On-Demand NAS Information

Active Increments

Portfolio Overview

The On-Demand National Airspace System (NAS) Information portfolio will implement programs and processes to ensure that NAS and aeronautical information are consistent across applications and locations, and are available to authorized subscribers and equipped aircraft. Users will request NAS information when planning flights through services that will allow them to collaborate with Air Navigation Service Providers (ANSPs), resulting in improved flow management and efficient use of resources. In-flight Air Traffic Management (ATM) planning will be improved by making consistent data on constraints available to all NAS users. For example, it will increase the ability to adapt to changing conditions by making better use of flight paths through inactive Special-Use Airspace (SUA) and adjusting routes per event notification information. The initial Segment Alpha capabilities were delivered primarily as part of capabilities implemented by the Aeronautical Information Management (AIM) program. The capabilities focused on providing users within (i.e., ANSP) and outside of the NAS with reliable and relevant SUA schedule changes and Notice to Airmen (NOTAM) constraints. This information is disseminated via a System-Wide Information Management (SWIM)-based approach, Traffic Information Service-Broadcast (TIS-B), and Flight Information Services-Broadcast (FIS-B).

In the Bravo timeframe this portfolio focused on enhancing advisory services and quality of information shared with flight operators. When airspace users are unable to receive consistent information, status, or conditions affecting flight planning and flight operations, the result is inefficient and inflexible routing options. The manual nature of record-keeping and updating the information, as well as the manual sharing of the information, leads to the user's being presented with inconsistent, incomplete, and in some instances irrelevant information.

In the Charlie timeframe, AIMM Segment 2 fielded the Aeronautical Common Services (ACS) platform which provides SUA schedules integrated with static SUA descriptions. This capability will be expanded to include additional airspace types and their schedules as well as digital TFRs. Additionally, the Notice to Air Missions (NOTAM) system will be enhanced to increase the use of digital NOTAMs as well as transitioning to ICAO format.

In the Charlie timeframe, AIMM Segment 2 fielded the Aeronautical Common Services (ACS) platform which provides SUA schedules integrated with static SUA descriptions. This capability will be expanded to include additional airspace types and their schedules as well as digital TFRs. Additionally, the Notice to Air Missions (NOTAM) system will be enhanced to increase the use of digital NOTAMs as well as transitioning to ICAO format.

Furthermore, In the Delta timeframe extended collaborative flight planning horizon will be supported. The exchange of flight plan information will be standards based. Flight plan information will be available for both FAA internal and external users (for strategic planning and during active flight) resulting in the improvement of the overall accuracy of demand estimates made throughout the system. The portfolio will also improve flight information management. In particular, the movement of flight data supporting tactical operations in terminal and en-route domains will benefit from enhanced information management and infrastructure implementation. This allows ATM automation systems (command and control systems) across domains to have synchronized real-time flight information as safety critical flight information is exchanged.

Improving the consistency, completeness, and accuracy of the NAS advisory service information has the following anticipated benefits:

- Reduced fuel burn and operating costs related to planning around constraints that are not accurate representations of NAS status and airspace usage
- Increased flexibility of the NAS to enable users to adapt according to their own needs
- Maintenance and improved safety of the NAS.

Note: The dates and timelines included in the NAS Segment Implementation Plan (NSIP) are for planning purposes only. All capability schedules are tentative until their supporting programs are officially baselined.

On-Demand NAS Information

Portfolio Content Summary Statistics

		Increment Status				
Segment	Total by Segment	Planned	Concept Exploration & Maturation	Development	Initial Operational Availability	Completed
*Alpha (2010 - 2015)	5	0	0	0	0	5
*Bravo (2016 - 2020)	2	0	0	0	0	2
Charlie (2021 - 2025)	5	0	3	1	1	0
Delta (2026 - 2030)	5	0	5	0	0	0
Echo (2031 - 2035)	2	1	1	0	0	0
Foxtrot (2036 - 2040)	0	0	0	0	0	0
TOTAL	19	1	9	1	1	7

Segment	% by Segment	% by Segment/Increment Status				
*Alpha (2010 - 2015)	26 %	0 %	0 %	0 %	0 %	100 %
*Bravo (2016 - 2020)	11 %	0 %	0 %	0 %	0 %	100 %
Charlie (2021 - 2025)	26 %	0 %	60 %	20 %	20 %	0 %
Delta (2026 - 2030)	26 %	0 %	100 %	0 %	0 %	0 %
Echo (2031 - 2035)	11 %	50 %	50 %	0 %	0 %	0 %
Foxtrot (2036 - 2040)	0 %	0 %	0 %	0 %	0 %	0 %
TOTAL	100%	5 %	47 %	5 %	5 %	37 %

* Please see Appendix A and B for information about Alpha and Bravo Increments, respectively.

