



Federal Aviation  
Administration

FY 2020  
Research and Development (R&D)  
Portfolio Development Process

Guidance Reference Document

December 2017

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

## TABLE OF CONTENTS

	INTRODUCTION .....	1
	SCHEDULES .....	2
	Research & Development Advisory Committee (REDAC) 2019 Schedule .....	3
1.	<b>PROCESS OVERVIEW</b> .....	4
	1.1 Process.....	5
	Figure 1: Portfolio Development Process Flowchart .....	5
	1.1.1 Guidance (Steps 1-4) .....	6
	1.1.2 Program Area Portfolio Preparation (Steps 5-11).....	7
	1.1.3 FAA Portfolio Review (Steps 12-16) .....	9
	1.1.4 Budget Submission (Steps 17-22).....	10
	1.1.5 Program Planning & Execution (Steps 23-24).....	12
	1.1.6 Program Evaluation (Step 25).....	13
	1.1.7 Budget Adjustment (Steps A, B, C).....	13
2.	<b>PURPOSE</b> .....	15
	2.1 Guidance Reference Document.....	15
	2.1.1 R&D Portfolio .....	15
3.	<b>STRATEGIC PLANNING</b> .....	17
	3.1 National Aviation Research Plan (NARP) .....	17
	3.2 FAA Strategic Plan .....	17
	3.3 National Airspace System Enterprise Architecture (NASEA).....	17
	3.4 National Plan for Aeronautics Research and Development & Related Infrastructure .....	17
4.	<b>FORMULATION</b> .....	19
	4.1 Roles and Responsibilities .....	19
	4.2 R&D Executive Board .....	19
	4.2.1 REB Charter.....	19
	4.2.2 Members .....	19
	Table 1: REB Members .....	19
	4.2.3 REB Membership .....	20
	4.2.4 REB Voting and Procedures .....	20
	4.2.4.1 Motion Proposal .....	20
	4.2.4.2 Motion Discussion .....	20
	4.2.4.3 Vote .....	20
	4.2.5 REB Interfaces.....	21
	4.2.6 REB Outputs.....	21
	4.3 Program Planning Teams (PPTs) .....	22
	Table 2: PPT Leads.....	22
	4.3.1 PPT Leads.....	22
	4.3.2 Sponsor and Performer Roles .....	22
	4.3.3 PPT Interfaces.....	23
	4.3.4 PPT Lead Responsibilities.....	23
	4.3.5 PPT Responsibilities .....	23
	4.3.6 PPT Guidance .....	24
	4.3.7 PPT Prioritization Process .....	25
	4.3.8 PPT Outputs.....	25
	4.4 REB Support Team (RST) .....	26
	4.5 Financial Management Division .....	26
	4.5.1 Finance Interfaces.....	26
	4.6 Capital Investment Team (CIT) Process .....	26

Table of Contents

	4.7 Review.....	27
	4.8 Research, Engineering, and Development Advisory Committee (REDAC).....	27
	4.9 Joint Resource Council .....	27
	4.10 Submission .....	27
	Figure 2 – Review and Submission Flow .....	28
	4.11 Office of the Secretary of Transportation (OST).....	28
	4.12 Office of Management and Budget (OMB) .....	28
	4.13 The President’s Budget .....	29
5	<b>EXECUTION</b> .....	30
	5.1 Sponsor and Performer Roles.....	30
	5.2 Program Management .....	31
	5.3 Contracts, Grants, and Cooperative Agreements .....	31
	5.4 Financial Management .....	32
6	<b>EVALUATION</b> .....	33
	6.1 Lessons Learned Sessions .....	33
	6.2 Research & Development Advisory Committee (REDAC).....	33
	6.2.1 REDAC Responsibilities .....	33
	6.2.2 REDAC Outputs .....	34
	6.2.3 REDAC Subcommittee Meetings.....	34
	6.3 Commercial Space Transportation Advisory Committee (COMSTAC).....	34
	6.4 Office of Management and Budget (OMB) Evaluation Criteria .....	34
	ACRONYMS .....	35
	Appendix A: Points of Contact .....	36
	Appendix B: PPT Prioritization Process .....	51
	Appendix C: Budget Narrative Development Process.....	59

## **INTRODUCTION**

This document outlines how a viable Research, Engineering and Development (R,E&D) portfolio is developed each fiscal year within the Research and Development (R&D) portfolio development process.

An electronic copy of the Guidance Document is available online at the ANG-E4 Knowledge Services Network (KSN) site (<https://ksn2.faa.gov/nextgen/TechCtr/RD/REB/default.aspx>).

The following changes have been made to the FY 2020 Guidance Reference Document:

1. *Portfolio Development Process* Schedule updated
2. Points of contact updated (see *Appendix A*)
3. Inclusion of updated FY 2020 PPT Prioritization Processes (see *Appendix B*)
4. Addition of the FY 2020 R,E&D Budget Narrative Development Process Guidance (see *Appendix C*)

**SCHEDULES****FY 2020 REB Portfolio Development Process Schedule**

September 21, 2017 <i>10 a.m. – 1 p.m.</i>	REB reviews proposed updates to process	950 L'Enfant Plaza, Rm. 416
October 19, 2017 <i>10 a.m. – 1 p.m.</i>	REB reviews draft Guidance Document	950 L'Enfant Plaza, Rm. 416
November 9, 2017 <i>10 a.m. – 1 p.m.</i>	REB receives final Guidance Document & reviews PPT processes	JMA 600 Maryland Ave. <i>Tuskegee Room</i>
December 7, 2017 <i>10 a.m. – 3 p.m.</i>	<b>NARP Redesign Meeting</b>	JMA 600 Maryland Ave. <i>Tuskegee Room</i>
January 18, 2018 <i>10 a.m. – 3 p.m.</i>	<b>NARP Redesign Meeting</b>	JMA 600 Maryland Ave. <i>Tuskegee Room</i>
February 8, 2018 <i>10 a.m. – 1 p.m.</i>	REB reviews PPT Portfolios <i>(Group 1)</i>	JMA 600 Maryland Ave. <i>Tuskegee Room</i>
February 15, 2018 <i>10 a.m. – 1 p.m.</i>	REB reviews PPT Portfolios <i>(Group 2)</i>	JMA 600 Maryland Ave. <i>Tuskegee Room</i>
April 23, 2018 <i>10 a.m. – 1 p.m.</i>	REB reviews updated PPT Portfolios	JMA 600 Maryland Ave. <i>Tuskegee Room</i>
May 10, 2018 <i>10 a.m. – 1 p.m. canceled</i>	REB finalizes FY 2020 Portfolio	JMA 600 Maryland Ave. <i>Tuskegee Room</i>
June TBD, 2018 <i>10 a.m. – 1 p.m.</i>	REB conducts FY 2020 Lessons Learned Session	JMA 600 Maryland Ave. <i>Tuskegee Room</i>

## Research & Development Advisory Committee (REDAC) 2018 Schedule

### Full Committee – Winter/Spring

TBD

Findings and Recommendations for FY 2020 R&D Portfolio  
FAA Headquarters – 800 Independence Avenue SW, Room  
1010 Washington, DC 20591

### Subcommittees – Winter/Spring 2018

February 27 – 28

Human  
Factors Subcommittee  
Honeywell  
Deer Valley Site, 21111  
North 19<sup>th</sup> Ave. Phoenix,  
AZ Area

March 07 – 08

Environment and Energy  
Subcommittee TBD  
Washington Metro Area

March 13 – 14

Aircraft Safety Subcommittee  
FAA William J. Hughes Technical  
Center Director's Conference Room,  
Bldg. 300 Atlantic City International  
Airport, NJ 08405

March 20 – 21

Airports Subcommittee  
FAA William J. Hughes Technical Center  
Director's Conference Room, Bldg. 300  
Atlantic City International Airport, NJ  
08405

March 27 – 28

NAS Operations  
Subcommittee TBD  
Metro DC Area

### Subcommittees – Summer/Fall 2018

August 21 – 22

Airports Subcommittee  
FAA William J. Hughes Technical Center Director's Conference  
Room, Bldg. 300 Atlantic City International Airport, NJ 08405

September 11 – 12

Environment and Energy  
Subcommittee Metro DC Area

## 1. PROCESS OVERVIEW

The R&D portfolio development process schedule, as provided in Table 1, below, 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 ‘Guidance’ section, below, provides additional information on the portfolio development process steps.

Strategic planning for the R&D portfolio is provided by the National Aviation Research Plan (NARP) which links the Federal Aviation Administration (FAA) R&D activities to the broader strategic planning of the FAA *Strategic Plan*. The R&D portfolio must address the current challenges of operating the safest, most efficient air transportation system in the world while building a foundation for the future.

The Research Executive Board (REB) coordinates formulation of the R&D portfolio. The R&D portfolio includes programs in three appropriation accounts:

1. R,E&D
2. Facilities and Equipment (F&E)
3. Grants-In-Aid for Airports (AIP)

The REB coordinates the various iterations of the portfolio with FAA upper-level management including the NextGen Office and Joint Resources Council (JRC). This ensures coordination at all levels for a well-balanced portfolio.

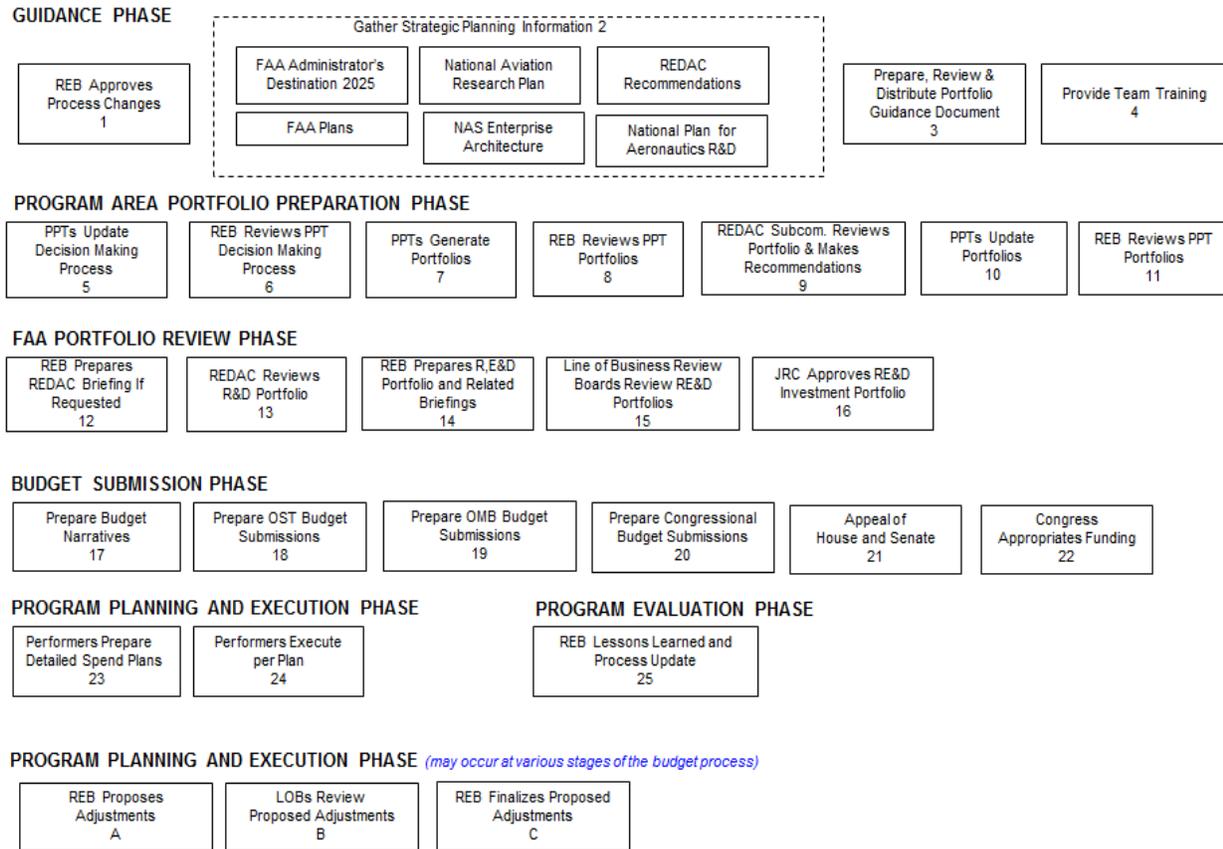
Program Planning Teams (PPTs), composed of program managers (performers) and sponsors, execute the portfolio to ensure R&D results meet sponsor needs. Program managers possess scientific, engineering, and technical expertise and understand performance and financial management. They use program funding allocated in the formulation process and approved by Congress to conduct R&D, and produce results that meet sponsor requirements. Performance guidance is provided in Appendix C ‘FY 2020 R, E, &D Budget Narrative Development Process Guidance.’ Guidance and further details on the budget narrative collaboration process can be found on the ANG-E4 KSN at (<https://ksn2.faa.gov/narp/Home/BN/default.aspx>).

Evaluations determine whether the results produced by the portfolio meet the *Strategic Plan*, and whether the Plan is leading the R&D portfolio in the appropriate direction. The internal evaluation includes using databases to track the status of the R&D accomplishments and allows program managers to report progress and highlight issues, including funding and priority issues. NextGen programs undergo internal evaluation using NextGen Service Level Agreements that specify planned funding with scheduled milestones and measure annual progress against the plan. 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.

