

# Concept Development & Validation

## Verification and Validation Summit

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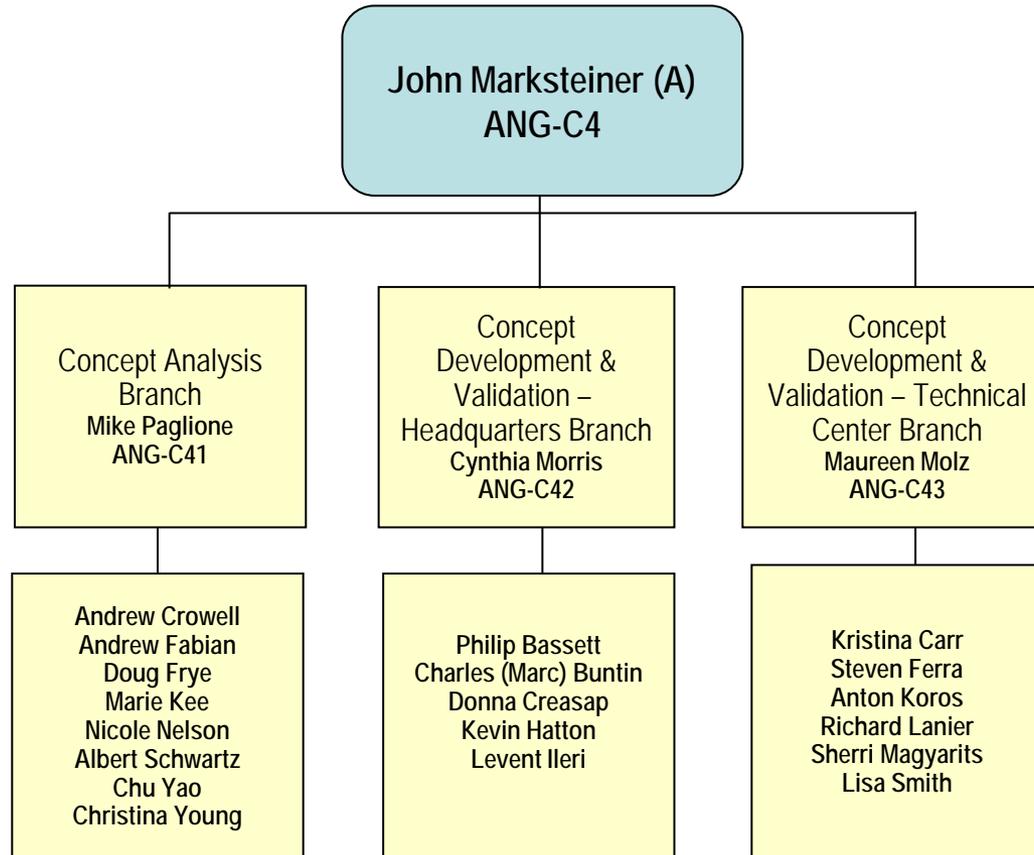
Date: October 10, 2012



Federal Aviation  
Administration



# Advanced Operational Concepts Division (ANG-C4)



# Our Mission

The mission of the Concept Development & Validation Branch is to support concept development and validation activities including development of NAS Concept of Operations (ConOps) and requirements for future National Airspace Systems (NAS) operations and technologies.



# NAS Midterm ConOps Development

- **Based on**
  - Operational Sustainments
  - NextGen Midterm ConOps
  - Concept Gaps
- **Intended to**
  - Serve as baseline for new concepts/ideas entering i2i process
  - Provide foundation for developing operational requirements
  - Generate discussion with stakeholders
  - Identify areas for concept development and validation



# NAS Conops - New Baseline

- **Based on**
  - Operational Sustainments
  - NextGen Midterm Conops
  - Concept Gaps
- **Compilation of accepted artifacts**
  - OIs/OSs
  - NextGen Midterm CONOPS
  - Annotated Outline for NAS CONOPS
  - Addendum of Proposed Changes
- **Intended to**
  - Serve as baseline for new concepts/ideas entering i2i process
  - Provide foundation for developing operational requirements
  - Generate discussion with stakeholders
  - Identify areas for concept development and validation
- **This will be submitted for approval in first CSG Meeting 17 Oct 2012**