On-Demand NAS Information

Operational Improvements/Current Operations & Increments

Benefits

OI: [101202] Flight Management with Trajectory (2027 - 2035)

D [101202-23] Extended Flight Planning Horizon **(2027 - 2032)**

OI: [104102] Optimized Oceanic Trajectories via Interactive Planning (2020 - 2039)

E [104102-25] Preferred Oceanic Routes with More Dynamic Special Activity Airspace Information **(2035 - 2039)**

OI: [108212] Improved Management of Special Activity Airspace (2015 - 2030)

C [108212-11] ANSP Real-Time Status for SAAs **(2025 - 2029)**

C [108212-21] Improved Access to SAA Information **(2021 - 2029)**

D [108212-24] Planned Airspace Constraints **(2026 - 2029)**

OI: [108206] Resilient Airspace Management (2026 - 2030)

D [108206-34] Increased Flexibility in Inter-Facility Sector Transfer **(2026 - 2030)**

OI: [103306] Tailored Delivery of On-Demand NAS Information (2023 - 2033)

C [103306-06] Improved Access to Notice to Air Missions **(2023 - 2029)**

E [103306-01] Static Airspace Constraints **(2030 - 2033)**

OI: [101203] UAS Flight Information (2017 - 2030)

D [101203-02] UAS Flight Information Management System **(2025 - 2030)**

OI: [103211] Small UAS Advisory Services (2020 - 2025)

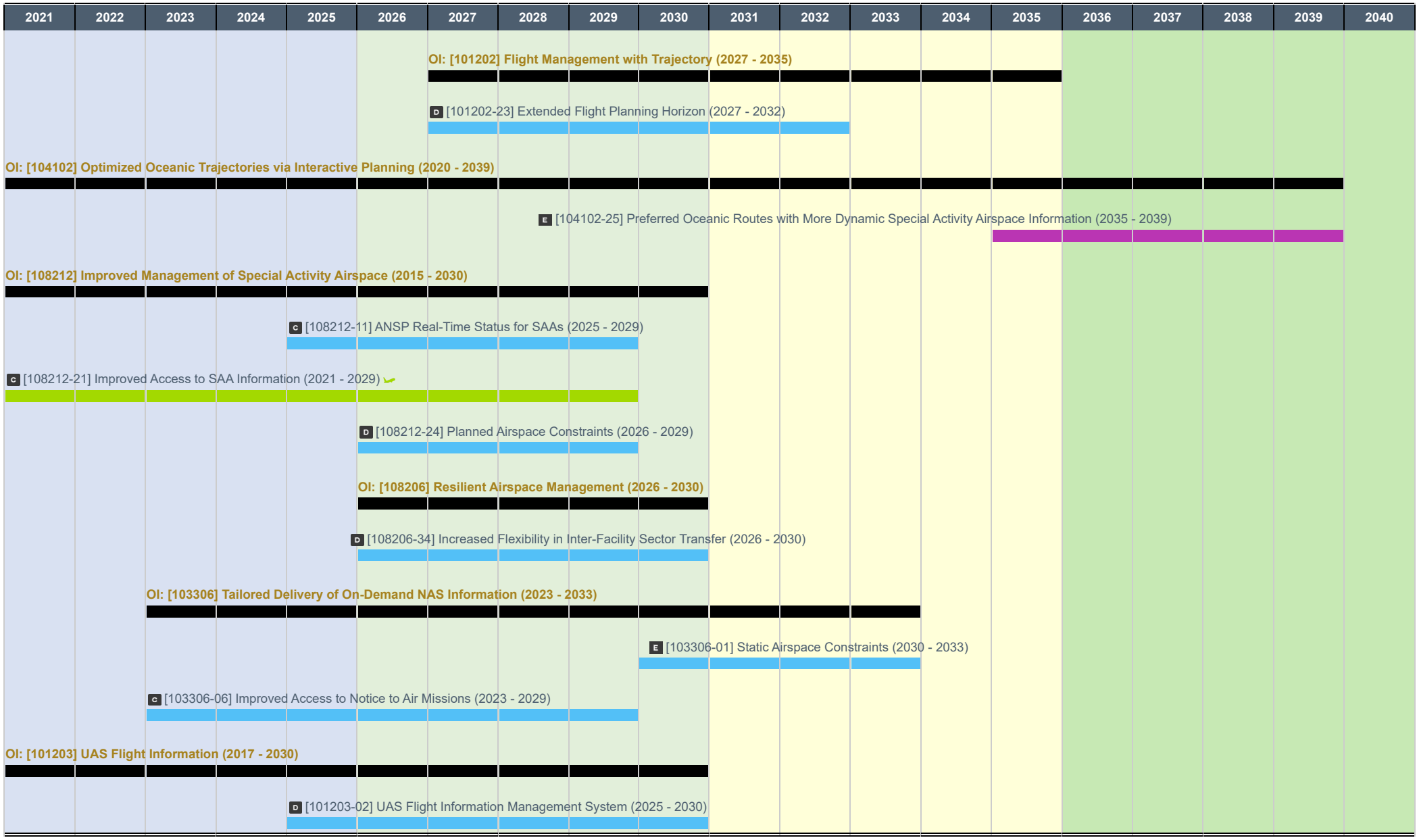
C [103211-01] UAS Advisory Information **(2020 - 2025)**

