NAS Enterprise Architecture



Infrastructure Roadmaps v19.1

BASELINE

May 2025



Infrastructure Roadmap Overview

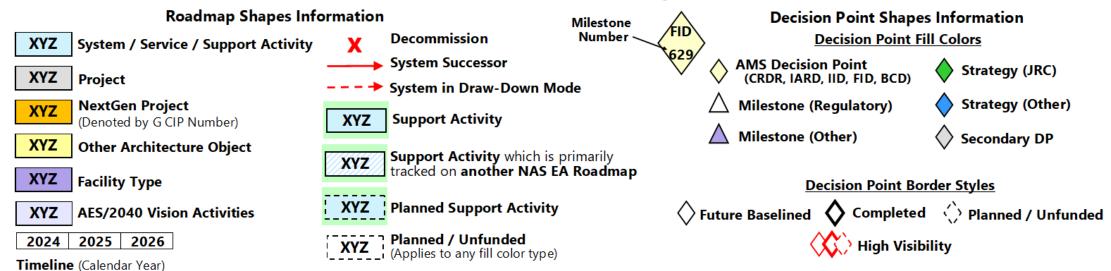
What are the Infrastructure Roadmaps?

- The FAA Infrastructure Roadmaps show the progression of system deployments, investments, and key decision points for major NAS acquisitions. They depict the acquisition strategy to evolve the NAS from the As-Is to the To-Be environment.
- The Infrastructure Roadmaps show all <u>Capital Investment Plan (CIP)</u> investment projects and systems identified in the NSIP that will deliver the necessary functionality to enable OIs and BTIs.

Guidelines for Understanding the Roadmaps

- The Infrastructure Roadmaps are organized by Domain (Automation, Communication, etc.) and depict projects, systems, services, decision points, and support activities.
- The timeline is in calendar years and shows a 17-year outlook.
- The roadmaps have swim lanes for Infrastructure (white), Support Activities (green), and Platform/Compute (purple).
- The DP diamonds represent the quarter in which a decision will occur.
- The Support Activity bars represent the dates that work is being performed on the activity.
- The Project bars represent the dates that CIP funding is allocated to a project.
- The System and Service bars represent the dates that a system or service is operational, with red lines indicating sustainment, drawdown, or convergence

Infrastructure Roadmap Legend



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Extensible Traffic Management (xTM)

The Extensible Traffic Management (xTM) Roadmaps provide a consolidated timeline of activities and investments, both active and planned, required to integrate diverse operations into the NAS. The current iteration of the roadmaps reflect initial pre-implementation efforts and AMS acquisitions.

Extensible Traffic Management (xTM) Roadmap (1 of 2)

	C	Y 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	+
XTM																			
	Support Activities	xTM Flight a	xTM Flight and Flow Engineering Analysis																
	tivi	xTM Operat	ions Strategy		2														
	Ac St	xTM Techni	cal Assessment																
		UAS Upper A	irspace																
5																			
FTM	ort ties	Engineering	Analyses for U	pper Class E Op	perations														
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}		ETM Airspa	ce Analysis																
		UAS Urban	Air Mobility																
	ACAS	x	1448 4	1378	3														→
				1405			·												
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	s t	AAM Engine	AAM Engineering Analysis																
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	Sup	AAM Engineering Analysis Image: Aam Engineering Analysis Establish UAM/AAM Cooperating Operating Standard Image: Amount of the stable of																	
				mall UAS Implei	mentation														
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		UAS Concer	ot Validation and	d Requirements	Development	(CVRD)													
UTM	UAS Concept Validation and Requirements Development (CVRD) UAS Flight Information Management																		
5																			
	Support Activities	UTM Engine	UTM Engineering																
	tivi	Identify and Standardize Unique UAS Ainverthings; (AMD - DV/LOS Forsus Area 2																	
	Sc	Identify and	Identify and Standardize Unique UAS Airworthiness (AW) : BVLOS, Focus Area 3																
	C	Y 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	+
							D.4		1			1							

NAS Domain – Infrastructure

NAS Enterprise Architecture Infrastructure Roadmaps Version 19.1

CY + Airworthiness Detect and Avoid (DAA) for all UAS Detect and Avoid (DAA) UAS RTCA SC-228 /1450 Command and Control (C2) /1411 Workgroups 3 & 4 CY +

Extensible Traffic Management (xTM) Roadmap (2 of 2)

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Extensible Traffic Management (xTM): Assumptions

Identifier	Description
NE-01	NSIC Implementation is dependent on TFMS/ ERAM/ STARS development bandwidth
NE-02	 The Authoritative references used to populate the CY2019 UAS roadmaps are: 1) "Integration of Civil Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) Roadmap" (July 2018) 2) CIP data provided by AFN and Draft CIP FY 2020 – FY2024 3) UAS Integration Research Plan (2017 – 2022) 4) Other NAS Infrastructure Roadmaps 5) UAS Stakeholder inputs
NE-03	Although impacted NAS systems are identified and documented in "Integration of Civil Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) Roadmap" (July 2018), requirements allocations have not been discussed and accepted by the organizations that manage the impacted systems. Upon coordination and decisions made about UAS requirements allocation, ANG-B intends to update this roadmap to depict acquisitions that will deliver UAS-related requirements in the future.
NE-04	Research and Development: The full scope of research and development activities are too numerous and complex to depict on this format of the roadmaps. Roadmap stakeholders are encouraged to reference pages 10, 35 and 38 of "Integration of Civil Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) Roadmap" (July 2018) to understand the full scope of FAA UAS R&D efforts.

Extensible Traffic Management (xTM) Roadmap: Decision Points (1 of 1)

DP #	Target Date CY	Primary Domain	Туре	Name
1369	2025 Q1	Aircraft	Other Milestone	C2 Link MOPS for Cellular Networks
1380	2024 Q3	Aircraft	Other Milestone	DO-406 - Minimum Operational Performance Standards for Ultra High Frequency Airborne Radio Systems Supporting UAS C2 Link Systems
1405	2026 Q1	Aircraft	Other Milestone	Minimal Operational Performance Standards (MOPS) for ACAS Xr
1411	2024 Q4	Aircraft	Other Milestone	C2 Link MOPS (Terrestrial) (DO-362B)
1446	2025 Q3	Aircraft	Other Milestone	MASPS: Navigation for Automatic Taxi (DO-VVV)
1447	2025 Q1	Aircraft	Other Milestone	DAA MOPS (DO-365C Change 1)
1448	2025 Q2	Aircraft	Other Milestone	DAA Radar MOPS Update (DO-366B)
1449	2025 Q3	Aircraft	Other Milestone	MASPS for DAA Supporting Taxi Operations (DO-WWW)
1450	2026 Q1	Aircraft	Other Milestone	DAA MOPS (DO-365D)
1451	2025 Q2	Aircraft	Other Milestone	RTCA Report (RR) for Users of DO- 377B for Deriving C2 Link System Requirements
1491	2026 Q2	Aircraft	Other Milestone	Minimum Operational Performance Standards (MOPS) for Cooperative Surveillance Systems
1492	2026 Q2	Aircraft	Other Milestone	Minimum Operational Performance Standards (MOPS) for ACAS Xu Revision A DO386(A)/ED275(A)
1493	2026 Q4	Aircraft	Other Milestone	Guidance for Validation of Collision Avoidance Systems