# Library of Concepts by Level

- **Level 2** (*4 documents*)
  - Management and Distribution of Flight Data
  - Surveillance Broadcast Services
  - Integrated Arrival, Departure, and Surface Operations
  - UAS Integration into the NAS ConOps



# Library of Concepts by Level

- **Level 3** (33 documents)

Flight Services	Integrated Surveillance
Special Activity Airspace Usage	NextGen Towers (ARR/DEP)
Unified Flight Planning and Filing	Surface Collaborative Decision Making
Collaborative Airspace Constraint Resolution	Precision Departure Release Capability
NextGen Traffic Management	Surface Trajectory Based Operations
Aeronautical Information Management	Ground Based Augmentation System
NextGen Weather	Concept of Use at the End of the OEP Mid Term
NextGen Flow Management (Flt Plan)	Alternate Position Navigation and Timing
Collaborative Airspace Constraint (Flt Plan) Resolution	Separation Management
Integrated Arrival Departure Surface Operations	High Altitude Performance Based Airspace
Integrated Arrival Departure Control Service	Oceanic 4D Trajectory Management
Advanced Concept for Terminal Operations	Flexible Airspace Management
Wake Mitigation DSTs for Arrivals and Departures	Flexible Airspace Management (Oceanic)
PBO Using RNAV and RNP in Terminal Airspace	Terminal Automation for RNAV RNP Use
RTA Operations in Terminal Airspace	Surveillance Broadcast Services (Use of ADS-B)
NAS Security	Advanced Merging and Spacing
ATO CONOPS for Air Domain Security	



# Library of Concepts by Level (cont.)

- **Level 4** (33 documents)

