



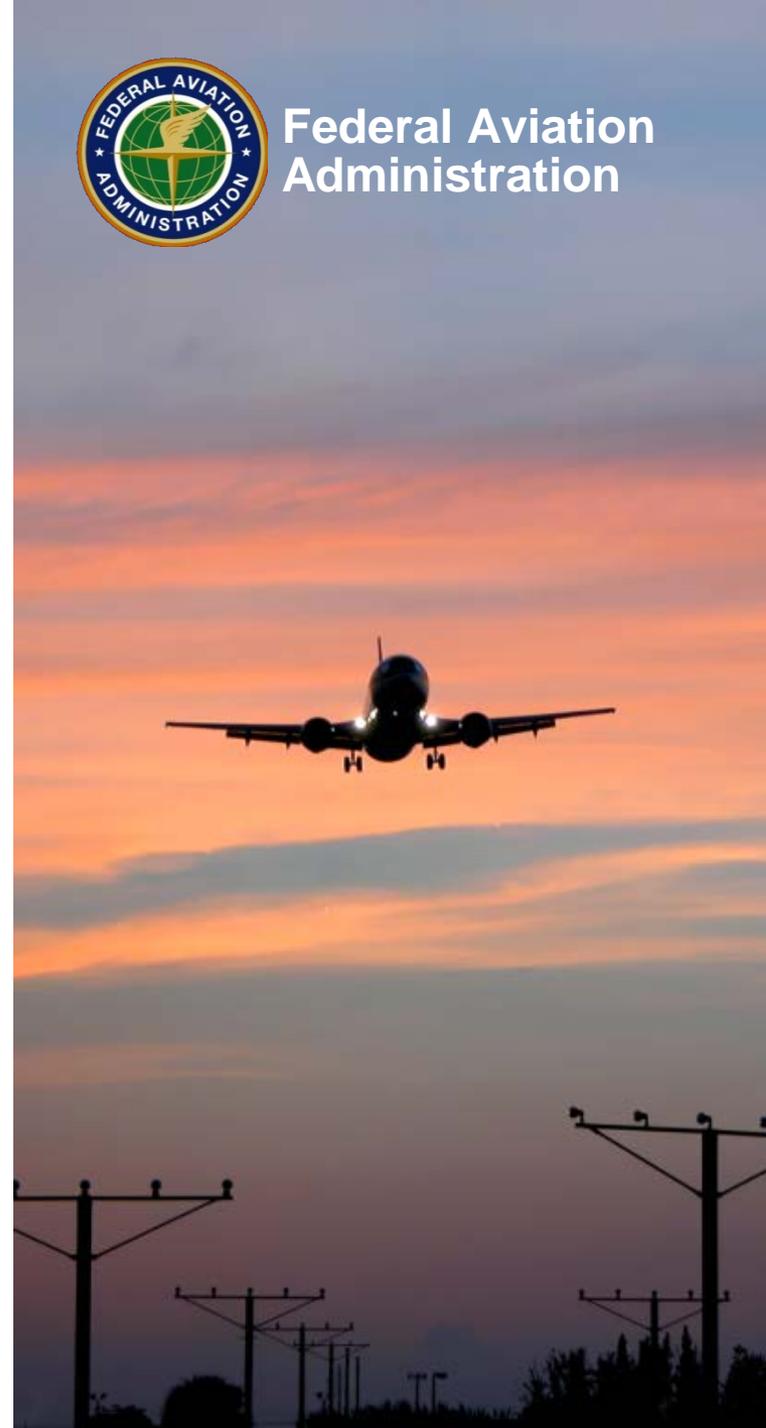
Federal Aviation  
Administration

# UAS Integration in the National Airspace System

**Presented to:** Center of Excellence Public Meeting

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# FAA UAS Integration Office, AFS-80

## Single POC for All-Things UAS

- To promote UAS-NAS integration, the FAA established a new division-level organization reporting to the Director of Flight Standards
- Single executive focal point
- Matrixed organization that combined former Air Traffic and Flight Standards UAS offices
- Standup complete May 2013
- Sponsoring Office for all FAA UAS Research and Development
- Coordinates Certificate of Waiver or Authorization (COA) Process for all UAS Ops
- Publishes annual UAS Civil Integration Roadmap





# FAA Vision for UAS Integration

**Safe, efficient, and  
timely integration of  
UAS into the  
airspace**

- **Safe**
  - Because safety is the FAA's primary mission
- **Efficient**
  - FAA is committed to reduce delays and increase system reliability
- **Timely**
  - FAA is dedicated to supporting this exciting new technology



# The FAA's UAS Roles

## FAA is a *Regulator*

- Must assure the safety of all aircraft, people, and property



## FAA is a *Service Provider*

- Must ensure the safety and efficiency of all the National Airspace System and international airspace delegated to U.S.