## 1.1 Process

There are seven high-level phases and 28 steps in the FY 2020 R&D portfolio development process.

**Figure 1: Portfolio Development Process Flowchart**



The seven phases are:

1. Guidance
2. Program Area Portfolio Presentation
3. FAA Portfolio Review
4. Budget Submission
5. Program Planning and Execution
6. Program Evaluation
7. Budget Adjustment

**1.1.1 Guidance (Steps 1-4)**

**Step 1: REB Approves Process Changes**

<b>Input</b>	Proposed changes from the REB Lessons Learned Meeting and input from the REB
<b>Output/Product</b>	Proposed changes for FY 2020 R&D portfolio development process Guidance Reference Document
<b>Customer(s)</b>	REB
<b>Performer(s)</b>	REB and REB Support Team (RST)
<b>Description</b>	<p>Based on the feedback and reviews from the REB Lessons Learned meeting, the RST compiles proposed changes to update the Portfolio Development Process Guidance Reference Document for the upcoming year.</p> <p>Working with appropriate stakeholders, the RST Lead dispositions lessons learned issues and proposed process changes and reviews with the REB. The REB votes on each change to the process.</p>

**Step 2: Gather Strategic Planning Information**

<b>Input</b>	FAA Flight Plan, FAA <i>Strategic Plan</i> , NARP, REDAC Guidance, Joint Planning NextGen Plans, National Airspace System (NAS), Enterprise Architecture (EA), and <i>National Plan for Aeronautic Research and Development and Related Infrastructure</i>
<b>Output/Product</b>	FAA R&D Strategic Information
<b>Customer(s)</b>	REB PPTs
<b>Performer(s)</b>	RST
<b>Description</b>	The RST reviews information collected from the referenced resources and notifies the REB. This information, along with input from the previous year’s Lessons Learned session is used in <i>Step 3</i> to create the annual R&D Portfolio Development Process Guidance Reference Document.

**Step 3: Prepare, Review, and Distribute Portfolio Guidance Document**

<b>Input</b>	REB Approved Process Changes and Strategic Planning Information
<b>Output/Product</b>	FY 2020 R&D Portfolio Development Process Guidance Reference Document
<b>Customer(s)</b>	All Process Participants, PPTs in particular
<b>Performer(s)</b>	RST
<b>Description</b>	The RST updates, prepares, and distributes the R&D Portfolio Development Process Guidance Reference Document. The document provides top-level guidance, R&D budget target allocations, portfolio development criteria, and instructions for the Process. Using output from <i>Step 1</i> from the annual Lessons Learned meeting, the RST reviews and incorporates updates.

**Step 4: Provide Team Training**

<b>Input</b>	FY 2020 R&D Portfolio Development Process Guidance Reference Document
<b>Output/Product</b>	Training Presentations and Materials for Process

<b>Customer(s)</b>	All Process Participants (as requested)
<b>Performer(s)</b>	RST
<b>Description</b>	The RST provides training based on the R&D Portfolio Development Process Guidance Reference Document for the REB and PPT members, as requested by the REB, RST, or the PPTs. This training is generally done after the publication of the Guidance Document in November of each year. Training for writing budget narratives is done as needed.

### 1.1.2 Program Area Portfolio Preparation (Steps 5-11)

#### Step 5: PPTs Conduct Lessons Learned Session and Update Decision Making Process

<b>Input</b>	FY 2020 R&D Portfolio Development Process Guidance Reference Document
<b>Output/Product</b>	Portfolio Development Decision Making Process Presentation for the REB
<b>Customer(s)</b>	REB
<b>Performer(s)</b>	PPTs
<b>Description</b>	PPTs conduct a lessons learned session and subsequently update their PPT portfolio based upon lessons learned feedback ( <i>Step 25</i> ). The PPTs follow the guidance in Appendix B for preparing the presentation on their decision making process.

#### Step 6: REB Reviews PPT Decision Making Process

<b>Input</b>	Individual PPT presentations
<b>Output/Product</b>	Approved Decision Making Process for the PPTs
<b>Customer(s)</b>	REB
<b>Performer(s)</b>	PPTs
<b>Description</b>	<p>The PPTs follow the briefing guidelines for PPT Decision Making Process and other process guidance from the R&amp;D Portfolio Development Process Guidance Reference Document and present the decision making process used in the formulation of their R&amp;D portfolio to the REB. The REB reviews the Decision Making Process and approves or disapproves.</p> <p>The PPTs must have approval from the REB for their Decision Making Process. In the event that a PPT’s process is not approved, the PPTs must reconsider decision-making process to meet needs of the REB.</p> <p>If the PPTs decision-making process has not changed from previous year, then the PPT does not have to make a presentation to the REB, and approval of the REB is assumed based on prior approval. The previous decision-making process presentation will be uploaded to the KSN for reference, noting that it is identical to the prior REB-approved process. The PPT can receive this automatic approval for only two consecutive years. If in the third year, the decision making process remains unchanged, the PPT will still need to make a presentation for REB approval.</p>

**Step 7: PPTs Generate Portfolios**

<b>Input</b>	FY 2020 R&D Portfolio Development Process Guidance Reference Document and Sponsor Requirements
<b>Output/Product</b>	PPT Proposed Budget Portfolios for FY 2020
<b>Customer(s)</b>	REB, FAA Financial Services (ABP-330)
<b>Performer(s)</b>	PPTs
<b>Description</b>	The PPTs generate budget portfolios for their program areas using target allocations provided by the REB (with input from ABP-330), instructions in the R&D Portfolio Development Process Guidance Reference Document, and sponsor-defined requirements.

**Step 8: REB Reviews PPT Portfolios**

<b>Input</b>	PPT Proposed Budget Portfolios for FY 2020
<b>Output/Product</b>	Proposed FY 2020 R&D Budget Portfolio
<b>Customer(s)</b>	REDAC Subcommittee (through the PPTs)
<b>Performer(s)</b>	REB
<b>Description</b>	The REB reviews and approves proposed PPT budget portfolios and identifies gaps, overlaps, and opportunities for cooperation among PPTs.

**Step 9: REDAC Subcommittee Reviews Portfolio and Makes Recommendations**

<b>Input</b>	PPTs Proposed Budget Portfolios for FY 2020
<b>Output/Product</b>	Recommendations for FAA’s Proposed FY 2020 R&D Budget Portfolio
<b>Customer(s)</b>	PPTs
<b>Performer(s)</b>	PPTs and REDAC Subcommittees
<b>Description</b>	In the second quarter of the fiscal year, generally mid-February, the PPTs brief their proposed budget portfolios to the REDAC Subcommittees. PPT leads must 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 PPT budget portfolios, the Subcommittees provide feedback, advice, and recommendations to the PPTs.

**Step 10: PPTs Update Portfolios**

<b>Input</b>	Proposed FY 2020 Budget Portfolio and REDAC Recommendations
<b>Output/Product</b>	Revised PPT Proposed Budget Portfolios for FY 2020
<b>Customer(s)</b>	REB
<b>Performer(s)</b>	PPTs
<b>Description</b>	The PPTs update their initial FY 2020 Budget Portfolio, as necessary, to reflect REDAC recommendations and any other external input.

**Step 11: REB Reviews PPT Portfolios**

<b>Input</b>	PPT Proposed Budget Portfolios for FY 2020
<b>Output/Product</b>	Proposed FY 2020 R&D Budget Portfolio
<b>Customer(s)</b>	REB
<b>Performer(s)</b>	PPTs
<b>Description</b>	If a PPT makes changes in <i>Step 10</i> , then the REB reviews and approves the modified FY 2020 portfolio.

**1.1.3 FAA Portfolio Review (Steps 12-16)**

**Step 12: REB Prepares R, E&D Advisory Committee Briefing (if requested)**

<b>Input</b>	Proposed FY 2020 R&D Budget Portfolio
<b>Output/Product</b>	Proposed FY 2020 R&D Budget Portfolio REDAC Briefing
<b>Customer(s)</b>	REDAC
<b>Performer(s)</b>	REB and RST
<b>Description</b>	The REB and the RST assist the REB Chair/REDAC DFO in preparing a briefing of the R&D Budget Portfolio to present to the REDAC, if requested. The REB Chair presents the briefing to the REDAC.

**Step 13: R, E&D Advisory Committee Reviews R&D Portfolio**

<b>Input</b>	Proposed FY 2020 R&D Budget Portfolio and other REDAC Briefings
<b>Output/Product</b>	REDAC Recommendations on the Proposed FY 2020 R&D Budget Portfolio
<b>Customer(s)</b>	REB
<b>Performer(s)</b>	REDAC
<b>Description</b>	The REDAC reviews the proposed FY 2020 R&D Budget Portfolio and other presentations, as requested by FAA upper level management. During the REDAC meeting, Subcommittees present their findings and recommendations for each R&D program area. The REDAC makes recommendations for improving the R&D Budget Portfolio in a letter to the FAA Administrator. The REB incorporates the feedback from the REDAC review into the briefing to the JRC, as appropriate.

**Step 14: REB Prepares R, E&D Portfolio and Related Briefings**

<b>Input</b>	REDAC Recommendations and Proposed FY 2020 R&D Budget Portfolio
<b>Output/Product</b>	Proposed Final FY 2020 R,E&D Budget Portfolio and Briefing
<b>Customer(s)</b>	REB, Associate and Assistant Administrators, and the JRC
<b>Performer(s)</b>	REB and RST
<b>Description</b>	The REB and the RST prepare a final draft of the R, E&D Budget Portfolio and related briefings. An R, E&D Budget Portfolio briefing is presented to the Associate and Assistant Administrators, and the JRC.

**Step 15: FAA Associate and Assistant Administrators Review R, E&D Portfolio**

<b>Input</b>	Proposed Final FY 2020 R,E&D Budget Portfolio
<b>Output/Product</b>	Approval from Associate and Assistant Administrators
<b>Customer(s)</b>	REB and JRC
<b>Performer(s)</b>	Associate and Assistant Administrators who sponsor R,E&D research
<b>Description</b>	The FAA Line of Business (LOB) review boards coordinate and review investment activity within a line of business. Each board reviews and approves the proposed final R, E&D Budget Portfolio, which is reported back to the REB, and incorporated into the briefing to the JRC.

**Step 16: JRC Approves R, E&D Investment Portfolio**

<b>Input</b>	Proposed Final FY 2020 R,E&D Budget Portfolio
<b>Output/Product</b>	Approved FY 2020 R,E&D Budget Portfolio
<b>Customer(s)</b>	REB
<b>Performer(s)</b>	JRC
<b>Description</b>	<p>The REB presents the proposed final FY 2020 R, E&amp;D Budget Portfolio to the JRC for review and consideration. The JRC may approve the proposed Budget Portfolio or make modifications and adjust target levels.</p> <p>If the JRC requires changes to the Budget Portfolio, the REB makes the changes and briefs the JRC again with a revised Budget Portfolio.</p>

**1.1.4 Budget Submission (Steps 17-22)**

**Step 17: Prepare Budget Narratives**

<b>Input</b>	JRC Approved R,E&D Budget Portfolio
<b>Output/Product</b>	R,E&D Budget Narratives
<b>Customer(s)</b>	Office of the Secretary of Transportation (OST)
<b>Performer(s)</b>	ABP-330, Sponsors, Program and Project Managers, and ANG-E4
<b>Description</b>	<p>ABP-330 sends out a request to the program and project managers (or their financial representatives) to prepare budget narratives in accordance with the JRC approved budget portfolio. ABP-330 provides current and out-year financial information to R, E&amp;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-330. All changes must be coordinated with sponsors and performers prior to submission to ABP-330.</p> <p>Sponsor reviews should 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 cannot sponsor requirements, in other words, research cannot be self-sponsored.</p>

**Step 18: Prepare OST Budget Submission**

<b>Input</b>	R,E&D Budget Narratives
<b>Output/Product</b>	FAA R,E&D Budget Submission to OST
<b>Customer(s)</b>	OST
<b>Performer(s)</b>	ABP-330
<b>Description</b>	ABP-330 edits and submits the R, E&D budget narratives to ABP. ABP compiles budget information for all FAA appropriations, R, E&D, F&E, AIP, and Ops, to prepare the overall FAA budget request to OST. ABP-330 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 passback) to the FAA.

**Step 19: Prepare OMB Budget Submission**

<b>Input</b>	FAA R,E&D Budget Submission to OST and OST Passback Information
<b>Output/Product</b>	FAA R,E&D Budget Submission to Office of Management and Budget (OMB)
<b>Customer(s)</b>	OMB
<b>Performer(s)</b>	ABP-330, R,E&D Program Managers, and Sponsors
<b>Description</b>	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-330. ABP-330 collects the updates from the sponsors and reviews, edits, and updates financial information for the budget narratives. ABP-330 submits the R, E&D budget narratives to ABP-330 for inclusion in the overall FAA budget request to OMB. ABP-330 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.

**Step 20: Prepare Congressional Budget Submission**

<b>Input</b>	FAA R,E&D Budget Submission to OMB and OMB Passback Information
<b>Output/Product</b>	FAA R,E&D Budget Submission to Congress
<b>Customer(s)</b>	Congress
<b>Performer(s)</b>	ABP, R,E&D Program Managers, and Sponsors
<b>Description</b>	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-330 collects, reviews, and edits the budget narratives as needed. ABP-330 then submits the R, E&D budget narrative to ABP for inclusion in the overall FAA budget request to Congress. APB-330 sends the final budget narratives to OST, who submits to Congress.