C [103211-02] Traffic Advisory Services for Small UAS (sUAS) **(2021 - 2025)**

OI: [101104] Provide Automated Flight Plan Constraint Evaluation with Feedback (2026 - 2032)

D [101104-21] Constraint Evaluation Feedback **(2026 - 2030)**

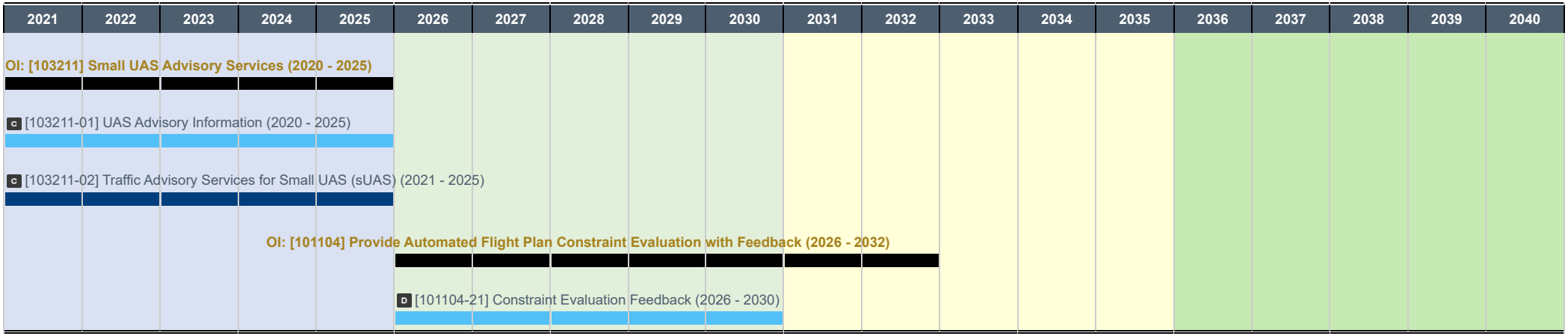
On-Demand NAS Information



Planned | Concept Exploration & Maturation | Development | Inital Operation Available | Complete

OI | CO | COE/CBTE | C Charlie | D Delta | E Echo | F Foxtrot | External Commitment

On-Demand NAS Information



Planned | Concept Exploration & Maturation | Development | Inital Operation Available | Complete

OI | CO | COE/CBTE | C Charlie | D Delta | E Echo | F Foxtrot | External Commitment

On-Demand NAS Information

OI: [101202] Flight Management with Trajectory (2027 - 2035)

Flight Management with Trajectory develops and maintains all information about a flight and makes that information available to all decision support tools which will improve both strategic flight planning and tactical flight management. All information about a flight is presented as a 4D trajectory, either provided by the user or developed by the ground automation based on internationally standardized formats and definitions. As reroutes are selected, user preferences assessed, and approved, the trajectory flight data continues to be updated and made available to subscribers so that both tactical and strategic plans can be developed with the most up-to-date 4D trajectory of the flight. Based on these capabilities, Flight Management with Trajectory also provides continuous monitoring of the status of all flights – quickly alerting the system to unexpected termination of a flight and rapid identification of last known position.

