

Federal Aviation Administration

FY 2025 Research and Development (R&D) Portfolio Development Process

Guidance Document

March 2023

Federal Aviation Administration NextGen Office William J. Hughes Technical Center Research and Development Management Division ANG-E4

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	PURPOSE	2
2.1	Guidance Document	2
2.2	R&D Portfolio	2
3.	STRATEGIC PLANNING	3
31	Agency Research Priorities	
311	National Aviation Research Plan (NARP)	A
3.1.1	Fact Shoets	4 A
3.1.2	Vational D & D Pudgatam Drighting	4
5.2 2.2	National R&D Budgetary Priorities	4
3.3	DUD Strategic Goals	4
4.	BUDGET FORMULATION	6
4.1	Overview	6
4.2	<i>R&D Executive Board</i>	6
4.2.1	Members	6
4.2.2	REB Membership	7
4.2.3	REB Voting and Procedures	7
4.2.4	REB Interfaces	7
4.3	Domains and Program Planning Teams (PPTs)	7
4.3.1	Sponsor and Performer Roles	8
4.3.2	PPT Interfaces	9
433	PPT Responsibilities	9
434	PPT Prioritization Process	9
435	Domain Lead Responsibilities	9
1.J.J A A	BER Sunnort Team (RST)	
7.7 15	Eingneigl Management Division	10
4.J 151	Financial Management Division	10
4.J.1	Finance Interfaces	10
4.0	Capital Investment Team (CII) Process	10
4./		11
4./.1	Research, Engineering, and Development Advisory Committee (REDAC)	11
4.7.2	Joint Resource Council	11
4.8	Submission	11
4.11	Office of the Secretary of Transportation (OST)	12
4.12	Office of Management and Budget (OMB)	13
4.13	The President's Budget	13
5.	R&D PORTFOLIO DEVELOPMENT	14
5.1	Process	14
5.1.1	Guidance	14
5.1.2	Requirements Formulation	14
5.1.2.1	Program Level	15
5.1.2.2	Domain Level	15
5.1.3	Portfolio Level and Approval	16
5.1.4	Budget Submission and Adjustment	
5141	Budget Submission	17
5142	Budget Adjustment	18
6	EXECUTION	
6.1	Sponsor and Performer Roles	
6.2	Contracts Grants and Cooperative Agreements	19
0.2	Contracts, Grants, and Cooperative Agreements	20
0.5 7	г іпапсіаі мападетені Еканнатом	20
/.	EVALUATION	22
/.1	Lessons Learned Sessions	22
/.2	Research & Development Advisory Committee (REDAC)	22
7.2.1	REDAC Responsibilities	22

7.2.2	REDAC Outputs	- 23	
7.2.3	REDAC Subcommittee Meetings	- 23	
7.3	Commercial Space Transportation Advisory Committee (COMSTAC)	- 23	
ACRONYMS24			
Appendix A: FAA R&D Programs by Domain25			
Append	lix B: PPT Prioritization Process	- 26	

1. INTRODUCTION

The Federal Aviation Administration's (FAA) research and development (R&D) portfolio development process seeks to produce a well-balanced R&D portfolio with a high level of relevance, quality, and performance. The resultant R&D portfolio does not duplicate Federal, state, local, or private efforts. Each FAA R&D portfolio element supports the FAA mission to provide the safest, most efficient aerospace system in the world. To achieve this, internal and external stakeholders provide input and assessment of the FAA R&D portfolio on a regular basis. Additionally, the FAA leverages its external partners for people, skills, and resources. For example, academic and industry partners that comprise the six active Air Transportation Centers of Excellence provide matching resources for aviation-related R&D.

The R&D portfolio consists of more than thirty programs supporting research across six domains – Airport Infrastructure and Technologies, Aircraft Safety Assurance, Digital Systems and Technologies, Human and Aeromedical Factors, Environmental and Weather Impact Mitigation, and Aerospace Performance and Planning. These domains facilitate R&D planning over a diverse set of activities, addressing issues across many aspects of the aerospace sector.



This is an abstract graphic representing FAA R&D research and development areas. White dotted lines indicate areas of impact before, during, and after flight. These connections are notional and not intended to be comprehensive.

2. PURPOSE

The purpose of the FAA R&D portfolio development process is to produce an R&D portfolio that has a high level of relevance, quality, and performance.

2.1 Guidance Document

This document is intended to provide guidance to participants on the FAA R&D portfolio development process and document its process; as well as minimize the time required to understand and use the process, and maximize time available to manage programs and produce results. It will also explain how the portfolio development process connects to the strategic planning, budget formulation, program execution, and evaluation of R&D.

2.2 R&D Portfolio

Each element of the FAA R&D portfolio has a clear purpose that supports the FAA mission to provide the safest, most efficient aerospace system in the world. The FAA is the sole certification authority for the United States aviation community. Through its Research, Engineering, and Development (R,E,&D) programs, the FAA develops standards to regulate the industry and ultimately reduces the aviation accident fatality rate.

The FAA has the sole responsibility for the national airspace system (NAS). The Facilities and Equipment (F&E) R&D programs focus on shortfalls (mission needs) in the operational capabilities that the FAA needs to perform its mission. The F&E programs provide the necessary equipment and facilities for the FAA to fulfill its mission for a safe, secure, and efficient NAS. The F&E R&D programs provide innovative development and acquisition for products and services that enable the FAA to enhance the safety of the NAS and satisfy current and future operational needs of the U.S. Civil Aerospace System for National and International operations.

The FAA's Airport Improvement Program (AIP) R&D programs focus on improvements in safety, operations, and construction of airports (including the development of innovative concrete and other materials in the construction of airport facilities to minimize installation costs and time out of service, and maximize lifecycle durability) to reduce capacity constraints of secondary and reliever airports located within major metropolitan areas. The FAA's AIP R&D programs encourage innovative technology, concepts, and approaches that will promote safety, capacity, and efficiency improvements in the construction of airports and in the air transportation system.

The R&D portfolio is unique to any other Federal, state, local, or private organization in fulfilling its mission to provide the safest, most efficient aerospace system in the world. The FAA engages both internal and external stakeholders to provide input and assessment of the R&D portfolio on a regular basis. The FAA also leverages its external partners for people, skills, and resources in the development of the R&D portfolio.

3. STRATEGIC PLANNING

The FY 2025 R&D Portfolio Development Process develops an Agency-wide, integrated research program that is efficiently planned, budgeted, and executed. Integrated planning helps ensure that R&D resources are customer-focused and target the highest priority activities. The R&D portfolio addresses the current challenges of operating the safest, most efficient air transportation system in the world while building a foundation for the future.