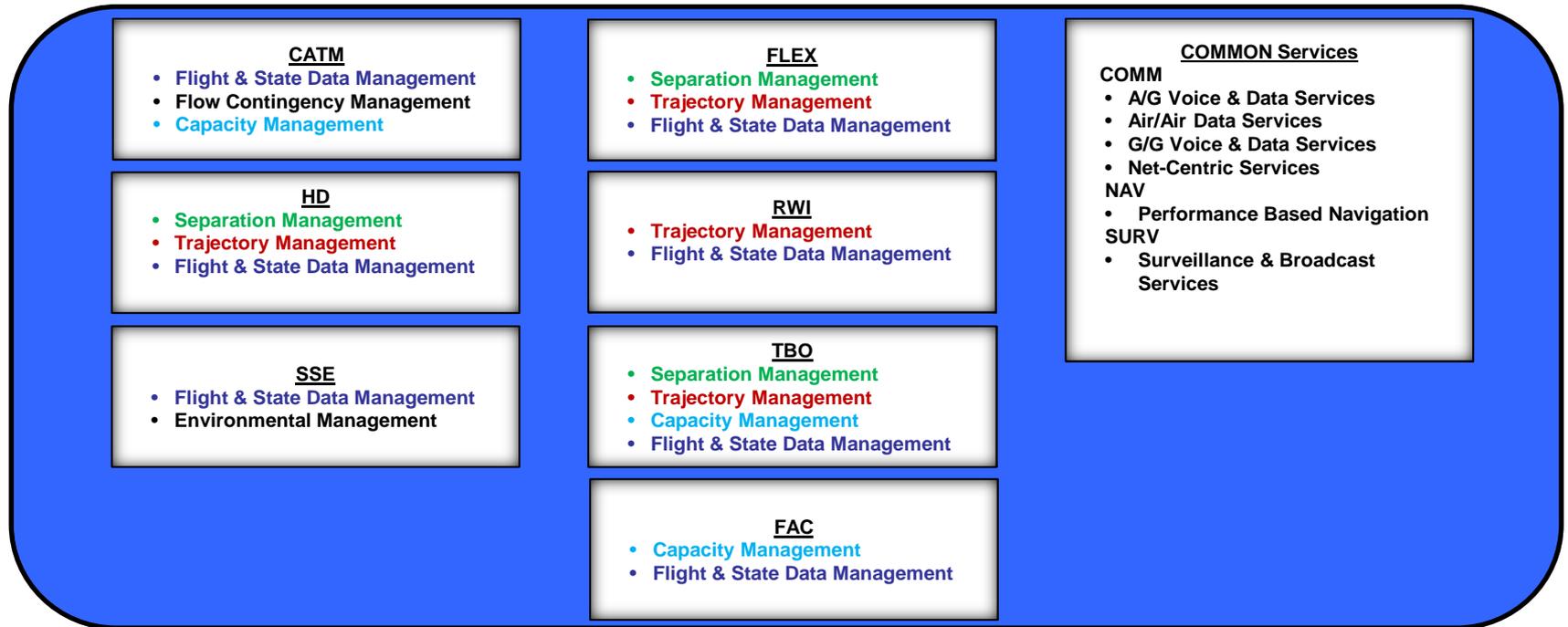
Aeronautical Information Management, Segment 2	Meteorological and Aeronautical Planning System
Enroute Automation Capabilities_1.0_2008.pdf	Network Enabled Weather and 4D Weather Data Cube
Reroute Impact Assessment	NextGen Weather Processor
Time Based Flow Management	NextGen Enterprise Information Systems Security
Go Button	Security Integrated Tool Set
Multifunctional Phased Array Radar	3D Path for Arrival Management
Mobile Airport Surveillance Radar	Conflict Resolution Advisories
Surface Trajectory Based Operations DST	Expanding RNAV Operations with DME to DME Capabilities
STBO 2D Taxi Route Generation	Lateral Offset
STBO Airport Configuration Mgmt	Multisector Planner Specialist Function
STBO Collaborative Departure Queue Mgmt	Oceanic Tailored Arrivals
STBO Departure Runway Asgmt	System Wide Information Management Seg1
STBO Departure Runway Asgmt	Aviation Safety Information and Analysis
STBO Surface Conformance Monitoring	NAS Voice System
Surveillance Interface Modernization	Precision Runway Monitor Replacement Acquisition
Tower Flight Data Manager	Relative Position Indicator
Initial Tailored Arrivals	

# New Approach to Concept Hierarchy (Notional/Draft)

Level 1  
(Enterprise)

## NextGen Mid-Term ConOps for the NAS

Level 2  
(Service)



Note: Mission Services (NAS EA SV-4) mapped to solution Sets

Level 3/3A  
(Sub-service)