**Step 21: Appeal of House and Senate**

<b>Input</b>	FAA R,E&D Budget Submission to Congress
<b>Output/Product</b>	Appeal (FAA Response) to the House or Senate Reports
<b>Customer(s)</b>	Congress (Conference Committee)
<b>Performer(s)</b>	ABP
<b>Description</b>	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 conference committee. Once this is done, the House and Senate meet together to review and finalize the Budget.

**Step 22: Congress Appropriates Funding**

<b>Input</b>	FAA R,E&D Budget Submission to Congress
<b>Output/Product</b>	FAA R,E&D Budget Appropriation
<b>Customer(s)</b>	FAA, Department of Transportation (DOT)
<b>Performer(s)</b>	Congress
<b>Description</b>	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.

**1.1.5 Program Planning & Execution (Steps 23-24)**

**Step 23: Performers Prepare Detailed Spend Plans**

<b>Input</b>	Appropriated Budget
<b>Output/Product</b>	Financial Plans
<b>Customer(s)</b>	ABP
<b>Performer(s)</b>	Performers (Program and Project Managers)
<b>Description</b>	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.

**Step 24: Performers Execute in Accordance with Plans**

<b>Input</b>	Procurement Plans
<b>Output/Product</b>	Committing Document(s)
<b>Customer(s)</b>	ABP and Performers (Program and Project Managers)
<b>Performer(s)</b>	Contracting Officers
<b>Description</b>	The R&D performers prepare and process-committing documents based on their procurement plans. These committing documents, called Procurement Requests (PRs), are forwarded to the contract office or grants office for competitive award. Once the contract or grant is awarded, the funds are obligated. As the contractor or grantee is paid, the funds are expended.

**1.1.6 Program Evaluation (Step 25)**

**Step 25: REB Lessons Learned and Process Update**

<b>Input</b>	FY 2020 R&D Portfolio Development Process Guidance Reference Document
<b>Output/Product</b>	Lessons Learned Issues and Proposed Process Changes
<b>Customer(s)</b>	REB, PPTs, and RST
<b>Performer(s)</b>	All Process Participants
<b>Description</b>	The REB sponsors a lessons learned meeting in early summer each year. The REB, PPT members, and the RST evaluate the success of the R&D budget formulation process, discuss its strengths and weaknesses from the previous year, and make recommendations to improve the process. The REB identifies issues and proposed process changes to the R&D Portfolio Development Process Guidance Reference Document for the upcoming year.

**1.1.7 Budget Adjustment (Steps A, B, C)**

**Step A: REB Adjustments to Funding of R, E&D Portfolio<sup>1</sup>**

<b>Input</b>	Request from FAA Budget Office with proposed delta in funding for R,E&D
<b>Output</b>	Proposed revisions to R,E&D portfolio, with impact statements
<b>Customer(s)</b>	FAA Budget Office
<b>Performer(s)</b>	REB with RST support
<b>Description</b>	Budget Office 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 could be 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.

<sup>1</sup> Budget adjustment requests can occur at multiple times during the portfolio development cycle.

**Step B: LOBs Review Proposed Adjustments**

<b>Input</b>	Proposed revisions to R,E&D portfolio, with impact statements
<b>Output</b>	Approved revisions to R,E&D portfolio
<b>Customer(s)</b>	FAA Budget Office
<b>Performer(s)</b>	REB with RST support
<b>Description</b>	Each REB members 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).

**Step C: REB Finalizes Proposed Adjustments**

<b>Input</b>	Proposed revisions to R,E&D portfolio, with impact statements
<b>Output</b>	Approved revisions to R,E&D portfolio
<b>Customer(s)</b>	FAA Budget Office
<b>Performer(s)</b>	REB with RST support
<b>Description</b>	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.

## **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 Reference 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.

#### **2.1.1 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 R, E&D programs, the FAA develops standards to regulate the industry and ultimately reduces the aviation accident fatality rate. R, E&D programs include:

- Aviation research on fire extinguishing and prevention technologies
- Aircraft maintenance and structural technologies
- The relationship between human factors and aviation accidents
- Air traffic control
- Weather forecasting
- Environment and energy

The FAA has the sole responsibility for the NAS. The F&E R&D programs target 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 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 is the sole licensing and permitting authority for the United States Commercial Space Transportation community. The FAA's Operations (Ops) R&D programs provide the engineering and information necessary for the FAA to develop tools, guidance, and regulations for reducing safety risks of commercial space launch and reentry operations; including those involving human space flight. The Ops R&D programs support licensing and permitting activities for the regulation of the safety of the commercial space transportation industry.

The FAA's 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

## Purpose

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 does not duplicate any other Federal, state, local, or private effort. If the R&D portfolio did not exist, no other public or private organization could take its place. The R&D portfolio engages both internal and external stakeholders to provide input and assessment of the portfolio on a regular basis. The R&D portfolio also leverages its external partners for people, skills, and resources. For example, the Air Transportation Centers of Excellence partners from academia and industry provide matching resources for aviation-related R&D.

### **3. STRATEGIC PLANNING**

One of the goals of the FY 2020 R&D Portfolio Development Process is to continue to provide an Agency-wide process for R&D to develop an integrated, well-planned, budgeted, and executed program. Integrated planning helps ensure that R&D resources are customer-focused and target the highest priority activities. The NARP links FAAs R&D activities to the broader strategic planning of the FAA *Strategic Plan*, the National Airspace System Enterprise Architecture (NASEA), and the *National Plan for Aeronautics Research and Development and Related Infrastructure*. 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 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 reports the R&D strategy and explains how the R&D portfolio supports the near-term goals mid-term targets of FAA Strategic Plan. The NARP is updated annually and available online at ([www.faa.gov/go/narp](http://www.faa.gov/go/narp)).

#### **3.2 FAA Strategic Plan**

Title 5 U.S. Code Chapter 3, section 306 requires the head of each agency to submit a strategic plan for program activities to the OMB and Congress. FAA *Strategic Plan* serves as the agency's strategic plan and captures the FAA vision of the ideal future; a transformation of the Nation's aviation system in which air traffic will move safely, swiftly, efficiently, and seamlessly around the globe. The vehicle for providing opportunities during this transformation is the Next Generation Air Transportation System (NextGen). The FAA *Strategic Plan* also has a near-term focus since it contains metrics for 2019 that provide a waypoint to measure progress towards achieving the goals.

#### **3.3 National Airspace System Enterprise Architecture (NASEA)**

The NASEA provides the framework for a transition plan to the future system by comparing the current state of the system to the desired state. It also identifies how operations, investments, policies, processes, organizational structures, information, and systems must change to achieve the future system. The NASEA shows how NextGen operational improvements (OIs) will support the transition to the future system.

#### **3.4 National Plan for Aeronautics Research and Development & Related Infrastructure**

Executive Order 13419, National Aeronautics Research and Development signed by The President of the United States on December 20, 2006, established the Nation's first policy to

guide Federal Aeronautics R&D through 2020. The Executive Order states “continued progress in aeronautics, the science of flight, is essential to America’s economic success and the protection of America’s security interests at home and around the globe” and called for a plan for national aeronautics R&D and for related infrastructure.

The National Plan for Aeronautics Research and Development and Related Infrastructure dated December 21, 2007 and the Technical Appendix dated December 2008 establish aeronautics R&D challenges, priorities, and time-phased objectives, as well as the path forward for developing an aeronautics research, development, test, and evaluation infrastructure plan. A biennial update to the National Plan was released in February 2010, and the *National Aeronautics Research, Development, Testing, and Evaluation Infrastructure Plan* was released in January 2011. The National Plan defines the highest priority aeronautics R&D goals and objectives for the nation. These goals and objectives are intended to provide high-level guidance for foundational, advanced aircraft system, and air transportation system R&D through 2020. The FAAs R&D portfolio aligns with the National Plan.

## 4. FORMULATION

The FAA R&D programs are funded by annual Congressional appropriations, primarily through the FAA R, E&D budget.

### 4.1 Roles and Responsibilities

The FAA REB, with assistance from the PPTs, coordinates the development of the Agency’s annual R&D investment portfolio, which includes efforts funded by all three appropriations, R, E &D, F&E and AIP. The REB RST documents and supports the process, and the Financial Manager coordinates and prepares the R, E&D budget submission.

### 4.2 R&D Executive Board

The primary responsibility of the REB is to coordinate the annual R&D investment portfolio across all four appropriations. 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 REB provides an oversight approach to managing the R&D portfolio development process. PPTs take a detailed approach and work together to formulate the portfolio and present the budget.

#### 4.2.1 REB Charter

The Charter describes the REB functionality, roles and responsibilities, membership, and an approach to the conduct of the REB. This Charter serves to supplement the R&D Portfolio Development Process Guidance Reference Document. The FAA REB coordinates the development of the Agency’s annual R&D investment portfolio, which includes funding in all three appropriations; R,E&D, F&E, and AIP.

#### 4.2.2 Members

**Table 1: REB 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	Ravi Chaudhary, AST-4	Voting
Assistant Administrator for Policy, International Affairs & Environment	APL	James Hileman, APL-3	Voting
Assistant Administrator for Finance & Management	AFN	Mike Gallivan ABP-330	Advisory
Air Traffic Organization	AJR	Michele Merkle, ATO	Advisory

### **4.2.3 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.

### **4.2.4 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., approve meeting minutes, Guidance Document updates, 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).

#### **4.2.4.1 Motion Proposal**

To propose the REB, consider a certain idea, a voting member requests recognition from the Chair or RST Lead and then says “*I move that the REB (insert proposed motion)*”

To be voted on, a motion must be seconded by another REB voting member, who will say, “*I second that motion.*”

The Chair or RST Lead will then restate the motion being considered and ask the REB if they are ready to vote, by saying “*It is moved and seconded that (repeat motion).*”

#### **4.2.4.2 Motion Discussion**

The Chair or RST Lead will then ask, “*Is there any discussion?*” If any member wants to discuss the motion, two minutes will be allotted for each person to speak. Both the Chair and the RST Lead have the right to curtail discussion to ensure all members have a chance to convey their opinions and proceed to a vote.

#### **4.2.4.3 Vote**

The Chair or RST Lead will ask, “*Are we ready for a vote?*” If there is no further discussion, the motion is put to a vote. The Chair and the RST Lead ask those in favor of the motion to vote by saying “*All those in favor of the motion, raise your hand and say ‘Aye’.*”

The Chair or RST Lead then asks those opposed to the motion to vote by saying, “*All those opposed to the motion, raise your hand and say ‘No’.*”

After recording how each voting member voted, the Chair or RST Lead tallies the votes, a majority vote carries the motion. A majority means a majority of the total number of voting members, not just a majority of those present. The Chair or RST Lead announces whether the motion carried or lost, what the effect of the vote’s outcome will be, and what the next order of business is, by saying: “*The motion carried (or lost), and (statement on the impact of the vote).*”

REB voting members vote to approve the following items:

- Meeting Minutes
- Proposed changes to the Annual R&D Portfolio Development Process Guidance Reference Document.
- The Annual R, E&D Budget Portfolio
- Other motions by voting members

REB meeting attendees seated at the table will be identified by name placecards. REB name placecards will include the organization that the REB member represents. Non-voting attendees (RST members and PPT leads) seated at the table will be identified by name placecards in black ink. Name placecards will include the title of the attendee.

#### **4.2.5 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)
- Financial Manager (ABP-330)
- F&E Budget Planners
- National Plan for Aeronautics R&D and Related Infrastructure Interagency Working Groups
- REDAC and its Subcommittees
- LOB Review Boards

#### **4.2.6 REB Outputs**

The following products are approved by REB during the R&D portfolio development process:

- Budget target allocations to PPTs
- PPT Proposed R&D budget portfolios (*Steps 8 and 11*)
- R,E&D budget portfolio briefings for LOBs and JRC presentations (*Step 14*)
- Lessons learned proposed process changes (*Step 25*)

- Annual updated R&D Portfolio Development Process Guidance Reference Document (Step 3)

### 4.3 Program Planning Teams (PPTs)

The seven PPTs prepare specific research program area portfolios are shown in Table 3 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 for the FAA. The PPTs assess their program budget requirements, prepare budget, and process documentation. PPTs and the REB 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.

#### 4.3.1 PPT Leads

Each PPT lead is responsible for forming a team of sponsors and performers appropriate for the program area.

**Table 2: PPT Leads**

Program Area	REB Sponsor	PPT Lead	Telephone Number
Airports	ARP	John Dermody AAS-100	(202) 267-3053
Aviation Safety	AVS	Mark Orr AVP-300	(816) 329-4151
Commercial Space Transportation	AST	Ravi Chaudhary AST-4	(202) 267-7635
Environment and Energy	APL	James Hileman APL	(202) 493-4273
Mission Support	ANG	Maureen Molz ANG-E4	(609) 267-3857
NAS Operations	ANG	John Maffei ANG-C	(202) 267-5022
Weather	ANG	William Bauman ANG-C6	(202) 267-6345

#### 4.3.2 Sponsor and Performer Roles

An FAA sponsor organization defines and owns or shares the R&D requirement. Generally, the sponsor has identified and demonstrated a need for the research, and the sponsor will use the results of the research. The sponsor’s role in the budget formulation process includes preparing requirements, determine if R&D requirements are consistent with NARP Outputs, preparing justification for any NARP Output changes and approving program budget narratives.

A 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.

