Airport Environment and Planning Research Program

10-Year Plan

Presented to: Airports REDAC Sub-committee

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Date: March 20, 2018

Airport Planning and Environmental Research Program 10-Year Plan DRAFT Report

Prepared for FAA - APP
Office of Airports (Airport Planning and Programming)

Prepared by
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November 8, 2017

Federal Aviation Administration

Overview

- **Background**
- **Overview**
- **Data Collection**
- **Goals, Objectives, and Priority Topic Areas**
- **Research Project Catalogue**
- **Research Roadmap**
- **Research Plan Tool**
- **Updating the Research Plan**

Background – The Program

- **In FY16 APP began overseeing an Airport Planning and Environmental Research Program executed through the Airport Technology Research Branch at the FAA Technical Center**

- **Purpose of the Planning and Environmental Research Program:**
  - Established to support research efforts and development of guidance and tools for planning and environmental issues related to airport development and operation.
  - Ultimately, the results of the Research Program will inform APP policy-making decisions

Background – The Plan

- **Builds on high-level objectives relevant to airport planning and environmental research needs**
- **Shows alignment of research projects under multiple focus areas**
- **Allows for amendments as priorities evolve**
- **Provides vision and justification for resources (funding and staff time)**

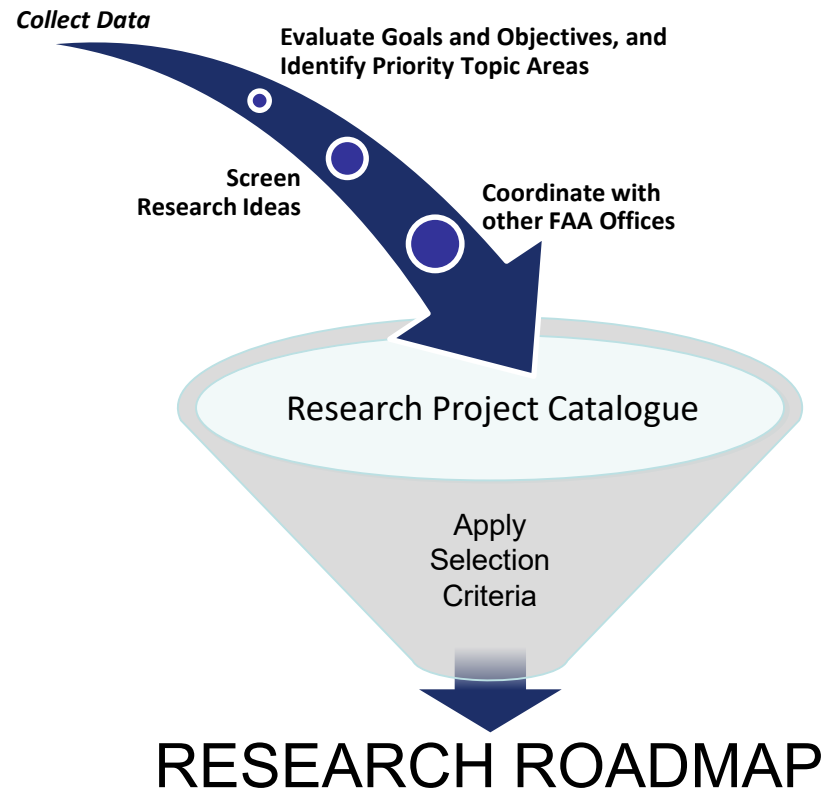# Overview of Process

Data Collection

Goals, Objectives and Priority Topic Areas

Research Project Catalogue

Research Roadmap

Collect Data

Evaluate Goals and Objectives, and Identify Priority Topic Areas

Screen Research Ideas

Coordinate with other FAA Offices

Research Project Catalogue

Apply Selection Criteria

RESEARCH ROADMAP

Data Collection – Stakeholder Outreach

Stakeholder Identification → Webinars → Summary of Research Ideas → Feedback

Data Collection – Outreach Results

Research Topic Areas of Most Interest

Internal Webinars

- Data – 21%
- Airport Design/Planning – 16%
- NEPA/Environmental – 16%
- Noise – 9%
- Sustainability – 7%

External Webinars

- Airport Design/Planning – 20%
- NEPA/Environmental – 14%
- Safety – 12%
- Noise – 12%
- Sustainability – 11%

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Data Collection

Literature Review

- REDAC Aviation Sub-Committee 2016 Airport Environment and Planning Framework for 10-Year R&D Program Presentation;

- FAA Strategic Initiatives;

- FY2017 Office of Airports (ARP) Business Plan;

- 2016 National Aviation Research Plan;

- APP Research Projects in Progress;

- AEE Research Plans; and

- Select ACRP Documents/Problem Statements.