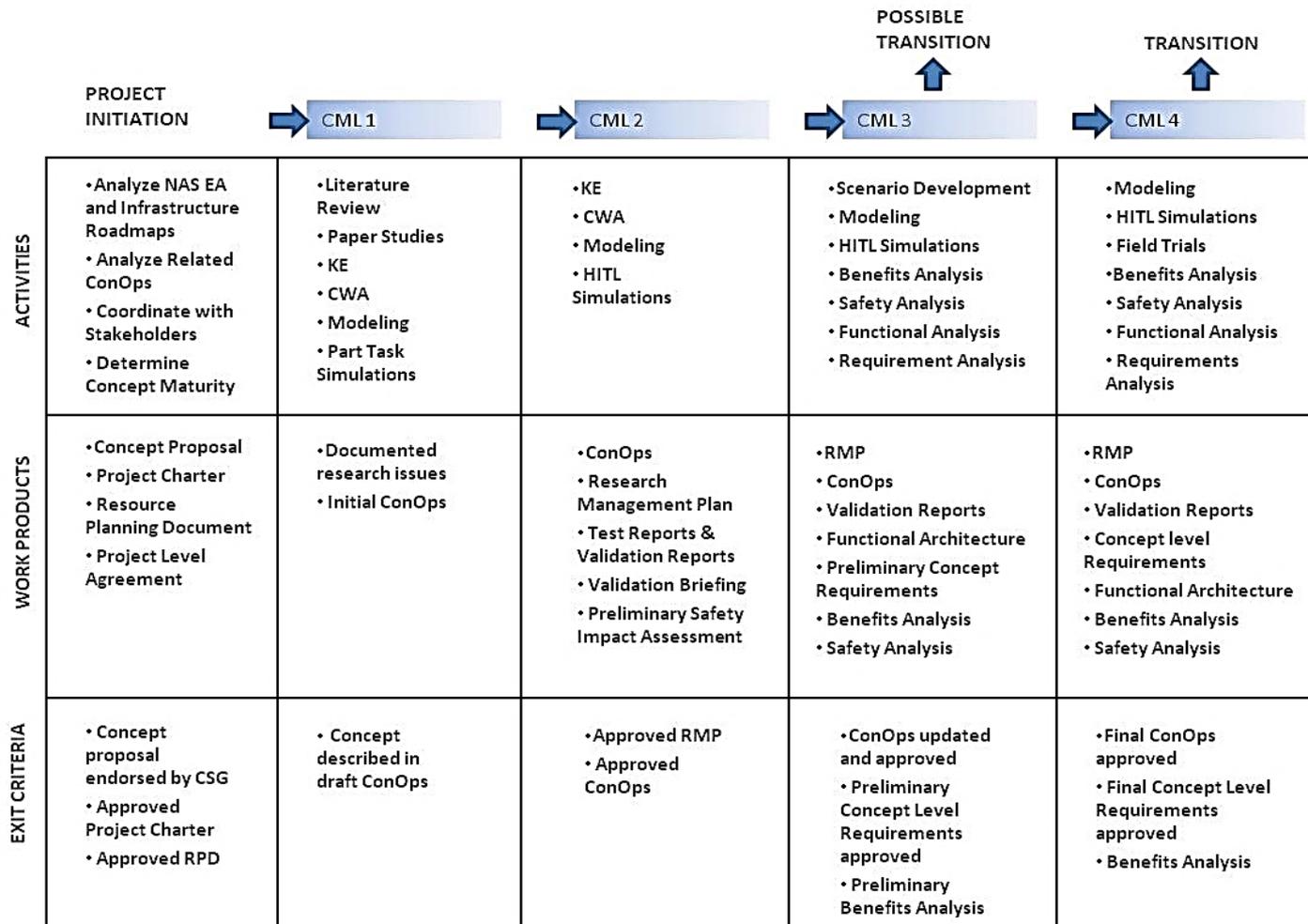
TBD – OI/Program level

Level 4/4A  
(Solution)