#### **4.3.3 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 REB to formulate and review their R&D portfolios. The PPTs may interface with ANG-E4 for information on the NARP and REDAC recommendations, the 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. Appendix A provides contact information on resources available to the PPTs.

#### **4.3.4 PPT Lead Responsibilities**

The PPT lead has the overall responsibility for completing the proposed R&D portfolio for the PPT program area. PPT lead responsibilities include presenting the PPT Decision Making Process as needed as well as a five-year PPT portfolio that meets target-funding levels. PPT lead responsibilities to the PPT include:

- Sending PPT meeting announcements to all PPT members
- Addressing internal PPT issues
- Ensuring the PPT develops a portfolio of requirements for the target year and considers input from all PPT members.
  
- Review and adjust funding for all changes to NARP Outputs
- Ensure five-year planning for PPT portfolios is based on the budget targets provided

#### **4.3.5 PPT Responsibilities**

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

- Current R&D Portfolio Development Process Guidance Reference Document
- The NARP and the *FAA Strategic Plan*
- The *National Plan for Aeronautics R&D and Related Infrastructure*
- Other documents as needed

## Formulation

PPT guidance review includes:

- Process flowchart
- Program area portfolio preparation
- Points of contact list
- Target allocations for PPT

Additional guidance such as Budget Line Items (BLIs), decision-making process guidance, briefing formats, REDAC guidance, etc.

PPTs meet with assigned REB member(s) in order to:

- Review decision-making process briefing from previous year and update as needed
- Prepare decision-making process briefing, present to REB and request approval of
- Update PPT membership
- Identify process training requirements
- Develop meeting schedule and work plan
- Review any special REB member guidance

PPTs meet with appropriate REDAC subcommittee and DFO in order to:

- Determine subcommittee meeting schedule
- Identify information requirements
- Determine briefing format
- Attend subcommittee meetings and prepare feedback related to recommendations
- Update portfolio briefing to address subcommittee recommendations

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 REB and REDAC Subcommittee. They also participate in Lessons Learned Meetings in order to evaluate success of the previous process, identify strengths and weaknesses, and recommend process improvements.

### **4.3.6 PPT Guidance and Decision Making Process**

When developing briefings for the REB on their program's decision-making process, the process should be described at a high-level using the following criteria as a guideline, and only where applicable. If a certain category is not applicable to your PPT, do not feel obligated to include it in the briefing. It is up to the individual PPT to provide a briefing that best describes your portfolio development process. The current approved PPT Decision Making processes for Airports, F&E, Weather, Aviation Safety, Environment and Energy, and Commercial Space, can be found in Appendix B. The briefings are kept on file in the KSN and updated annually to reflect changes in the PPT process. The guidance criteria includes:

## Formulation

### PPT Composition and Structure

- Include the names and organizations of your sponsors and performers. Identify which sponsors and performers participate in the portfolio development process and provide a brief description of the roles and responsibilities of the sponsors and performers including who makes decisions and final approvals.

### Meeting Management

- Does your organization hold regular meetings to discuss their R&D goals? If so, please describe how these meetings are planned, who typically participates, and if documentation is kept.

### Data Management

- What type of information do you need and/or collect from you PPT members in order to make well-informed decisions to develop your research portfolio? How do you collect this data and what is done with the data once it is collected?

### Portfolio Development Process

- Describe how your PPT identifies and prioritizes requirements. Do you consider recommendations from the REDAC and/or the REDAC Subcommittees?

### PPT Portfolio Accountability and Performance

- Include the methods used by the PPT to account for your portfolio's performance and expenditures. Is there a method used to judge the efficiency and success of a project? How is it determined if a project should be terminated?

### Portfolio Relationship Management

- Describe if and how your PPT regularly coordinates interfaces with any outside organizations while developing your research portfolio. This can include, but is not limited to, other government agencies, professional organizations, academia, or private industry.

#### **4.3.7 PPT Prioritization Process**

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

#### **4.3.8 PPT Outputs**

The PPT produces the following items during the R&D portfolio development process:

1. PPT proposed budget portfolio
2. Decision-making process presentation for the REB as necessary

3. REB approved decision-making process
4. REB approved PPT portfolio with updates if necessary
5. Updated PPT portfolio if necessary
6. Lessons learned issues and proposed REB process changes

#### **4.4 REB Support Team (RST)**

The RST provides administrative support to REB meetings, maintains the R&D portfolio development process, 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. RST membership consists of a team lead from ANG-E4, the R, E&D financial manager (ABP-330), 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-330) works for the Assistant Administrator for Finance and Management (AFN-1), supports the NextGen Office, and is a permanent member of the RST. The R, E&D Financial Manager is Mike Gallivan (ABP-330) at 202-267-3411 or [mike.gallivan@faa.gov](mailto:mike.gallivan@faa.gov).

##### **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 & 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 2. 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.

#### **4.8 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. For more information about the advisory committee and the requirements for this review, you may contact Chinita Roundtree-Coleman at (609) 485-7149 or [chinita.roundtree-soleman@faa.gov](mailto:chinita.roundtree-soleman@faa.gov).

#### **4.9 Joint Resource Council**

The JRC makes corporate-level resource decisions including:

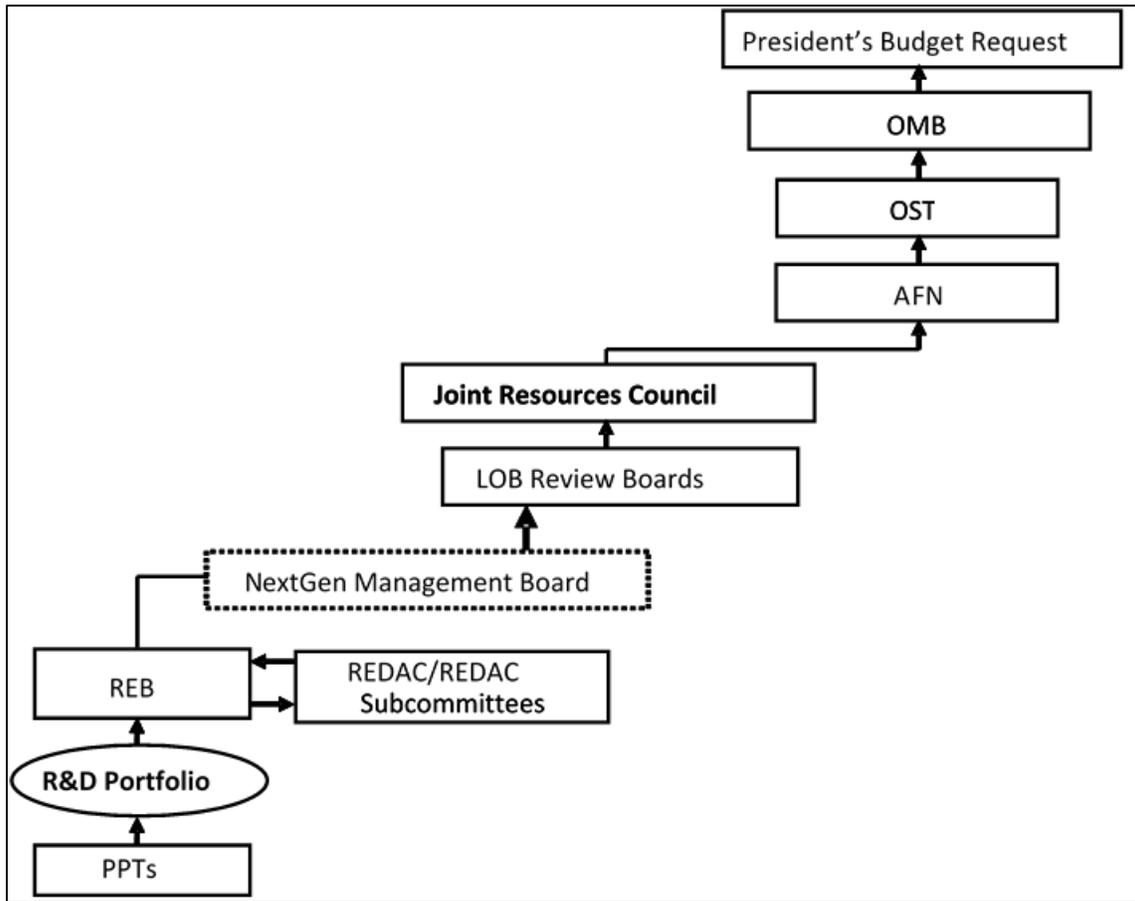
- Authorizing funding for new investment programs
- Approving investment resources
- Making investment decisions
- Monitoring investment program performance
- Overseeing various subordinate boards for investment decision-making process
- Approving F&E and R,E&D annual budget submission

Members of the JRC represent all agency 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.

#### **4.10 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 2 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 2 – 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. Instructions for OST Submission, under separate cover, or contact Mike Gallivan at (202) 267-3411 or [mike.gallivan@faa.gov](mailto:mike.gallivan@faa.gov).

**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 (<http://appropriations.house.gov/Issues/Issue/?IssueID=34798>).

## 5 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.

### 5.1 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. See Section 4.3.2 for additional information on sponsor and performer roles during the formulation process. 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](http://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
- Align the need to FAA *Strategic Plan* performance target, if applicable
- 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
- Attend project meetings, as needed
- Provide final acceptance of the project
- Provide lessons learned information
- 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

## **5.2 Program Management**

This section provides a reference list to help performers increase program effectiveness to meet performance goals. Program managers should review this checklist regularly. The goal is to deliver R&D program quality and performance in accordance with the OMB guidance.

## **5.3 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.

**5.4 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/](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

## 6 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.

### 6.1 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.

### 6.2 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](mailto:chinita.roundtree-coleman@faa.gov), or see the FAA website at ([https://www.faa.gov/about/office\\_org/headquarters\\_offices/ang/offices/tc/about/campus/faa\\_host/RDM/](https://www.faa.gov/about/office_org/headquarters_offices/ang/offices/tc/about/campus/faa_host/RDM/)).

#### 6.2.1 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+2 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.

### **6.2.2 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. However, the Mission Support PPT is not reviewed by REDAC or any subcommittee.

### **6.2.3 REDAC Subcommittee Meetings**

The REDAC holds winter/spring and summer/fall subcommittee meetings, as well as full committee meetings in both winter and spring. The meeting schedule for 2019 can be found in the beginning pages of the document.

## **6.3 Commercial Space Transportation Advisory Committee (COMSTAC)**

Established in 1984, the COMSTAC provides information, advice, and recommendations to the Administrator on matters relating to the U.S. commercial space transportation industry including FAA R&D activities. The COMSTAC provides annual recommendations for commercial space transportation R&D projects and periodically reviews the FAA R&D reports and activities. For example, the CST PPT is reviewed by COMSTAC. For more information about the COMSTAC meetings, members, or reports, contact Dorothy Reimold ([dorothy.reimold@faa.gov](mailto:dorothy.reimold@faa.gov)) at (202) 267 7635 or Nathaneal McIntyre ([nathaneal.mcintyre@faa.gov](mailto:nathaneal.mcintyre@faa.gov)) at (202) 267 8464.

## **6.4 Office of Management and Budget (OMB) Evaluation Criteria**

The FAA uses OMB evaluation criteria to conduct the PART review of the R&D portfolio. The OMB evaluation criteria focus on the relevance, quality, and performance of the FAA R&D portfolio. For more information, see the OMB PART Guidance No. 2007-02, January 29, 2007.

**ACRONYMS**

Acronym	Definition
AFN	Office of Finance and Management
APL	Policy, International Affairs, and Environment
AIO	Information Services
AIP	Airport Improvement Program
ANG	NextGen Office
AST	Commercial Space Transportation
ATM	Air Traffic Management
AVS	Aviation Safety
AVP	Office of Accident Investigation and Prevention
BLI	Budget Line Item
CIT	Capital Investment Team
CNS	Communication, Navigation, and Surveillance
COMSTAC	Commercial Space Transportation Advisory Committee
DFO	Designated Federal Official
DOT	Department of Transportation
F&E	Facilities and Equipment
FAA	Federal Aviation Administration
FY	Fiscal Year
G7	Group of Seven
GIAA	Grants-In-Aid for Airports
JRC	Joint Resources Council
KSN	Knowledge Services Network
LOB	Line of Business
NARP	National Aviation Research Plan
NAS	National Airspace System
NAS Ops	National Airspace System Operations
NASEA	National Airspace System Enterprise Architecture
NASA	National Aeronautics and Space Administration
NextGen	Next Generation Air Transportation System
OI	Operational Improvement
OMB	Office of Management and Budget
Ops	Operations
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
REB	Research and Development Executive Board
REDAC	Research, Engineering, & Development Advisory Committee
RST	REB Support Team

### Appendix A: Points of Contact

**Table A1: R&D Budget Line Items by Program Planning Team (PPT)**

FY 2020 BLI #	Program Name	Assigned PPT
<b>Research, Engineering and Development (R,E&amp;D)</b>		
A11.a	Fire Research and Safety	Aircraft Research
A11.b	Propulsion and Fuel Systems	Aircraft Research
A11.c	Advanced Material/Structural Safety	Aircraft Research
A11.d	Aircraft Icing/Digital System Safety	Aircraft Research
A11.e	Continued Airworthiness	Aircraft Research
A11.f	Aircraft Catastrophic Failure Prevention Research	Aircraft Research
A11.g	Flightdeck Maintenance/System Integration Human Factors	Human Factors
A11.h	System Safety Management/Terminal Area Safety	Aircraft Research
A11.i	Air Traffic Control/Technical Operations Human Factors	Human Factors
A11.j	Aeromedical Research	Aeromedical Research
A11.k	Weather Program	Weather
A11.l	Unmanned Aircraft Systems Research	Aircraft Research
A11.m	NextGen - Alternative Fuels for General Aviation	Aircraft Research
A11.n	Commercial Space Transportation Safety	Commercial Space
A12.a.	NextGen - Wake Turbulence	Wake Turbulence
A12.b	NextGen - Air Ground Integration Human Factors	Human Factors
A12.c	NextGen - Weather Technology in the Cockpit	Weather