3.1 Agency Research Priorities

The FAA's safety mission sets the foundation for everything the Agency does. In today's climate of private innovation, the FAA and aviation community must adjust to accommodate the increasing pace of industry-driven technology advancements. The Agency's research portfolio is focused on this core mission and the integration of innovative technologies into the National Airspace System (NAS).

The Office of NextGen is responsible for managing the Agency's research agenda and leading the development of many supporting products, including the National Aviation Research Plan (NARP) and the annual research fact sheets. The NARP serves as the link between the FAA's R&D activities and the national goals and research priorities as laid out by the Executive Office of the President and the Department of Transportation (DOT). The fact sheets provide an executive overview of key elements of the research portfolio in any given year.

3.1.1 National Aviation Research Plan (NARP)

Title 49 U.S. Code, section 44501c requires the Administrator of the FAA to submit the NARP to Congress annually with the President's budget. The NARP is an integrated, performance-based plan for the FAA R&D portfolio that supports both the day-to-day operation of the current system and the future vision of NextGen. The NARP is updated annually and available online at (www.faa.gov/go/narp).

3.1.2 Fact Sheets

The fact sheets are developed annually and provide the details of research priorities within the six domain areas. The R&D results of these priorities support the FAA in:

- Developing a better understanding of technologies, so policy offices can craft minimum safety regulations and standards
- Standardizing approaches that industry can use to show compliance with safety regulations
- Developing strategies to evolve the NAS to accommodate increasing air traffic, expanding markets, and changing technologies

The projects outlined in the fact sheets are required to maintain or improve safety and achieve a more integrated and connected operation that services more users in more locations, and reduces aviation-related environmental effects.

3.2 National R&D Budgetary Priorities

Each year, the FAA prioritizes R&D activities that align with the national goals as set forth by the Executive Office of the President R&D budgetary priorities.

3.3 DOT Strategic Goals

The FAA invests in high-priority research and development activities that are critical to the NAS and aligned with the DOT's overarching strategic goals, which include:

- Safety
- Economic Strength and Global Competitiveness
- Equity
- Climate and Sustainability
- Transformation, and
- Organizational Excellence

The FAA also structures its research portfolio in alignment with the DOT's Innovation Principles¹, which are:

¹ https://www.transportation.gov/priorities/innovation/us-dot-innovation-principles

Strategic Planning

- Serve our policy priorities
- Help America win the 21st century
- Support workers
- Allow for experimentation and learn from failure
- Provide opportunities to collaborate
- Be flexible and adapt as technology changes

4. BUDGET FORMULATION

The FAA R&D programs are funded by annual congressional appropriations, through three budgetary accounts: R,E,&D (Research, Engineering, and Development), AIP (Airport Improvement Program) and F&E (Facilities and Equipment).

4.1 Overview

The R&D Executive Board (REB) with assistance from the program planning teams (PPT) coordinate development of the Agency's annual R&D investment portfolio. The REB support team (RST) documents and supports the process, and works with the Office of Budget and Programs' (ABP) R,E,&D financial manager to coordinates and prepare the R,E,&D budget submission.

4.2 R&D Executive Board

The REB coordinates the various iterations of the Budget Portfolio with FAA upper-level management including the Joint Resources Council (JRC). In particular, the REB plans, presents, and defends the R, E &D portion of the R&D program, and determines research priorities and program impacts from changes that occur during the formulation phase and Congressional phase of the budget process. The JRC may approve the proposed Budget Portfolio or make modifications and adjust target levels. If the JRC requires changes to the Budget Portfolio, the REB makes the changes and briefs the JRC again with a revised Budget Portfolio.

4.2.1 Members

Member Organization	Org	Representative	Role
Assistant Administrator for NextGen	ANG	Shelley Yak, (Chair), ANG	Voting
Associate Administrator for Aviation Safety	AVS	Mark Orr, AVP-300	Voting
Associate Administrator for Airports	ARP	John Dermody, AAS-2	Voting
Associate Administrator for Commercial Space Transportation	AST	Minh Nguyen, ASZ-310	Voting
Assistant Administrator for Policy, International Affairs & Environment	APL	James Hileman, AEE-3	Voting
Assistant Administrator for Finance & Management	AFN	Beth Delarosby, ABP-310	Advisory
Air Traffic Organization	AJR	Wendy O'Connor, AJO	Advisory

Table	1: REB	Members

4.2.2 REB Membership

There are seven REB members who represent the FAA lines of business (associate administrators) and assistant administrators who sponsor or manage funds for R&D programs. The head of each member organization appoints a representative to the REB.

4.2.3 **REB Voting and Procedures**

One voting member introduces a motion and another voting member seconds. After discussion, members vote on the motion. Approval of a motion requires a favorable vote from a majority of the total voting membership. If only three voting members are present, all three must vote in favor to carry the motion. A vote requires the presence of a quorum, meaning three of the five voting members (or their designated representatives).

To make decisions or take action within REB proceedings (e.g., components of the annual R&D portfolio, the annual R&D budget portfolio, etc.), members should adhere to the formal voting process outlined below.

To hold a vote, a quorum must be present. A quorum is defined as the minimum number of total REB voting members that must be present to conduct business. For the REB, a quorum is the majority of the voting membership (three of the five voting members).

4.2.4 **REB Interfaces**

The REB provides high-level guidance to develop the R&D portfolio. REB members communicate and interact with numerous organizations to gather information to develop the R&D portfolio. Organizations include:

- Associate or Assistant Administrator, Chief Operating Officer, or Senior Vice President
- PPTs
- R&D Management Division (ANG-E4)
- R,E,&D Financial Manager (ABP-310)
- F&E Budget Planners
- REDAC and its Subcommittees
- LOB Review Boards

4.3 Domains and Program Planning Teams (PPTs)

The R&D portfolio is categorized into six domain areas - commonly referred to as domains - in support of the FAA's research goals (See Appendix A: FAA R&D Programs by Domain). The PPTs that inform the domain areas' research program area portfolios are detailed in the table below. PPT members include the sponsors and performers, otherwise known as the Program and Project Managers. PPT members collect information, define programs, justify and prioritize program requirements, estimate funding, and interface with other teams to build and present an R&D budget. The PPTs assess their program budget requirements, prepare budget, and process documentation.

PPTs and the REB domain leads work together to formulate the portfolio and present the budget.
The PPTs take a detailed approach to the portfolio development process, and the REB provides
oversight.

