ANG The Future of the NAS Starts Here

FAA Office of NextGen (ANG)

REDAC / NAS Ops

Review of FY2022 – 2025 Proposed Portfolio

Enterprise Concept Development

BLI Number: 1A11A

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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

Current FY22 Accomplishments

- Performed concept and engineering work on xTM Framework and how it relates on ETM, UTM, UAM, and ATM.
- xTM Operational View Document
- xTM Framework Document
- xTM Lexicon Document

Anticipated Research in FY23

Planned Research Activities

- Develop detail operational scenarios for the seamless integration of xTM in the 2030-2035 timeframe
- Planned Research activities will be in support of Extensible Traffic Management (xTM) Engineering Efforts
- Develop a draft functional analysis for Artificial Intelligence (AI) for the NAS and complete an update of AI for the NAS Concept of Operations

Expected Research Products

- Functional Analysis Document for AI for the NAS
- AI for the NAS CONOPs
- Final xTM ConOps

Anticipated Research in FY24

Planned Research Activities

- Continued Planned research activities for Artificial Intelligence for the NAS
- Evaluation of AI applications to support ATM and NAS operations
- Continue planned concept work on Dynamic TBO

Expected Research Products

- Develop a Concept of Operations for Smart Airports

1A11A – G05A.02-10 – Enterprise Concept Development – F&E

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 Analysis and Framework Development

FY 2025 Planned Research

- Continued planned research activities for Artificial Intelligence for the NAS
- Evaluation of AI applications to support ATM and NAS operations

Out Year Funding Requirements

F&E

FY22	FY23	FY24	FY25	FY26	FY27
$1.5M	$1.5M	$1.5M	$1.5M	$2.0M	$2.0M