays (gross) .....                            | -41     | -364     | -625     |
| 3050                                      | Unpaid obligations, end of year .....            | 284     | 641      | 934      |
| Memorandum (non-add) entries:             |  |         |          |          |
| 3100                                      | Obligated balance, start of year .....           | ....    | 284      | 641      |
| 3200                                      | Obligated balance, end of year.....              | 284     | 641      | 934      |
| <b>Budget authority and Outlays, net:</b> |  |         |          |          |
| Discretionary:                            |  |         |          |          |
| 4000                                      | Budget authority, gross .....                    | 1,100   | 1,000    | 1,000    |
| Outlays gross:                            |  |         |          |          |
| 4010                                      | Outlays from new discretionary authority .....   | 41      | 92       | 134      |
| 4011                                      | Outlays from discretionary balances.....         | ....    | 272      | 491      |
| 4020                                      | Outlays, gross (total).....                      | 41      | 364      | 625      |
| 4180                                      | Budget authority, net (total).....               | 1,100   | 1,000    | 1,000    |
| 4190                                      | Outlays, net (total) .....                       | 41      | 364      | 625      |

The Infrastructure Investment and Jobs Act (P.L. 117–58) appropriated \$5 billion for Facilities & Equipment, in annual installments of \$1 billion from 2022 to 2026. The funding supports the improvement of existing and construction of new air traffic control

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infrastructure. The Extending Government Funding and Delivering Emergency Assistance Act (P.L. 117-43) appropriated \$100 million for necessary expenses related to the consequences of Hurricane Ida.

**Object Classification**  
(in millions of dollars)

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-1308-0-1-402 |  |         |          |          |
| Direct obligations:                  |  |         |          |          |
| 11.1                                 | Personnel compensation: Full-time permanent..... | 6       | 13       | 54       |
| 12.1                                 | Civilian personnel benefits .....                | 3       | 5        | 37       |
| 21.0                                 | Travel and transportation of persons.....        | 1       | 9        | 1        |
| 22.0                                 | Transportation of things.....                    | ...     | 2        | 3        |
| 23.1                                 | Rental payments to GSA.....                      | ...     | 1        | 1        |
| 25.1                                 | Advisory and assistance services.....            | 179     | 364      | 418      |
| 25.2                                 | Other services from non-Federal sources .....    | 4       | 37       | 41       |
| 25.4                                 | Operation and maintenance of facilities.....     | 25      | 94       | 138      |
| 25.7                                 | Operation and maintenance of equipment.....      | 1       | 5        | 5        |
| 26.0                                 | Supplies and materials .....                     | ...     | 7        | 7        |
| 31.0                                 | Equipment .....                                  | 28      | 85       | 90       |
| 32.0                                 | Land and structures.....                         | 78      | 99       | 105      |
| 33.0                                 | Investments and loans.....                       | ...     | ...      | 18       |
| 99.9                                 | Total new obligations, unexpired accounts.....   | 325     | 721      | 918      |

**Employment Summary**

|                                      |                 | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|-----------------|---------|----------|----------|
|                                      |                 | Actual  | Estimate | Estimate |
| Identification code: 69-1308-0-1-402 |                 |         |          |          |
| Direct civilian full-time equivalent |                 |         |          |          |
| 1001                                 | employment..... | 52      | 196      | 330      |

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**AIRPORT TERMINAL PROGRAM**

**Program and Financing**  
(in millions of dollars)

|   |  | FY 2022 | FY 2023  | FY 2024  |
|---|--|---------|----------|----------|
| Identification code: 69-1337-0-1-402      |  | Actual  | Estimate | Estimate |
| <b>Obligations by program activity:</b>   |  |         |          |          |
| 0001                                      | Airport Terminal Program .....                             | 113     | 653      | 905      |
| <b>Budgetary Resources:</b>               |  |         |          |          |
| Unobligated balance:                      |  |         |          |          |
| 1000                                      | Unobligated balance brought forward, Oct 1 .....           | ....    | 886      | 1,232    |
| Budget authority:                         |  |         |          |          |
| Appropriations, discretionary:            |  |         |          |          |
| 1100                                      | Appropriation .....  | 1,000   | ....     | ....     |
| 1120                                      | Appropriation transferred to other acct [069-0130]         | -1      | ....     | ....     |
| 1160                                      | Appropriation, discretionary (total) .....                 | 999     | ....     | ....     |
| Advance appropriations, discretionary:    |  |         |          |          |
| 1170                                      | Advance appropriation .....                                | ....    | 1,000    | 1,000    |
| 1172                                      | Advance appropriation transferred to other acct [069-0130] | .....   | -1       | -1       |
| 1180                                      | Advanced appropriation, discretionary (total) .....        | ....    | 999      | 999      |
| 1900                                      | Budget authority (total) .....                             | 999     | 999      | 999      |
| 1930                                      | Total budgetary resources available .....                  | 999     | 1,885    | 2,231    |
| Memorandum (non-add) entries:             |  |         |          |          |
| 1941                                      | Unexpired unobligated balance, end of year .....           | 886     | 1,232    | 1,326    |
| <b>Change in obligated balances:</b>      |  |         |          |          |
| Unpaid obligations:                       |  |         |          |          |
| 3000                                      | Unpaid obligations, brought forward, Oct 1 .....           | ....    | 111      | 16       |
| 3010                                      | New obligations, unexpired accounts .....                  | 113     | 653      | 905      |
| 3020                                      | Outlays (gross) .....                                      | -2      | -748     | -868     |
| 3050                                      | Unpaid obligations, end of year .....                      | 111     | 16       | 53       |
| Memorandum (non-add) entries:             |  |         |          |          |
| 3100                                      | Obligated balance, start of year .....                     | ....    | 111      | 16       |
| 3200                                      | Obligated balance, end of year .....                       | 111     | 16       | 53       |
| <b>Budget authority and Outlays, net:</b> |  |         |          |          |
| Discretionary:                            |  |         |          |          |
| 4000                                      | Budget authority, gross .....                              | 999     | 999      | 999      |
| Outlays gross:                            |  |         |          |          |
| 4010                                      | Outlays from new discretionary authority .....             | 2       | 110      | 110      |
| 4011                                      | Outlays from discretionary balances .....                  | ....    | 638      | 758      |
| 4020                                      | Outlays, gross (total) .....                               | 2       | 748      | 868      |
| 4180                                      | Budget authority, net (total) .....                        | 999     | 999      | 999      |
| 4190                                      | Outlays, net (total) .....                                 | 2       | 748      | 868      |



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The Infrastructure Investment and Jobs Act (P.L. 117–58) appropriated \$5 billion for the Airport Terminal Program, in annual \$1 billion installments from 2022 to 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.

**Object Classification**  
(in millions of dollars)

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
| Identification code: 69-1337-0-1-402 |  | Actual  | Estimate | Estimate |
| Direct Obligations:                  |  |         |          |          |
| 11.1                                 | Personnel compensation: Full-time permanent .... | 1       | 4        | 5        |
| 11.9                                 | Total personnel compensation .....               | 1       | 4        | 5        |
| 12.1                                 | Civilian personnel benefits .....                | . . . . | 2        | 3        |
| 25.2                                 | Other services from non-Federal sources .....    | 1       | 1        | 1        |
| 41.0                                 | Grants, subsidies, and contributions.....        | 111     | 646      | 896      |
| 99.9                                 | Total new obligations, unexpired accounts.....   | 113     | 653      | 905      |

**Employment Summary**

|                                      |   | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|---|---------|----------|----------|
| Identification code: 69-1337-0-1-402 |   | Actual  | Estimate | Estimate |
| 1001                                 | Direct civilian full-time equivalent employment | 8       | 31       | 40       |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**AIRPORT INFRASTRUCTURE GRANTS**

**Program and Financing**  
(in millions of dollars)

|   |   | FY 2022 | FY 2023  | FY 2024  |
|---|---|---------|----------|----------|
| Identification code: 69-1338-0-1-402      |   | Actual  | Estimate | Estimate |
| <b>Obligations by program activity:</b>   |   |         |          |          |
| 0001                                      | Airport Infrastructure Grants .....                                     | 315     | 1,866    | 2,721    |
| <b>Budgetary Resources:</b>               |   |         |          |          |
| Budget authority:                         |   |         |          |          |
| Unobligated balance:                      |   |         |          |          |
| 1000                                      | Unobligated balance brought forward, Oct 1 .....                        | ....    | 2,684    | 3,817    |
| Appropriations, discretionary:            |   |         |          |          |
| 1100                                      | Appropriation .....   | 3,000   | ....     | ....     |
| 1120                                      | Appropriations transferred to other account<br>[069-0130] .....         | -1      | ....     | ....     |
| 1160                                      | Appropriation, discretionary (total) .....                              | 2,999   | ....     | ....     |
| Advance appropriations, discretionary:    |   |         |          |          |
| 1170                                      | Advance Appropriation .....   | ....    | 3,000    | 3,000    |
| 1172                                      | Advance appropriations transferred to other<br>account [069-0130] ..... | ....    | -1       | -1       |
| 1180                                      | Advanced appropriation, discretionary (total) .....                     | ....    | 2,999    | 2,999    |
| 1900                                      | Budget authority (total) .....  | 2,999   | 2,999    | 2,999    |
| 1930                                      | Total budgetary resources available .....                               | 2,999   | 5,683    | 6,816    |
| Memorandum (non-add) entries:             |   |         |          |          |
| 1941                                      | Unexpired unobligated balance, end of year .....                        | 2,684   | 3,817    | 4,095    |
| <b>Change in obligated balances:</b>      |   |         |          |          |
| Unpaid obligations:                       |   |         |          |          |
| 3000                                      | Unpaid obligations, brought forward, Oct 1 .....                        | ....    | 308      | 142      |
| 3010                                      | New obligations, unexpired accounts .....                               | 315     | 1,866    | 2,721    |
| 3020                                      | Outlays (gross) .....   | -7      | -2,032   | -2,729   |
| 3050                                      | Unpaid obligations, end of year .....                                   | 308     | 142      | 134      |
| Memorandum (non-add) entries:             |   |         |          |          |
| 3100                                      | Obligated balance, start of year .....                                  | ....    | 308      | 142      |
| 3200                                      | Obligated balance, end of year .....                                    | 308     | 142      | 134      |
| <b>Budget authority and Outlays, net:</b> |   |         |          |          |
| Discretionary:                            |   |         |          |          |
| 4000                                      | Budget authority, gross .....   | 2,999   | 2,999    | 2,999    |
| Outlays gross:                            |   |         |          |          |
| 4010                                      | Outlays from new discretionary authority .....                          | 7       | 330      | 330      |
| 4011                                      | Outlays from discretionary balances .....                               | ....    | 1,702    | 2,399    |
| 4020                                      | Outlays, gross (total) .....  | 7       | 2,032    | 2,729    |
| 4180                                      | Budget authority, net (total) .....                                     | 2,999   | 2,999    | 2,999    |
| 4190                                      | Outlays, net (total) .....  | 7       | 2,032    | 2,729    |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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The Infrastructure Investment and Jobs Act (P.L. 117–58) appropriated \$15 billion, in annual installments of \$3 billion from 2022 to 2026, for airport projects that increase safety and expand capacity.

**Object Classification**  
(in millions of dollars)

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-1338-0-1-402 |  |         |          |          |
| Direct obligations:                  |  |         |          |          |
| 11.1                                 | Personnel compensation: Full-time permanent..... | 2       | 13       | 16       |
| 11.9                                 | Total personnel compensation .....               | 2       | 13       | 16       |
| 12.1                                 | Civilian personnel benefits .....                | 1       | 6        | 8        |
| 25.2                                 | Other services from non-Federal sources .....    | 5       | 5        | 5        |
| 41.0                                 | Grants, subsidies, and contributions.....        | 307     | 1,842    | 2,692    |
| 99.9                                 | Total new obligations, unexpired accounts.....   | 315     | 1,866    | 2,721    |

**Employment Summary**

|                                      |                 | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|-----------------|---------|----------|----------|
|                                      |                 | Actual  | Estimate | Estimate |
| Identification code: 69-1338-0-1-402 |                 |         |          |          |
| Direct civilian full-time equivalent |                 |         |          |          |
| 1001                                 | employment..... | 14      | 87       | 114      |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**RESEARCH, ENGINEERING, AND DEVELOPMENT  
INFLATION REDUCTION ACT**

**Program and Financing**  
(in millions of dollars)

|   | FY 2022 | FY 2023  | FY 2024  |
|---|---------|----------|----------|
|   | Actual  | Estimate | Estimate |
| Identification code: 69-1339-0-1-402                  |         |          |          |
| <b>Obligations by program activity:</b>               |         |          |          |
| 0001 Sustainable Aviation Fuel Grants .....           | ....    | ....     | 122      |
| 0002 Low-Emission Aviation Tech. Grants .....         | ....    | ....     | 48       |
| 0900 Total new obligations, unexpired accounts .....  | ....    | ....     | 170      |
| <b>Budgetary Resources:</b>                           |         |          |          |
| Unobligated balance:                                  |         |          |          |
| 1000 Unobligated balance brought forward, Oct 1 ..... | ....    | 297      | 297      |
| <b>Budget authority:</b>                              |         |          |          |
| Appropriations, mandatory:                            |         |          |          |
| 1200 Appropriation .....                              | 297     | ....     | ....     |
| 1930 Total budgetary resources available .....        | 297     | 297      | 297      |
| Memorandum (non-add) entries:                         |         |          |          |
| 1941 Unexpired unobligated balance, end of year ..... | 297     | 297      | 297      |
| <b>Change in obligated balances:</b>                  |         |          |          |
| Unpaid obligations:                                   |         |          |          |
| 3010 New obligations, unexpired accounts .....        | ....    | ....     | 170      |
| 3020 Outlays (gross) .....                            | ....    | ....     | -93      |
| 3050 Unpaid obligations, end of year .....            | ....    | ....     | 77       |
| Memorandum (non-add) entries:                         |         |          |          |
| 3200 Obligated balance, start of year .....           | ....    | ....     | 77       |
| <b>Budget authority and Outlays, net:</b>             |         |          |          |
| Mandatory:  |         |          |          |
| 4090 Budget authority, gross .....                    | 297     | ....     | ....     |
| Outlays gross:  |         |          |          |
| 4101 Outlays from mandatory balances .....            | ....    | ....     | 93       |
| 4180 Budget authority, net (total) .....              | 297     | ....     | ....     |
| 4190 Outlays, net (total) .....                       | ....    | ....     | 93       |

The Inflation Reduction Act (P.L. 117–169) appropriated \$297 million 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.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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**Object Classification**  
(in millions of dollars)

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-1339-0-1-402 |  |         |          |          |
| Direct Obligations:                  |  |         |          |          |
| 11.1                                 | Personnel compensation: Full-time permanent..... | ....    | ....     | 1        |
| 41.0                                 | Grants, subsidies, and contributions .....       | ....    | ....     | 169      |
| 99.9                                 | Total new obligations, unexpired accounts.....   | ....    | ....     | 170      |