Goals and Objectives

Goal 1 - Improve the effectiveness and efficiency of APP's programs and guidance for both planning and environmental issues relating to airport development and operation

- *Objective 1.1* Focus on areas that inform policy decisions and impact airports
- *Objective 1.2* Address technical gaps to provide better tools and resources for planners and environmental protection specialists
- *Objective 1.3* Ensure concepts and ideas for airport development are effectively integrated into the planning process through application of modern tools and processes
- *Objective 1.4* Accommodate new entrants to the aviation and airport system
- *Objective 1.5* Foster an integrated, collaborative approach to planning, data-driven decision-making, and environmental considerations
- *Objective 1.6* Explore applicability of tools and data used by other FAA organizations and other government entities

Goals and Objectives

Goal 2 - Inform a sustainable, smart growth strategy for U.S. airports

- *Objective 2.1* Facilitate incorporation of technology, tools, and data in the interest of cost-effective, useful, and efficient airport development and operation

- *Objective 2.2* Foster airport sustainability to meet transportation needs while reducing environmental impacts

- *Objective 2.3* Promote development of sustainable airport facilities and operational practices

- *Objective 2.4* Complement ACRP research, which is focused on solutions to problems faced by airport operators

- *Objective 2.5* Leverage opportunities to partner with other agencies in providing relevant research