## Successful UAS Integration requires *BOTH* roles

- FAA has established a single integration office





# Getting to Integration

## Today

- Accommodation

## Mid-term

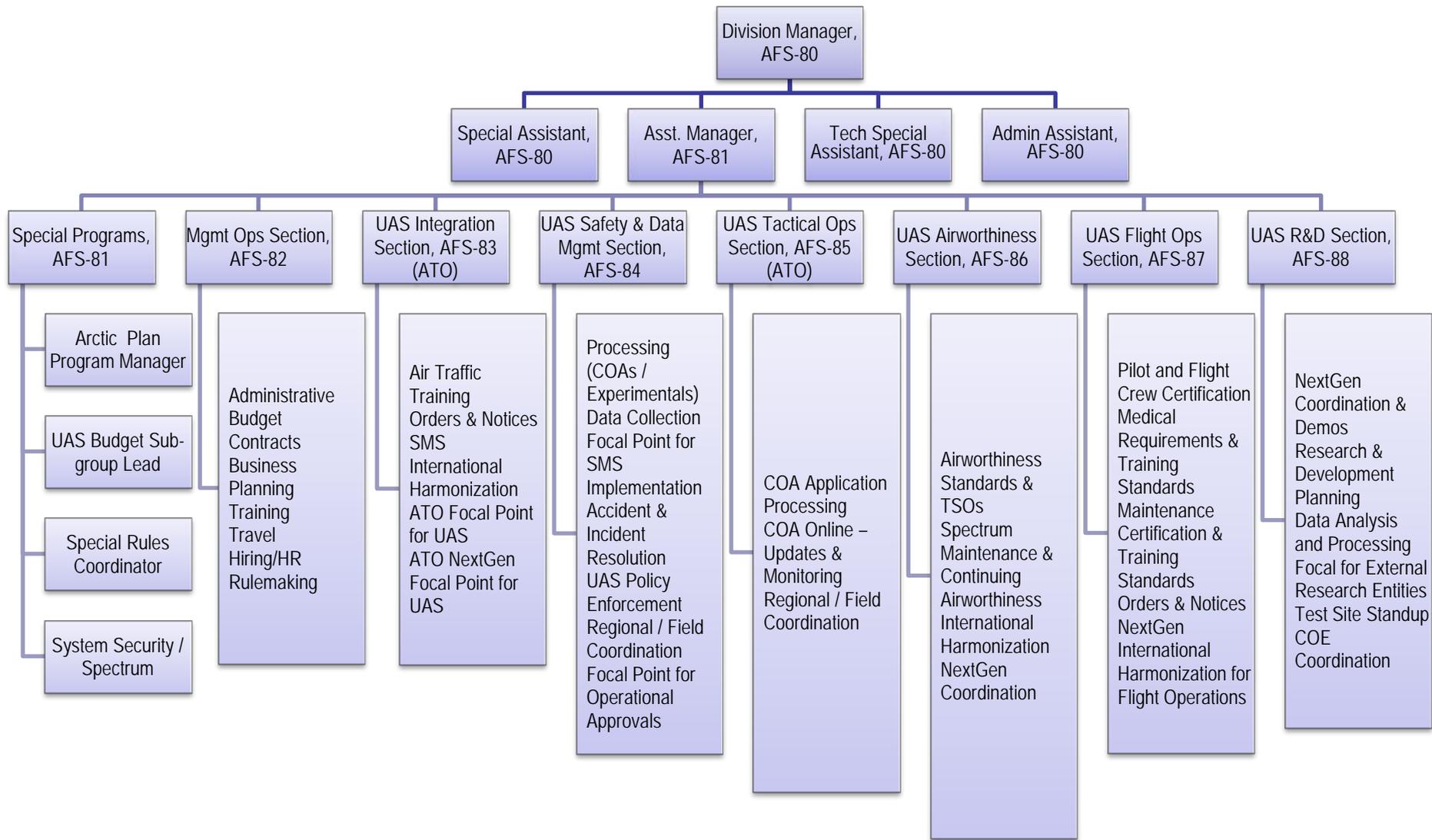
- Transition to NAS Integration

## Long-term

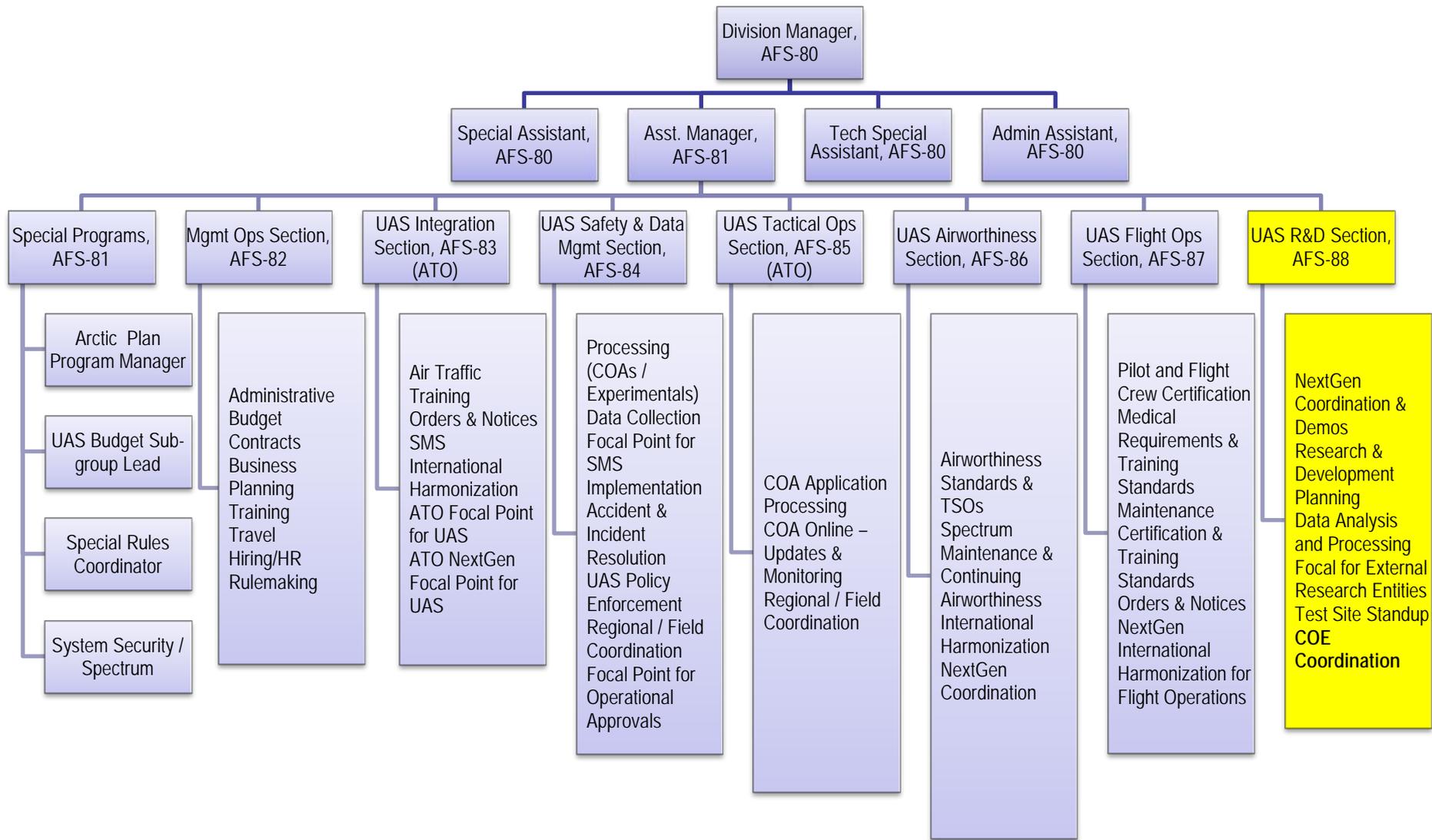
- Integration into the NextGen NAS



# UAS Integration Office, AFS-80



# UAS Integration Office, AFS-80



# UAS R&D Roles and Responsibilities

- **AFS-80 UAS Integration Office**
  - Agency POC for all things UAS
  - Specifies and defines research requirements
  - Leads integration efforts
  - Manages operational approvals
- **ANG/ANG-E/ANG-C2**
  - Executes UAS research on behalf of AFS-80
  - Manages research partnerships
    - Closely aligned with AFS-80

# Key Research Areas

- **Detect and Avoid (DAA) System Certification**
- **DAA System Multi-Sensor Surveillance Data Fusion**
- **Evaluation of Communications Strategies**
- **UAS System Safety Criteria**
- **Collection and Analysis of Safety Data from the UAS Test Sites**
- **Surveillance Criticality for DAA**
- **Integration of ACAS-X into DAA**
- **Simulating UAS in the NAS Operations**



