ANG The Future of the NAS Starts Here

FAA Office of NextGen (ANG)

REDAC / NAS Ops

Review of FY2023 – 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.

Extensible Traffic Management (xTM) Framework Analysis

This project will investigate and analyze future Extensible Traffic Management (xTM) services that allow for new entrant operations and technologies to co-exist with conventional Air Traffic Services (ATS), by the sharing of fully integrated and interoperable digital information. It will address the operations of select new entrants within dynamically segregated airspace. The project's operational analysis and engineering activities will focus on the initial development of an xTM framework that will extend traffic management services to new entrants (1) beyond those currently provided by Air Traffic Control & Traffic Flow Management (2) that leverage Internet and wireless technologies to provide full connectivity; and (3) that are scalable and can be offered to new emerging markets.

Planned Research Activities

- xTM Analysis, Framework, and Concept Development

Expected Research Products

- xTM Lexicon Document
- xTM Concept Analysis Document
- Final xTM ConOps

Responsible Artificial Intelligence (AI) Framework Analysis

As the FAA embarks on development and implementation of systems and applications witan aviation-specific h 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 responsible AI, gain better understanding of where efforts are already being made to bring responsible AI to the forefront, cross pollinate best practices, and identify principals applicable to the FAA operations.

Planned Research Activities

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

Expected Research Products

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

Current FY23 Accomplishments

- xTM Concept Development – Support Package update
- xTM Framework Document update
- Draft xTM ConOps v1.0 finalized

Anticipated Research in FY24

Planned Research Activities

- Responsible AI Framework
- Smart Airports

Expected Research Products

- Aviation Specific Responsible AI Framework

Anticipated Research in FY25

Planned Research Activities

- Smart Airports
- 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

- xTM Framework and ConOps Development
- Responsible AI Framework Development

FY 2026 Planned Research

- Vision 2035 2.0 Concept of Operations

Out Year Funding Requirements

	FY23 (Enacted)	FY24 (President's Budget)	FY25 (CIP)	FY26 (CIP)	FY27 (CIP)	FY28 (CIP)
F&E	$1.5M	$1.5M	$1.5M	$2.0M	$2.0M	$2.0M