Priority Topic Areas

Planning

Improve Safety with Better Design

Comprehensive Planning

Incorporate New Technology

Data Synthesis

Environmental

Reduce/Mitigate Noise & Air Emissions

Sustainability

Land Use Planning

Enhance Analytical Capabilities
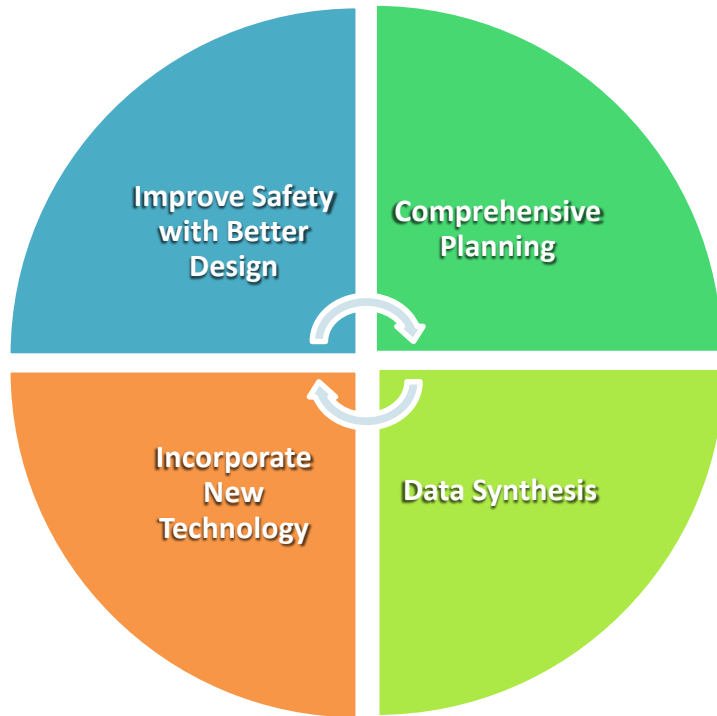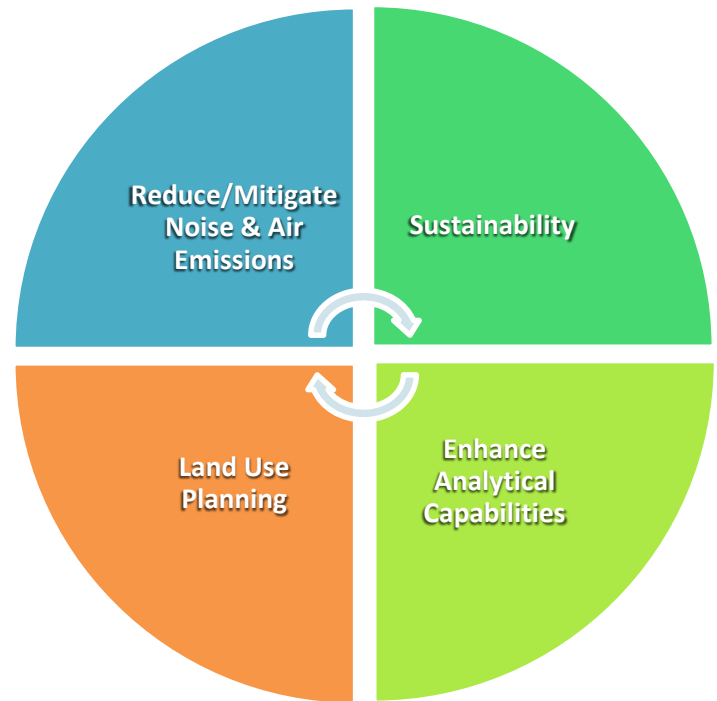
Research Project Catalogue
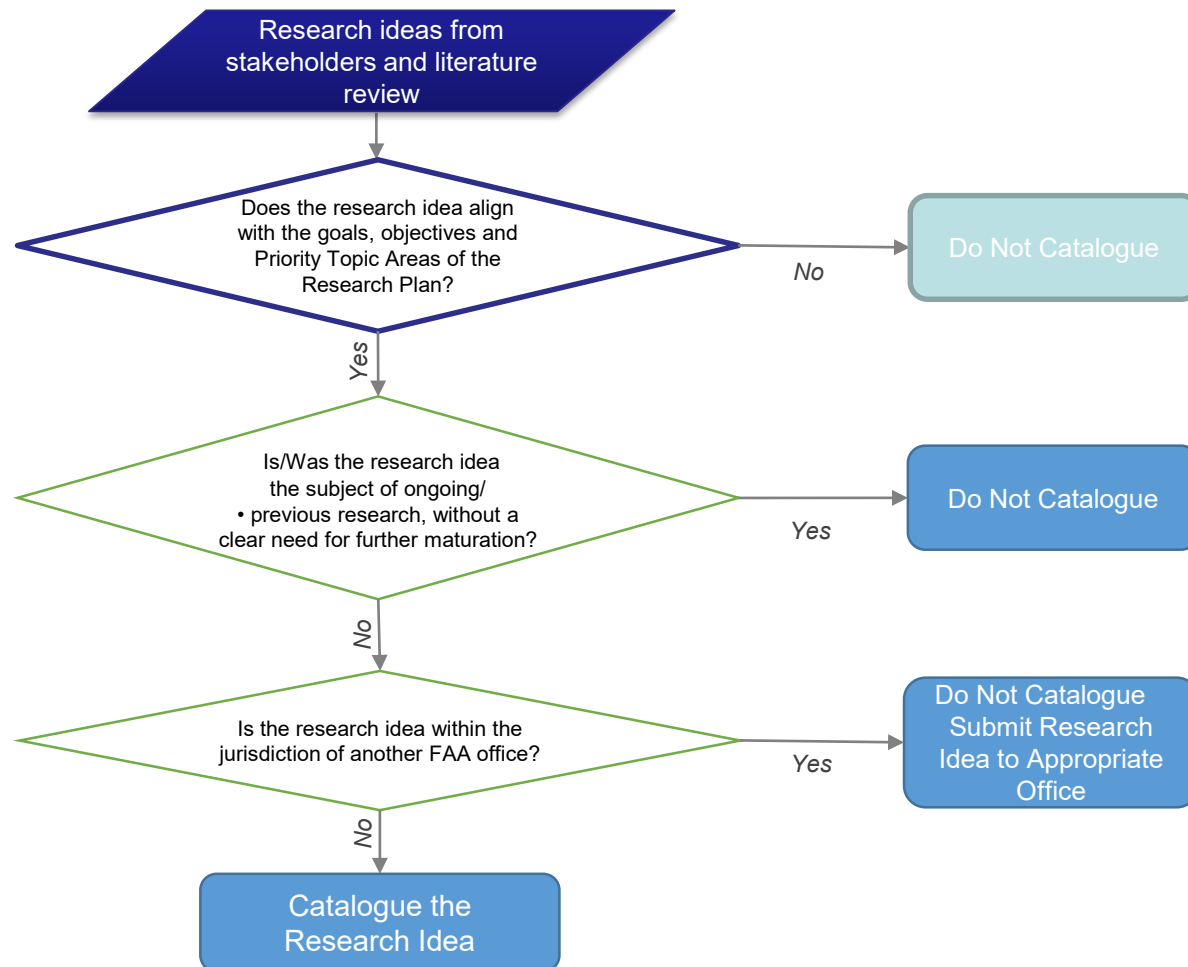
Research Project Catalogue