OI Benefit

Access and Equity (P): System capacity will be better utilized through the sharing of traffic management initiatives and the impact of those initiatives of individual flights which will decrease the instances of over-constrained airspace access.

Efficiency (P): Efficiency will be improved through better evaluation of arrival constraints which will enable aircraft to be delayed at higher and more fuel efficient altitudes.

Flexibility (P): Users will have increased flexibility to select preferred routes that better meet their business objectives.

Predictability (S): With the sharing of flight information throughout the system, system predictability will be improved.

Increments

Delta

(2026 - 2030)

1

D **[101202-23] Extended Flight Planning Horizon (2027 - 2032)** (Concept Exploration & Maturation)

On-Demand NAS Information

Increments/Enabling Activities

D [101202-23] Extended Flight Planning Horizon (2027 - 2032)

Increment Overview

This increment provides the infrastructure that enables the FAA and Airspace Users to extend the collaborative planning horizon to days or months in advance. Users will be provided with a single interface they can use to transition their flight plan from a preliminary planning state to the services that manage active real time states of the flights. This planning information will be retained and enable more detailed flight plan information (e.g., a fully converted route and trajectory) to be used by both internal and external users for strategic planning. This will help to improve the overall accuracy of demand estimates, used to determine whether capacity constraints will exists.

Increment Status

Concept Exploration & Maturation

Success Criteria

2032 : Operationally available NAS-wide for pre-departure/strategic planning function.

Implementation Approach

CSS-FD will provide a single interface to manage users' flight plan from a preliminary planning state.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P): Demand prediction and capacity planning is improved as a result of early flight planning and filing which leads to increased capacity and improved efficiency both from flight operator's perspective as well as ATC.

Predictability (S) Extending the planning horizon provides clear predictability for ATC and flight operators, which leads to better efficiency in the NAS.

System Interactions

On-Demand NAS Information

Initial system dependencies have been identified for this capability. As this capability is further defined, future updates will include the associated system interaction text.

CSS-FD (P): Primary system for facilitating flight planning and filing.

ATOP (S):ATOP is a secondary system that will be involved in flight information exchange with CSS-FD.

ERAM (S):ERAM is a secondary system that will be involved in flight information exchange with CSS-FD.

NCR (S): NCR is a secondary system that will be providing constraint information to CSS-FD.

FMDS (S):TFMS is a secondary system that will be involved in flight information exchange with CSS-FD.

SWIM (T): SWIM is a tertiary system that will be enabling information exchange to and from CSS-FD.

Primary Systems

- CSS-FD: Common Support Services - Flight Data

Secondary Systems

- NCR: NAS Common Reference
- FMDS: Flow Management Data & Services
- ATOP: Advanced Technologies and Oceanic Procedures
- ERAM: En Route Automation Modernization

Tertiary Systems

- SWIM: System Wide Information Management

On-Demand NAS Information

OI: [104102] Optimized Oceanic Trajectories via Interactive Planning (2020 - 2039)

Interactive planning between the airspace user and FAA automation both before and after departure enhances the ability of the flight to fly closer to the user's preferred 4-dimensional (4D) trajectory. FAA automation supports coordination and feedback on contention as well as planning and management for congested oceanic airspace. After departure, enhanced, up-to-date communication of intent information from the user allows oceanic controllers to adjust to improved 4D trajectories. Oceanic users will have access to improved weather and airspace status information for flight planning and execution. They will be able to use this information to assess their preferred trajectory against changing operational conditions and when conditions allow, request a revised clearance that better meets their business objectives.

OI Benefit

Efficiency (P): Increased granting of user preferred trajectories in Oceanic airspace both pre- and post-departure.