TBD – Program level



# Concept Maturity Levels

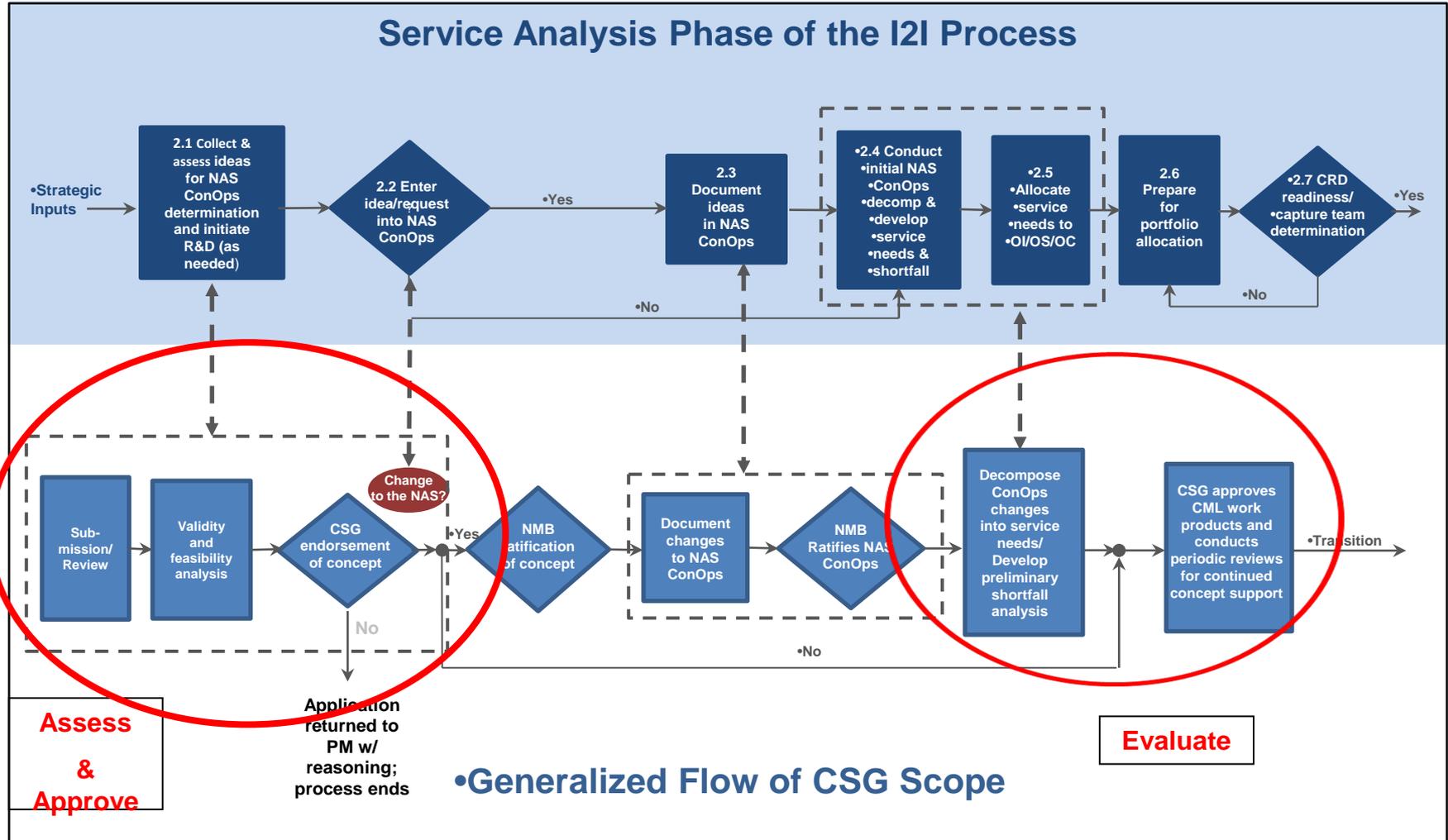


# Concept Steering Group (CSG)

- **Responsibilities include**

- Approve NAS ConOps, lower level ConOps, and NAS ConOps change proposals
- Validate the need for new concepts/ ideas
- Determine validity and feasibility of proposed concepts/ideas
- Review and approve enterprise level shortfall analysis, new operational improvements, operational sustainments, and operational requirements
- Assess concept maturity during concept development lifecycle

# General Flow of New Idea/Proposal



# Concept Steering Group (CSG) (cont.)

- **Concept Steering Group, Chair: ANG-C**
  - Director level
  - Final decision on NAS ConOps changes
  - Brief NMB on NAS ConOps changes, as required
- **Concept Steering Work Group (CSWG), Chair: ANG-C4**
  - Front line managers; decision making authority
  - Gateway between CSG and service organizations
  - Advisory participation
    - NATCA
    - Professional Aviation Safety Specialist (PASS)
- **Kickoff meeting; 10/17/2012**
  - Agreement of roles & responsibilities
  - Finalize CSG Standard Operating Procedures (SOP)

# FAA Concept of Operations for UAS Integration into the NAS

- **Project Description**

- Development of a Concept of Operations document for integration of UAS operations into the NAS
- Narrative aligned with end of Integration milestone in FAA Civil UAS Integration Roadmap
- Represents FAA position on how UAS may be safely integrated - written primarily from an air traffic management/air traffic control perspective

- **Delivered Version 2.0 to JPDO Sep 28, 2012**

- For inclusion in the Congressionally-mandated UAS Comprehensive Plan, due Nov 2012