A12.d	NextGen - Information Security	NextGen
A13.a	Environment and Energy	Environment & Energy
A13.b	NextGen - Environmental Research - Aircraft Technologies, Fuels, and Metrics	Environment & Energy
A14.a	System Planning and Resource Management	Mission Support
A14.b	William J. Hughes Technical Center Laboratory Facility	Mission Support
<b>Facilities and Equipment (F&amp;E)</b>		
1A05A	ADS-B in Applications – Flight Interval Management	F&E
1A05C	Wake Turbulence Recategorization	F&E
1A05E	Closely Spaced Parallel Runway Operations	F&E
1A05F	UAS Concept Validation and Requirements Development	F&E
1A05G	Concept Development for Integrated National Airspace NAS Design and Procedures Planning	F&E
1A06B	Surface Tactical Flow	F&E
1A06D	Strategic Flow Management Application	F&E
1A08A	Weather Observation Improvements	F&E
1A08B	Weather Forecast Improvements	F&E
1A08D	New Air Traffic Managements Requirements	F&E
1A10B	UAS Flight Information Management	F&E
1A11A	Enterprise Concept Development	F&E
1A11B	Enterprise Human Factors Development	F&E
1A11C	Enterprise Stakeholder Demonstrations	F&E
4A08	Center for Advanced Aviation System Development (CAASD)	

<b>Airports Improvement Program (AIP)</b>		
AIP	Airports Technology Research – Capacity	Airports
AIP	Airports Technology Research – Environment	Airports
AIP	Airports Technology Research – Safety	Airports
AIP	Airport Cooperative Research Program (ACRP) – Capacity	Airports
AIP	ACRP – Environment	Airports
AIP	ACRP – Safety	Airports

**Table A2: R&D Point of Contact List by Appropriation**

<b>Appropriation</b>	<b>Budget Line Item &amp; Program Name</b>	<b>PPT</b>	<b>Points of Contact</b>	<b>Email Address</b>
R,E&D	A11.a Fire Research and Safety	Aviation Research	Dave Blake	dave.blake@faa.gov
R,E&D	A11.b Propulsion and Fuel Systems	Aviation Research	Dave Galella Ken Knopp	dave.galella@faa.gov ken.knopp@faa.gov
R,E&D	A11.c Advanced Materials/Structural Safety	Aviation Research	Allan Abramowitz Ahmet Oztekin	allan.abramowitz@faa.gov ahmet.oztekin@faa.gov
R,E&D	A11.d Aircraft Icing/Digital System Safety	Aviation Research	John Lapointe James T. Riley Timothy G. Smith John Peace Srini Mandalapu	john.lapointe@faa.gov james.t.riley@faa.gov timothy.g.smith@faa.gov john.peace@faa.gov srini.mandalapu
R,E&D	A11.e Continued Airworthiness	Aviation Research	Alanna Randazzo Ken Knopp Paul Swindell Sohrob Mottaghi John Bakuckas Ahmet Oztekin Robert J. McGuire	alanna.randazzo@faa.gov ken.knopp@faa.gov paul.swindell@faa.gov sohrob.mottaghi@faa.gov john.bakuckas@faa.gov ahmet.oztekin@faa.gov robert.j.mcguire@faa.gov
R,E&D	A11.f Aircraft Catastrophic Failure Prevention	Aviation Research	Daniel Cordasco William Emmerling	daniel.cordasco@faa.gov william.emmerling@faa.gov
R,E&D	A11.g Flightdeck Maintenance/System Integration Human Factors	Human Factors	Paul Krois Sheryl Chappell	paul.krois@faa.gov sheryl.chappell@faa.gov
R,E&D	A11.h System Safety Management/Terminal Area Safety	Aviation Research	Hossein Eghbali	hossein.eghbali@faa.gov
R,E&D	A11.i Air Traffic Control/Technical Operations Human Factors	Human Factors	Paul Krois Dan Herschler	paul.krois@faa.gov dan.herschler@faa.gov

R,E&D	A11.j Aeromedical Research	Aeromedical	Estrella Forster Melchor J. Antunano	estrella.forster@faa.gov Melchor.j.antunano@faa.gov
R,E&D	A11.k Weather Program	Aviation Weather	William Bauman William Fellner	william.baumann@faa.gov william.fellner@faa.gov
R,E&D	A11.l Unmanned Aircraft Systems	Unmanned Aircraft System	Claude Jones Bobbie Emerson	claudio.jones@faa.gov roberta.ctr.emerson@faa.gov
R,E&D	A11.m Next Gen-Alternative Fuels for General Aviation	Aviation Research	Ken Knopp Matthew Teyssier Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson	ken.knopp@faa.gov matthew.ctr.teyssier@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov
R,E&D	A11.n Commercial Space Transportation Safety	Commercial Space	Ken Davidian Paul Wiilde Dorothy Reimold	Ken.davidian@faa.gov Paul.wilde@faa.gov dorothy.reimold@faa.gov
R,E&D	A12.a NextGen-Wake Turbulence	Wake Turbulence	Paul Strande Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso Chris Lawler Tom Proeschel	paul.strande@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov christopher.lawler@digitalbiz.com thomas.ctr.proeschel@faa.gov
R,E&D	A12.b NextGen-Air Ground Integration Human Factors	Human Factors	Paul Krois Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Latanya Woodland Rebecca Welton Mark Mancuso	paul.krois@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov latanya.woodland@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov

R,E&D	A12.c NextGen- Weather Technology in the Cockpit	Aviation Weather	Sandra Schmidt Gary Pokodner Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Latanya Woodland Rebecca Welton Mark Mancuso	sandra.schmidt@faa.gov gary.pokodner@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov latanya.woodland@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
R,E&D	A12.d NextGen-Information Security	NextGen	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
R,E&D	A13.a Environment and Energy	Environment and Energy	Jim Hileman Fabio Grandi Kevin Welsh	james.hileman@faa.gov fabio.grandi@faa.gov kevin.welsh@faa.gov
R,E&D	A13.b NextGen- Environmental Research/Aircraft Technologies, Fuels, and Metrics	Environment and Energy	Jim Hileman Fabio Grandi Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	james.hileman@faa.gov fabio.grandi@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
R,E&D	A14.a System Planning and Resource Management	Mission Support	Maureen Molz Richard Mendell	maureen.molz@faa.gov richard.mendell@faa.gov
R,E&D	A14.b William J. Hughes Technical Center	Mission Support	Ted Phillips Sheila Smallwood Purvi Sharma	ted.phillips@faa.gov sheila.smallwood@faa.gov purvi.sharma@faa.gov

F&E	1A05A ADS-B in Applications- Flight Interval Management	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A05C Wake Turbulence Recategorization	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A05E Closely Spaced Parallel Runway Operations	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A05F UAS Concept Validation & Requirements Development	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A05G Concept Development for Integrated National Airspace NAS Design & Procedures Planning	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov

F&E	1A06B Surface Tactical Flow	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A06D Strategic Flow Management Application	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A06F Advanced Methods	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A08A Weather Observation Improvements	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A08B Weather Forecast Improvements	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov

F&E	1A08D New Air Traffic Management Requirements	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A10B UAS Flight Information	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A11A Enterprise Concept Development	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A11B Enterprise Human Factors Development	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov
F&E	1A11C Enterprise Stakeholder Demonstrations	NAS Ops	John Maffei Francisco Bermudez Charles Buntin Tara Holmes Vaughn Yates Artesha Bishop Arthur Orton Hector Rea Jamal Wilson Rebecca Welton Mark Mancuso	john.maffei@faa.gov francisco.bermudez@faa.gov charles.buntin@faa.gov tara.holmes@faa.gov vaughn.yates@faa.gov artasha.bishop@faa.gov arthur.orton@faa.gov hector.rea@faa.gov jamal.wilson@faa.gov rebecca.welton@faa.gov mark.ctr.mancuso@faa.gov

4A08	Center for Advanced Aviation System Development (CAASD)		Thomas Schrader John Raper Keith Neill	thomas.ctr.schrader@faa.gov john.raper@faa.gov keith.neill@faa.gov
AIP	Airport Technology Research- Capacity, Environment & Safety		Patricia C. Hiatt Michel Hovan Jim Patterson Lauren Collins	patricia.chasse.hiatt@faa.gov michel.hovan@faa.gov james.m.patterson@faa.gov lauren.collins@faa.gov
AIP	Airport Cooperative Research- Capacity, Environment & Safety		Renee Hendricks Michel Hovan John Dermody Lauren Collins	renee.hendricks@faa.gov Michel.hovan@faa.gov john.dermody@faa.gov lauren.collins@faa.gov

**Table A3: REB members, PPT Leads & R, E&D Advisory Committee (REDAC) Point of Contact List**

<b>Name</b>	<b>Position</b>	<b>Org.</b>	<b>Phone No.</b>	<b>Email</b>
<b>R&amp;D Executive Board (REB) Members</b>				
Shelley Yak	ANG Chair	ANG-E	609-485-6085	shelley.yak@faa.gov
Mark Orr	Rep., Aviation Safety	AVO-300	816-329-4151	mark.orr@faa.gov
John Dermody	Rep., Airports	AAS-2	202-267-3053	john.dermody@faa.gov
Dorothy Reimold	Rep., Commercial Space Transportation	AST-4	202-267-5417	dorothy.reimold@faa.gov
James Hileman	Rep., Environment & Energy	APL	202-493-4293	james.hileman@faa.gov
Mike Gallivan	Rep., Financial Services (non-voting)	ABA-300	202-267-3411	mike.gallivan@faa.gov
<b>Program Planning Team (PPT) Leads</b>				
John Dermody	Lead, Airports	ARP	202-267-3053	john.dermody@faa.gov
Mark Orr	Lead, Aircraft Safety	AVP-300	816-329-4151	mark.orr@faa.gov
Dorothy Reimold	Lead, Commercial Space Transportation	AST-4	202-267-5417	dorothy.reimold@faa.gov
Jim Hileman	Lead, Environment & Energy	APL	202-493-4293	james.hileman@faa.gov
Maureen Molz	Lead, Mission Support	ANG-E4	609-485-8120	maureen.molz@faa.gov

<b>Name</b>	<b>Position</b>	<b>Org.</b>	<b>Phone No.</b>	<b>Email</b>
John Maffei	Lead, National Airspace System Operations	ANG-C7	202-267-5022	john.maffei@faa.gov
Randy Bass	Lead, Weather	ANG-C6	202-267-6345	randy.bass@faa.gov
<b>R,E&amp;D Advisory Committee (REDAC)</b>				
Chinita Roundtree-Coleman	Lead, REDAC Meeting Coordinator	ANG-E4	609-485-7149	chinita.roundtree-coleman@faa.gov
Nancy Clarke	REDAC Support Team	ANG-E4	609-485-7044	nancy.ctr.clarke@faa.gov
Shelley Yak	DFO, REDAC	ANG-E	609-485-6085	shelley.yak@faa.gov
Eric Neiderman (A)	DFO, Aircraft Safety	ANG-E2	609-485-6389	eric.neiderman@faa.gov
John Dermody	DFO, Airports	ANG-C4	202-267-7669	john.dermody@faa.gov
Jim Hileman	DFO, Environment and Energy	APL	202-493-4293	james.hileman@faa.gov
Michelle Yeh	DFO, Human Factors	ANG-C1	202-493-7167	michelle.yeh@faa.gov
Francisco Bermudez	DFO, NAS Ops	ANG-C5	202-267-1527	francisco.bermudez@faa.gov
<b>R&amp;D Executive Board Support Team (RST)</b>				
Pam Crenshaw	Lead, REB Support Team	ANG-E4	202-267-8144	pam.crenshaw@faa.gov

<b>Name</b>	<b>Position</b>	<b>Org.</b>	<b>Phone No.</b>	<b>Email</b>
Mike Gallivan	Lead, Finance	ABP-330	202-493-5598	mike.gallivan@faa.gov
Okoineme Giwa	REB Support	ANG-E4	301-751-6548	okoineme.ctr.giwa@faa.gov

**Table A4: REDAC Advisory Committee Points of Contact**

<b>Name</b>	<b>Position</b>	<b>Phone #</b>	<b>Email</b>
Chinita Roundtree Coleman	Lead, REDAC Meeting Coordinator	609-485-7149	chinita.roundtree- coleman@faa.gov
Nancy Clarke	REDAC Support Team	609-485-7044	nancy.ctr.clarke@faa.gov
Shelley Yak	DFO REDAC	609-485-6085	Shelley.yak@faa.gov
Eric Neiderman	DFO Aircraft Safety	609-485-6011	Eric.neiderman@faa.gov
James Hileman	DFO Airports Subcommittee	202-267-7605	james.white@faa.gov