Increments

Echo

(2031 - 2035)

1

E [104102-25] Preferred Oceanic Routes with More Dynamic Special Activity Airspace Information (2035 - 2039) (Planned)

On-Demand NAS Information

Increments/Enabling Activities

E [104102-25] Preferred Oceanic Routes with More Dynamic Special Activity Airspace Information (2035 - 2039)

Increment Overview

Oceanic users have access to dynamic Special Activity Airspace (SAA) information in order to assess their desired trajectory with improved knowledge of SAA status. If the user's preferred trajectory becomes available as SAA airspace restrictions are terminated, they will be able to assess their preferred route, and if operationally desirable, request a revised route from the controller.

Increment Status

Planned

Success Criteria

To Be Defined

Implementation Approach

NAS Infrastructure is enhanced through the integration of enabling technologies and new standards and procedures into automation systems. The key automation system impacted is Advanced Technology Oceanic Procedures (ATOP).

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P): Reduced risk of deviations and operational errors due to automated access to SAA data, resulting in more timely and accurate information for aircraft separation. Controllers will better be able to plan for more expeditious handling of reroute requests.

System Interactions

ATOP (P) This increment enables more efficient traffic flows in oceanic airspace by allowing use of Special Activity Airspace (SAA) during major disruptive weather events, heavy airspace demand during peak travel days of the year, and special events. Release Areas will be depicted at control positions with appropriate procedures and supporting information available to the controller. The capability will provide Release Area activation/deactivation status, and available altitudes of a Release Area. Oceanic Conflict Probe will determine when an eligible aircraft's current plan (or trial plan) trajectory is predicted to penetrate an airspace and suppress the alert.

ACS (S): The Aeronautical Common Services (ACS) publishes SAA schedule information via SWIM

SWIM (T): ACS-provided SAA information is distributed using SWIM. ACS will be on-ramped to SWIM/NEMS.

On-Demand NAS Information

Primary Systems

ATOP: Advanced Technologies and Oceanic Procedures

Secondary Systems

ACS: Aeronautical Common Service

Tertiary Systems

SWIM: System Wide Information Management

On-Demand NAS Information

OI: [108212] Improved Management of Special Activity Airspace (2015 - 2030)

Special Activity Airspace (SAA) assignments, schedules, coordination, and status changes are conducted automation-to-automation. Changes to status of SAA are readily available for operators and Air Navigation Service Providers (ANSP). Status changes are transmitted to the flight deck via voice or data communications. Flight trajectory planning is managed dynamically based on real-time use of airspace.

Airspace use is optimized and managed in real-time, based on actual flight profiles and real-time operational use parameters. Airspace reservations for military operations, unmanned aircraft system flights, space flight and re-entry, restricted or warning areas, and flight training areas are managed on an as-needed basis. Enhanced automation-to-automation communications and collaboration enables decision-makers to dynamically manage airspace for special use, increasing real-time access and use of unused airspace.

This will enable ANSP decision-support tools, integrated with automation-to-automation flight planning, to have increased access and improved coordination of airspace use.

Flight deck automation is enhanced to include data communications capabilities and to recognize SUA-encoded data. The SUA status is available via uplink to the cockpit in graphical (e.g., additional airspace information over FIS-B) and automation-readable form, supporting pre-flight and in-flight planning.

OI Benefit

Efficiency (P): Automated real-time management of special activity airspace use will increase access when available enabling aircraft to fly more direct routes.

Access and Equity (P): Automated status changes for special activity airspace increase access to when available.

Predictability (S): The predictability of the NAS is increased with timely and accurate SAA information being used in flow planning.

Increments

Charlie (2021 - 2025)	Delta (2026 - 2030)
2	1

- C [108212-11] ANSP Real-Time Status for SAAs (2025 - 2029) (Concept Exploration & Maturation)
- C [108212-21] Improved Access to SAA Information (2021 - 2029) (Initial Operational Availability)
- D [108212-24] Planned Airspace Constraints (2026 - 2029) (Concept Exploration & Maturation)

On-Demand NAS Information

Increments/Enabling Activities

C [108212-11] ANSP Real-Time Status for SAAs (2025 - 2029)

Increment Overview

Airspace use is optimized and efficiently managed in real time, based on actual flight profiles and real-time operational use.Airspace reservations for military operations, unmanned aircraft, space flight and re-entry, restricted and warning areas, and military flight training and altitude reservation areas are managed on as scheduled.Enhanced automation-to-automation communications and collaboration enables decision-makers to dynamically manage airspace for special use, increasing real-time access and use of available airspace.