Sampling of Projects in the Research Project Catalogue

Research Project Title	Priority Topic Area	Purpose
Synthesis of Sustainability Master Plan Pilot Program	Promote Sustainability	Prepare a synthesis of materials from the Sustainability Master Plan Pilot Program.
AIP Justified Infrastructure by Asset Category		Conduct research to identify AIP justified infrastructure specifically for general aviation airports by ASSET category. Research results would be used to supplement the justified infrastructure development in the AIP handbook.
Surface Management Implications	Conduct Comprehensive Planning	
Fuel Infrastructure	Incorporate New Technology	Develop a plan to replace aging fuel infrastructure that addresses biofuel and general aviation unleaded fuel needs as well.
Hydrogen Fuel Cell Vehicles		
Community Engagement Tools	Reduce/Mitigate Noise & Air Emissions	Develop tools to help people understand what they will hear from aviation noise sources.

Research Roadmap

Criteria to Select Projects from the Research Project Catalogue to Include in the Roadmap

- Does the research address a priority need within the mission of the Office of Airports?

- Are the results actionable – how will research be transitioned to policy, guidance, pilot program etc.?

- Are there opportunities for cross-cutting collaboration with other FAA offices?

- Does the project budget fit within the annual budget?

- Are there sufficient staff resources to manage the project?

Research Road Map

Priority Topic Area	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024

Reduce/Mitigate Noise & Air Emissions
- Airport Quality Screening Methods Phase 1 (FY 2017)
- Airport Quality Screening Methods Phase 2 (FY 2019)
- Community Engagement Tools (FY 2021)
- Supplemental Metrics – New Entrants and Helicopters (FY 2021)
- PBN Noise Dispersion (FY 2017)
- ASTM E966 Factors (FY 2017)
- Impact of Noise on Sleep 1 (FY 2018)
- Impact of Noise on Sleep 2 (FY 2019)
- Impact of Noise on Sleep 3 (FY 2020–2021)
- Impact of Noise on Sleep 4 (FY 2022)
- NEPA Significance (FY 2017)
- Noise Abatement Procedures (FY 2018)
- NLR Measurement (FY 2018)
- Sound Insulation Eligibility (FY 2017)
- Steeper Approaches 1 (FY 2018)
- Steeper Approaches 2 (FY 2019)
- Other Noise Mitigation (FY 2017)
- National Noise Annoyance Survey (FY 2017)
- National Noise Annoyance Survey (FY 2018–2019)

Promote Sustainability
- Airport Resilience (FY 2017)
- Sustainability Synthesis (FY 2019)

Enhance Analytical Capabilities
- Runway Exit Tool (FY 2017)
- AEDT for New Entrants (FY 2022)
- Runway Length 2 (FY 2017)
- Runway Length 3 (FY 2018)
- SIMMOD (FY 2018)
- Runway Length 4 (FY 2019)
- Environmental Geospatial Tool 1 (FY 2018)
- Environmental Geospatial Tool 2 (FY 2019)
- runwaySimulator 1 (FY 2018)
- runwaySimulator 2 (FY 2019)
- runwaySimulator 3 (FY 2021)
- Ops Counts at Non-Towered Airports (FY 2018)

Improve Land Use Planning
- Tree Growth Forecast Tool (FY 2019)
- Nonaeronautical Development (FY 2023)

Improve Safety with Better Design
- Taxiway Orientation (FY 2022)
- Vegetative Hazards (FY 2023)

Conduct Comprehensive Planning
- 10-Year Research Program (FY 2017)
- ACRP Report 79 Upgrade (FY 2019)
- Surface Management (FY 2021)
- NAVAID Requirements (FY 2023)
- Nationwide Permit PA (FY 2022)
- Justified Infrastructure by Asset Category (FY 2019)
- Programmatic BA (FY 2023)

Synthesize Data

Incorporate New Technology
- Fuel Infrastructure (FY 2019)
- Hydrogen Fuel Cell Vehicles (FY 2023)

Legend: Completed | Active | Pending

Updating and Maintaining the Research Plan

- **Annual Evaluation**

- **Intermittent Refinement**

- **Solicit Input**

- **Monitor**
  - ACRP Research Roadmaps
  - AGIS Status
  - EO 13807 Implementation
  - ACRP UAS Study