ANG The Future of the NAS Starts Here

FAA Office of NextGen (ANG)

REDAC / NAS Ops

Review of FY2024 – 2026 Proposed Portfolio

Enterprise Concept Development

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Enterprise Concept Development Overview

What are the benefits to the FAA

- The Enterprise Concept Development program is used to identify and assess early NextGen concepts and conduct validation activities (i.e., modeling and real-time simulations) that will transform the National Airspace System (NAS) into the Next Generation of the NAS. Areas of interest include, but are not limited to, trajectory-based coordination, the use of artificial intelligence in the NAS and the potential of unmanned aircraft systems for urban transportation. When appropriate, concept activities will be considered from a global perspective including International Civil Aviation Organization (ICAO) requirements for global aircraft tracking and network communication.
- Validated operational concepts and feedback from stakeholders have led to advancements in research and pre-implementation work to determine the feasibility of advanced concepts and maximize benefits and flexibility for NAS users.
- This program executes research, engineering analysis, demonstrations and evaluations in support of service analysis and strategic planning.

What determines program success

- This program is necessary to assess the feasibility of proposed NextGen capabilities during the early phases of the Acquisition Management Systems lifecycle. The program develops and conducts studies that prove out NAS concepts to ensure feasibility and viability within the NAS.

Responsible Artificial Intelligence (RAI) Framework Analysis

As the FAA embarks on development and implementation of systems and applications with an aviation-specific AI or Machine Learning (ML) components, it is important to have a structured approach toward understanding, utilizing, and implementing responsible AI practices contextualized to the FAA strategic imperatives. This project provides a platform for the FAA to engage and collaborate with NASA and a group of companies to establish a consortium that works together to develop an aviation-specific responsible AI framework. The project will include activity to create FAA/Aviation definitions of RAI, gain better understanding of where efforts are already being made to bring RAI to the forefront, cross pollinate best practices, and identify principals applicable to the FAA operations.

Planned Research Activities

- Industry Consortium Collaboration on RAI Framework
- AI Operational Capability Identification

Expected Research Products

- Responsible AI Use Cases
- AI Operational Capabilities Document
- Aviation-Specific RAI Framework Version 1.0

Smart Airports

Smart Airports looks to explore microservices that enable ICN operations at large airports and bring them to small, towered airports in a lightweight, low-cost way. The project will take a top down, operations focused approach that seeks to describe the basic functions and interfaces for tower and surface operations and the data exchange necessary to enable those operations. It will also focus on identifying high level scenarios and use cases for small, towered airports in the ICN environment. later phases of this project will focus on Concept of Operations Development and expansion to medium-sized airports.

Planned Research Activities

- Define the operational context of small towered airport operations, from surface movement, departure, and arrival in the future Info Centric NAS environment.
- Identify high level scenarios and use cases for small towered airports in the ICN environment

Expected Research Products

- Small Towered Airport Operational Description
- Small Airport Microservice Allocation
- Smart Airport High Level Scenario and Use Cases

Current FY24 Accomplishments

- Final xTM ConOps completed
- FAA-NASA Working Session – RAI Use Case update
- AI Operational Capability Document finalized

Anticipated Research in FY25

Planned Research Activities

- Finalize functional analysis for Smart Airports and complete Smart Airports Concept of Operations
- Responsible AI Framework Concept of Operations Development

Expected Research Products

- Smart Airports Functional Analysis and Concept of Operations

Emerging FY26 Focal Areas

- Vision 2035 2.0 Concept of Operations

Enterprise Concept Development

Research Requirements

This program will validate new concepts and generate information supporting the validity of identified capability shortfalls, future service needs, and capability requirements that will foster increased system capacity, efficiency, and throughput. Validated operational concepts will identify technical and operational requirements (including airspace procedures) and automation requirements needed to realize the capacity gains.

Outputs/Outcomes

- Final xTM ConOps
- Responsible AI Framework Development
- Smart Airports Functional Analysis and Concept of Operations

FY 2026 Planned Research

- Vision 2035 2.0 Concept of Operations

Out Year Funding Requirements

	FY24 (Enacted)	FY25 (President's Budget)	FY26 (CIP)	FY27 (CIP)	FY28 (CIP)	FY29 (CIP)
F&E	$1.5M	$1.5M	$2.0M	$2.0M	$2.0M	$2.0M