Increment Status

Concept Exploration & Maturation

Success Criteria

2029 : Exchange near real-time SAA status information between ATM automation and SWIM for publishing to ANSP systems and operators. Incorporate SAA status entry into EAST and retire SAMS.

Implementation Approach

Near real-time SAA schedule and activation status will be provided via publication by ACS and dissemination via SWIM. SAA near real-time status information is public by MADE/SAMS and distributed by ACS via SWIM. The information is made available for consumption by NAS automation systems as well as operators (e.g. DoD).SAA information will be AIXM-compliant. ATOP and E-IDS will require functional and interface modifications to consume real-time status information for SAAs. Consolidate SAA schedule and status info in MADE/SAMS (includes but not limited to: update DB, cancel/regenerate NOTAM, detect conflicts, coordinate the status updates with scheduling agencies, and publish the real-time SAA schedule/status info to ACS via SWIM). ERAM will require updates to transmit SAA use status to MADE/SAMS for further distribution through ACS. This increment is identified to have an International harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P): NAS automation systems and tools will have access to real-time (near-real-time) SAA information which will increase system throughput and situational awareness resulting in overall efficiency improvements (more efficient use of available airspace based on near -real time SAA status information).

System Interactions

On-Demand NAS Information

ACS (P):The Aeronautical Common Services (ACS) provides integrated aeronautical information to include near real-time status information for SAAs.

ERAM (S):ERAM is a provider of real-time status information for SAAs. ERAM will require functional and interface modifications to provide real-time status information for SAAs to SAMS.

SAMS (S):SAMS is an authoritative source of SAA information and will interface with ERAM to obtain SAA status information which it will then make available to ACS for distribution.

ATOP (S):ATOP is a potential consumer of ACS real-time status information for SAAs. ATOP will require functional and interface modifications to consume real-time status information for SAAs.

TFMS (S):TFMS is a potential consumer of ACS real-time status information for SAAs.

E-IDS (S): E-IDS is a potential consumer of ACS real-time status information for SAAs. E-IDS will require functional and interface modifications to consume real-time status information for SAAs.

SWIM (T):ACS real-time status information for SAAs is distributed using SWIM. ACS will be on-ramped to SWIM/NEMS.

EAST (S): Authoritative source of static aeronautical data (SAA definitions) for ACS.

Primary Systems

- ACS: Aeronautical Common Service

Secondary Systems

- SAMS: Special Use Airspace Management System
- E-IDS: Enterprise Information Display System
- ATOP: Advanced Technologies and Oceanic Procedures
- EAST: Enterprise Air Space Tool
- TFMS: Traffic Flow Management System
- ERAM: En Route Automation Modernization

Tertiary Systems

- SWIM: System Wide Information Management

On-Demand NAS Information

Increments/Enabling Activities

C [108212-21] Improved Access to SAA Information (2021 - 2029)

Increment Overview

This increment expands the incorporation of SAA schedules and forecast demand to additional SAA types including military training routes (MTRs) and Temporary Flight Restrictions (TFRs) areas in order for NAS traffic managers to assess the impact on predicted traffic flow constraints and conduct negotiations with flight operators and stakeholders in the NAS. Route impact assessments would account for forecast airspace capacity loss and route blockage, and would result in advisories being sent by traffic managers for reroutes as needed.

Increment Status

Initial Operational Availability

Success Criteria

2021 : Provide partially digital Military Training Routes through ACS (AIMM P2)

2029 : Provide ATCAAs through ACS (AIMM E1)

2029 : Provide digital Temporary flight rules (TFRs) and full digital MTRs through ACS (AIMM E1)

Implementation Approach

ACS will ingest SAA schedule information submitted to SAMS (authoritative source) by DoD or other government agencies (approved by the FAA) and publish the information via SWIM. SAA information will be compliant with Aeronautical Information Exchange Model (AIXM). TFMS will require functional and interface modifications to consume SAA information and improved flow-based predictions using ACS provided SAA schedule and definition information.New or amended routes will also be available for external users such as airlines and aircraft operators to consume.This will allow operators to better plan future flights taking the same or similar route optimized for best performance.This increment is identified to have an International harmonization dependency (ICAO formatted NOTAMS).