Domain	Domain Lead	Program Area	REB Sponsor	PPT/Program Area Lead	Telephone Number
Airport Infrastructure and Technologies	John Dermody AAS-100	Airports	ARP	John Dermody AAS-100	(202) 267-8874
Aircraft Safety Assurance/ Human and Aeromedical Factors	Mark Orr AVP-300	Aviation Safety	AVS	Mark Orr AVP-300	(816) 329-4151
Aerospace Performance and Planning	Andras Kovacs ANG-C	Commercial Space Transportation	AST	Minh Nguyen ASZ-310	(202) 267-0772
Aerospace Performance and Planning	Andras Kovacs ANG-C	NextGen	ANG	Andras Kovacs ANG-C	(202) 267-5022
Environmental and Weather Impact Mitigation	James Hileman AEE	Environment and Energy	APL	James Hileman AEE	(202) 493-4752
Aerospace Performance and Planning	Andras Kovacs ANG-C	Mission Support	ANG	Jon Schleifer ANG-E4	(609) 485-6670
Digital Systems and Technologies	Andras Kovacs ANG-C	NAS Operations	ANG	Andras Kovacs ANG-C	(202) 267-5022
Environmental and Weather Impact Mitigation	James Hileman AEE	Weather	ANG	Tammy Flowe ANG-C6	(202) 267-2796

4.3.1 Sponsor and Performer Roles

Sponsor organization defines and owns or shares the R&D requirement. Generally, the sponsor has identified and demonstrated a need for the research and associated results. The sponsor's role in the budget formulation process includes preparing requirements, determing if R&D requirements are consistent with NARP outputs, preparing justification for any NARP output changes and approving program budget narratives.

Performer organization manages the work that fulfills the R&D requirement. Performers include program managers and program offices. Generally, the performer undertakes the R&D effort and provides research results. The Performer's role in the budget formulation process includes preparing cost, schedule, and technical plan for requirements, as well as program budget narratives. When sponsors and performers are in the same organization, that organization performs both roles.

4.3.2 PPT Interfaces

PPT members interface with sponsors and performers to understand requirements and provide detailed information about R&D programs. The PPTs also interface with the domain leads to formulate and review their R&D portfolios. The PPTs may interface with the RST for information on the NARP and REDAC recommendations, the ABP-310 financial manager for budget targets and past budget submission information, and the RST for training on the process. PPT leads are encouraged to investigate opportunities for collaboration with other programs having overlapping goals or objectives. The PPTs also interface with the REDAC to obtain subcommittee recommendations and with the DFO for the appropriate subcommittees for their program areas. The DFOs determine the level of detail required for the subcommittee to make sound budget portfolio recommendations to the full REDAC.

4.3.3 PPT Responsibilities

Each PPT communicates regularly with an assigned domain lead/REB member(s) for process guidance and feedback during development of the R&D portfolio. The PPT responsibilities include gathering information from:

- R&D Portfolio Development Process Guidance Document
- NARP
- Other documents as needed

PPTs generate the R&D portfolio in order to ensure the annual portfolio meets the allocated budget target, and prepare and present the PPT portfolio and briefing to the REDAC Subcommittees.

4.3.4 PPT Prioritization Process

The schematic representation of the PPT Prioritization Process is shown in Appendix B.

4.3.5 Domain Lead Responsibilities

The domain lead has the overall responsibility for completing the proposed R&D portfolio for the domain area. Domain lead responsibilities include:

- Identifying research priorities
- Coordinating meetings with domain team members
- Addressing internal domain issues
- Ensuring the PPT develops a portfolio of requirements for the target year and considers input from all domain PPT members
- Ensuring five-year planning for domain portfolios is based on the budget targets provided

4.4 REB Support Team (RST)

The RST provides administrative support and high-level strategic stewarship of the R&D portfolio. The RST facilitates all REB meetings (including setting the agenda, engaging with REB members, running the meetings, and disseminating minutes and action items), maintains the R&D portfolio development process (including annual documentation of the process through dynamic updates to the Guidance Document; rollout, training and administering the SPIRE system for collection of annual research requirements from the PPTs; creation of domain briefing templates for the REB's use in discussing and documenting the annual portfolio selection; creation and administration of the annual budget narratives, for submittal to the President), and maintains and archives REB documentation. The RST also supports the PPTs, sponsors, and program and project managers by providing process training and briefing and document templates, and serves as a liaison between the FAA and OST, OMB and Congress. RST membership consists of a team lead from the R&D Management Division, the R,E,&D financial manager (ABP-310), and contractor support staff. Additional personnel from each of these contributing organizations may be called upon for assistance.

4.5 Financial Management Division

The R,E,&D Financial Manager (ABP-310) works for the Assistant Administrator for Finance and Management (AFN-1), and is a member of the RST.

4.5.1 Finance Interfaces

As the REB interfaces with the FAA budget office, the R,E,&D Financial Manager coordinates the R,E,&D budget presentations with ABP counterparts who present the F&E budget and maintains the R&D portfolio financial data. The R,E,&D Financial Manager prepares the R,E&D budget for JRC approval, and then for submission to OST, OMB, and Congress. The budget includes all R,E,&D program budget narratives. The Financial Manager also prepares responses to passbacks from OST and OMB and mark-ups from Congress. The R,E&D Financial Manager's processes include (a) Budget Narratives, (b) OST and OMB budget submission, (c) President's budget submission to Congress, (d) responses to requests for additional information from Congress, and (e) financial plans.

4.6 Capital Investment Team (CIT) Process

In addition to relating capital investments to agency strategic goals, FAA management has a disciplined process for managing F&E funding for major system acquisitions. The FAA has established a detailed process for evaluating, approving, and managing F&E projects. When management considers a project for F&E funding, they must have a business case that estimates both project costs and benefits. A CIT composed of representatives of all the major lines of business reviews the business case. If the team supports the project, it recommends that the Assistant Administrator for Finance and Management approve it before presenting the project to the JRC. Once the JRC approves a project, a baseline cost estimate is established, and the FAA commits to fully fund the baseline.

4.7 Review

The proposed R&D portfolio undergoes a series of external and internal reviews, shown in Figure 1. The REDAC and its subcommittees conduct the external reviews. The JRC is the FAA's senior investment review board. The JRC is assisted by subordinate review boards that examine the portion of the R&D portfolio that applies to the particular board's line of business or service area.

4.7.1 Research, Engineering, and Development Advisory Committee (REDAC)

The REDAC review includes a detailed evaluation of the proposed R&D portfolio. The review is a two-step process. First, each of the five standing subcommittees on Aircraft Safety, Airports, Human Factors, Environment and Energy, and NAS Operations conducts a detailed review of the R&D portfolio in its respective area of expertise. This usually occurs between February and March. Second, the full committee integrates recommendations from the subcommittees and provides a high-level evaluation of the R&D portfolio sometime between March and April.

4.7.2 Joint Resource Council

The JRC makes corporate-level resource decisions including:

- Authorizing funding for new investment programs
- Approving investment resources
- Making investment decisions
- Monitoring investment program performance
- Overseeing various subordinate boards for investment decision-making process
- Approving F&E and R,E&D annual budget submission

Members of the JRC represent all agency lines of business (LOBs), which include the service organizations that operate or maintain the products as well as the functional disciplines of budget, safety, and legal counsel. Prior to the JRC review, each LOB will review the R,E,&D portfolio.

4.8 Submission

The Budget and Accounting Act of 1921 requires the President to coordinate the budget requests for all government agencies and to send a comprehensive budget to the Congress. Congress created the Bureau of the Budget, now OMB, to help the President do these tasks. Figure 1 shows the flow of information and requirements from the source (PPTs) to the President's Budget. The Act also requires the President to include certain information in the budget.



Figure 1: Review and Submission Flow

4.11 Office of the Secretary of Transportation (OST)

Title 31 U.S. Code section 1108 (b) (1) requires the Secretary of Transportation to prepare and submit to the President each appropriation request for the DOT. The request must be submitted in the form prescribed by the President and by the date established by the President. To meet this requirement, DOT provides instructions to each modal administration for preparing its budget with a schedule for submitting the proposed budget to OST for review. The DOT guidance is published in early May, and the OST submission date is usually in early to mid-June. As a result

of its review, DOT provides a passback to the modal administrators in late July. For more information, see Department of Transportation Performance Budget.

4.12 Office of Management and Budget (OMB)

Title 31 U.S. Code, section 1112 (c), (1) requires OMB to help establish, maintain, and publish standard terms and classifications for fiscal, budget, and program information of the Government, including information on fiscal policy, receipts, expenditures, programs, projects, activities, and functions; and section 112 (d) requires agencies to use these standards when providing fiscal, budget, and program information to Congress.

To meet this requirement, the OMB Director issues a letter in April to the Secretary of Transportation providing policy guidance for the upcoming budget request. In July, OMB issues Circular A-11, which provides detailed instructions for submitting budget data and materials to all Federal agencies. The budget submission from DOT to OMB is usually due on or around September 10. OMB reviews the budget submission and sends a passback to DOT on or around November 30. In December, the Secretary of Transportation may appeal to OMB to reverse or modify the changes in the passback.

4.13 The President's Budget

As required by Title 31 U.S. Code, section 1105 (a), "On or after the first Monday in January but not later than the first Monday in February of each year, the President shall submit a budget of the United States Government for the following fiscal year." The fiscal year begins on October 1 of each year and ends on September 30 of the following year.

To meet this requirement, DOT prepares and submits its budget justification materials to OMB for final review. OMB prepares the final budget, and the President transmits the budget to the Congress. Once the budget is transmitted, the formulation phase ends, and the congressional phase begins. The appropriations subcommittees that review the DOT budget are the Transportation, Housing and Urban Development, and Related Agencies Subcommittee in the House of Representatives; and the Subcommittee on Transportation, Housing and Urban Development, and Related Agencies in the Senate. Information on the House subcommittee is available at (https://appropriations.house.gov/subcommittees).

5. R&D PORTFOLIO DEVELOPMENT

The FAA's R&D portfolio development process includes strategic planning, budget formulation, program execution, and program evaluation. The process improves the planning, programming, and budgeting of the R&D program; increases the return on taxpayer investment; enhances productivity; and ensures the relevance, quality, and performance of the R&D program.

The R&D portfolio addresses the current challenges of operating the safest, most efficient air transportation system in the world while building a foundation for the future. Strategic planning for the R&D portfolio starts with the REB. The REB coordinates development of the Agency's annual R&D investment portfolio. The REB provides an oversight approach to managing the R&D portfolio development process leading to a well-balanced portfolio.

Internal and external program evaluations monitor whether research results produced by the portfolio meet the Administration's strategic objectives. Internal evaluations allow program managers to report progress and highlight any concerns, including funding and priority issues. The REDAC and its subcommittees conduct external reviews of the R&D portfolio twice a year. These evaluations provide feedback for strategic planning and help ensure the relevance, quality, and performance of the R&D portfolio.

5.1 Process

GUIDANCE January	REQUIREMENTS Nov-Feb	S/FORMULATION Mar-April	APPROVAL May	BUDGET SUBMISSION/ ADJUSTMENT June - Dec
	Program Level	Domain Level	Portfolio Level	
	 Program planning Multi-year program plans Complete set of prioritized research projects by program 	 Domain Briefing Budget Request Focus Areas Develop scenario based funding requests that align with priorities and fluctuating budget targets 	 Portfolio Summary Portfolio Funding Proposal Obtain guidance from senior leaders on agency priorities Incorporate corporate level strategy and decision making 	

Figure 2: Summary of R&D portfolio development process

There are four high-level phases of the FY 2024 R&D portfolio development process: Guidance, Requirements Formulation, Approval and Budget Submission. These are shown in Figure 2 above and described in detail below.

5.1.1 Guidance

The REB Support Team (RST) updates, prepares, and distributes the R&D Portfolio Development Process Guidance Document to the REB. The document provides top-level guidance and instructions for the process and reflects lessons learned from the previous cycle.

5.1.2 Requirements Formulation

5.1.2.1 Program Level

The R&D program managers and/or Program Planning Teams (PPTs) generate planned budget portfolios for their areas using funding target allocations provided by the REB (with input from ABP-310), guidance in the R&D Portfolio Development Process Guidance Document, and sponsor-defined requirements. PPT members collect information, define programs, justify and prioritize program level requirements, estimate funding, and work with the domain leads to formulate program-level requirements and present a funding request proposal to the REB.

In the second quarter of the fiscal year, generally mid-February, the R&D program managers brief their proposed budget portfolios to their respective REDAC Subcommittees. Program managers work with the Designated Federal Official (DFO) of each REDAC Subcommittee to ensure that the level of information required by the subcommittee to make informed decisions is provided. After reviewing the budget portfolios, the Subcommittees provide feedback, advice, and recommendations to the R&D program managers.

R&D progam managers prioritize research projects within the program's funding target allocation. The Program plans are then reviewed by the internal financial sponsor of the research. Figure 3 outlines the program level process.



Figure 3: Summary of program level formulation

5.1.2.2 Domain Level

Domain leads coordinate the various program requirements and research activities within their domain areas and develop scenario based funding requests that align with priorities and fluctuating budget targets. Figure 4 outlines the domain level process.



Figure 4: Summary of domain level formulation

5.1.3 Portfolio Level and Approval

The REB reviews and discusses the proposed budget portfolios as presented by the domain leads and identifies gaps, overlaps, and opportunities for cooperation among the programs. The REB then coordinates the various iterations of the Budget Portfolio with FAA upper-level management and Joint Resources Council (JRC). In particular, the REB plans, presents, and defends the R, E &D portion of the R&D program, and determines program impacts from changes that occur during the formulation phase and Congressional phase of the budget process. The JRC may approve the proposed Budget Portfolio or make modifications and adjust target levels. If the JRC requires changes to the Budget Portfolio, the REB makes the changes and briefs the JRC again with a revised Budget Portfolio. Figure 5 outlines the porfolio level and approval process.



Figure 5: Summary of portfolio level formulation

5.1.4 Budget Submission and Adjustment

The Office of Budget and Programs (ABP-310) requests the Program Offices to prepare budget narratives in accordance with the JRC approved budget portfolio. ABP provides current and outyear financial information to R,E,&D sponsors and program and project managers to help them prepare budget narratives. Program and project managers prepare budget narratives and send them to the sponsors for review. If the sponsors agree with the budget narratives, the sponsors forward them to ABP-310. All changes are coordinated with sponsors and performers prior to submission to ABP-310.

Sponsor reviews address only the what (i.e., the requirements) and not how the requirements are met. Only requirements that are supported by a sponsor are included in the budget narrative. Performers do not sponsor requirements; in other words, research cannot be self-sponsored.

5.1.4.1 Budget Submission

ABP-310 edits and submits the R,E,&D budget narratives to ABP. ABP compiles budget information for all FAA budgetary accounts, R,E,&D, F&E, AIP, and Ops, to prepare the overall FAA budget request to OST. ABP-310 provides copies of the final budget narratives that were submitted to OST to R,E,&D program managers and sponsors. OST reviews the budget and provides feedback (also known as 'a passback') to the FAA.

The R,E,&D program managers use the OST passback information to revise and update their budget narratives, as needed, and send to sponsors for review. All changes are coordinated with sponsors and performers before submitting to ABP-310. ABP-310 collects the updates from the sponsors and reviews, edits, and updates financial information for the budget narratives. ABP-310 submits the R,E,&D budget narratives to ABP-100 for inclusion in the overall FAA budget request to OMB. ABP-310 sends copies of final budget narratives that are submitted to OMB to R,E,&D program managers and sponsors. The OMB reviews and provides feedback (also known as the passback) to the FAA.

The R,E,&D program managers use the OMB passback information to revise and update their budget narratives and coordinate any changes with sponsors. After sponsors review, ABP-310 collects, reviews, and edits the budget narratives as needed. ABP-310 then submits the R,E,&D budget narrative to ABP for inclusion in the overall FAA budget request to Congress. ABP-sends the final budget narratives to OST, who submits to Congress.²

The House and Senate independently review the budget. Each organization provides a report on its version of the budget that is reviewed by the FAA. The FAA may comment or appeal portions of either report. The Budget Office for submittal would prepare an appeal to OST, and if approved by OST, OST submits to OMB, and OMB to either the House or Senate or either's

² The FAA's annual budget narratives are available on the Department of Transportation's Budget site at: *https://www.transportation.gov/budget* under 'FY XXXX Budget Estimates'

conference committee. Once this is done, the House and Senate meet together to review and finalize the Budget.

Congress reviews the FAA's budget submission, gives direction, and appropriates funds (which may include earmarks) to the DOT, who then provides the funds to the FAA. After receiving the budget appropriation, ABP provides an allowance to each line of business that distributes funding to the R&D program offices. Based on the appropriated funding level, each program and project manager prepares financial plans.

5.1.4.2 Budget Adjustment

The Office of Budget and Programs requests that the program offices propose adjustments to the funding for the R,E,&D portfolio. The request may be for the current year or future years and the request may come at various points in the budget process. The proposed adjustment will usually be to develop alternative budget profiles for potential changes. The REB will be convened to discuss adjustments; multiple meetings may be necessary to reach consensus.

Each REB member with R,E,&D funded R&D reviews the proposed scenario(s) with their Associate or Assistant Administrator. The REB will then meet as needed to address any comments and feedback from the LOBs, until there is agreement on the proposed scenario(s).

The REB will then meet to finalize the proposed scenario(s) to address any comments and feedback from the LOBs. The proposal will be provided to the Budget Office.

6. **EXECUTION**

By September 30, Congress completes action on appropriation bills for the upcoming fiscal year or provides a continuing resolution (a stopgap appropriations law). The OMB apportions funds made available in the annual appropriations process and other available funds within 30 days after approval of a spending bill. Throughout the fiscal year, which begins on October 1 and ends on September 30, agencies incur obligations and make outlays to carry out the funded programs, projects, and activities. Agencies hire people, enter into contracts, grant agreements, etc., to carry out their programs, projects, and activities.

6.1 Sponsor and Performer Roles

Sponsors and performers interact in PPTs. Sponsors and performers should review the definitions below to understand the expectations, roles, and responsibilities for each. When the sponsor and performer are in the same organization, that organization performs both roles. Sponsor and performer procedures are modeled after the guidelines in the Project Management Institute's (PMI) Project Management Body of Knowledge. Additional information about the items listed in this section is available at www.pmi.org.

A sponsor is an organization that identifies and owns, or shares, the R&D requirement. Generally, the sponsor has demonstrated a need for the research, and the sponsor will use the results of the research. Sponsor roles include the following:

- Identify and prioritize needs and/or requirements
- Verify need with external customers, if applicable
- Communicate sponsor expectations to the performer
- Identify criteria for success of the project
- Review project scope, risks, issues, assumptions, and constraints
- Obtain required funding for the project
- Implement R&D results, if applicable

A performer is an FAA organization responsible for managing the work performed to meet the R&D requirement. Performers include program and project managers and program offices. Generally, the performer undertakes the R&D effort and provides the research results. Performer roles include the following:

- Review requirements documentation
- Defines research to meet sponsor's need
- Conducts analysis to evaluate feasible alternatives
- Identify project scope, risks, issues, assumptions, and constraints
- Identify key team members and identifies roles and responsibilities
- Develop cost, schedule, and resource requirements
- Develop project plans
- Establish project deliverables
- Identify required changes and implements approved changes
- Support sponsor in obtaining required funding

- Measure project performance and communicates project status
- Ensure project deliverables meet requirements
- Obtain final project acceptance from sponsor
- Communicate and document lessons learned
- Archive project records and final project reports
- Provide final project reports
- Measure sponsor satisfaction

6.2 Contracts, Grants, and Cooperative Agreements

Using fair and open competition, program offices award contracts, grants, and cooperative agreements. Agency management gives program offices oversight adequate to ensure appropriate use of funds and to support annual reporting requirements.

Contract, Grant, and Cooperative Agreement Award:

- Documents annual earmarks (non-competitive) and reports earmarks as percent of total program budget
- Uses competitive process for all awards other than earmarks
- Imposes reasonable qualification standards
- Provides independent merit review and ranking of proposals
- Provides reasonable amount of outreach to encourage new participants
- Announces possibility of renewal in original competition
- Holds awardees to a high standard of performance

Contract, Grant, and Cooperative Agreement Management:

- Identifies awardees reporting requirements
- Documents awardees' use of funds in eligible activity categories
- Conducts site visits to awardees on a regular basis
- Audits awardees performance
- Documents awardees expenditures to verify that funds are used for their designated purpose

Contract, Grant, and Cooperative Agreement Performance Data:

• Collects and compiles performance information on a regular basis, and reports performance information as required for agency reports on an annual basis

6.3 Financial Management

Program offices ensure that funds are administered efficiently and obligated as planned and scheduled; use procedures that measure and achieve cost effectiveness in program execution; and apply recommended financial management practices. For more information on financial management, see the Budgets, Accounting, and Finance website at

(https://employees.faa.gov/tools_resources/budget_finance/). Recommended financial management practices include:

Obligations:

- Develop program plan identifying cost, schedule, and milestones
- Establish obligation schedule corresponding to resources in program plan
- Ensure partners establish obligation schedules corresponding to program plan
- Obligate annual budget consistent with program plan schedule
- Limit amount of un-obligated funds (percent) remaining at year end
- Report actual expenditures compared to intended use
- Act timely and appropriately to correct funds not spent as intended

Procedures:

- Identify clear goals of efficiency improvements for information technology investments
- Empower front line managers and employees
- Seek to reduce costs
- Identify and avoid redundancies
- Demonstrate effort to improve efficiency

Systems:

- Prepare procurement requests in PRISM (an FAA accounting system)
- Review financial transactions and account balances in DELPHI (an FAA accounting system)
- Consult FAA financial practices, procedures, and data management
- Prepare an annual spend plan
- Review and document performance on spend plan monthly

7. EVALUATION

The FAA uses a combination of internal and external evaluations to review R&D program results and internal processes. Internal evaluations include several performance tracking systems used by various offices and Lessons Learned sessions. The REDAC and its subcommittees conduct the external evaluation of the R&D portfolio. The Commercial Space Transportation Advisory Committee (COMSTAC) evaluates the Commercial Space Transportation activities, including R&D activities.

7.1 Lessons Learned Sessions

After the JRC approves the annual R&D portfolio, the REB meets to review the lessons learned from the current year's portfolio development process. The purpose of the lessons learned session is to identify areas of success and opportunities for improvement for the next portfolio development process. Meeting attendees are encouraged to engage in open discussion to identify issues, which are recorded and addressed. The RST presents the accomplishments from the process, opportunities for improvement, suggestions received from participants, and goals for the next process. After review and approval by the REB, changes are made in the portfolio development process.

7.2 Research & Development Advisory Committee (REDAC)

Public Law 100-591, dated November 3, 1988, established the REDAC to provide advice and recommendations to the FAA Administrator on needs, objectives, plans, approaches, content, and accomplishments of the aviation research program; and, also, to assist in assuring that all Agency research is coordinated with similar research efforts outside the FAA. *Public Law 101-508* dated November 5, 1990, expanded REDAC duties to review the research and training carried out by the regional centers of air transportation excellence. *Public Law 104-264*, dated October 6, 1996, added an annual review of the allocations made to the major categories of R&D to provide advice and recommendations to the Administrator on whether the allocations are appropriate to meet the needs and objectives of the aviation research program. See Section 44508 of Title 49 of the US Code. For information on committee reports, contact Chinita Roundtree-Coleman at (609) 485-7149 or chinita.roundtree-coleman@faa.gov, or see the REDAC website at (https://www.faa.gov/go/REDAC).

7.2.1 REDAC Responsibilities

The REDAC meets twice a year, in the fall and in the spring. During the fall meeting, the committee provides guidance to the FAA on how the agency should invest its R&D funding in the coming portfolio development process for the FY+3 R&D portfolio. During the spring meeting, the committee reviews and provides recommendations on the proposed FY+2 R&D portfolio. The FAA tracks the implementation of these recommendations. There are five standing subcommittees that support the REDAC by conducting reviews in the summer and winter for the following research areas: 1) Aircraft Safety 2) NAS Operations 3) Environment and Energy 4) Airports 5) Human Factors. During the summer, the subcommittees work with the sponsors and performers to conduct detailed program reviews and provide guidance for development of the

R&D portfolio. During the winter, the subcommittees conduct detailed reviews of the proposed R&D portfolios.

7.2.2 **REDAC Outputs**

The REDAC and the subcommittees provide guidance and recommendations for the R&D portfolio development. They also provide guidance for annual R&D investments, subcommittee recommendations on PPT R&D budget portfolios and recommendations on R&D budget portfolio.

7.2.3 REDAC Subcommittee Meetings

The REDAC holds winter/spring and summer/fall subcommittee meetings, as well as full committee meetings in both winter and spring.

7.3 Commercial Space Transportation Advisory Committee (COMSTAC)

Established in 1984, the COMSTAC provides information, advice, and recommendations to the Secretary of Transportation through the Administrator on matters relating to the U.S. commercial space transportation industry including FAA R&D activities. COMSTAC periodically reviews the FAA R&D reports and activities and provides recommendations for commercial space transportation R&D projects.

ACRONYMS

Acronym	Definition
ABP	Office of Budget & Programs
AEE	Office of Environment and Energy
AFN	Office of Finance and Management
APL	Policy, International Affairs, and Environment
AIP	Airport Improvement Program Budgetary Account
ANG	Office of NextGen
AST	Commercial Space Transportation
AVS	Aviation Safety
AVP	Office of Accident Investigation and Prevention
CIT	Capital Investment Team
COMSTAC	Commercial Space Transportation Advisory Committee
DFO	Designated Federal Official
DoD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
F&E	Facilities and Equipment Budgetary Account
FAA	Federal Aviation Administration
FY	Fiscal Year
JRC	Joint Resources Council
LOB	Line of Business
NARP	National Aviation Research Plan
NAS	National Airspace System
NAS Ops	National Airspace System Operations
NASA	National Aeronautics and Space Administration
NextGen	Next Generation Air Transportation System
NFO	Notices of Funding Opportunity
OMB	Office of Management and Budget
Ops	Operations Budgetary Account
OST	Office of the Secretary of Transportation
PMI	Project Management Institute
PPT	Program Planning Team
PRISM	An FAA accounting system
R&D	Research and Development Budgetary Account
REB	Research and Development Executive Board
R,E,&D	Research, Engineering, and Development
REDAC	Research, Engineering, & Development Advisory Committee
RST	REB Support Team

Appendix A: FAA R&D Programs by Domain

Acct	Research Program	
	Airport Infrastructure and Technologies	
AIP	Airport Cooperative Research	
AIP	Airport Technology Research	
	Aircraft Safety Assurance	
RE&D	Fire Research and Safety	
RE&D	Advanced Materials/Structural Safety	
RE&D	Aircraft Catastrophic Failure Prevention	
RE&D	Continued Airworthiness	
RE&D	Propulsion and Fuel Systems	
	Digital Systems and Technologies	
RE&D	Digital System Safety	
RE&D	Information/Cyber Security	
Environment and Weather Impact Mitigation		
RE&D	Weather Program	
RE&D	Aircraft Icing	
RE&D	Environment and Energy	
RE&D	NextGen – Environmental Research – Aircraft Technologies and Fuels	
RE&D	Alternative Fuels for General Aviation	

Acct	Research Program			
Human and Aeromedical Factors				
RE&D	Flight Deck/Maintenance/System Integration Human Factors			
RE&D	Air Traffic Control/Technical Operations Human Factors			
RE&D	NextGen – Air Ground Integration Human Factors			
RE&D	Aviation Grant Management			
RE&D	Aviation Accessiblity Research			
RE&D	Aeromedical Research			
	Aerospace Performance and Planning			
RE&D	System Safety Management/Terminal Area Safety			
RE&D	Commercial Space Transportation Safety			
RE&D	Unmanned Aircraft Systems Research			
RE&D	NextGen – Wake Turbulence			
RE&D	William J. Hughes Technical Center Laboratory Facilities			
RE&D	System Planning and Resource Management			
F&E	Advanced Technology Development and Prototyping			
F&E	NextGen – Separation Management Portfolio			
F&E	NextGen – Traffic Flow Management Portfolio			
F&E	NextGen – On Demand NAS Portfolio			
F&E	NextGen – NAS Infrastructure Portfolio			
F&E	NextGen – Unmanned Aircraft Systems (UAS)			
F&E	NextGen Support Portfolio			
F&E	NextGen – Enterprise, Concept Development, Human Factors, and Demonstrations Portfolio			
F&E	Center for Advanced Aviation System Development (CAASD)			

Appendix B: PPT Prioritization Process

The following content details the prioritization process used by each PPT to develop its R&D Portfolio.

AIRPORTS

The prioritization of research projects funded by AIP, and executed by the Airports Technology Branch, is driven by the needs of the FAA's Office of Airports. These needs are in the Airport Safety, Airport Planning, Airport Design, Airport Environmental and Airport Pavement areas, and mostly fall under 4 categories:

- 1) Development of new Advisory Circulars -long term research
- 2) Update of existing Advisory Circulars mid-term research
- 3) Investigation of new technologies short or mid-term research
- 4) Urgent research support usually short term (a few months) to provide help and support to HQ and the FAA Regions

The Office of Airports issues "research requests" to the Airport Technology Research (ATR) Branch. The ATR branch includes these research requests and ensuing research projects into its current and following years' portfolio. This is typically done on a sequential basis, and no research request's acceptance is ever delayed more than 6 months for reasons other than technical feasibility.

The only prioritization in place is that some research might be 1) started as soon as contractually and technically feasible or 2) accelerated when results are urgently needed by the Office of Airports. the REDAC Airports Subcommittee which is comprised of industry members reviews each research request and they also provide input on the research projects at scheduled meetings throughout the year.

In summary, the Office of Airports sponsors and initiates research based on its needs and the Technical Center ATR branch executes the needed research on a continuous basis.

FAA's Office of Airports	Research Requests issued by the Office of Airports	Prioritization Criteria
 Airport Safety Airport Planning Airport Design Airport Design 	Categories of Research • Development of new Advisory	Starts as soon as contractually & technically feasible Accelerates when results are
• Airport Pavement	Circulars - <i>long term research</i> • Update of existing Advisory Circulars <i>– mid-term research</i>	urgently needed by the Office of Airports Input from REDAC
	 Investigation of new technologies – short or mid-term research Urgent research support – usually short term (a few months) to provide help & support to HQ and the FAA Regions 	 Office of Airports sponsors and initiates research based on its needs and the Technical Center ATR branch executes needed research

WEATHER

The Weather Program Planning Team (Wx PPT) establishes the priorities for the FAA's aviation weather research activities of the Weather Program. The Wx PPT voting membership includes one FAA representative from each of the following organizations: Aviation Weather Division (ANG-C6) (Chair); ATO Operational Concepts, Validation & Requirements Directorate (AJV-S); ATO System Operations (AJR-B); NAS Lifecycle Planning Division (ANG-C7), and ATO PMO Aviation Weather and Aeronautical Services Programs Group (AJM-33). Each year, in formulating their research portfolio, the PPT considers research proposals submitted by FAA sponsors and performers and ensures that proposed weather research meets at least one of the following criteria:

- Is it applied weather research?
- Does it propose new science or software?
- Does it translate weather data into characterization of potential NAS constraints?

The Wx PPT next ensures that it is not duplicating any ongoing weather research. The Wx PPT voting members then score the approved proposals for prioritization. The scoring criteria consist of three equally weighted elements:

- Ability of the proposed research to increase safety
- Ability of the proposed research to maximize available capacity and increase efficiency
- Ability of the proposed research to satisfy official documented internal and external drivers

To align with the FAA budget cycle, the proposed Wx PPT portfolio is developed more than 18 months prior to the start of the fiscal year that the research will be conducted. Collaboration with the FAA's NAS Lifecycle Planning Division, ensures that the portfolio R&D activities are aligned to address operational improvements contained in the NextGen Segment Implementation Plan. Recommendations from annual "weather research workshop" attendees (including airlines, general aviation, the National Weather Service, air traffic management users/stakeholders) are also considered. The Wx PPT portfolio is adjusted as needed once the budget is appropriated based on actual budget allocations and evolving priorities.



AVIATION SAFETY (AVS)

The Aviation Safety Research and Development Prioritization Process identifies research projects that support the FAA Aviation Safety organization (AVS) in fulfilling their responsibilities for setting, overseeing, and enforcing safety standards for all parts of the aviation industry. The process prioritizes these projects using technical criteria that consider, in order of highest to lowest importance, addressing the safety risk, developing safety regulations and standards, and fulfilling commitments made by AVS. In order to concentrate primarily on safety, it is only after the technical ranking is complete that the cost of the individual projects is considered to develop the AVS Research, Engineering, & Development (RE&D) budget proposal. The Prioritization Process establishes the foundation for portfolio management as the sponsor needs or budgets change. The process consists of the following steps beginning three fiscal years in advance (FY-3) of the year-of-execution (FY-0). As the research supports AVS, the life-cycle begins with the AVS sponsor developing the desired safety outcomes and implementation plans to achieve those outcomes.



ENVIRONMENT & ENERGY (E&E)

The FAA utilizes a comprehensive environmental and energy strategy to understand, manage, and reduce the environmental impacts of global aviation through research, technological innovation, policy, and outreach to benefit the public. The strategy employs an integrated approach that leverages advancements in science and modeling to support development of innovative solution and data driven decision making that remove environmental constraints on aviation growth by achieving quiet, clean, and efficient air transportation.

E&E R&D Portfolio Activities & Programs				
ADVANCE UNDERSTANDING OF NOISE, EMISSIONS, AND THEIR IMPACTS	ANALYSIS TO INFORM DECISION MAKING			
Vehicle operation	Domestic Policies			
Pollutant measurement Aviation Environmental	Aircraft and Engine Standards			
Atmospheric propagation	CORSIA			
Societal impacts	Long Term Climate Goal Development			
Today's Fleet of Aircraft and Helicopters	DEVELOP INNOVATIVE SOLUTIONS TO REDUCE NOISE AND EMISSIONS			
Drones and Advanced Air Mobility Vehicles	Aircraft and Engine Technology			
Commercial Supersonic Aircraft	الله Sustainable Aviation Fuels			
Commercial Space Vehicles	Optimized Operations and Procedures			

The Office of Environment and Energy (AEE) executes the E&E R&D Portfolio. It does so by planning at two time scales: a Long-Term scale that spans 5 years or longer, and a Short-Term scale of 3 years to match the funding cycle process. The AEE then undertakes its prioritization planning based on those two time scales. There are several distinguishing characteristics associated with this planning process and its associated iterative planning review approach, which are depicted in the figure below.

AEE's long-term research plan results from the integration of topic-specific long-term plans developed by each of the office's four divisions (Noise Division, Technology and Operations Division, Emissions Division, and Environmental Policy Division) that address every aspect of the strategy mentioned previously. A variety of research topics covering multiple aspects of the aviation system are covered by the long-term plan including: aircraft technology development; operational procedure concepts; alternative fuels; noise and emissions research; analytical tool development; and analysis support. The long-term plan is developed by AEE based on the needs and inputs of multiple stakeholders. The office takes into account FAA's needs, both at the national and international level, and incorporates the inputs received from other stakeholders, such as industry and NGOs, as well as those from other agencies, including NASA, DOE, EPA, and DoD. The office also takes into consideration the input received from experts, such as the members of the ASCENT Center of Excellence and those that participate at FAA and industry

events. Finally, the office relies heavily on the input and feedback provided by the Research, Engineering, & Development Advisory Committee (REDAC).

The Office's short-term plan focuses on a 3-year time horizon to match that of the FY funding cycle. The short-term plan is developed by assessing the nearer term items identified in the long-term R&D plan. Through an iterative review process, the short-term research plan with a set of actual projects is created. This iterative review process takes place in two phases as show in the figure below.



During the 3-year FY funding cycle, AEE's short-term and long-term R&D plans are reviewed multiple times, both internally and externally. At the beginning of the cycle, REDAC provides feedback on both the long-term plan as well as the initial version of the category-level short-term plan. This initial version of the plan is then updated based on the Target funding information. It is reviewed and approved by REDAC once again before being submitted to the FAA for their review and approval as part of the Detailed Justification documents (i.e., the budget narratives). The White Sheets are then submitted to the DoT Office of the secretary (OST/DOT) for further review and approval. The category-level short-term plan is updated to incorporate the pass back received from OST/DOT. This updated version is then submitted to the Office of Management and Budget (OMB) for their consideration with subsequent revisions as needed. Once the budget is signed in the final year of the cycle, the category-level short-term project plan is updated one last time to reflect project-level funding and undergoes its final internal review and approval process before being executed. In this last step of the process the REDAC has also the opportunity to review the Notices of Funding Opportunity (NFO) for all the projects that will be funded during the FY under the ASCENT Center of Excellence as well plans for work supported by contract funding.

COMMERCIAL SPACE TRANSPORTATION SAFETY (AST)

AST R&D tasks will be prioritized based on two factors: the proposed task's probability of success, and its estimated magnitude of success. Each of these prioritization factors are evaluated on a scale from zero (the lowest possible rating) to 4 (the highest possible rating).

The Probability of Success prioritization factor is a combination of four elements: long-range planning, short-range planning, monitoring, and other factors as described below.

- 1. Long-Range Planning: This is an evaluation of Gantt charts produced that include the proposed research task and identifies any dependencies or synergies with other tasks.
- 2. Short-Range Planning: This is an evaluation of the Statement of Work, proposed schedule, milestones, deliverables, and contract vehicle viability. All of these items must be credibly presented to receive a score for this factor.
- 3. Monitoring: This is an evaluation of Technical Monitor effectiveness. Technical monitors who have demonstrated exemplary performance will receive a high rating.
- 4. Other Factors: This is an evaluation of other factors, including Principal Investigator prominence and experience, institutional resources, the use of other sponsors, and other solid funding sources.

Computation of the overall Probability of Success score is based on the following logic: If either the long-range planning or short-range planning elements receive a zero score, then the overall Probability of Success score is zero. Otherwise, the overall Probability of Success score is the average of all four element scores.

The Magnitude of Success prioritization factor is a combination of five elements: customer need, mission applicability, potential impact, programmatic drivers, and mission criticality as described below.

- 1. Customer Need: This is a combination evaluation of the need for this research as determined by AST-1, the AST customer(s), and the external industry.
- 2. Mission Applicability: This is an evaluation of the AST mission(s) supported by this research task, the safety mission, the encourage facilitate and promote mission, or both.
- 3. Potential Impact: This is an evaluation of the potential for this research task to be considered "game-changing," whether it could lead to significant cost reductions, or if it is linked to and/or an enabler of other tasks.
- 4. Programmatic Drivers: This is an evaluation of this task to increase AST visibility, increase the AST state of readiness, are lead to an achievement of USG, DOT, or FAA goals.

5. Mission Criticality: This is an evaluation of whether this research task pertains to regulatory changes or other public commitments, such as a response to an NTSB recommendation.

The overall Magnitude of Success score is the average of all five element scores.





NAS OPS

The NAS Operations program planning team (PPT) identifies requirements through an internal requirements/formulation process. Requirements are prioritized as follows:

- For core RE&D programs, program offices receive guidance and requirements from internal FAA steering committees, other FAA program offices, AVS, and/or external organizations or industry.
 - NextGen RE&D The capital investment team (CIT) is apprised of RE&D program requirements through the CIT process, and validated against Agency priorities and NAS Enterprise Architecture green swim lanes.

For F&E/pre-implementation programs, requirements are prioritized through the capital investment team (CIT) process, and validated against NAS Enterprise Architecture & Agency initiatives in support of NextGen.