# Other Potential Research Areas

- **What is the impact of a UAS ingested by a jet engine?**
- **What are the operating limitations for UAS operating in icing conditions or extreme weather variations?**
- **How do we keep command and control links secure in light of technological advances?**
- **How do we stay in front of challenges as they arise?**



# UAS Test Sites

- **UAS Integration Office oversees the standup of the UAS Test Sites**
  - To the extent possible, we will ensure their research matches up with integration needs
- **The FAA plans to collect data from the Test Sites; some examples include:**
  - Number of flights; mission of operations (including public or civil use); types of vehicles; types of ground control stations; time of day; line-of site or beyond-line of site (includes chase plane); other vehicles in vicinity; mishaps; and type of airspace
- **Research to be conducted will be reviewed to understand the relevant data the agency may analyze, independently or collaboratively**

# UAS Test Sites and the UAS COE

- **How will Test Sites and COE interrelate?**
  - Test Site and COE will perform different functions
  - COE is for non-flight UAS R&D
  - Test Sites' primary function is flight demonstrations and operational validation
  - Per solicitation, COE sponsored flight tests must be performed at one of the UAS Test Sites



# Summary

- **UAS COE**

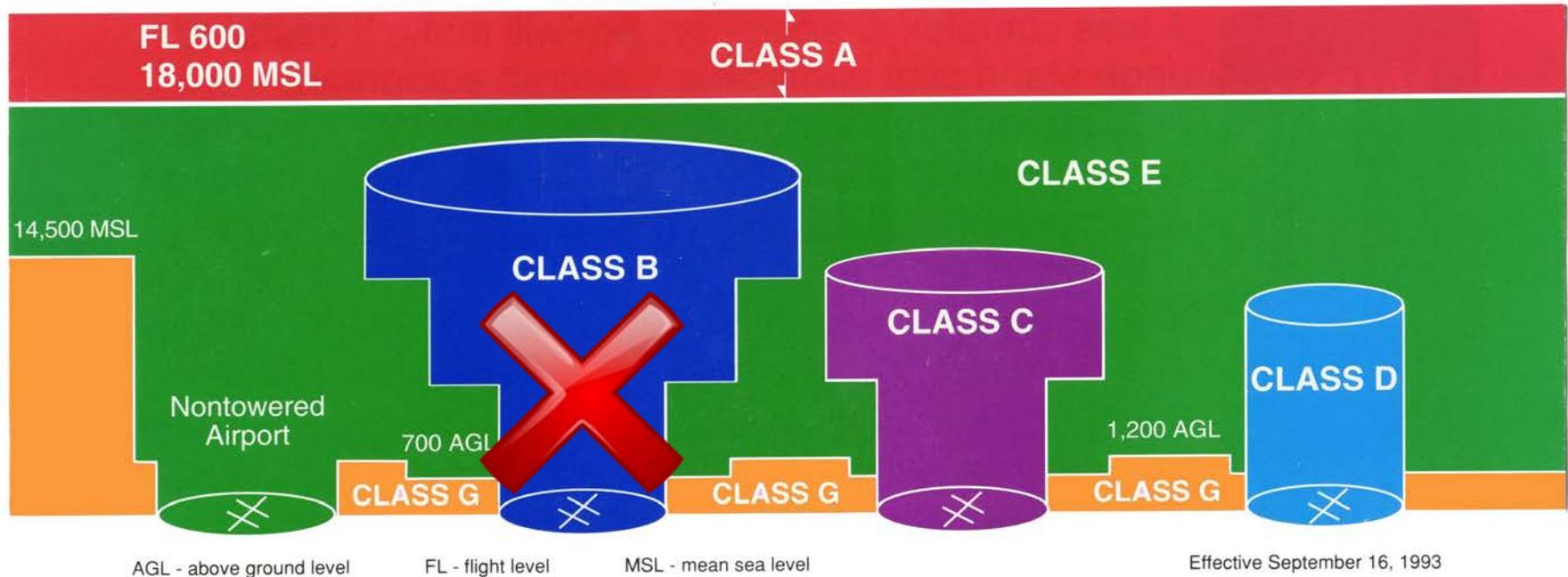
- Will increase UAS research & development capabilities
- Will provide an additional research provider option for ANG-C2
- Will be a valued partner with the UAS Test Sites
- Will help to advance the state of UAS integration into the National Airspace System



# Questions?



# Where Are UAS Operating?



- **UAS are operated in most classes of airspace (not Class B)**
- **Fight over populated areas must be approved on a case-by-case basis**