Benefits

Access & Equity Capacity Flexibility Efficiency Environment Predictability Safety

Efficiency (P): Aircraft operators will get automated SAA information from an authoritative source in order have better planning that will result in more efficiency and cost savings (e.g. fuel).

Predictability (S): The predictability of the NAS is increased with timely and accurate SUA information being used in flow planning.Increased predictability results in more corrective actions being taken.

System Interactions

On-Demand NAS Information

ACS (P): The Aeronautical Common Services (ACS) will be developed in the Delta timeframe to provide integrated aeronautical information to include SAA as input to improved flow predictions.

EAST (S): EAST will be developed during the Charlie & Delta timeframes becoming the authoritative source of static aeronautical data (SAA definitions) for ACS.

SAMS (S): SAMS is an authoritative source of SAA schedule information for ACS.

TFMS (S): TFMS is a potential consumer of ACS schedule and definition information for SAAs.

SWIM (T): ACS provided SAA information is distributed using SWIM. ACS will be on-ramped to SWIM/NEMS.

Primary Systems

- ACS: Aeronautical Common Service

Secondary Systems

- TFMS: Traffic Flow Management System
- EAST: Enterprise Air Space Tool
- SAMS: Special Use Airspace Management System

Tertiary Systems

- SWIM: System Wide Information Management

On-Demand NAS Information

Increments/Enabling Activities

D [108212-24] Planned Airspace Constraints (2026 - 2029)

Increment Overview

NAS users improve trajectory planning and efficiency by accessing on demand volumetric NOTAMs, SAA schedules, and flexible airspace constraints. Coordinated demand allows for users and control authorities to adjust boundaries, SAA times and volumes, to optimize usable airspace within specified time windows.

Increment Status

Concept Exploration & Maturation

Success Criteria

2029 : Integrated SAA and NOTAM information, as well as airspace constraint information, is available through ACS using internationally harmonized aeronautical information standards.

Implementation Approach

ACS will ingest planned airspace constraints from authoritative sources and provide information to NAS internal and external users via SWIM. This increment is identified to have an International harmonization dependency (ICAO formatted NOTAMS).

Benefits

Access & Equity Capacity Flexibility Efficiency Environment Predictability Safety

Efficiency (P): Trajectory planning that leverages timely constraint information results in an efficient operation.

System Interactions

On-Demand NAS Information

ACS (P): ACS will make available aeronautical information including digital NOTAMs and SAA schedules for NAS automation systems via its interface with SWM/NEMS. NAS automation systems (ANSP systems) will be able to subscribe to ACS's services available via SWIM.

ATOP (S): ATOP is a potential consumer of ACS provided aeronautical information including SAAs and NOTAMs. ATOP will require functional and interface modifications to consume aeronautical information from ACS via SWIM.

EAST (S): EAST will be used to create digital airspace NOTAMs to include TFRs and Altitude Reservations (ALTRV). EAST will create ATCAAs and SUAs as well. It will publish this data to ACS via SWIM.

E-IDS (S): E-IDS is a potential consumer of aeronautical information including SAA schedules and digital NOTAMs. E-IDS will be developed with functions and interfaces that will allow it to consume ACS published aeronautical information via SWIM.

ERAM (S): ERAM is a potential consumer of ACS provided aeronautical information including SAAs and NOTAMs. ERAM will require functional and interface modifications to consume aeronautical information from ACS via SWIM.

FNS (S): FNS is the authoritative source for digital NOTAM information and will be the NOTAM source for ACS.

SAMS (S): SAMS is an authoritative source of SAA schedule information for ACS.

SWIM (T): ACS will provide aeronautical information including SAA schedules and digital NOTAMs to users via SWIM.

TFMS (S): TFMS is a potential consumer of ACS provided aeronautical information including SAA schedules and digital NOTAMs.

On-Demand NAS Information

Primary Systems

- ACS: Aeronautical Common Service

Secondary Systems

- E-IDS: Enterprise Information Display System
- FNS: Federal NOTAM System
- SAMS: Special Use Airspace Management System
- ATOP: Advanced Technologies and Oceanic Procedures
- ERAM: En Route Automation Modernization
- EAST: Enterprise Air Space Tool
- TFMS: Traffic Flow Management System

Tertiary Systems

- SWIM: System Wide Information Management

On-Demand NAS Information

OI: [108206] Resilient Airspace Management (2026 - 2030)

ANSP automation supports reallocation of trajectory information, surveillance, communications, and display information to different facilities. This flexibility will enable faster restoration of full ATC services in the event of a partial or full facility equipment loss making the NAS more resilient.

Automation enhancements enable increased flexibility to transition airspace volume definitions in accordance with pre-defined configurations. The extent of flexibility has been limited due to limitations of automation, surveillance, and communication capabilities, such as primary and secondary radar coverage, availability of radio frequencies, and ground-communication lines. New system capabilities and automated tools will define and support alternate configurations as well as re-mapping of information (e.g., flight and radar) to the appropriate facilities.

OI Benefit

Predictability (P):The air traffic control system is able to more rapidly transfer the responsibility of air traffic services to another facility in the event of a long duration outage and more quickly adjust to preserve schedule integrity.

Capacity (P):Improved automation and information allows controller flexibility to adjust responsibility of control to balance workload in order to ensure that sector capacity meets demand.

Efficiency (S):Automation enhancements and shifts of airspace assignment between sectors allow flights to fly optimal trajectories without being constrained by the limitations of ATC sector workload constraints.

Increments

Delta

(2026 - 2030)

1

D **[108206-34] Increased Flexibility in Inter-Facility Sector Transfer (2026 - 2030)** (Concept Exploration & Maturation)

On-Demand NAS Information

Increments/Enabling Activities

D [108206-34] Increased Flexibility in Inter-Facility Sector Transfer (2026 - 2030)

Increment Overview

Airspace efficiency and system resiliency are improved during off-nominal events through the transfer of existing airspace configuration sector options to an alternate facility. This provides an alternative to imposing significant airspace constraints in order to accommodate a facility outage or other significant off-nominal event. Automation supports the transfer of sector communications (voice and data), radar map display (lateral and volume), flight data, and surveillance resources to accommodate reallocation of sector responsibilities to another facility.

Increment Status

Concept Exploration & Maturation

Success Criteria

To Be Defined

Implementation Approach

The Dynamic Airspace project does not intend to propose any new systems or capabilities expressly for DA. It will rely on existing and planned enhancements to NAS systems to support implementation as much as possible.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Predictability (P):The air traffic control system is able to more rapidly transfer the responsibility of air traffic services to another facility in the event of a long duration outage and more quickly adjust to preserve schedule integrity.

Capacity (S):Improved automation and information allows controller flexibility to adjust responsibility of control to balance workload in order to ensure that sector capacity meets demand.

Efficiency (S):Automation enhancements and shifts of airspace assignment between sectors allow flights to fly optimal trajectories without being constrained by the limitations of ATC sector workload constraints.

System Interactions

Initial system dependencies have been identified for this capability. As this capability is further defined, future updates will include the associated system interaction text.

Secondary Systems

On-Demand NAS Information

OI: [103306] Tailored Delivery of On-Demand NAS Information (2023 - 2033)

The delivery of selected National Airspace System (NAS) and aeronautical information data elements will be available to users and tailored based on their flight trajectory. Airport status information will be sent over data communications based on the aircraft's location. Selected NAS and aeronautical information, such as information pertaining to airspace constraints that are contained in digital Notice to Air Missions (NOTAM), Letters of Agreement, and Standard Operating procedures, can be tailored based on the flight's trajectory. Users will be able to subscribe to information updates based on the aircraft's trajectory and will receive the information in an Aeronautical Information Exchange Model (AIXM)-compliant format.

OI Benefit

Flexibility (P): Tailored on-demand access to NAS information provide better data on the availability of route access and enables users to choose the available route options to best meet their business objective.

Efficiency (S): User will have access to real-time updates of NAS status information tailored based on flight planning parameters allowing them to choose a more optimal and efficient available route based on their business objective.

Predictability (S): Improved and real-time updates of constraint information tailored based on flight planning parameters enable users to make more informed decisions.

Safety (S): Providing real-time awareness of SAA status will improve safety by reducing the probability that an aircraft will enter an SAA that is active.

Increments

Charlie (2021 - 2025)	Echo (2031 - 2035)
1	1

C [103306-06] Improved Access to Notice to Air Missions (2023 - 2029) (Concept Exploration & