Federal Aviation Administration

*Transforming the nation’s air transportation system…*

Michele Merkle
Director, Office of Systems Engineering for the National Airspace System
Office of NAS System Engineering

We architect the evolution of the National Airspace System (NAS) and provide Systems Engineering leadership in delivering the future Aviation System

- Enterprise Architecture (EA) & Requirements
- Enterprise Planning & Analysis
- Systems Engineering Information Management & Training
- Technical Standards Development
- Enterprise Safety
- Information Systems Security
Next Generation Air Transportation System (NextGen)

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Delivers increased efficiency, flexibility, predictability, safety, environmental benefits.
How Do We Get There?

NAS Enterprise Architecture

Current 2012

NAS EA Framework

NextGen 2025+
Systems Engineering in the FAA

Safety Management System (SMS)

- Service Analysis
- Concept & Requirements Definition
- Investment Analysis
- Solution Implementation
- In-Service Management

Systems Engineering Processes

- Continuous application and adherence
- Iteration as needed

Technical Management Disciplines

- OCD = Operational Concept Development
- FA = Functional Analysis
- RA = Requirements Analysis
- ADS = Architectural Design Synthesis
- ITM = Integrated Technical Mgmt
- IM = Interface Management
- RM = Risk Management
- CM = Configuration Management
- DA = Decision Analysis
- SEIM = SE Info Mgmt
- V&V = Verification and Validation

ConOps, Functional Architecture, Program Req’ts, Enterprise Architectures + other supporting documentation
Complex Challenges Ahead

Transforming one of the most intricate systems in the world while maintaining and improving safety

New Systems & Infrastructure
New Procedures
New Aircraft Capabilities
UAS & Commercial Spacecraft
Cyber Security Threats
New Operational Practices
Discontinue Legacy Operations

FAA
NextGEN