**Table A5: Designated Federal Official Information**

REDAC Subcommittee	DFO	Phone No.	Email	PPT Interface				
				Aircraft Safety	Weather	NAS Ops	Airports	Environment & Energy
NAS Ops	Francisco Bermudez (ANG C-53)	(202)-267-1527	francisco.bermudez@faa.gov	•	•	•		
Aviation Research	Eric Neiderman (ANG-E)	(609) 485-6011	eric.neiderman@faa.gov	•	•			
Airports	John Dermody (ARP)	(202) 267-3053	john.dermody@faa.gov				•	
Human Factors	Paul Krois (ANG-C1)	(202) 267-1180	paul.krois@faa.gov	•	•	•		
Environment and Energy	James Hileman (APL)	(202) 493-4293	james.hileman@faa.gov					•

### Appendix B: PPT Prioritization Process

The following schematic represents the prioritization process that each PPT uses to develop their 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
<ul style="list-style-type: none"> <li>• Airport Safety</li> <li>• Airport Planning</li> <li>• Airport Design</li> <li>• Airport Pavement</li> </ul>	<p style="text-align: center;"><b>Categories of Research</b></p> <ul style="list-style-type: none"> <li>• Development of new Advisory Circulars - <i>long term research</i></li> <li>• Update of existing Advisory Circulars - <i>mid-term research</i></li> <li>• Investigation of new technologies - <i>short or mid-term research</i></li> <li>• Urgent research support - <i>usually short term</i> (a few months) to provide help &amp; support to HQ and the FAA Regions</li> </ul>	<ul style="list-style-type: none"> <li>• Starts as soon as contractually &amp; technically feasible</li> <li>• Accelerates when results are urgently needed by the Office of Airports</li> <li>• Input from REDAC</li> <li>• Office of Airports sponsors and initiates research based on its needs and the Technical Center ATR branch executes needed research</li> </ul>

## WEATHER

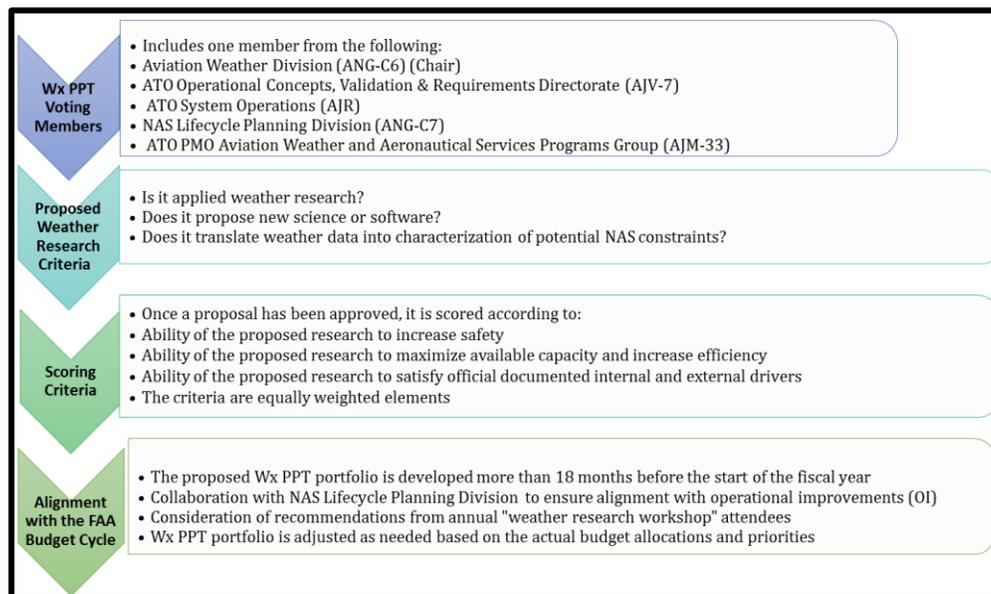
The Weather Program Planning Team (Wx PPT) establishes the priorities for the FAA’s aviation weather research activities of the Weather Program. The Wx PPT voting membership includes one FAA representative from each of the following organizations: Aviation Weather Division (ANG-C6) (Chair); ATO Operational Concepts, Validation & Requirements Directorate (AJV-7); ATO System Operations (AJR); 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:

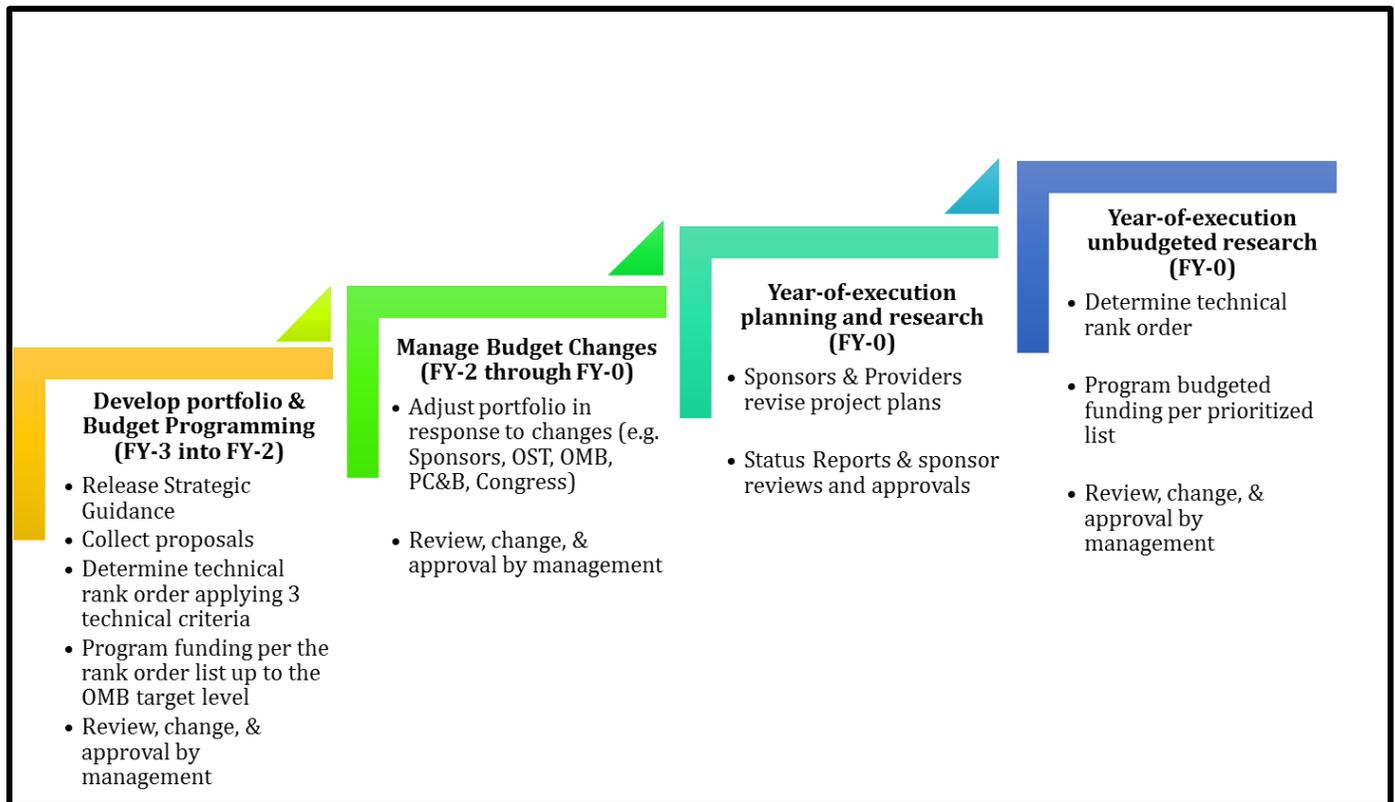
- Ability of the proposed research to increase safety
- Ability of the proposed research to maximize available capacity and increase efficiency
- Ability of the proposed research to satisfy official documented internal and external drivers

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 (OIs) contained in the NextGen Segment Implementation Plan (NSIP). Recommendations from annual “weather research workshop” attendees (including airlines, GA, NWS, ATM 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.



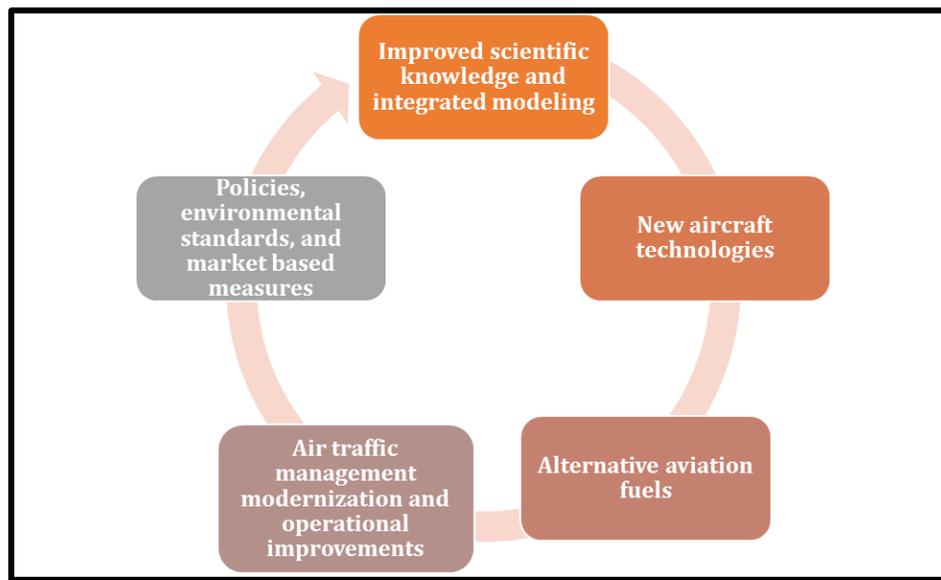
## AVIATION SAFETY (AVS)

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)

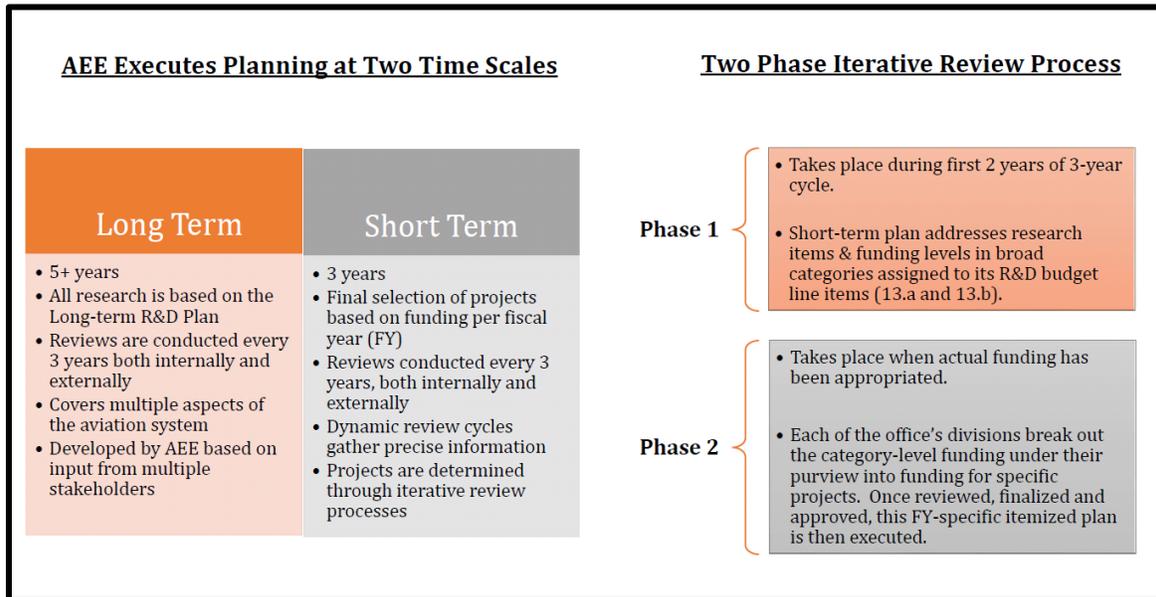
The FAA is utilizing a comprehensive, five pillar environmental and energy strategy to mitigate the environmental impacts of aviation to enable the sustainable growth of aviation. The strategy employs a holistic approach that builds on aviation's history of technological and operational innovation to develop each of the elements in the following figure.



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 executes prioritization planning based on two time scales – Short Term (3 years) and Long Term (5+ years). There are several distinguishing characteristics associated with each and 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, Emissions Division, CLEEN Division, and Policy and Operations Division) that address each aspect of the five pillar 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 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 (White Sheets). 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.

## COMMERCIAL SPACE (AST)

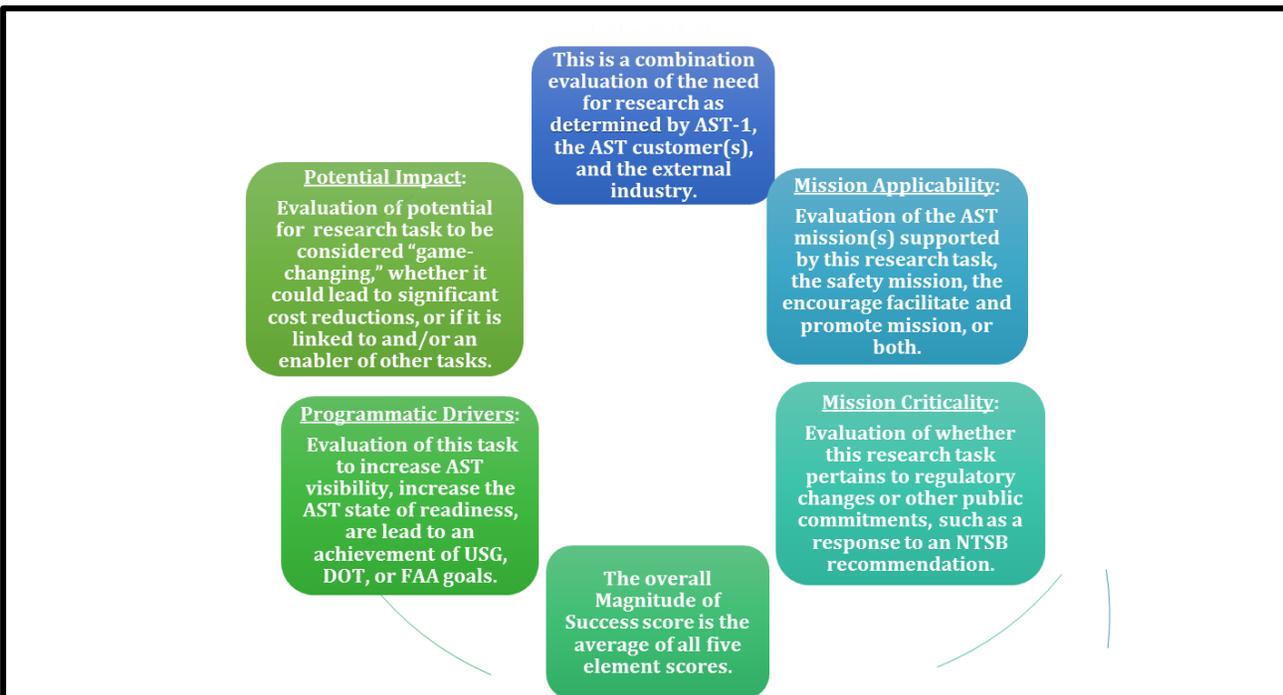
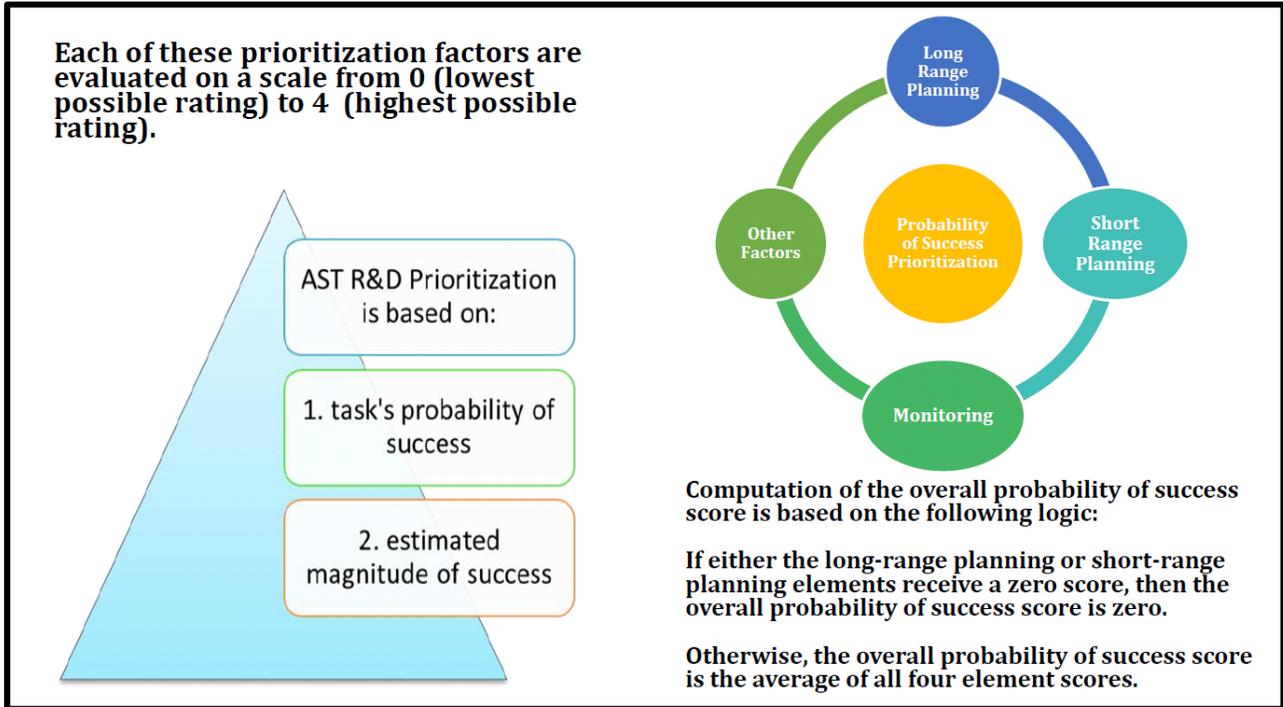
AST R&D tasks will be prioritized based on two factors: the proposed task's probability of success, and its estimated magnitude of success. Each of these prioritization factors are evaluated on a scale from zero (the lowest possible rating) to 4 (the highest possible rating).

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.
5. **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.
6. **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.
7. **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.
8. **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.
9. **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.
10. **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.

11. 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.

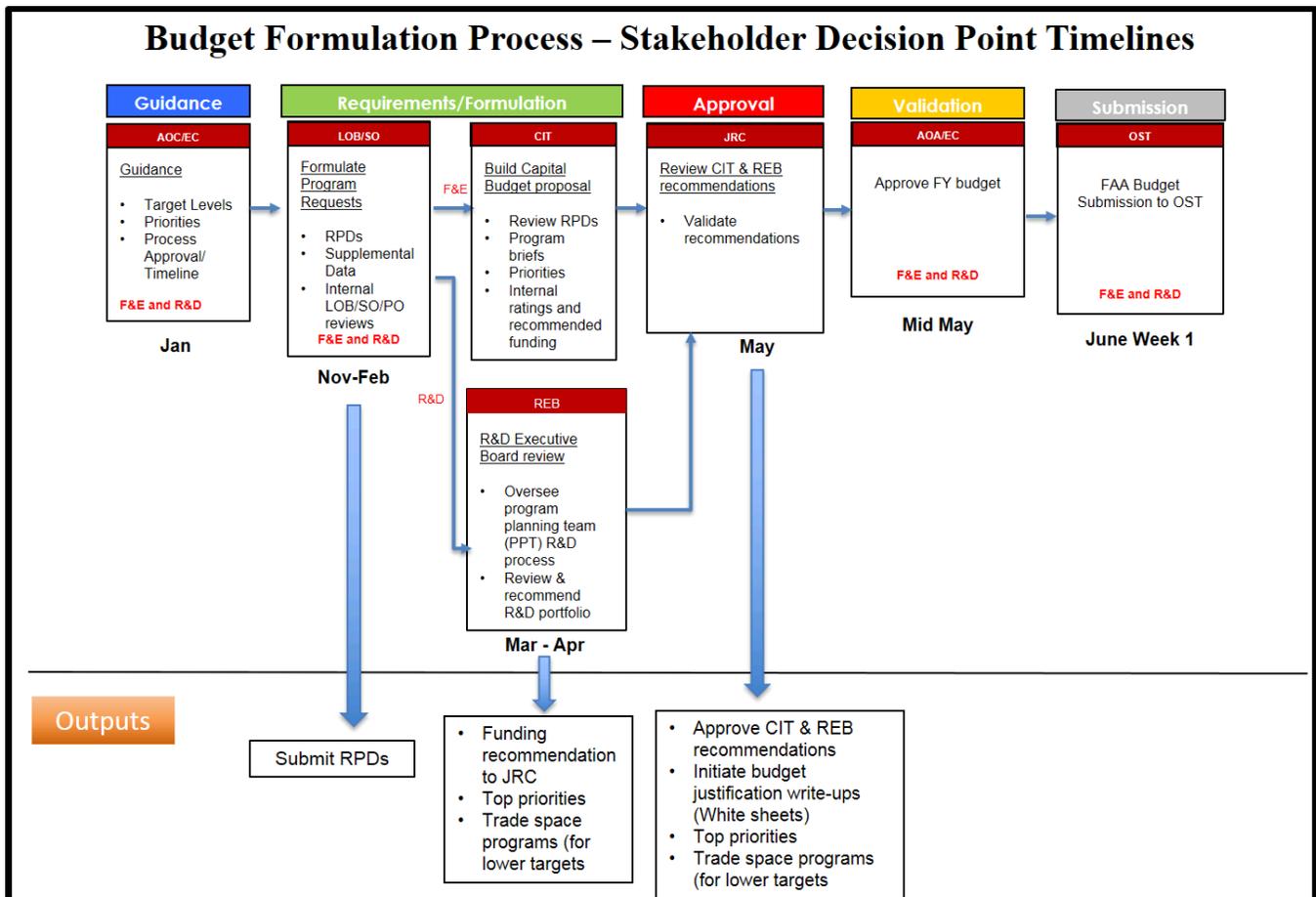


# NAS OPS

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



**Appendix C: Budget Narrative Development Process**

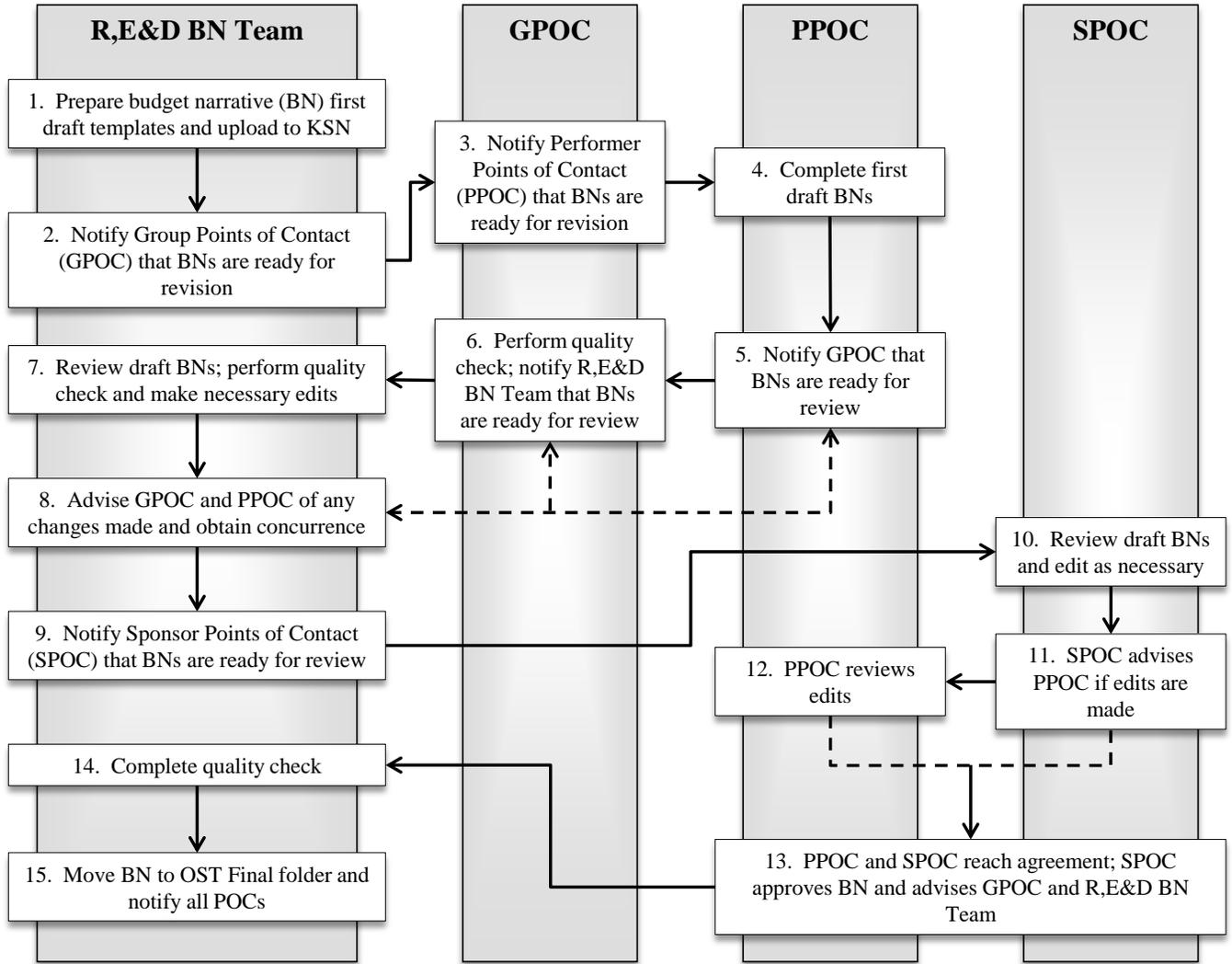


**Federal Aviation  
Administration**

**FY 2020 R, E&D Budget Narrative Development  
Process Guidance**

**A How-To Guide for Developing and Approving  
FY 2020 R, E&D Budget Narratives**

**Figure 1: Budget Narrative Development Flowchart**



## FY 2020 Budget Narrative Development Process

This document provides guidance in developing the fiscal year (FY) 2020 R, E&D budget narratives using the R, E&D Budget Narrative Collaboration site on the Knowledge Services Network (KSN). This chapter provides an overview of the development process, as outlined in the sections below:

First Draft (Template)  
Performer Draft  
Sponsor Review  
Final OST Draft

### First Draft (Template)

**Step 1:** The R, E&D Budget Narrative Management Team (R, E&D BN Team), comprised of the Office of Budget and Programs – R, E&D Program Management Branch (ABP-330) and the Research and Development Management Division (ANG-E4), uses the FY 2019 R, E&D budget narratives to develop templates (first drafts) of the FY 2020 budget narratives. The R, E&D BN Team uploads first draft narratives to the Performer Working Files folder on the R, E&D Budget Narrative Collaboration KSN site.