**Employment Summary**

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-1339-0-1-402 |  |         |          |          |
| 1001                                 | Direct civilian full-time equivalent employment..... | ....    | 5        | 5        |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**RELIEF FOR AIRPORTS**

**Program and Financing**  
(in millions of dollars)

|  | FY2022 | FY 2023  | FY 2024  |
|--|--------|----------|----------|
| Identification code: 069-2815-0-1-402                                | Actual | Estimate | Estimate |
| <b>Obligations by program activity:</b>                              |        |          |          |
| 0001 Direct Program Activity.....                                    | 3,599  | 61       | 1        |
| <b>Budgetary resources:</b>  |        |          |          |
| Unobligated Balance:   |        |          |          |
| 1000 Unobligated balance brought forward, Oct 1 .....                | 3,659  | 62       | 1        |
| 1021 Recoveries of prior year unpaid obligations .....               | 2      | ....     | ....     |
| 1070 Unobligated balance (total) .....                               | 3,661  | 62       | 1        |
| 1930 Total budgetary resources available.....                        | 3,661  | 62       | 1        |
| Memorandum (non-add) entries:  |        |          |          |
| 1941 Unexpired unobligated balance, end of year.....                 | 62     | 1        | .....    |
| <b>Change in obligated balance:</b>                                  |        |          |          |
| Unpaid obligations:  |        |          |          |
| 3000 Unpaid obligations, brought forward, Oct 1 .....                | 4,008  | 4,921    | 2,744    |
| 3010 New Obligations, unexpired accounts .....                       | 3,599  | 61       | 1        |
| 3020 Outlays (gross) .....   | -2,684 | -2,238   | -1,212   |
| 3040 Recoveries of prior year unpaid obligations,<br>unexpired ..... | -2     | ....     | ....     |
| 3050 Unpaid obligations, end of year .....                           | 4,921  | 2,744    | 1,533    |
| Memorandum (non-add) entries:  |        |          |          |
| 3100 Obligated balance, start of year .....                          | 4,008  | 4,921    | 2,744    |
| 3200 Obligated balance, end of year.....                             | 4,921  | 2,744    | 1,533    |
| <b>Budget authority and outlays, net:</b>                            |        |          |          |
| Mandatory:   |        |          |          |
| 4101 Outlays from mandatory balances .....                           | 2,684  | 2,238    | 1,212    |
| 4180 Budget authority, new (total) .....                             | ....   | .....    | .....    |
| 4190 Outlays, net (total) .....                                      | 2,684  | 2,238    | 1,212    |

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.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

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**Object Classification**  
(in millions of dollars)

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
|                                      |  | Actual  | Estimate | Estimate |
| Identification code: 69-2815-0-1-402 |  |         |          |          |
| Direct Obligations:                  |  |         |          |          |
| 11.3                                 | Personnel compensation: Full-time permanent .... | 1       | ....     | ....     |
| 41.0                                 | Grants, subsidies, and contributions.....        | 3,598   | 61       | 1        |
| 99.9                                 | Total new obligations, unexpired accounts.....   | 3,599   | 61       | 1        |

**Employment Summary**

|                                       |                  | FY 2022 | FY 2023  | FY 2024  |
|---------------------------------------|------------------|---------|----------|----------|
|                                       |                  | Actual  | Estimate | Estimate |
| Identification code: 069-2815-0-1-402 |                  |         |          |          |
| Direct civilian full-time equivalent  |                  |         |          |          |
| 1001                                  | employment ..... | 7       | 3        | 2        |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**EMERGENCY FAA EMPLOYEE FUND**

**Program and Financing**  
(in millions of dollars)

|   |   | FY2022 | FY2023   | FY2024  |
|---|---|--------|----------|---------|
|   |   | Actual | Estimate | Request |
| Identification code: 069-2816-0-1-402     |   |        |          |         |
| <b>Obligations by program activity:</b>   |   |        |          |         |
| 0001                                      | Emergency FAA Employee Fund.....                              | 1      | ....     | .....   |
| 0900                                      | Total new obligations, unexpired accounts (object class 11.1) | 1      | ....     | ....    |
| <b>Budgetary resources:</b>               |   |        |          |         |
| Unobligated Balance:                      |   |        |          |         |
| 1000                                      | Unobligated balance brought forward, Oct 1.....               | 9      | ....     | .....   |
| Budget Authority:                         |   |        |          |         |
| Appropriations, mandatory:                |   |        |          |         |
| 1930                                      | Total budgetary resources available.....                      | 9      | ....     | .....   |
| 1940                                      | Unobligated balance, expiring .....                           | -8     | .....    | .....   |
| <b>Change in obligated balance:</b>       |   |        |          |         |
| Unpaid obligations:                       |   |        |          |         |
| 3010                                      | New Obligations, unexpired accounts .....                     | 1      | ....     | .....   |
| 3020                                      | Outlays (gross) .....   | -1     | ....     | .....   |
| <b>Budget authority and outlays, net:</b> |   |        |          |         |
| Mandatory:                                |   |        |          |         |
| Outlay, gross:                            |   |        |          |         |
| 4101                                      | Outlays from mandatory balances.....                          | 1      | ....     | .....   |
| 4180                                      | Budget authority, new (total) .....                           | ....   | .....    | .....   |
| 4190                                      | Outlays, net (total) .....                                    | -1     | ....     | .....   |

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 Fund is for the use of paid leave for FAA employees who are unable to work due to reasons related to the COVID-19 pandemic.



**GRANTS-IN-AID FOR AIRPORTS**

[For an additional amount for "Grants-In-Aid for Airports", to enable the Secretary of Transportation to make grants for projects as authorized by subchapter 1 of chapter 471 and subchapter 1 of chapter 475 of title 49, United States Code, \$558,555,000, to remain available through September 30, 2025: *Provided*, That amounts made available under this heading shall be derived from the general fund, and such funds shall not be subject to apportionment formulas, special apportionment categories, or minimum percentages under chapter 471 of title 49, United States Code: *Provided further*, That of the sums appropriated under this heading—]

[(1) \$283,555,000 shall be made available for the purposes, and in amounts, specified for Community Project Funding/Congressionally Directed Spending in the table entitled "Community Project Funding/Congressionally Directed Spending" included in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act); and]

[(2) up to \$275,000,000 shall be made available to the Secretary to distribute as discretionary grants to airports, of which not less than \$25,000,000 shall be made available to any commercial service airport, notwithstanding the requirement for the airport to be located in an air quality nonattainment or maintenance area in section 47102(3)(K) and 47102(3)(L) of title 49, United States Code, for work necessary to construct or modify airport facilities to provide low-emission fuel systems, gate electrification, other related air quality improvements, acquisition of airport owned vehicles or ground support equipment with low-emission technology: *Provided further*, That the Secretary may make discretionary grants to primary airports for airport-owned infrastructure required for the on-airport distribution, blending, or storage of sustainable aviation fuels that achieve at least a 50 percent reduction in lifecycle greenhouse gas emissions, using a methodology determined by the Secretary, including, but not limited to, on-airport construction or expansion of pipelines, rail lines and spurs, loading and off-loading facilities, blending facilities, and storage tanks: *Provided further*, That the Secretary may make discretionary grants for airport development improvements of primary runways, taxiways, and aprons necessary at a non hub, small hub, medium hub, or large hub airport to increase operational resilience for the purpose of resuming commercial service flight operations following an earthquake, flooding, high water, hurricane, storm surge, tidal wave, tornado, tsunami, wind driven water, or winter storms: *Provided further*, That the amounts made available under this heading shall not be subject to any limitation on obligations for the Grants-in-Aid for Airports program set forth in any Act: *Provided further*, That the Administrator of the Federal Aviation Administration may retain up to 0.5 percent of the amounts made available under this heading to fund the award and oversight by the Administrator of grants made under this heading.]  
(*Department of Transportation Appropriations Act, 2023.*)

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**Program and Financing**  
(in millions of dollars)

|   |   | FY2022 | FY 2023  | FY 2024  |
|---|---|--------|----------|----------|
| Identification code: 069-2819-0-1-402     |   | Actual | Estimate | Estimate |
| <b>Obligations by program activity:</b>   |   |        |          |          |
| 0001                                      | Direct Program Activity.....  | 43     | 225      | 425      |
| 0900                                      | Total new obligations, unexpired accounts (object class 41.0) ..... | 43     | 225      | 425      |
| <b>Budgetary resources:</b>               |   |        |          |          |
| Unobligated balance:                      |   |        |          |          |
| 1000                                      | Unobligated balance brought forward, Oct 1 .....                    | ....   | 511      | 845      |
| Budget authority:                         |   |        |          |          |
| Appropriations, discretionary:            |   |        |          |          |
| 1100                                      | Appropriation .....   | 554    | 559      | ....     |
| 1930                                      | Total budgetary resources available .....                           | 554    | 1,070    | 845      |
| Memorandum (non-add) entries:             |   |        |          |          |
| 1941                                      | Unexpired unobligated balance, end of year .....                    | 511    | 845      | 420      |
| <b>Change in obligated balance:</b>       |   |        |          |          |
| Unpaid obligations:                       |   |        |          |          |
| 3000                                      | Unpaid obligations, brought forward, Oct 1.....                     | ....   | 40       | 21       |
| 3010                                      | New Obligations, unexpired accounts .....                           | 43     | 225      | 425      |
| 3020                                      | Outlays (gross) .....   | -3     | -244     | -444     |
| <b>Budget authority and outlays, net:</b> |   |        |          |          |
| Discretionary:                            |   |        |          |          |
| 4000                                      | Budget authority, gross .....                                       | 544    | 559      | .....    |
| Outlay, gross:                            |   |        |          |          |
| 4010                                      | Outlays from new discretionary authority .....                      | 3      | 61       | ....     |
| 4011                                      | Outlays from discretionary balances .....                           | ....   | 182      | 444      |
| 4020                                      | Outlays, gross (total) .....  | 3      | 244      | 444      |
| 4180                                      | Budget authority, net (total) .....                                 | 554    | 559      | ....     |
| 4190                                      | Outlays, net (total) .....  | 3      | 244      | 444      |

The annual appropriations acts provide supplemental funding for Grants-in-Aid for Airports. Funds are appropriated from the General Fund of the U.S. Treasury. Discretionary grants are being awarded to qualified airports, with up to 0.5 percent of the funds provided applied to the administrative costs of awarding grants under the program.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**AVIATION INSURANCE REVOLVING FUND**

**Program and Financing**  
(in millions of dollars)

|   | FY2022 | FY 2023  | FY 2024 |
|---|--------|----------|---------|
| Identification code: 69-4120-0-3-402                                | Actual | Estimate | Request |
| <b>Obligations by program activity:</b>                             |        |          |         |
| 0801 Program administration.....                                    | 1      | 2        | 2       |
| 0802 Insurance Claims.....  | ....   | 20       | 20      |
| 0900 Total new obligations, unexpired accounts.....                 | 1      | 22       | 22      |
| <b>Budgetary resources:</b>   |        |          |         |
| Unobligated balance:  |        |          |         |
| 1000 Unobligated balance brought forward, Oct. 1 .....              | 2,316  | 2,346    | 2,379   |
| Budget authority:   |        |          |         |
| Spending authority form offsetting collections,<br>mandatory:       |        |          |         |
| 1800 Collected .....  | 31     | 55       | 78      |
| 1900 Budget authority (total).....                                  | 31     | 55       | 78      |
| 1930 Total budgetary resources available.....                       | 2,347  | 2,401    | 2,457   |
| Memorandum (non-add) entries:                                       |        |          |         |
| 1941 Unexpired unobligated balance, end of year.....                | 2,346  | 2,379    | 2,435   |
| <b>Change in obligated balance:</b>                                 |        |          |         |
| Unpaid obligations:   |        |          |         |
| 3000 Unpaid obligations, brought forward, Oct. 1 .....              | 2      | 2        | 2       |
| 3010 New Obligations, unexpired accounts .....                      | 1      | 22       | 22      |
| 3020 Outlays (gross) .....  | -1     | -22      | -20     |
| 3050 Unpaid obligations, end of year .....                          | 2      | 2        | 4       |
| Memorandum (non-add) entries:                                       |        |          |         |
| 3100 Obligated balance, start of year .....                         | 2      | 2        | 2       |
| 3200 Obligated balance, end of year.....                            | 2      | 2        | 4       |
| <b>Budget authority and outlays net:</b>                            |        |          |         |
| Mandatory:  |        |          |         |
| 4090 Budget authority, gross .....                                  | 31     | 55       | 78      |
| Outlay, gross:  |        |          |         |
| 4100 Outlays from new mandatory authority .....                     | ....   | 20       | 20      |
| 4101 Outlays from mandatory balances .....                          | 1      | 2        | ....    |
| 4110 Outlays, gross (total).....                                    | 1      | 22       | 20      |
| <b>Offsets against gross budget authority and outlays:</b>          |        |          |         |
| Offsetting collections (collected) from:                            |        |          |         |
| 4121 Interest on Federal securities .....                           | -31    | -55      | -78     |
| 4180 Budget authority, net (total) .....                            | ....   | ....     | ....    |
| 4190 Outlays, net (total) .....                                     | -30    | -33      | -58     |
| <b>Memorandum (non-add) entries:</b>                                |        |          |         |
| 5000 Total investments, SOY: Federal securities: Par<br>value ..... | 2,217  | 2,366    | 2,420   |

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

|   | FY2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Request |
|---|------------------|---------------------|--------------------|
| Identification code: 69-4120-0-3-402                                  |                  |                     |                    |
| 5001 Total investments, EOY: Federal securities: Par value .....      | 2,366            | 2,420               | 2,500              |
| 5090 Unexpired unavailable balance, SOY: Offsetting collections ..... | 1                | 1                   | 1                  |
| 5092 Unexpired unavailable balance, EOY: Offsetting collections ..... | 1                | 1                   | 1                  |

The fund provides direct support for the aviation insurance program (chapter 443 of title 49, U.S. Code). In December 2014, Congress sunset part of the aviation insurance program. Specifically, Congress returned U.S. air carriers to the commercial aviation market for all of their war risk insurance coverage by ending the FAA's authority to provide war risk insurance for a premium. Pursuant to 49 USC 44305, the FAA 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 agency head agrees to indemnify the Secretary of Transportation against all losses covered by the insurance. The "non-premium" aviation insurance program is authorized through September 30, 2023 in the National Defense Authorizations Act for 2020.

**Object Classification**  
(in millions of dollars)

|   | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Estimate |
|---|-------------------|---------------------|---------------------|
| Identification code: 69-4120-0-3-402                  |                   |                     |                     |
| Reimbursable obligations:                             |                   |                     |                     |
| 11.1 Personnel compensation: Full-time permanent..... | 1                 | 1                   | 1                   |
| 25.2 Other services from non-Federal sources .....    | ....              | 1                   | 1                   |
| 42.0 Projected insurance claims and indemnities ..... | ....              | 20                  | 20                  |
| 99.9 Total new obligations, unexpired accounts .....  | 1                 | 22                  | 22                  |

**Employment Summary**

|  | FY 2022<br>Actual | FY 2023<br>Estimate | FY 2024<br>Request |
|--|-------------------|---------------------|--------------------|
| Identification code: 69-4120-0-3-402       |                   |                     |                    |
| Reimbursable Civilian full-time equivalent |                   |                     |                    |
| 2001 employment .....                      | 2                 | 4                   | 4                  |

**Federal Aviation Administration  
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**ADMINISTRATIVE SERVICES FRANCHISE FUND**

**Program and Financing**  
(in millions of dollars)

|   | FY 2022 | FY 2023  | FY 2024  |
|---|---------|----------|----------|
| Identification code: 69-4562-0-4-402                                | Actual  | Estimate | Estimate |
| <b>Obligations by program activity:</b>                             |         |          |          |
| 0801 Accounting Services .....                                      | 39      | 44       | 41       |
| 0804 Information Services .....                                     | 111     | 129      | 141      |
| 0806 Multi Media .....  | 10      | 11       | 11       |
| 0807 FLLI (formerly CMEL/Training) .....                            | 7       | 9        | 10       |
| 0808 International Training .....                                   | 4       | 2        | 2        |
| 0810 Logistics .....  | 309     | 294      | 299      |
| 0811 Aircraft Maintenance .....                                     | 60      | 62       | 65       |
| 0812 Acquisition .....  | 5       | 6        | 6        |
| 0900 Total new obligations, unexpired accounts .....                | 545     | 557      | 575      |
| <b>Budgetary Resources:</b>   |         |          |          |
| Unobligated balance:  |         |          |          |
| 1000 Unobligated balance brought forward, Oct 1 .....               | 214     | 183      | 173      |
| 1021 Recoveries of prior year unpaid obligations .....              | 20      | ....     | ....     |
| 1050 Unobligated balance (total) .....                              | 234     | 183      | 173      |
| <b>Budget authority:</b>  |         |          |          |
| Spending authority from offsetting collections,<br>discretionary:   |         |          |          |
| 1700 Collected .....  | 494     | 547      | 570      |
| 1930 Total budgetary resources available .....                      | 728     | 730      | 743      |
| Memorandum (non-add) entries:                                       |         |          |          |
| 1941 Unexpired unobligated balance, end of year .....               | 183     | 173      | 168      |
| <b>Change in obligated balances:</b>                                |         |          |          |
| Unpaid obligations:   |         |          |          |
| 3000 Unpaid obligations, brought forward, Oct 1 .....               | 185     | 210      | 185      |
| 3010 New obligations, unexpired accounts .....                      | 545     | 557      | 575      |
| 3020 Outlays (gross) .....  | -500    | -582     | -680     |
| 3040 Recoveries of prior year unpaid obligations<br>unexpired ..... | -20     | ....     | ....     |
| 3050 Unpaid obligations, end of year .....                          | 210     | 185      | 80       |
| Memorandum (non-add) entries:                                       |         |          |          |
| 3100 Obligated balance, start of year .....                         | 185     | 210      | 185      |
| 3200 Obligated balance, end of year .....                           | 210     | 185      | 80       |
| <b>Budget authority and Outlays, net:</b>                           |         |          |          |
| Discretionary:  |         |          |          |
| 4000 Budget authority, gross .....                                  | 494     | 547      | 570      |
| Outlays gross:  |         |          |          |
| 4010 Outlays from new discretionary authority .....                 | 374     | 372      | 388      |
| 4011 Outlays from discretionary balances .....                      | 126     | 210      | 292      |
| 4020 Outlays, gross (total) .....                                   | 500     | 582      | 680      |

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|   | FY 2022 | FY 2023  | FY 2024  |
|---|---------|----------|----------|
| Identification code: 69-4562-0-4-402                                  | Actual  | Estimate | Estimate |
| <b>Offsets against gross budget authority and outlays:</b>            |         |          |          |
| Offsetting collections (collected) from:                              |         |          |          |
| 4030 Federal sources.....   | -493    | -545     | -568     |
| 4033 Non-Federal sources .....  | -1      | -2       | -2       |
| 4040 Offsets against gross budget authority and outlays (total) ..... | -494    | -547     | -570     |
| 4080 Outlays, net (discretionary).....                                | 6       | 35       | 110      |
| 4180 Budget authority, net (total) .....                              | ....    | ....     | ....     |
| 4190 Outlays, net (total) .....                                       | 6       | 35       | 110      |

In 1997, the Federal Aviation Administration (FAA) established a franchise fund to finance operations where the costs for goods and services provided are charged to the users on a fee-for-service basis. The fund improves organizational efficiency and provides better support to FAA's internal and external customers. The activities included in this franchise fund are as follows: training, accounting, travel, duplicating services, multi-media services, information technology, materiel management (logistics), and aircraft maintenance.

**Object Classification**  
(in millions of dollars)

|   | FY 2022 | FY 2023  | FY 2024  |
|---|---------|----------|----------|
| Identification code: 69-4562-0-4-402                            | Actual  | Estimate | Estimate |
| Reimbursable obligations:                                       |         |          |          |
| 11.1 Personnel compensation: Full-time permanent.....           | 122     | 136      | 140      |
| 11.3 Other than full-time permanent.....                        | 1       | 1        | 1        |
| 11.5 Other personnel compensation.....                          | 4       | 5        | 5        |
| 11.9 Total Personnel compensation .....                         | 127     | 142      | 146      |
| 12.1 Civilian personnel benefits .....                          | 51      | 53       | 57       |
| 21.0 Travel and transportation of persons.....                  | 5       | 8        | 7        |
| 22.0 Transportation of things .....                             | 8       | 6        | 6        |
| 23.2 Rental payment to others .....                             | 3       | 4        | 4        |
| 23.3 Communications, utilities, and miscellaneous charges ..... | 10      | 14       | 14       |
| 25.1 Advisory and assistance services.....                      | 57      | 48       | 49       |
| 25.2 Other services from non-Federal sources .....              | 89      | 74       | 76       |
| 25.3 Other goods and services from Federal sources.....         | 15      | 13       | 13       |
| 25.4 Operation and maintenance of facilities.....               | 8       | 6        | 7        |
| 25.7 Operation and maintenance of equipment.....                | 76      | 64       | 65       |
| 26.0 Supplies and materials .....                               | 75      | 114      | 115      |
| 31.0 Equipment .....  | 8       | 4        | 7        |
| 32.0 Land and structures.....                                   | ....    | 2        | 1        |
| 44.0 Refunds.....   | 13      | 5        | 8        |

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|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
| Identification code: 69-4562-0-4-402 |  | Actual  | Estimate | Estimate |
| 99.9                                 | Total new obligations, unexpired accounts..... | 545     | 557      | 575      |

**Employment Summary**

|                                      |  | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|--|---------|----------|----------|
| Identification code: 69-4562-0-4-402 |  | Actual  | Estimate | Estimate |
| 2001                                 | Reimbursable civilian full-time equivalent employment..... | 1,345   | 1,392    | 1,392    |

**Federal Aviation Administration  
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**AVIATION USER FEES**

**Special and Trust Fund Receipts**  
(in millions of dollars)

|  | FY 2022 | FY 2023  | FY 2024  |
|--|---------|----------|----------|
| Identification code: 69-5422-0-2-402                                   | Actual  | Estimate | Estimate |
| 0100 Balance, start of year.....                                       | 2       | 5        | 8        |
| Receipts:  |         |          |          |
| Current Law:   |         |          |          |
| 1110 Aviation User Fees, Overflight Fees .....                         | 94      | 137      | 156      |
| 1130 Property Disposal or Lease Proceeds, Aviation<br>User Fee .....   | 1       | .....    | .....    |
| 1199 Total Current Law Receipts .....                                  | 95      | 137      | 156      |
| 1999 Total Receipts .....  | 95      | 137      | 156      |
| 2000 Total: Balances and Receipts .....                                | 97      | 142      | 164      |
| Appropriations:  |         |          |          |
| Current Law:   |         |          |          |
| 2101 Essential Air Service and Rural Airport<br>Improvement Fund ..... | -2      | -5       | -8       |
| 2101 Aviation User Fee .....   | -95     | -137     | -156     |
| 2132 Essential Air Service and Rural Airport<br>Improvement Fund ..... | 5       | 8        | 9        |
| 2199 Total current law appropriations .....                            | -92     | -134     | -155     |
| 2999 Total appropriations .....  | -92     | -134     | -155     |
| 5099 Balance, end of year .....  | 5       | 8        | 9        |

**Program and Financing**  
(in millions of dollars)

|  | FY 2022 | FY 2023  | FY 2024  |
|--|---------|----------|----------|
| Identification code: 69-5422-0-2-402                                       | Actual  | Estimate | Estimate |
| <b>Obligations by program activity:</b>                                    |         |          |          |
| 0001 Land Proceeds .....   | 3       | 2        | .....    |
| 0100 Direct program activities, subtotal .....                             | 3       | 2        | .....    |
| 0900 Total new obligations, unexpired accounts<br>(object class 25.2)..... | 3       | 2        | .....    |
| <b>Budgetary resources:</b>  |         |          |          |
| Unobligated balance:   |         |          |          |
| 1000 Unobligated balance brought forward, Oct 1...                         | 15      | 13       | 11       |
| Budget authority:  |         |          |          |
| Appropriations, mandatory:   |         |          |          |
| 1201 Appropriations (special or trust fund).....                           | 95      | 137      | 156      |



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|   |   | FY 2022 | FY 2023  | FY 2024  |
|---|---|---------|----------|----------|
|   |   | Actual  | Estimate | Estimate |
| Identification code: 69-5422-0-2-402      |   |         |          |          |
| 1220                                      | Appropriations Transferred to other accounts<br>[069-5423]..... | -94     | -137     | -156     |
| 1260                                      | Appropriations, mandatory (total).....                          | 1       | .....    | .....    |
| 1900                                      | Budget authority (total).....                                   | 1       | .....    | .....    |
| 1930                                      | Total budgetary resources available .....                       | 16      | 13       | 11       |
| Memorandum (non-add) entries:             |   |         |          |          |
| 1941                                      | Unexpired unobligated balance, end of year.....                 | 13      | 11       | 11       |
| <b>Change in obligated balance:</b>       |   |         |          |          |
| Unpaid obligations:                       |   |         |          |          |
| 3000                                      | Unpaid Obligations, brought forward, Oct 1 .....                | 1       | 3        | 2        |
| 3010                                      | New Obligations, unexpired accounts .....                       | 3       | 2        | .....    |
| 3020                                      | Outlays (gross) .....   | -1      | -3       | -2       |
| 3050                                      | Unpaid Obligations, end of the year .....                       | 3       | 2        | .....    |
| Memorandum (non-add) entries:             |   |         |          |          |
| 3100                                      | Obligated balance, start of the year .....                      | 1       | 3        | 2        |
| 3200                                      | Obligated balance, end of the year .....                        | 3       | 2        | .....    |
| <b>Budget authority and outlays, net:</b> |   |         |          |          |
| Mandatory:                                |   |         |          |          |
| 4090                                      | Budget authority, gross .....                                   | 1       | .....    | .....    |
| Outlays, gross:                           |   |         |          |          |
| 4101                                      | Outlays from mandatory balances .....                           | 1       | 3        | 2        |
| 4180                                      | Budget authority, net (total) .....                             | 1       | .....    | .....    |
| 4190                                      | Outlays, net (total) .....                                      | 1       | 3        | 2        |

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 to aircraft that neither take off nor land in the United States, commonly known as overflight fees. The Budget estimates that \$156 million in overflight fees will be collected in 2024.

**Federal Aviation Administration  
FY 2024 President's Budget Submission**

**AIRPORT AND AIRWAY TRUST FUND**

**Program and Financing**  
(in millions of dollars)

|                                      |   | FY 2022 | FY 2023  | FY 2024  |
|--------------------------------------|---|---------|----------|----------|
|                                      |   | Actual  | Estimate | Estimate |
| Identification code: 69-8103-0-7-402 |   |         |          |          |
| <b>Memorandum (non-add) entries:</b> |   |         |          |          |
| 5000                                 | Total investments, start of year: Federal securities: | 15,902  | 10,818   | 10,006   |
|                                      | Par value.....  |         |          |          |
| 5001                                 | Total investments, end of year: Federal securities:   | 10,818  | 10,006   | 10,431   |
|                                      | Par value.....  |         |          |          |

Section 9502 of Title 26, U.S. Code, provides for amounts equivalent to the funds received in the U.S. 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, payment to air carriers, and for the Bureau of Transportation Statistics Office of Airline Information.

The status of the fund is as follows:

**Status of Funds** (in millions of dollars)

|   |   | FY 2022 | FY 2023  | FY 2024  |
|---|---|---------|----------|----------|
|   |   | Actual  | Estimate | Estimate |
| Identification code: 69-8103-0-7-402      |   |         |          |          |
| <b>Unexpended balance, start of year:</b> |   |         |          |          |
| 0100                                      | Balance, start of year.....   | 14,976  | 12,337   | 11,376   |
| 0999                                      | Total balance, start of year.....   | 14,976  | 12,337   | 11,376   |
| <b>Cash Income during the year:</b>       |   |         |          |          |
| Current law:                              |   |         |          |          |
| Receipts                                  |   |         |          |          |
| 1110                                      | Excise Taxes, Airport and Airway Trust Fund.....                            | 11,377  | 16,084   | 16,700   |
| 1130                                      | Grants-in-aid for Airports (Airport and Airway Trust Fund) .....            | 2       | 2        | 2        |
| 1130                                      | Facilities and Equipment (Airport and Airway and Airport Trust Fund) .....  | 38      | 31       | 31       |
| 1150                                      | Interest, Airport and Airway Trust Fund .....                               |         | 2        | 4        |
| 1150                                      | Interest, Airport and Airway Trust Fund .....                               | 173     | 216      | 311      |
| 1160                                      | Facilities and Equipment (Airport and Airway Trust Fund).....               | 34      | 36       | 36       |
| 1160                                      | Research, Engineering and Development (Airport and Airway Trust Fund) ..... | 12      | 9        | 9        |

**Federal Aviation Administration  
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|   |  | FY 2022 | FY 2023  | FY 2024  |
|---|--|---------|----------|----------|
|   |  | Actual  | Estimate | Estimate |
| Identification code: 69-8103-0-7-402    |  |         |          |          |
| 1199                                    | Income under present law .....   | 11,636  | 16,380   | 17,093   |
| 1999                                    | Total cash income .....  | 11,636  | 16,380   | 17,093   |
| <b>Cash outgo during year:</b>          |  |         |          |          |
| Current law:                            |  |         |          |          |
| 2100                                    | Payments to Air Carriers (021-04-8304-0) .....   | -298    | -337     | -351     |
| 2100                                    | Trust Fund Share of FAA Activities (Airport and<br>Airway Trust Fund) (021-12-8104-0) .....    | -7,434  | -9,996   | -8,741   |
| 2100                                    | Grants-in-aid for Airports (Airport and Airway<br>Trust Fund) (021-12-8106-0) .....            | -5,746  | -5,160   | -4,492   |
| 2100                                    | Facilities and Equipment (Airport and Airway<br>Trust Fund) (021-12-8107-0) .....              | -3,127  | -3,121   | -3,319   |
| 2100                                    | Research, Engineering and Development (Airport<br>and Airway Trust Fund) (021-12-8108-0) ..... | -208    | -248     | -264     |
| 2198                                    | Adjustments.....   | 2,718   | 1,521    | 623      |
| 2199                                    | Outgo under current law (-) .....  | -14,095 | -17,341  | -16,544  |
| 2999                                    | Total Cash outgo (-).....  | -14,095 | -17,341  | -16,544  |
| Surplus or Deficit:                     |  |         |          |          |
| 3110                                    | Excluding interest .....   | -2,632  | -1,179   | 234      |
| 3120                                    | Interest .....   | 173     | 218      | 315      |
| 3199                                    | Subtotal, surplus or deficit .....   | -2,459  | -961     | 549      |
| 3999                                    | Total change in fund balance.....  | -2,459  | -961     | 549      |
| <b>Unexpended balance, end of year:</b> |  |         |          |          |
| 4100                                    | Un-invested balance (net), end of year .....   | 1,519   | 1,370    | 1,494    |
| 4200                                    | Airport and Airway Trust Fund .....  | 10,818  | 10,006   | 10,431   |
| 4999                                    | Total balance, end of year.....  | 12,337  | 11,376   | 11,925   |

**Federal Aviation Administration  
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**TRUST FUND SHARE OF FAA ACTIVITIES  
(AIRPORT AND AIRWAY TRUST FUND)**

**Program and Financing  
(in millions of dollars)**

|   |   | FY 2022 | FY 2023  | FY 2024  |
|---|---|---------|----------|----------|
|   |   | Actual  | Estimate | Estimate |
| Identification code: 69-8104-0-7-402      |   |         |          |          |
| <b>Obligations by program activity:</b>   |   |         |          |          |
| 0001                                      | Payment to Operations .....                                   | 6,414   | 9,994    | 8,741    |
| 0900                                      | Total new obligations, unexpired accounts (object class 94.0) | 6,414   | 9,994    | 8,741    |
| <b>Budgetary resources:</b>               |   |         |          |          |
| Appropriations, discretionary:            |   |         |          |          |
| Budge authority:                          |   |         |          |          |
| 1101                                      | Appropriations (special or trust) .....                       | 6,414   | 9,994    | 8,741    |
| 1930                                      | Total budgetary resources available .....                     | 6,414   | 9,994    | 8,741    |
| <b>Change in obligated balance:</b>       |   |         |          |          |
| Unpaid obligations:                       |   |         |          |          |
| 3000                                      | Unpaid obligations, brought forward, Oct 1                    | 1,022   | 2        | ....     |
| 3010                                      | New obligations, unexpired accounts .....                     | 6,414   | 9,994    | 8,741    |
| 3020                                      | Outlays (gross) .....   | -7,434  | -9,996   | -8,741   |
| 3050                                      | Unpaid obligations, end of year                               | 2       | ....     | ....     |
| Memorandum (non-add) entries:             |   |         |          |          |
| 3100                                      | Obligated balance, start of year .....                        | 1,022   | 2        | ....     |
| 3200                                      | Obligated balance, end of year .....                          | 2       | ....     | ....     |
| <b>Budget authority and outlays, net:</b> |   |         |          |          |
| Discretionary:                            |   |         |          |          |
| 4000                                      | Budget authority, gross .....                                 | 6,414   | 9,994    | 8,741    |
| Outlays, gross:                           |   |         |          |          |
| 4010                                      | Outlays from new discretionary authority .....                | 6,414   | 9,994    | 8,741    |
| 4011                                      | Outlays from discretionary balances .....                     | 1,020   | 2        | ....     |
| 4020                                      | Outlays, gross (total)  | 7,434   | 9,996    | 8,741    |
| 4180                                      | Budget authority, net (total) .....                           | 6,414   | 9,994    | 8,741    |
| 4190                                      | Outlays, net (total) .....                                    | 7,434   | 9,996    | 8,741    |

The 2024 Budget proposes \$12.741 billion for Federal Aviation Administration Operations, of which \$8.741 billion would be provided from the Airport and Airway Trust Fund.

**Federal Aviation Administration  
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**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 2024.

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 2024 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.

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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 2024 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.

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# Federal Aviation Administration FY 2024 President's Budget Submission

## Department of Transportation FY 2024 Budget Federal Aviation Administration Research, Development, & Technology Budget Narrative (Budget Authority in Thousands)

| Budget Account   | FY 2022<br>Enacted | FY 2023<br>Enacted | FY 2024<br>President's Budget | Applied        | Technology<br>Transfer | Facilities    | Experimental<br>Development | Major Equipment,<br>R&D Equipment |
|--|--------------------|--------------------|-------------------------------|----------------|------------------------|---------------|-----------------------------|-----------------------------------|
| <b>Research, Engineering &amp; Development</b>                     | <b>248,500</b>     | <b>255,000</b>     | <b>255,130</b>                | <b>249,683</b> | -                      | <b>5,447</b>  | -                           | -                                 |
| Fire Research and Safety   | 7,136              | 7,136              | 7,722                         | 7,722          |                        |               |                             |                                   |
| Propulsion and Fuel Systems  | 3,000              | 3,000              | 6,374                         | 6,374          |                        |               |                             |                                   |
| Advanced Materials /Structural Safety                              | 14,720             | 14,720             | 2,526                         | 2,526          |                        |               |                             |                                   |
| Aircraft Icing   | 2,472              | 2,472              | 3,960                         | 3,960          |                        |               |                             |                                   |
| Digital System Safety  | 3,689              | 3,689              | 7,109                         | 7,109          |                        |               |                             |                                   |
| Continued Air Worthiness   | 8,829              | 8,829              | 8,425                         | 8,425          |                        |               |                             |                                   |
| Flight deck/Maintenance/System Integration Human Factors           | 14,301             | 14,301             | 15,646                        | 15,646         |                        |               |                             |                                   |
| System Safety Management/Terminal Area Safety                      | 7,000              | 9,252              | 9,349                         | 9,349          |                        |               |                             |                                   |
| Air Traffic Control/Technical Operations Human Factors             | 5,911              | 5,911              | 6,389                         | 6,389          |                        |               |                             |                                   |
| Aeromedical Research   | 11,000             | 9,000              | 12,205                        | 12,205         |                        |               |                             |                                   |
| Weather Program  | 13,786             | 13,786             | 19,220                        | 19,220         |                        |               |                             |                                   |
| Unmanned Aircraft Systems Research                                 | 22,077             | 22,077             | 21,128                        | 21,128         |                        |               |                             |                                   |
| Alternative Fuels for General Aviation                             | 5,434              | 10,000             | 11,201                        | 11,201         |                        |               |                             |                                   |
| Commercial Space Transportation Safety                             | 5,708              | 4,708              | 6,157                         | 6,157          |                        |               |                             |                                   |
| NextGen Wake Turbulence  | 3,728              | 3,728              | 4,680                         | 4,680          |                        |               |                             |                                   |
| NextGen - Air Ground Integration Human Factors                     | 3,000              | -                  | -                             | -              |                        |               |                             |                                   |
| NextGen - Weather Technology in the Cockpit                        | 2,659              | 4,000              | -                             | -              |                        |               |                             |                                   |
| NextGen - Flight Data Exchange                                     | 1,000              | -                  | -                             | -              |                        |               |                             |                                   |
| Information/Cyber Security   | 4,769              | 4,769              | 6,415                         | 6,415          |                        |               |                             |                                   |
| Environment & Energy   | 22,000             | 21,000             | 21,305                        | 21,305         |                        |               |                             |                                   |
| NextGen - Environmental Research - Aircraft Technologies and Fuels | 67,500             | 68,000             | 70,774                        | 70,774         |                        |               |                             |                                   |
| System Planning and Resource Management                            | 3,300              | 4,141              | 5,097                         | 5,097          |                        |               |                             |                                   |
| Aviation Grant Management  | 10,000             | 15,000             | 2,001                         | 2,001          |                        |               |                             |                                   |
| William J. Hughes Technical Center Laboratory Facilities           | 5,481              | 5,481              | 5,447                         | -              |                        | 5,447         |                             |                                   |
| Aviation Accessibility Research                                    | -                  | -                  | 2,000                         | 2,000          |                        |               |                             |                                   |
| <b>Facilities &amp; Equipment</b>                                  | <b>192,701</b>     | <b>203,550</b>     | <b>193,240</b>                | <b>-</b>       | <b>-</b>               | <b>26,900</b> | <b>166,340</b>              | <b>-</b>                          |
| Advanced Technology Development and Prototyping                    | 24,000             | 24,300             | 34,440                        |                |                        |               | 34,440                      |                                   |
| Plant  | 27,601             | 31,900             | 26,900                        |                |                        | 26,900        |                             |                                   |
| NextGen Research & Development                                     | 84,100             | 90,350             | 74,900                        |                |                        |               | 74,900                      |                                   |
| Center for Advanced Aviation System Development (CAASD)            | 57,000             | 57,000             | 57,000                        |                |                        |               | 57,000                      |                                   |
| <b>Grants-In-Aid for Airports</b>                                  | <b>55,961</b>      | <b>55,828</b>      | <b>56,801</b>                 | <b>56,801</b>  | <b>-</b>               | <b>-</b>      | <b>-</b>                    | <b>-</b>                          |
| Airport Technology Research  | 40,961             | 40,828             | 41,801                        | 41,801         |                        |               |                             |                                   |
| Airport Cooperative Research                                       | 15,000             | 15,000             | 15,000                        | 15,000         |                        |               |                             |                                   |
| <b>Administrative - Ops</b>  | <b>16,418</b>      | <b>17,154</b>      | <b>16,487</b>                 | <b>-</b>       | <b>-</b>               | <b>-</b>      | <b>16,487</b>               | <b>-</b>                          |
| <b>Total</b>   | <b>513,580</b>     | <b>531,532</b>     | <b>521,658</b>                | <b>306,484</b> | <b>-</b>               | <b>32,347</b> | <b>182,827</b>              | <b>-</b>                          |

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## Exhibit IV-2 FY 2024 Budget Request – RD&T Program Funding by DOT Strategic Goal

### Department of Transportation - FY 2024 Budget Federal Aviation Administration

#### Research, Development, & Technology Budget (Budget Authority in Thousands, sample entries provided below)

| DOT STRATEGIC GOALS   |                            |                |                   |              |                          |                |                           |
|---|----------------------------|----------------|-------------------|--------------|--------------------------|----------------|---------------------------|
| ACCOUNT/PROGRAM   | FY 2024 President's Budget | SAFETY         | ECONOMIC STRENGTH | EQUITY       | CLIMATE & SUSTAINABILITY | TRANSFORMATION | ORGANIZATIONAL EXCELLENCE |
| <b>Research, Engineering &amp; Development</b>                      | <b>255,130</b>             | <b>111,250</b> | <b>6,157</b>      | <b>4,001</b> | <b>109,654</b>           | <b>13,524</b>  | <b>10,544</b>             |
| Fire Research and Safety  | 7,722                      | 7,722          |                   |              |                          |                |                           |
| Propulsion and Fuel Systems   | 6,374                      |                |                   |              | 6,374                    |                |                           |
| Advanced Materials /Structural Safety                               | 2,526                      | 2,526          |                   |              |                          |                |                           |
| Aircraft Icing  | 3,960                      | 3,960          |                   |              |                          |                |                           |
| Digital System Safety   | 7,109                      |                |                   |              |                          | 7,109          |                           |
| Continued Air Worthiness  | 8,425                      | 8,425          |                   |              |                          |                |                           |
| Aircraft Catastrophic Failure Prevention Research                   | -                          |                |                   |              |                          |                |                           |
| Flight deck/Maintenance/System Integration Human Factors            | 15,646                     | 15,646         |                   |              |                          |                |                           |
| System Safety Management/Terminal Area Safety                       | 9,349                      | 9,349          |                   |              |                          |                |                           |
| Air Traffic Control/Technical Operations Human Factors              | 6,389                      | 6,389          |                   |              |                          |                |                           |
| Aeromedical Research  | 12,205                     | 12,205         |                   |              |                          |                |                           |
| Weather Program   | 19,220                     | 19,220         |                   |              |                          |                |                           |
| Unmanned Aircraft Systems Research                                  | 21,128                     | 21,128         |                   |              |                          |                |                           |
| Alternative Fuels for General Aviation                              | 11,201                     |                |                   |              | 11,201                   |                |                           |
| Commercial Space Transportation Safety                              | 6,157                      |                | 6,157             |              |                          |                |                           |
| NextGen Wake Turbulence   | 4,680                      | 4,680          |                   |              |                          |                |                           |
| NextGen - Air Ground Integration Human Factors                      | -                          |                |                   |              |                          |                |                           |
| NextGen - Weather Technology in the Cockpit                         | -                          |                |                   |              |                          |                |                           |
| NextGen - Flight Data Exchange                                      | -                          |                |                   |              |                          |                |                           |
| Information/Cyber Security  | 6,415                      |                |                   |              |                          | 6,415          |                           |
| Environment & Energy  | 21,305                     |                |                   |              | 21,305                   |                |                           |
| NextGen - Environmental Research -- Aircraft Technologies and Fuels | 70,774                     |                |                   |              | 70,774                   |                |                           |
| Airliner Cabin Environment Research                                 | -                          |                |                   |              |                          |                |                           |
| System Planning and Resource Management                             | 5,097                      |                |                   |              |                          |                | 5,097                     |
| Aviation Grant Management   | 2,001                      |                |                   | 2,001        |                          |                |                           |
| William J. Hughes Technical Center Laboratory Facilities            | 5,447                      |                |                   |              |                          |                | 5,447                     |
| Aviation Accessibility Research                                     | 2,000                      |                |                   | 2,000        |                          |                |                           |
|   |                            |                |                   |              |                          |                |                           |
| <b>Facilities &amp; Equipment</b>                                   | <b>193,240</b>             | <b>-</b>       | <b>57,000</b>     | <b>-</b>     | <b>-</b>                 | <b>136,240</b> | <b>-</b>                  |
| Advanced Technology Development and Prototyping                     | 34,440                     |                |                   |              |                          | 34,440         |                           |
| Plant   | 26,900                     |                |                   |              |                          | 26,900         |                           |
| NextGen Research & Development                                      | 74,900                     |                |                   |              |                          | 74,900         |                           |
| Center for Advanced Aviation System Development (CAASD)             | 57,000                     |                | 57,000            |              |                          |                |                           |
|   |                            |                |                   |              |                          |                |                           |
| <b>Grants-In-Aid for Airports</b>                                   | <b>56,801</b>              | <b>18,534</b>  | <b>10,333</b>     | <b>4,158</b> | <b>8,008</b>             | <b>15,568</b>  | <b>200</b>                |
| Airport Technology Research   | 41,801                     | 12,534         | 8,833             | 3,608        | 7,258                    | 9,568          |                           |
| Airport Cooperative Research  | 15,000                     | 6,000          | 1,500             | 550          | 750                      | 6,000          | 200                       |
|   |                            |                |                   |              |                          |                |                           |
| <b>Administrative - Ops</b>   | <b>16,487</b>              | <b>-</b>       | <b>-</b>          | <b>-</b>     | <b>-</b>                 | <b>16,487</b>  | <b>-</b>                  |
|   |                            |                |                   |              |                          |                |                           |
| <b>Total</b>  | <b>521,658</b>             | <b>129,784</b> | <b>73,490</b>     | <b>8,159</b> | <b>117,662</b>           | <b>181,819</b> | <b>10,744</b>             |

**Research, Development and Technology:** This **\$521.6 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, **\$129.8 million** supports the Departments safety goal, **\$73.5 million** supports the Department's economic growth strategic goal, **\$8.2 million** supports the equity goal, **\$117.6 million** supports the climate solutions goal, **\$181.8 million** supports the Department's transformation goal and **\$10.7 million** supports the Department's organizational excellence goal. Noteworthy investments include:

### Safety

- **Unmanned Aircraft Systems (UAS): \$21.1 million (R,E&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

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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: \$12.5 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.
- **Aeromedical Research: \$12.2 million (R,E&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 labs, such as those at the National Air and Space Administration, Kansas State University, and the U.S. Navy.
- **Flight deck/Maintenance/System Integration (Human Factors): \$15.6 million (R,E&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.
- **Weather Program: \$19.2 million (R,E,&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; increased accuracy of Convective Weather forecasts; improved safety for helicopters, drones, and other small aircraft through more frequently updated weather information; and

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improved pilot situational awareness of adverse weather in remote areas which will improve safe access to under-served communities. This program facilitates transitioning research results through collaborative and complementary initiatives with the National Weather Service (NWS), as well as NASA, USAF, Volpe National Transportation System Center, Academia and Airlines.

**Economic Growth**

- **Commercial Space Transportation Safety Program: \$6.2 million (R,E&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 in launch vehicle vulnerability, more efficiently analyzing large data sets, and other projects to inform regulations, guidance, and internal processes. This program also begins leveraging research activities using a collaborative research consortium that includes other government organization and private companies.

**Equity**

- **Aviation Grant Management: \$2 million (R,E&D)** is requested to support the administration and management of pre-award, post-award, closeout, records management, and program management of FAA's Grants Program. This program ensures that FAA has a fair, equitable and comprehensive approach for awarding grants that will develop and stimulate the next generation of aviation professionals.
- **Airport Technology Research: \$3.6 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).
- **Aviation Accessibility Research: \$2 million (R,E&D)** is requested to assess the feasibility of safely allowing wheelchairs in aircraft cabins to enhance safety, availability, and ease of air travel for people with disabilities. Allowing travelers to use their own wheelchair reduces the need for multiple transfers; from their wheelchair to a transfer chair to an aircraft seat, which can be a dangerous

process. It also reduces the likelihood of damage to wheelchairs, by eliminating the need to stow wheelchairs.

### **Climate Solutions**

- **NextGen Environmental Research: \$70.8 million (R,E&D)** is requested to support efforts to develop new aircraft and engine technologies, as well as to advance sustainable aviation fuels 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 manufacturers to create aircraft and engines with lower noise and emissions, and improved fuel efficiency. Funding from this program also supports efforts by ASCENT – the FAA's Center of Excellence for Alternative Jet Fuels and Environment. The CLEEN program is estimated to save the aviation industry 36 billion gallons of fuel by 2050, reducing airline costs by 73 billion dollars and more importantly resulting in CO2 reductions that are equivalent to removing three million cars from the road from 2020 to 2050.
- **Alternative Fuels – General Aviation: \$11.2 million (R,E&D)** is requested to support continuing analyses and testing leading to the replacement of leaded aviation gasoline with safe unleaded alternative fuels.. Through the Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative, the FAA 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 (70%), of hazardous airborne lead emissions in the United States and will reduce the impact of general aviation operations on climate change and air quality.

### **Transformation**

- **Digital System Safety Program: \$7.1 million (R,E&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. New digital technologies are revolutionizing air travel across the world and are making flights more efficient and eco-friendly. These technologies enable industry to optimize routes leading to reduced emissions that contribute towards mitigating aviation's impact on climate change. Additionally, this research improves security and provides crucial timely information to pilots. For the flying public this ultimately leads to greater on time predictability and air travel safety. 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.

- **NextGen On Demand NAS Information (ODNI): \$8.5 million (F&E)** conducts pre-implementation work to reduce risk in supporting the efficient and secure exchange of information within the FAA and between the FAA and other NAS users. The ODNI portfolio conducts research and matures capabilities through validation activities and demonstrations with stakeholders that will enhance information exchange within the NAS. This portfolio provides flight planners, Air Navigation Service Providers (ANSP) staff, and flight crews with consistent, complete, and easily processed information on changes of conditions in the NAS. It also works toward developing international data standards allowing more users to share flight information and coordinate various activities concerning a flight to support collaborative decision-making. As the FAA evolves towards Info-Centric NAS operations, more structured digital information will be available and technologies such as Internet of Things (IoT) and cloud computing will enable airspace users to make decisions based on current information. The pre-implementation research conducted under this portfolio will leverage this technology evolution and standardize flight deck applications to support flight crew decision making.

#### **Organizational Excellence**

- **System Planning and Resource Management Program: \$5.1 million (R,E&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: \$5.4 million (R,E&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.



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**INFORMATION TECHNOLOGY  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
BUDGET AUTHORITY**

(\$000)

| <b>Budget Account</b>  | <b>FY 2022<br/>Enacted</b> | <b>FY 2023<br/>Enacted</b> | <b>FY 2024<br/>Request</b> |
|--|----------------------------|----------------------------|----------------------------|
| <b>Operations</b>  | <b>\$1,583,641</b>         | <b>\$1,657,512</b>         | <b>\$1,706,403</b>         |
| <i>Commodity IT SS WCF</i>                                       | <i>\$9,264</i>             | <i>\$15,058</i>            | <i>\$17,515</i>            |
| <i>Modal IT</i>  | <i>\$1,574,377</i>         | <i>\$1,642,454</i>         | <i>\$1,688,888</i>         |
| <b>Facilities &amp; Equipment (F&amp;E)</b>                      | <b>\$1,598,393</b>         | <b>\$1,597,935</b>         | <b>\$1,843,800</b>         |
| <i>Commodity IT SS WCF</i>                                       | <i>\$0</i>                 | <i>\$0</i>                 | <i>\$0</i>                 |
| <i>Modal IT</i>  | <i>\$1,598,393</i>         | <i>\$1,597,935</i>         | <i>\$1,843,800</i>         |
| <b>Total</b>   | <b>\$3,182,034</b>         | <b>\$3,255,447</b>         | <b>\$3,550,203</b>         |
| <i><b>Note: This funding data is as of February 16, 2023</b></i> |                            |                            |                            |

The Federal Aviation Administration requests \$3.6 billion in FY 2024 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 2024 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 **\$17.5 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 2024. 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 **\$138.4 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 **\$92.1 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.
- **Data Communications Network Service (DCNS) Future**– The budget requests **\$70.0 million** in the F&E account to data communications services between pilots and air traffic controllers. Data Comm 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 Comm is critical to the success of NAS modernization by providing communication infrastructure enhancements.
- **Offshore Automation** - The budget requests **\$59.6 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) Sustainment 3** - The budget requests **\$75.5million** in the F&E account to complete the refresh of the base

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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 **\$3.1 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.

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**FEDERAL AVIATION ADMINISTRATION**

**OPERATIONS**

**ESTIMATES**

**APPROPRIATIONS**

|            |                              |                                      |                              |
|------------|------------------------------|--------------------------------------|------------------------------|
| 2013 ..... | <sup>1</sup> 9,517,948,000   | 2013 .....                           | <sup>2</sup> 9,653,395,000   |
|            |                              | 2013 Sequester (P.L. 112-240).....   | <sup>3</sup> -485,623,489    |
|            |                              | 2013 Rescission (P.L. 113-6) .....   | <sup>4</sup> -19,307,790     |
| 2014 ..... | <sup>5</sup> 9,707,000,000   | 2014 .....                           | <sup>6</sup> 9,651,422,000   |
| 2015 ..... | <sup>7</sup> 9,750,000,000   | 2015 .....                           | <sup>8</sup> 9,740,700,000   |
| 2016 ..... | <sup>9</sup> 9,915,000,000   | 2016 .....                           | <sup>10</sup> 9,909,724,000  |
| 2017 ..... | <sup>11</sup> 9,994,352,000  | 2017 .....                           | <sup>12</sup> 10,025,852,000 |
| 2018 ..... | <sup>13</sup> 9,890,886,000  | 2018 .....                           | <sup>14</sup> 10,211,754,000 |
|            |                              | 2018 Supplemental (P.L. 115-123) ... | <sup>15</sup> 35,000,000     |
| 2019 ..... | <sup>16</sup> 9,931,312,000  | 2019 .....                           | <sup>17</sup> 10,410,758,000 |
| 2020 ..... | <sup>18</sup> 10,340,000,000 | 2020 .....                           | <sup>19</sup> 10,630,000,000 |
| 2021 ..... | <sup>20</sup> 11,001,500,000 | 2021 .....                           | <sup>21</sup> 11,001,500,000 |
| 2022 ..... | <sup>22</sup> 11,434,100,000 | 2022 .....                           | <sup>23</sup> 11,414,100,000 |
| 2023 ..... | <sup>24</sup> 11,933,821,000 | 2023 .....                           | <sup>25</sup> 11,915,000,000 |
| 2024 ..... | <sup>26</sup> 12,740,627,000 |                                      |                              |

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<sup>1</sup> Includes \$6,721,000,000 from the Airport and Airway Trust Fund.

<sup>2</sup> Reflects funding at the FY 2012 funding level pursuant to P.L. 113-6, Consolidated and Further Continuing Appropriations Act, 2013.

<sup>3</sup> FY 2013 funds sequestered pursuant to the Budget Control Act of 2011 as Amended by The American Taxpayer Relief Act of 2012 (P.L. 112-240).

<sup>4</sup> Reflects a 0.20 percent across-the-board rescission per P.L. 113-6.

<sup>5</sup> Includes \$6,484,000,000 from the Airport and Airway Trust Fund.

<sup>6</sup> Includes \$6,495,208,000 from the Airport and Airway Trust Fund.

<sup>7</sup> Includes \$9,040,850,000 from the Airport and Airway Trust Fund.

<sup>8</sup> Includes \$8,595,000,000 from the Airport and Airway Trust Fund.

<sup>9</sup> Includes \$8,547,000,000 from the Airport and Airway Trust Fund.

<sup>10</sup> Includes \$7,922,000,000 from the Airport and Airway Trust Fund.

<sup>11</sup> Includes \$7,608,000,000 from the Airport and Airway Trust Fund.

<sup>12</sup> Includes \$9,173,000,000 from the Airport and Airway Trust Fund.

<sup>13</sup> Includes \$8,100,000,000 from the Airport and Airway Trust Fund.

<sup>14</sup> Includes \$8,886,000,000 from the Airport and Airway Trust Fund.

<sup>15</sup> Supplemental funding from the Further Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018 (P.L. 115-123)

<sup>16</sup> Includes \$8,632,721,000 from the Airport and Airway Trust Fund.

<sup>17</sup> Includes \$9,833,400,000 from the Airport and Airway Trust Fund.

<sup>18</sup> Includes \$9,364,085,000 from the Airport and Airway Trust Fund.

<sup>19</sup> Includes \$10,519,000,000 from the Airport and Airway Trust Fund.

<sup>20</sup> Includes \$11,001,500,000 from the Airport and Airway Trust Fund.

<sup>21</sup> Includes \$10,519,000,000 from the Airport and Airway Trust Fund.

<sup>22</sup> Includes \$8,434,000,000 from the Airport and Airway Trust Fund.

<sup>23</sup> Includes \$ 6,414,100,000 from the Airport and Airway Trust Fund.

<sup>24</sup> Includes \$9,933,821,000 from the Airport and Airway Trust Fund.

<sup>25</sup> Includes \$9,993,821,000 from the Airport and Airway Trust Fund.

<sup>26</sup> Includes \$8,740,627,000 from the Airport and Airway Trust Fund.

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**FEDERAL AVIATION ADMINISTRATION**

**FACILITIES AND EQUIPMENT  
(AIRPORT AND AIRWAY TRUST FUND)**

**ESTIMATES**

**APPROPRIATIONS**

|            |                             |                                      |                             |
|------------|-----------------------------|--------------------------------------|-----------------------------|
| 2013 ..... | 2,850,000,000               | 2013 .....                           | <sup>27</sup> 2,730,731,074 |
|            |                             | 2013 Supplemental (P.L. 113-2) ..... | <sup>28</sup> 30,000,000    |
|            |                             | 2013 Sequester (P.L. 11-240) .....   | <sup>29</sup> -141,642,505  |
|            |                             | 2013 Rescission (P.L. 113-6) .....   | <sup>30</sup> -5,461,462    |
| 2014 ..... | 2,777,798,000               | 2014 .....                           | 2,600,000,000               |
| 2015 ..... | 2,603,700,000               | 2015 .....                           | 2,600,000,000               |
| 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) ... | <sup>31</sup> 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 .....          | <sup>32</sup> 100,000,000   |
|            |                             | 2022 IIJA Supplemental .....         | <sup>33</sup> 1,000,000,000 |
| 2023 ..... | <sup>34</sup> 3,015,000,000 | 2023 .....                           | 2,945,000,000               |
|            |                             | 2023 IIJA Supplemental .....         | <sup>35</sup> 1,000,000,000 |
| 2024 ..... | 3,462,000,000               | 2024 IIJA Supplemental .....         | <sup>36</sup> 1,000,000,000 |
|            |                             | 2025 IIJA Supplemental .....         | <sup>37</sup> 1,000,000,000 |
|            |                             | 2026 IIJA Supplemental .....         | <sup>38</sup> 1,000,000,000 |

<sup>27</sup> Reflects funding at the FY 2012 funding level pursuant to P.L. 113-6, Consolidated and Further Continuing Appropriations Act, 2013.

<sup>28</sup> Hurricane Sandy Emergency Supplemental, P.L. 113-2

<sup>29</sup> FY 2013 funds sequestered pursuant to the Budget Control Act of 2011 as Amended by The American Taxpayer Relief Act of 2012 (P.L. 112-240). Includes \$2,770,000 in offsetting collections.

<sup>30</sup> Reflects a 0.20 percent across-the-board rescission per P.L. 113-6.

<sup>31</sup> Supplemental funding from the Further Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018 (P.L. 115-123)

<sup>32</sup> Extending Government Funding and Delivering Emergency Assistance Act, 117-43 from the General Fund.

<sup>33</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>34</sup> Does not include funding from Infrastructure Investment and Jobs Act.

<sup>35</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>36</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>37</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>38</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

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**FEDERAL AVIATION ADMINISTRATION**

**RESEARCH, ENGINEERING, AND DEVELOPMENT**

**(AIRPORT AND AIRWAY TRUST FUND)**

**ESTIMATES**

**APPROPRIATIONS**

|           |             |                                    |                           |
|-----------|-------------|------------------------------------|---------------------------|
| 2012..... | 190,000,000 | 2012 .....                         | 167,556,000               |
| 2013..... | 180,000,000 | 2013 .....                         | <sup>39</sup> 167,556,000 |
|           |             | 2013 Sequester (P.L.112-240).....  | <sup>40</sup> -8,429,072  |
|           |             | 2013 Rescission (P.L. 113-6) ..... | <sup>41</sup> -335,112    |
| 2014..... | 166,000,000 | 2014 .....                         | 158,792,000               |
|           |             | 2014 Rescission .....              | <sup>42</sup> -26,183,998 |
| 2015..... | 156,750,000 | 2015 .....                         | 156,750,000               |
| 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.....         | <sup>43</sup> 297,000,000 |
| 2023..... | 260,500,000 | 2023 .....                         | 255,000,000               |
| 2024..... | 255,130,000 |                                    |                           |

<sup>32</sup> Reflects funding at the FY 2012 funding level pursuant to P.L. 113-6, Consolidated and Further Continuing Appropriations Act, 2013.

<sup>33</sup> FY 2013 funds sequestered pursuant to the Budget Control Act of 2011 as Amended by The American Taxpayer Relief Act of 2012 (P.L. 112-240).

<sup>34</sup> Reflects a 0.20 percent across-the-board rescission per P.L. 113-6.

<sup>35</sup> Reflects a \$26,183,998 rescission, per P.L. 113-76.

<sup>43</sup> Inflation Reduction Act, P.L. 117-169 from General Fund.

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FEDERAL AVIATION ADMINISTRATION

GRANTS-IN-AID FOR AIRPORTS  
(LIQUIDATION OF CONTRACT AUTHORIZATION)  
(AIRPORT AND AIRWAY TRUST FUND)

| ESTIMATES               | APPROPRIATIONS                                     |
|-------------------------|--|
| 2012..... 3,600,000,000 | 2012 ..... 3,435,000,000                           |
| 2013..... 3,400,000,000 | 2013 ..... 3,435,000,000                           |
| 2014..... 3,200,000,000 | 2014 ..... 3,200,000,000                           |
| 2015..... 3,200,000,000 | 2015 ..... 3,200,000,000                           |
| 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..... <sup>44</sup> 1,000,000,000 |
| 2019..... 3,000,000,000 | 2019 ..... 3,350,000,000                           |
|                         | 2019 Supplemental..... <sup>45</sup> 500,000,000   |
| 2020..... 3,000,000,000 | 2020 ..... 3,350,000,000                           |
|                         | 2020 Supplemental..... <sup>46</sup> 400,000,000   |
|                         | CARES Act..... <sup>47</sup> 10,000,000,000        |
| 2021..... 3,350,000,000 | 2021 ..... 3,350,000,000                           |
|                         | 2021 Supplemental..... <sup>48</sup> 400,000,000   |
|                         | CRRSA Act..... <sup>49</sup> 2,000,000,000         |
| 2022..... 3,350,000,000 | 2022 ..... 3,350,000,000                           |
|                         | 2022 Supplemental..... <sup>50</sup> 554,180,000   |
| 2023..... 3,350,000,000 | 2023 ..... 3,350,000,000                           |
|                         | 2023 Supplemental..... 558,555,000                 |
| 2024..... 3,350,000,000 |  |

<sup>44</sup> FY 2018 Consolidated Appropriations Act (P.L. 115-141) from the General Fund.

<sup>45</sup> FY 2019 Consolidated Appropriations Act (P.L. 116-6) from the General Fund.

<sup>46</sup> FY 2020 Consolidated Appropriations Act (P.L. 116-94) from the General Fund.

<sup>47</sup> CARES Act (P.L. 116-136) from the General Fund.

<sup>48</sup> FY 2021 Consolidated Appropriations Act (P.L. 116-260) from the General Fund.

<sup>49</sup> Coronavirus Response and Relief Supplemental Appropriations Act (P.L. 116-260) from the General Fund.

<sup>50</sup> FY 2022 Consolidated Appropriations Act (P.L. 117-103) from the General Fund.



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**FEDERAL AVIATION ADMINISTRATION**

**GRANTS-IN-AID FOR AIRPORTS  
LIMITATION ON OBLIGATIONS  
(AIRPORT AND AIRWAY TRUST FUND)**

**ESTIMATES**

**APPROPRIATIONS**

|                          |  |
|--------------------------|--|
| 2013.....(2,424,000,000) | 2013 ..... <sup>51</sup> (3,343,300,000) |
| 2014.....(2,900,000,000) | 2014 ..... (3,350,000,000)               |
| 2015.....(2,900,000,000) | 2015 ..... (3,350,000,000)               |
| 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) |  |

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<sup>51</sup> Reflects funding at the FY 2012 funding level pursuant to P.L. 113-6, Consolidated and Further Continuing Appropriations Act, 2013, minus the 0.20% across-the-board rescission.

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**FEDERAL AVIATION ADMINISTRATION**

**RELIEF FOR AIRPORTS**

**ESTIMATES**

**APPROPRIATIONS**

|            |   |            |                            |
|------------|---|------------|----------------------------|
| 2021 ..... | 0 | 2021 ..... | <sup>1</sup> 8,000,000,000 |
| 2022 ..... | 0 | 2022 ..... | 0                          |
| 2023 ..... | 0 | 2023 ..... | 0                          |
| 2024 ..... | 0 |            |                            |

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<sup>1</sup> American Rescue Plan (P.L. 117-2) from the General Fund.

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FEDERAL AVIATION ADMINISTRATION

EMPLOYEE LEAVE FUND

ESTIMATES

APPROPRIATIONS

|            |   |            |                        |
|------------|---|------------|------------------------|
| 2021 ..... | 0 | 2021 ..... | <sup>2</sup> 9,000,000 |
| 2022 ..... | 0 | 2022 ..... | 0                      |
| 2023 ..... | 0 | 2023 ..... | 0                      |
| 2024 ..... | 0 |            |                        |

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<sup>2</sup> American Rescue Plan (P.L. 117-2) from the General Fund.

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FEDERAL AVIATION ADMINISTRATION

AIRPORT INFRASTRUCTURE GRANTS

ESTIMATES

APPROPRIATIONS

|           |   |            |                            |
|-----------|---|------------|----------------------------|
| 2022..... | 0 | 2022 ..... | <sup>1</sup> 3,000,000,000 |
| 2023..... | 0 | 2023 ..... | <sup>2</sup> 3,000,000,000 |
| 2024..... | 0 | 2024 ..... | <sup>3</sup> 3,000,000,000 |
|           |   | 2025 ..... | <sup>4</sup> 3,000,000,000 |
|           |   | 2026 ..... | <sup>5</sup> 3,000,000,000 |

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<sup>1</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>2</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>3</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>4</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>5</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

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FEDERAL AVIATION ADMINISTRATION

AIRPORT TERMINAL PROGRAM

| ESTIMATES    | APPROPRIATIONS                        |
|--------------|---------------------------------------|
| 2022 ..... 0 | 2022 ..... <sup>1</sup> 1,000,000,000 |
| 2023 ..... 0 | 2023 ..... <sup>2</sup> 1,000,000,000 |
| 2024 ..... 0 | 2024 ..... <sup>3</sup> 1,000,000,000 |
|              | 2025 ..... <sup>4</sup> 1,000,000,000 |
|              | 2026 ..... <sup>5</sup> 1,000,000,000 |

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<sup>1</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>2</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>3</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>4</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

<sup>5</sup> Infrastructure Investment and Jobs Act, P.L. 117-58 from the General Fund.

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**Federal Aviation Administration  
Abbreviated National Airspace System Capital Investment Plan  
Fiscal Years 2024–2028**

**Background**

The Consolidated Appropriations Act, 2023 became Public Law 117-328 on December 29, 2022 and 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 2024 through 2028, 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.*

To comply with the Congressional direction above, this Abbreviated National Airspace System (NAS) Capital Investment Plan (CIP) for Fiscal Years (FY) 2024-2028 is included within the FAA’s FY 2024 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:

- Important Factors Affecting Planning for the Future and Key Considerations in Capital Planning
- 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 2024 through FY 2028
- Current Status of Major Capital Programs

**Important Factors Affecting Planning for the Future**

Access to a reliable worldwide aviation network is essential to the health of the U.S. 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



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growth. According to the most recent available study on *The Economic Impact of U.S. Civil Aviation: 2020*<sup>1</sup>, economic activity attributed to civil aviation-related goods and services during 2020 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 activity highlighted in the August 2022 report included:

- 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

### **Key Considerations in Capital Planning**

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 to request funds from 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.

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

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<sup>1</sup> 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](https://www.faa.gov/sites/faa.gov/files/2022-08/2022-APL-038%202022_economic%20impact_report.pdf)

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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 86 Capital Budget Line Item (BLI) Facility and Equipment (F&E) Programs are highlighted below:

Airport Surface Movement Detection (ASDE) – Sustainment – 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 2B10)

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- **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, roofing 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)
- **Data Communications (Data Comm) in support of NextGen** – Data Comm will reduce operational errors associated with communications, enhancing the safety and efficiency of the National Airspace System. Data Comm will also reduce environmental impact of aviation operations due to less fuel burn and fewer emissions. The program will improve National Airspace System capacity and reduce delays resulting in passenger value of time savings. (BLI 2A13)
- **Terminal Automation** – 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 accommodate the introduction of new automation functions necessary for improved safety, efficiency, and capacity. (BLI 2B01)

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- **Aeronautical Information Management (AIM) Modernization Federal NOTAM System (FNS) Sustainment** - The FAA established the Aeronautical Information Management Modernization (AIMM) program to develop and enhance systems and services to address future air traffic requirements. Digital aeronautical data enables near real-time processing of data to improve access to, and the quality of static and planned NAS data, including Notice to Airmen (NOTAM) information. The AIM Modernization (AIMM) Federal NOTAM System (FNS) Sustainment program falls under the AIMM program umbrella and was established to address a key US Congressional mandate for FAA NOTAM Programs. (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 until the successor program, FAA FENS (C26.01-02), is awarded and operational. (BLI 2E10)
- **Terminal and En Route Voice Switch and Recorder Portfolio** – Voice recorders are used by the FAA for recording voice conversations between air traffic controllers, pilots, and ground-based personnel. Recorded conversations are used in the investigation of accidents, incidents, and in the routine evaluation of air traffic operations. This program will address reliability and availability concerns associated with deployed voice recorder models which are becoming obsolete and unsupportable. (BLI 2B12)
- **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 2024-2028 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.

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**Estimated Funding by Budget Line Item**

The following table (displayed on multiple pages) shows funding by BLI in millions of dollars for the capital programs in the FY 2024 to FY 2028 timeframe. The FY 2024 funding amounts in this table are consistent with this budget submission. The FY 2025 through FY 2028 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)*

| <b>FY24 BLI Number</b> | <b>Capital Budget Line Item (BLI) Program</b>  | <b>FY 2024 Est.</b> | <b>FY 2025 Est.</b> | <b>FY 2026 Est.</b> | <b>FY 2027 Est.</b> | <b>FY 2028 Est.</b> |
|------------------------|--|---------------------|---------------------|---------------------|---------------------|---------------------|
|                        | <b>Activity 1: Engineering, Development, Test and Evaluation</b>                                     | <b>\$136.24</b>     | <b>\$147.28</b>     | <b>\$141.09</b>     | <b>\$147.33</b>     | <b>\$148.86</b>     |
| 1A01                   | Advanced Technology Development and Prototyping (ATDP)   | \$34.44             | \$36.38             | \$35.19             | \$38.93             | \$35.36             |
| 1A02                   | William J. Hughes Technical Center Laboratory Sustainment  | \$16.90             | \$16.90             | \$16.90             | \$16.90             | \$17.00             |
| 1A03                   | William J. Hughes Technical Center Infrastructure Sustainment  | \$10.00             | \$10.00             | \$10.00             | \$10.00             | \$10.00             |
| 1A04                   | NextGen - Separation Management Portfolio  | \$14.40             | \$14.00             | \$14.00             | \$14.00             | \$13.00             |
| 1A05                   | NextGen - Traffic Flow Management (TFM) Portfolio  | \$10.00             | \$11.00             | \$9.00              | \$9.00              | \$12.00             |
| 1A06                   | NextGen - On Demand NAS Portfolio  | \$8.50              | \$11.00             | \$9.00              | \$9.00              | \$11.00             |
| 1A07                   | NextGen - NAS Infrastructure Portfolio   | \$12.00             | \$14.00             | \$13.50             | \$15.00             | \$16.00             |
| 1A08                   | NextGen - Support Portfolio  | \$5.00              | \$8.00              | \$7.00              | \$8.00              | \$7.00              |
| 1A09                   | NextGen - Unmanned Aircraft Systems (UAS)  | \$14.00             | \$16.00             | \$16.00             | \$16.00             | \$16.00             |
| 1A10                   | NextGen - Enterprise, Concept Development, Human Factors, and Demonstrations Portfolio               | \$11.00             | \$10.00             | \$10.50             | \$10.50             | \$11.50             |
|                        |  |                     |                     |                     |                     |                     |
|                        | <b>Activity 2: Procurement and Modernization of the Air Traffic Control Facilities and Equipment</b> | <b>\$2,122.48</b>   | <b>\$2,228.69</b>   | <b>\$2,321.32</b>   | <b>\$2,394.98</b>   | <b>\$2,475.05</b>   |
|                        | <b>A. En Route Programs</b>  | <b>\$706.21</b>     | <b>\$666.08</b>     | <b>\$631.02</b>     | <b>\$710.89</b>     | <b>\$719.54</b>     |
| 2A01                   | NextGen - En Route Automation Modernization (ERAM) - System Enhancements and Technology Refresh      | \$75.50             | \$70.11             | \$64.41             | \$65.64             | \$47.64             |
| 2A02                   | Next Generation Weather Radar (NEXRAD)   | \$3.00              | \$3.00              | \$3.00              | \$7.00              | \$8.00              |
| 2A03                   | Air Route Traffic Control Center (ARTCC) and Combined Control Facility (CCF) Building Sustainment    | \$106.23            | \$100.00            | \$91.60             | \$107.50            | \$127.50            |
| 2A04                   | Air/Ground Communications Infrastructure   | \$5.70              | \$6.85              | \$6.85              | \$9.00              | \$4.70              |
| 2A05                   | Air Traffic Control En Route Radar Facilities Improvements   | \$5.98              | \$8.50              | \$7.60              | \$7.50              | \$6.20              |
| 2A06                   | Oceanic Automation System  | \$6.55              | \$8.28              | \$4.63              | \$28.53             | \$31.28             |
| 2A07                   | Next Generation Very High Frequency Air/Ground Communications System                                 | \$64.00             | \$43.20             | \$24.90             | \$56.70             | \$63.40             |
| 2A08                   | NextGen - System-Wide Information Management (SWIM)  | \$52.50             | \$47.70             | \$44.00             | \$51.00             | \$45.40             |
| 2A09                   | NextGen - Automatic Dependent Surveillance - Broadcast (ADS-B) NAS Wide Implementation               | \$138.40            | \$160.70            | \$157.20            | \$156.70            | \$170.00            |
| 2A10                   | NextGen - Air Traffic Management Implementation Portfolio  | \$32.10             | \$55.80             | \$84.00             | \$94.70             | \$83.20             |
| 2A11                   | NextGen - Time Based Flow Management (TBFM) Portfolio  | \$33.00             | \$1.86              | \$3.27              | \$9.47              | \$19.47             |
| 2A12                   | NextGen - Next Generation Weather Processor (NWP)  | \$48.70             | \$30.32             | \$3.94              | \$1.14              | \$18.74             |
|                        | Airborne Collision Avoidance System X (ACAS X)   | \$0.00              | \$1.70              | \$1.70              | \$0.00              | \$0.00              |
| 2A13                   | NextGen - Data Communication in support of NextGen   | \$69.95             | \$74.80             | \$76.11             | \$76.21             | \$77.31             |
| 2A14                   | Offshore Automation  | \$59.60             | \$46.27             | \$52.80             | \$29.80             | \$7.70              |
| 2A15                   | NextGen - Reduced Oceanic Separation   | \$2.00              | \$0.00              | \$0.00              | \$0.00              | \$0.00              |
| 2A16                   | En Route Improvements  | \$2.00              | \$2.00              | \$0.00              | \$0.00              | \$0.00              |
| 2A17                   | Commercial Space Integration   | \$1.00              | \$5.00              | \$5.00              | \$10.00             | \$9.00              |

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| <b>FY24 BLI Number</b> | <b>Capital Budget Line Item (BLI) Program</b>   | <b>FY 2024 Est.</b> | <b>FY 2025 Est.</b> | <b>FY 2026 Est.</b> | <b>FY 2027 Est.</b> | <b>FY 2028 Est.</b> |
|------------------------|---|---------------------|---------------------|---------------------|---------------------|---------------------|
|                        | <b>B. Terminal Programs</b>   | <b>\$545.26</b>     | <b>\$635.64</b>     | <b>\$727.25</b>     | <b>\$674.79</b>     | <b>\$803.40</b>     |
| 2B01                   | Standard Terminal Automation Replacemetrn System (STARS)  | \$90.10             | \$141.23            | \$146.35            | \$91.30             | \$177.21            |
| 2B02                   | Terminal Automation Program   | \$5.10              | \$4.10              | \$4.00              | \$2.00              | \$0.00              |
| 2B03                   | Terminal Air Traffic Control Facilities - Replace   | \$5.15              | \$78.00             | \$89.00             | \$80.00             | \$108.00            |
| 2B04                   | Air Traffic Control Tower (ATCT)/Terminal Radar Approach Control (TRACON) Facilities - Improve                        | \$67.00             | \$46.30             | \$52.50             | \$61.00             | \$66.00             |
| 2B05                   | NAS Facilities Occupational Safety and Health Administration (OSHA) and Environmental Standards Compliance            | \$39.16             | \$35.00             | \$27.60             | \$35.00             | \$36.00             |
| 2B06                   | Integrated Display System (IDS)   | \$55.00             | \$53.50             | \$51.30             | \$50.30             | \$51.90             |
| 2B07                   | NextGen - Terminal Flight Data Manager (TFDM)   | \$45.20             | \$32.17             | \$18.71             | \$14.21             | \$43.11             |
| 2B08                   | NextGen - Performance Based Navigation (PBN) Support Portfolio  | \$8.00              | \$0.00              | \$0.00              | \$0.00              | \$0.00              |
| 2B09                   | NextGen - Unmanned Aircraft Systems (UAS) Implementation  | \$5.00              | \$10.00             | \$9.00              | \$9.00              | \$9.00              |
| 2B10                   | Surface Surveillance Portfolio Sustain 1  | \$33.20             | \$31.96             | \$30.57             | \$25.57             | \$25.57             |
| 2B11                   | Terminal and En Route Surveillance Portfolio  | \$107.30            | \$97.48             | \$127.22            | \$124.81            | \$81.01             |
| 2B12                   | Terminal and En Route Voice Switch and Recorder Portfolio   | \$71.05             | \$99.90             | \$155.50            | \$161.60            | \$191.10            |
| 2B13                   | NextGen - Enterprise Information Platform   | \$11.00             | \$6.00              | \$15.50             | \$20.00             | \$14.50             |
| 2B14                   | Remote Towers   | \$3.00              | \$0.00              | \$0.00              | \$0.00              | \$0.00              |
|                        | <b>C. Flight Service Programs</b>   | <b>\$32.50</b>      | <b>\$48.65</b>      | <b>\$51.15</b>      | <b>\$40.20</b>      | <b>\$30.78</b>      |
| 2C01                   | Future Flight Services Program (FFSP)   | \$1.50              | \$10.80             | \$9.80              | \$0.00              | \$0.00              |
| 2C02                   | Alaska Flight Service Facility Modernization (AFSFM)  | \$2.70              | \$2.75              | \$2.75              | \$2.70              | \$0.70              |
| 2C03                   | Weather Camera Program  | \$3.00              | \$5.00              | \$5.00              | \$5.00              | \$5.00              |
| 2C04                   | Weather Systems Portfolio   | \$25.30             | \$30.10             | \$33.60             | \$32.50             | \$25.08             |
|                        | <b>D. Landing and Navigation Aids Programs</b>  | <b>\$167.86</b>     | <b>\$185.62</b>     | <b>\$186.04</b>     | <b>\$188.65</b>     | <b>\$188.92</b>     |
| 2D01                   | VHF Omnidirectional Radio Range (VOR) Minimum Operating Network (MON)   | \$6.00              | \$0.00              | \$0.00              | \$0.00              | \$0.00              |
| 2D02                   | Wide Area Augmentation System (WAAS) for GPS  | \$92.10             | \$94.20             | \$92.00             | \$81.10             | \$105.50            |
| 2D03                   | Instrument Flight Procedures Automation (IFPA)  | \$2.00              | \$4.10              | \$2.40              | \$0.00              | \$0.00              |
| 2D04                   | Runway Safety Areas (RSA) - Navigational Mitigation   | \$1.00              | \$0.00              | \$0.00              | \$0.00              | \$0.00              |
| 2D05                   | Landing and Lighting Portfolio  | \$56.76             | \$77.32             | \$81.64             | \$92.55             | \$68.42             |
| 2D06                   | Distance Measuring Equipment (DME), VHF Omni-Directional Range (VOR), Tactical Air Navigation (TACAN) (DVT) Portfolio | \$10.00             | \$10.00             | \$10.00             | \$15.00             | \$15.00             |
|                        | <b>E. Other ATC Facilities Programs</b>   | <b>\$670.65</b>     | <b>\$692.70</b>     | <b>\$725.87</b>     | <b>\$780.45</b>     | <b>\$732.42</b>     |
| 2E01                   | Fuel Storage Tank Replacement and Management  | \$24.03             | \$10.60             | \$16.60             | \$22.00             | \$22.00             |
| 2E02                   | Unstaffed Infrastructure Sustainment (UIS)  | \$57.90             | \$63.65             | \$42.05             | \$53.50             | \$58.50             |
| 2E03                   | Aircraft Replacement and Related Equipment Program  | \$62.00             | \$38.50             | \$38.50             | \$56.50             | \$56.50             |
| 2E04                   | Airport Cable Loop Systems - Sustained Support  | \$10.00             | \$10.00             | \$10.00             | \$10.00             | \$10.00             |
| 2E05                   | Alaskan Satellite Telecommunications Infrastructure (ASTI)  | \$0.75              | \$0.00              | \$0.00              | \$0.00              | \$0.00              |
| 2E06                   | Real Property Disposition / Facilities Decommissioning  | \$6.00              | \$9.00              | \$5.00              | \$10.00             | \$10.00             |
| 2E07                   | Electrical Power Systems - Sustain/Support  | \$143.21            | \$120.50            | \$146.00            | \$185.00            | \$185.00            |
| 2E08                   | Energy Management and Compliance (EMC)  | \$5.36              | \$4.80              | \$3.50              | \$4.00              | \$4.00              |
| 2E09                   | Child Care Center Sustainment   | \$1.60              | \$1.00              | \$1.00              | \$1.00              | \$1.00              |
| 2E10                   | FAA Telecommunications Infrastructure   | \$344.80            | \$429.65            | \$460.22            | \$438.45            | \$385.42            |
| 2E11                   | Operational Analysis and Reporting Systems  | \$15.00             | \$5.00              | \$3.00              | \$0.00              | \$0.00              |
|                        | <b>Activity 3: Non-Air Traffic Control Facilities and Equipment</b>   | <b>\$206.83</b>     | <b>\$177.30</b>     | <b>\$152.10</b>     | <b>\$146.20</b>     | <b>\$131.60</b>     |
|                        | <b>A. Support Programs</b>  | <b>\$185.83</b>     | <b>\$156.30</b>     | <b>\$132.10</b>     | <b>\$126.20</b>     | <b>\$110.50</b>     |
| 3A01                   | Hazardous Materials Management  | \$30.63             | \$23.60             | \$20.50             | \$25.00             | \$31.00             |
| 3A02                   | Aviation Safety Analysis System (ASAS)  | \$28.00             | \$28.90             | \$33.00             | \$29.30             | \$28.00             |
| 3A03                   | National Airspace System Recovery Communications (RCOM)   | \$12.00             | \$10.00             | \$10.00             | \$10.00             | \$10.00             |
| 3A04                   | Facility Security Risk Management   | \$18.00             | \$15.00             | \$15.00             | \$15.00             | \$15.00             |
| 3A05                   | Information Security  | \$32.00             | \$22.00             | \$23.50             | \$22.70             | \$12.00             |
| 3A06                   | System Approach for Safety Oversight (SASO)   | \$21.00             | \$20.10             | \$7.90              | \$5.40              | \$0.90              |
| 3A07                   | NextGen - System Safety Management Portfolio  | \$6.00              | \$10.00             | \$10.00             | \$10.00             | \$10.00             |
| 3A08                   | National Test Equipment Program   | \$3.00              | \$3.00              | \$3.00              | \$0.00              | \$0.00              |
| 3A09                   | Mobile Assets Management Program  | \$2.40              | \$4.00              | \$2.00              | \$2.00              | \$2.00              |
| 3A10                   | Configuration, Logistics, and Maintenance Resource Solutions (CLMRS)  | \$26.80             | \$19.70             | \$7.20              | \$6.80              | \$1.60              |
| 3A11                   | Tower Simulation System (TSS) - Tower Training Simulator  | \$6.00              | \$0.00              | \$0.00              | \$0.00              | \$0.00              |
|                        | <b>B. Training, Equipment and Facilities</b>  | <b>\$21.00</b>      | <b>\$21.00</b>      | <b>\$20.00</b>      | <b>\$20.00</b>      | <b>\$21.10</b>      |
| 3B01                   | Aeronautical Center Infrastructure Modernization  | \$20.00             | \$20.00             | \$20.00             | \$20.00             | \$21.10             |
| 3B02                   | Distance Learning   | \$1.00              | \$1.00              | \$0.00              | \$0.00              | \$0.00              |

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| <b>FY24 BLI Number</b> | <b>Capital Budget Line Item (BLI) Program</b>                   | <b>FY 2024 Est.</b> | <b>FY 2025 Est.</b> | <b>FY 2026 Est.</b> | <b>FY 2027 Est.</b> | <b>FY 2028 Est.</b> |
|------------------------|---|---------------------|---------------------|---------------------|---------------------|---------------------|
|                        | <b>Activity 4: Facilities and Equipment Mission Support</b>     | <b>\$246.45</b>     | <b>\$228.73</b>     | <b>\$227.49</b>     | <b>\$227.49</b>     | <b>\$241.49</b>     |
| 4A01                   | System Engineering and Development Support                      | \$36.50             | \$38.00             | \$39.00             | \$39.00             | \$39.00             |
| 4A02                   | Program Support Leases  | \$45.00             | \$45.00             | \$45.00             | \$45.00             | \$50.00             |
| 4A03                   | Logistics and Acquisition Support Services                      | \$12.00             | \$12.00             | \$12.00             | \$12.00             | \$12.00             |
| 4A04                   | Mike Monroney Aeronautical Center Lease                         | \$16.40             | \$16.90             | \$16.00             | \$16.00             | \$22.00             |
| 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)                                 | \$13.00             | \$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           | \$19.55             | \$10.63             | \$9.29              | \$9.29              | \$12.29             |
|                        |   |                     |                     |                     |                     |                     |
|                        | <b>Activity 5: Personnel Compensation, Benefits and Travel</b>  | <b>\$635.00</b>     | <b>\$645.00</b>     | <b>\$666.00</b>     | <b>\$676.00</b>     | <b>\$680.00</b>     |
| 5A01                   | Personnel and Related Expenses                                  | \$635.00            | \$645.00            | \$666.00            | \$676.00            | \$680.00            |
|                        |   |                     |                     |                     |                     |                     |
|                        | <b>Activity 6: National Airspace Modernization Acceleration</b> | <b>\$115.00</b>     | <b>\$115.00</b>     | <b>\$115.00</b>     | <b>\$115.00</b>     | <b>\$115.00</b>     |
| 6A01                   | National Airspace Modernization Acceleration                    | \$115.00            | \$115.00            | \$115.00            | \$115.00            | \$115.00            |
|                        |   |                     |                     |                     |                     |                     |
|                        | Total Year Funding  | <b>\$3,462.00</b>   | <b>\$3,542.00</b>   | <b>\$3,623.00</b>   | <b>\$3,707.00</b>   | <b>\$3,792.00</b>   |

## **Information for 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 is required to provide 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: complexity, risk, political sensitivity, safety, security or cost; requirement of special management attention because of its importance to the mission of the FAA; significance of program or policy implications; executive visibility; or, high developmental costs. For more information on Acquisition Categories see:  
[http://fast.faa.gov/NFFCA\\_Acquisition\\_Categories.cfm](http://fast.faa.gov/NFFCA_Acquisition_Categories.cfm)

The table below shows the most recent information on “FAA’s Major Capital Programs”. The final page of the report reflects “Completed or Cancelled Major Capital Programs” for the referenced fiscal year.

The identification of vendor names is current only as of the date it is published, and is subject to change based on expiring contracts and re-competitions.



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**FAA Capital Programs  
Current Information for Major Programs**

| Programs  | 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<br>ACAT 1 NI | L3Harris         | May-19            | Jan-26          | \$718.3    |                     |                         |                    | Jan-26            | \$752.3    | <b>Current Estimate vs Original Baseline:</b> The cost increase of \$34.0M (-4.7% variance) is due to: 1) the addition of the Joint Base Andrews Airport Surface Surveillance Capability (ASSC) project to the program scope and 2) escalating subscription services costs to extend and renegotiate a contract extension.  |
| Automatic Dependent Surveillance Broadcast (ADS-B) - Enhancements<br>ACAT 3NI                       | L3Harris, Leidos | Jul-22            | Oct-26          | \$101.9    |                     |                         |                    | Oct-26            | \$101.9    | New Add: Final Investment Decision (FID) approved July 2022   |
| Advanced Technologies and Oceanic Procedures (ATOP) Enhancement 1<br>ACAT 3 NI                      | Leidos           | Apr-19            | May-25          | \$81.7     |                     |                         |                    | May-25            | \$85.0     | <b>Current Estimate vs Original Baseline:</b> The cost increase of \$3.3M (-4.1% variance) is due to additional funding needed to complete the ADS-C capabilities and deploy on schedule.   |
| Common Support Services Weather (CSS-Wx)<br>ACAT 1  | L3Harris         | Mar-15            | Aug-22          | \$120.1    | May-21              | Apr-26                  | \$211.4            | Apr-26            | \$211.4    | <b>Rebaseline vs. Original Baseline:</b> The schedule delay of 44 months (-49.4% variance) and cost increase of \$91.3M (-76.0% variance) is associated with underestimating software development efforts, hardware requirements, platform changes, interface changes, integration issues, 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<br>ACAT 1 NI      | L3Harris, Leidos | Aug-16            | Dec-23          | \$421.4    |                     |                         |                    | Mar-26            | \$416.1    | <b>Current Estimate vs Original Baseline:</b> The schedule delay of 27 months (-30.7% variance) is due to Data Comm Initial Services delays, COVID-19 work restrictions, the FY19 Government Shutdown, latent avionics and air/ground network issues, and lack of Subject Matter Expert (SME) resources. The cost savings of \$5.3M (1.3% variance) is associated with a revised deployment strategy that defers activation of functionality to a future date that requires avionics fixes to be delivered and installed. |
| Data Communications (Data Comm) Segment 1, Phase 2 (S1P2), Initial En Route Services<br>ACAT 1 NI   | L3Harris, Leidos | Oct-14            | Feb-21          | \$816.7    |                     |                         |                    | May-25            | \$864.3    | <b>Current Estimate vs Original Baseline:</b> The schedule delay of 51 months (-67.1% variance) and the cost increase of \$47.6M (-5.8% variance) is due to COVID-19 work restrictions, the FY19 Government Shutdown, latent avionics and air/ground network issues, and lack of SME resources.   |
| Enterprise-Information Display System (E-IDS) Phase 1<br>ACAT 1NI                                   | Leidos           | Jun-20            | May-27          | \$219.2    |                     |                         |                    | Oct-27            | \$304.0    | <b>Current Estimate vs Original Baseline:</b> The schedule delay of 5 months (-6.0% variance) and the cost increase of \$84.8M (-38.7% variance) is 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 issues.  |
| En Route Automation Modernization (ERAM) Enhancement 2<br>ACAT 1                                    | Leidos           | Dec-16            | Dec-23          | \$253.6    | Dec-18              | Dec-24                  | \$192.9            | Dec-24            | \$192.9    | <b>Rebaseline vs. Original Baseline:</b> 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<br>ACAT 4 TR   | Leidos           | Dec-19            | Sep-26          | \$332.9    |                     |                         |                    | Sep-26            | \$342.2    | <b>Current Estimate vs Original Baseline:</b> The cost increase of \$9.3M (-2.8% variance) is associated with an increase in prime contractor contract costs, Monitor & Control Workstations/Servers (MCWS) & Air Traffic (AT) WS, and funding for non-severable work efforts.  |

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## FAA Capital Programs Current Information for Major Programs

| Programs   | 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<br>ACAT 4 TR                           | Leidos                       | Nov-19            | Apr-27          | \$209.2    |                     |                         |                    | Apr-27            | \$209.2    |   |
| NextGen Weather Processor (NWP)<br>ACAT 1  | Raytheon Corporation         | Mar-15            | Aug-22          | \$189.3    | May-21              | Apr-26                  | \$319.9            | Apr-26            | \$319.9    | <b>Rebaseline vs. Original Baseline:</b> 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. NWP is dependent on CSS-Wx going operational. The cost increase 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/UHF Air to Ground Communication System (NEXCOM) Phase 2<br>ACAT 2 NI | General Dynamics C4 Systems  | Aug-17            | Dec-26          | \$334.2    |                     |                         |                    | Dec-26            | \$354.1    | <b>Current Estimate vs. Original Baseline:</b> The cost increase of \$19.9M (-6.0%) is due to: 1) A \$10.0M congressional plus up in Fiscal Year (FY) 2020 used to prioritize the procurement and replacement of version 1 radios with a supportability issue at En route and Terminal sites and 2) unplanned increase in the price of radios associated with a two year extension of the NEXCOM V2 radio contract. Firm-Fixed Priced (FFP) radio quantities, which had no cost escalation over the 10-year contract, have now realized significant increased pricing.  |
| Offshore Automation Segment 1<br>ACAT 1 NI   | Leidos                       | Sep-22            | Jul-29          | \$256.3    |                     |                         |                    | Jul-29            | \$256.3    | New Add: FID approved September 2022  |
| System Approach for Safety Oversight (SASO) Phase 3<br>ACAT 3 NI                         | Volpe                        | Feb-16            | May-23          | \$135.7    |                     |                         |                    | May-23            | \$127.7    |   |
| System Approach for Safety Oversight (SASO) Phase 4<br>ACAT 3 NI                         | Volpe                        | Jul-21            | Sep-28          | \$130.4    |                     |                         |                    | Sep-28            | \$130.4    |   |
| System Wide Information Management (SWIM) Segment 2C<br>ACAT 4 TR                        | L3Harris                     | Mar-20            | Sep-25          | \$129.5    |                     |                         |                    | Sep-25            | \$133.9    | <b>Current Estimate vs. Original Baseline:</b> The cost increase of \$4.4M (-3.4% variance) is associated with the replacement of the legacy National Offload Program (NOP) hardware at 148 Standard Terminal Automation Replacement System (STARS) sites with Store and Forward Appliances (SAFA Devices) and the related upgrade of the SWIM Terminal Data Distribution Services (STDDS) software.  |
| Standard Terminal Automation Replacement System (STARS) Sustainment 3<br>ACAT 4 TR       | Raytheon Corporation         | Jun-21            | Mar-27          | \$241.4    |                     |                         |                    | Mar-27            | \$241.4    |   |
| Terminal Flight Data Manager (TFDM)<br>ACAT 1 NI   | Leidos                       | Jun-16            | Sep-28          | \$795.2    |                     |                         |                    | Feb-30            | \$957.0    | <b>Current Estimate vs. Original Baseline:</b> 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.  |
| Time Based Flow Management (TBFM) Enhancement 1<br>ACAT 3 NI                             | Leidos                       | Apr-15            | Sep-22          | \$188.3    |                     |                         |                    | May-23            | \$228.8    | <b>Current Estimate vs. Original Baseline:</b> The schedule delay of 8 months (-9.0% variance) and the cost increase of \$40.5M (-21.5% 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 deferral of TBO sites to a future program/project and the addition of new IDAC sites.   |
| Wide Area Augmentation System (WAAS) Phase 4B<br>ACAT 1 NI                               | Raytheon Corporation, Leidos | Jun-22            | Jun-28          | \$665.3    |                     |                         |                    | Jun-28            | \$665.3    | Added program: FID approved June 2022   |

Capital Investment Plan

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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.

| FAA Capital Programs<br>Major Programs - Completed or Cancelled                 |  |                   |                 |            |                     |                         |                    |                 |            |   |
|---|--|-------------------|-----------------|------------|---------------------|-------------------------|--------------------|-----------------|------------|---|
| Programs  | 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 |   |
| Aerospace Medicine Safety Information System (AMSIS) ACAT 4                     | Tetra Tech   | Sep-17            | Jan-22          | \$85.3     |                     |                         |                    | N/A             | N/A        | The FAA has cancelled the AMSIS program.  |
| ERAM Sustainment 2 ACAT 4 TR  | Leidos   | Dec-16            | Sep-20          | \$279.2    |                     |                         |                    | Jun-22          | \$271.9    | Program Completed.<br><b>Current Estimate vs. Original Baseline:</b> The schedule delay of 21 months (-46.7% variance) was due to the FY19 Government Shutdown, display monitor and trackball issues, and the COVID-19 work restrictions.   |
| Logistics Center Support System (LCSS) ACAT 2                                   | Industrial and Financial Systems (IFS) North America | Apr-10            | Apr-14          | \$67.4     | Apr-14              | Apr-16                  | \$79.4             | Jul-22          | \$132.9    | Program Completed.<br><b>Current Estimate vs. Rebaseline:</b> The program completed with a 75-month schedule delay (-104.2% variance) and a \$53.5M cost increase (-67.3% variance). The variances are associated with: 1) user and system requirements that were identified after the Initial Operating Capability (IOC); 2) workarounds as a result of unmet requirements that did not have documentation to support the remaining development; 3) related work processes and system interfaces that were not fully defined or documented that resulted in additional requirements to be developed; 4) efforts to stabilize defects found during initial production; and 5) impacts related to the mandated removal and replacement of security related software. |
| System Wide Information Management (SWIM) Segment 2B ACAT 2                     | Volpe, FAA   | Oct-15            | Sep-21          | \$119.6    |                     |                         |                    | Apr-22          | \$124.4    | Program completed.<br><b>Current Estimate vs. Original Baseline:</b> The schedule delay of 7 months (-9.9% variance) is associated with the COVID-19 work restrictions. SWIM Segment 2B was comprised of four capabilities, three of which experienced delays related to COVID-19 restrictions. Of those, only one—the deployment of the SWIM Terminal Data Distribution Service (STDDS) Release 6—results in a schedule variance exceeding the original baseline completion date. The cost increase of \$4.8M (-4.0% variance) is associated with under estimated costs for Transitioning to Operations & Maintenance (TOM), additional costs for system development for SWIM capabilities, and impacts of the FY19 Government Shutdown.                           |
| Standard Terminal Automation Replacement System (STARS) Sustainment 2 ACAT 4 TR | Raytheon Corporation                                 | Sep-17            | May-22          | \$102.1    |                     |                         |                    | May-22          | \$102.1    | Program Completed.  |
| Traffic Flow Management System (TFMS) Enhancement 4 ACAT 3 NI                   | General Dynamics Information Technology (GDIT)       | Jun-17            | Sep-22          | \$78.6     |                     |                         |                    | Oct-22          | \$73.0     | Program Completed<br><b>Current Estimate vs. Original Baseline:</b> The schedule delay of 1 month (-1.6% variance) and the cost savings of \$5.6M (7.1% variance) is associated with: 1) the deferral of Improved Demand Prediction (IDP), Integrated Departure Route Planning (IDRP) and Common Support Services-Weather (CSS-Wx) requirements due to contractual limitations and 2) the addition of TFMS Reroute Impact Assessment (RRIA) capability to the program baseline.   |



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**Facilities and Equipment Spend Plan for Fiscal Year 2024  
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 2024 for the following projects.

| <b>FY 2024<br/>BLI</b> | <b>BLI Name</b>   | <b>FY 2024<br/>IIJA (\$K)</b> |
|------------------------|---|-------------------------------|
| 1J01                   | Terminal and En Route Air Traffic Control Facilities - Replace                                  | \$662,000                     |
| 1J02                   | Unstaffed Infrastructure Sustainment and Real Property Disposition                              | \$55,000                      |
| 1J03                   | Electrical Power System - Sustain/Support and Fuel Storage Tank Replacement and Management      | \$60,000                      |
| 1J04                   | Hazardous Materials Management and NAS Facilities, OSHA, and Environmental Standards Compliance | \$23,000                      |
| 1J05                   | Personnel Compensation, Benefits, and Travel (PCB&T)  | \$200,000                     |
|                        | <b>Total</b>  | <b>\$1,000,000</b>            |

**Terminal and En Route Air Traffic Control Facilities – Replace**

Of the \$662 million allocated for facilities replacement, \$232 million is for the design and construction of Tier 1 and Tier 2 facilities and \$430 million is for Tier 3 and Tier 4 sites.

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:

| <b>Priority Facility Replacement (Tier 1 and Tier 2 Facilities)</b> |              |             |                      |                                       |
|---|--------------|-------------|----------------------|---------------------------------------|
| <b>Location ID</b>  | <b>State</b> | <b>City</b> | <b>Facility Type</b> | <b>HUBZone/<br/>Recurring Process</b> |
| 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                     |

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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.

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- 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 and FY 2024 funding under IIJA. Current cost estimates suggest that the FY 2023 and FY 2024 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.

| <b>Standardized Modular Facility Replacement Candidates (Tier 3 and Tier 4 Facilities)</b> |              |              |                          |                                       |
|--|--------------|--------------|--------------------------|---------------------------------------|
| <b>Location ID</b>   | <b>State</b> | <b>City</b>  | <b>Facility Type</b>     | <b>HUBZone/<br/>Recurring Process</b> |
| 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                               |

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| <b>Standardized Modular Facility Replacement Candidates (Tier 3 and Tier 4 Facilities)</b> |              |                    |                          |                                       |
|--|--------------|--------------------|--------------------------|---------------------------------------|
| <b>Location ID</b>   | <b>State</b> | <b>City</b>        | <b>Facility Type</b>     | <b>HUBZone/<br/>Recurring Process</b> |
| PUB  | CO           | Pueblo             | FAA Tower                | HUBZone                               |
| RDG  | PA           | Reading            | FAA Tower                | Recurring Process                     |
| RVS  | OK           | Tulsa<br>Riverside | FAA Tower                | HUBZone                               |
| 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 2024 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



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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 2024 BIL/IIJA funds would support approximately 516 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 2024 IIJA/BIL Funding will allow FAA to remediate approximately 40 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.

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**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.