**Step 2:** The R, E&D BN Team notifies the Group Point of Contact (GPOC) via email that the first drafts are ready for review. The GPOC is the single point of contact for your organization for interacting with the R, E&D BN Team in developing the budget narratives. If your organization does not have a GPOC, those functions can be done by the Performer Point of Contact (PPOC) for each budget narrative.

### Performer Draft

**Step 3:** The GPOC reviews the first draft narrative and notifies the PPOC, via email, that the narrative is available for revision. At this point, the first draft becomes the performer draft. The performer draft narrative is located in the appropriate subfolder of the Performer Working Files folder in KSN (e.g., the *All.a Fire Research and Safety* subfolder is located in the *Aircraft Safety* folder), which is available in the *FY 2020 R, E&D Budget Narratives* Document Library.

**Step 4:** The PPOC reviews, edits, and completes the performer draft narrative. Please see *FY 2020 R, E&D Budget Narrative Instructions* on page six for specific, line-by-line guidance on how to complete the budget narrative. During review, ensure that the ‘Track Changes’ function in MS Word is turned on. Also, please ensure that your name and initials are reflected in your tracked changes. The process to do this varies depending on your version of Microsoft Word. Using ‘Track Changes’ in MS Word is vital to the Budget Narrative collaboration process, as it provides complete transparency throughout each phase of the narrative development process. **If a change to the narrative is not tracked during the review process, it will not be accepted as part of the final version.**

The Sponsor organization will be approving each budget narrative. The Sponsor POC (SPOC), the individual representing the sponsoring organization for its research needs, will need to approve all narratives. To expedite the sponsor’s approval, the PPOCs should collaborate with their sponsor technical points of contact to identify and define the planned FY 2020 accomplishments in the budget narrative (and review the FY 2019 accomplishments). It would also be a good idea for the sponsor technical points of contact to coordinate with the SPOC before the sponsor review. To aid in the sponsor’s review, approved sponsor requirements will be pre-loaded as major headings into the templates (first drafts) of each budget narrative.

**Step 5:** The PPOC saves the revised narrative in the Performer Working Files folder on KSN and notifies the GPOC via email that the document is ready for review.

**Step 6:** The GPOC checks the performer draft narrative to ensure compliance with the instructions set forth in *FY 2020 R, E&D Budget Narrative Instructions* and works with the PPOC to make edits as necessary. This may require several iterations with the PPOCs. The GPOC approves the most current version of the performer draft narrative, ensures it is in the Performer Working Files folder, and notifies the R, E&D BN Team via email when the performer draft narrative is ready for review.

**Steps 7-9:** R, E&D BN Team performs a quality check on the performer draft narrative and notifies the GPOC and PPOC if any changes were made as a result of the check. This may require several iterations with the GPOCs and PPOCs. After addressing all issues, the R, E&D BN Team will get concurrence on any edits via email. The R, E&D BN Team uploads the performer draft narrative to the Sponsor Review Files folder in KSN and notifies the SPOC via email. At this point, the performer draft narrative goes into Sponsor Review.

### Sponsor Review

**Step 10:** With track changes on, the SPOC reviews the budget narrative and edits as necessary. Sponsor edits should be focused on requirements (i.e., what is to be done), and not how the tasks will be completed. The Performers are responsible for how the tasks will be completed. Sponsors should not make extensive word-smiting edits, although they may suggest changes to the PPOC to clarify and correct any errors or typographical mistakes.

**Steps 11-13:** The SPOC advises the PPOC if any edits are made and the PPOC reviews to address the SPOC changes and/or comments. The SPOC and the PPOC reach agreement on how to address all updates. This may require several iterations with the PPOCs. If necessary, the R, E&D BN Team will adjudicate any issues that are not resolved. The SPOC approves the budget narrative and notifies the GPOC and the R, E&D BN Team via email that the updated and approved narrative is in the Sponsor Review Files folder.

### Final OST Draft

**Step 14:** The R, E&D BN Team performs a quality control check on the sponsor-approved draft narrative and creates a new version without comments or changes tracked. If any changes are made during this step, the R, E&D BN Team will inform the SPOC, GPOC, and PPOC of what changes were required.

**Step 15:** The R, E&D BN Team will move the sponsor-approved and R, E&D BN Team-reviewed budget narrative to the OST Final folder on KSN. The R, E&D BN Team will notify all POCs via email.

The R, E&D BN Team will review all FY 2020 budget narratives before final delivery to OST, updating the budget data as available. If any changes are made during this review, the R, E&D BN Team will ensure files on the R, E&D Budget Narrative Collaboration KSN site are updated as needed and appropriate POCs are notified.

## FY 2020 R, E&D Budget Narrative Instructions

### Elements of a Successful Narrative

A successful budget request clearly identifies what specific public policy problem your program will address, provides data to support the need for the program, and clearly identifies how the requested funds will be used to improve program performance. When drafting your budget request, you should include as many of the following elements as you can in your narrative:

- Purpose and beneficiaries of the program
- Description of activities
- Is this a new request or does it represent a major increase?
- Specific details about how the funding will be used.
  - **Discuss the benefits derived from requested funding.**
- Discuss what results (both outputs and outcomes) are anticipated from requested funding.
- Role of partners in implementing the program
  - **Include both Federal and non-Federal partners.**
- Recent legislative or other external change(s) that effect or will affect the program.
- Recent major newsworthy accomplishments or achievements **including specific data on program performance.**
- Increases and decreases to the program over prior years.
  - **Discuss the impact to the program and give examples.**
- Discuss the planned activities and anticipated milestones.
- Role of information technology in accomplishing this program's activities.
- What would happen if this program was not funded? – use data, research and analysis to substantiate the claim.
  - **Describe the activities that would stop and the benefits/outcomes that would not be achieved.**
- Provide a history of funding to provide context. Use simple graphs or tables plus explanatory text.
- Are there **viable alternatives** for achieving the same results? Discuss why your request is preferable to other options.
- As part of a justification of modal budget proposals, particularly for new programs and changes to existing programs.
  - **Modes should identify the evidence or data that led to the proposal's development.** Please share any results from studies, pilot tests, reports, data analysis, business process analysis or any other source of evidence that demonstrate a need for the proposed change to support:
    - ❖ How do you know that this program is effective?
    - ❖ What research has been done that informs the approach or operation of the program?

### Writing and Communicating

- **Use plain language.** The narrative should be readily understandable to all audiences. <http://www.plainlanguage.gov/>
  - Use active voice
  - Use pronouns
  - Minimize use of acronyms

- Minimize use of technical language
  - Use sub-headers, bold text and underlined text to create logical breaks in the narrative
- **Be brief.** If you cannot articulate your point in a few words, you should rethink your message and how that message actually justifies the request.
  - **Use visual representations and graphic displays of information** to communicate complex or cumbersome information more clearly. This includes the use of tables, graphs, charts, timelines, and other appropriate graphic elements.
  - **Include references and hyperlinks.** When referencing a report, study, externally developed statistic, or other source of information, cite the source and where possible include a hyperlink to that source.

## FY 2020 R, E&amp;D Budget Narrative First Draft (Template) Example

**Detailed Justification for the (Enter Program Name Here)****FY 2020 – (Enter Program Name Here)****Budget Request**

(\$000)

Program Activity	FY 2018 Enacted Level	FY 2019 President's Budget	FY 2020 Request	Difference from FY 2019 President's Budget
Salaries and Expenses				
Program Costs				
Total	\$	\$	\$	\$
FTE (if applicable)				

*Fill out the budget request table according to your request.*

**What is this Program and what does this Funding Level Support?**

Insert text here. *Directions for writing this section:*

- Describe the program. Include all components of the program that are currently underway and identify specific initiatives that are being funded.
- Specify how existing base funds are used. What do these funds specifically support?
  - Provide detailed information that shows exactly what we are doing with these funds to achieve the programmatic objective.
  - Include Anticipated FY 2019 Accomplishments
- Discuss plans and goals for the FY 2020 funding.

**What Benefits will be Provided to the American Public through this Request and why is this Program Necessary?**

Insert text here. *Directions for writing this section:*

1. ***For programs being requested at the base funding level***, provide information on how requested resources will be used to support ongoing program delivery. Your narrative should indicate:
  - What specific need exists for this funding? Include a description how the resources will be used.
  - A successful narrative should clearly indicate how these additional resources would be utilized to benefit the American public.

2. ***For all programs requesting additional requested increases***, provide information that as to why additional resources are needed, and what specific benefits these resources would provide. A successful narrative should clearly indicate how these additional resources would be utilized to benefit the American public, and why there are no other alternatives to pursuing additional funding. Your narrative should indicate:
  - What specific need exists for the additional funding? Include a description of the emerging problem, and how the additional resources will be used.
  - Provide data to support the need for these additional resources.
  - Explain why current resources are not available to meet this need.
- Provide data indicating how we know the program works.
- In an era of increasingly scarce resources, tradeoffs and choices need to be made. Provide information that indicates why this program should continue to be supported.
  - Indicate specific benefits that will accrue to the American public and the Nation if this request is funded.
  - Provide information on why *this particular program* is necessary.
  - Use facts and data to demonstrate the need for this program.
  - Demonstrate why taxpayer dollars continue to be used for this initiative.
- For Administrative expenses, indicate how the requested component supports program delivery and the ongoing mission of your Operating Administration.

## FY 2020 R, E&D Budget Narrative First Draft (Template) Example

Below is an example of an FY 2020 budget narrative. Keep in mind that the first draft templates for each Budget Line Item's narrative will vary. For each individual narrative, comments will be shown and edits will be tracked to show how the R, E&D BN Team developed the drafts.

### Detailed Justification for A11.a Fire Research and Safety

#### FY 2020 – A11.a Fire Research and Safety - Budget Request (\$000)

Program Activity	FY 2018 Enacted	FY 2019 Estimate	FY 2020 Request	Difference from FY 2019 Estimate
A11.a Fire Research and Safety	\$	\$		+-\$

#### What is this Program and what does this Funding Level Support?

#### Major Activities and Accomplishments Planned in FY 2020 Include:

##### Aircraft Fire Safety

- Insert FY 2020 Planned Accomplishment Here

##### Goals for FY 2020 Funding:

- By 2022, develop the enabling technology to prevent accidents caused by in-flight fires in freighter (all cargo) and passenger carrying large transport aircraft by improving aircraft based detection and suppression capabilities.
- By 2022, enable the introduction of fire-safe new materials into commercial transport aircraft, such as lightweight composite structure, magnesium and other metallic alloys, lightweight cabin furnishing materials, and advanced electrical power sources, including lithium batteries and hydrogen-fueled fuel cells.
- By 2022, support and facilitate the evaluation and replacement of Halon fire extinguishing agents and halogenated cabin material flame-retardants with effective and practical alternatives.

#### What Benefits will be Provided to the American Public Through this Request and why is this Program Necessary?

(Insert Narrative Here)

### **Strategic Goals from the U.S. DOT R, D&T Strategic Plan FY 2017 – FY 2021**

The RD&T Strategic Plan meets the statutory requirements of the FAST Act, which requires the Secretary of Transportation to develop a five-year strategic plan to guide future Federal transportation research and development activities. It presents the Department's approach to addressing the six primary purposes of its transportation research and development program, which are defined in the FAST Act as follows:

- Improving mobility of people and goods;
- Reducing congestion;
- Promoting safety;
- Improving the durability and extending the life of transportation infrastructure;
- Preserving the environment; and
- Preserving the existing transportation system.

For more information, see: <https://www.transportation.gov/sites/dot.gov/files/docs/USDOT-RD%26T-Strategic-Plan-Final-011117.pdf>

### **Strategic Goals from the U.S. DOT Strategic Plan FY 2017-2021**

**Promoting Safety** relates to safety issues affecting all modes and the development and deployment of countermeasures designed to address these issues. U.S. DOT's goal is to improve public health and safety by reducing transportation-related fatalities and injuries.

**Improving Mobility** refers to demographic, economic, geographic, cultural, and technological trends affecting travel demand, personal and commercial mobility across all transportation modes, and the effects of those trends on quality of life and access to economic and educational opportunities. U.S. DOT's goal is to improve the mobility of people and goods, reduce congestion, and increase access to opportunities for all.

**Improving Infrastructure** covers issues relating to the condition, costs, funding, and delivery of the transportation infrastructure, as well as the methods and technologies to increase its durability and resilience. U.S. DOT's goal is to improve the durability and extend the life of the transportation infrastructure, preserve the existing transportation system, and ensure that the U.S. proactively maintains the critical transportation infrastructure in a state of good repair.

**Preserving the Environment** covers the effects of transportation activities on climate change and the environment as a whole (including water, noise, and air pollution, and habitat degradation) and discusses approaches to avoid or mitigate those effects. U.S. DOT's goal is to advance environmentally sustainable policies and investments that reduce carbon and other harmful emissions from transportation source.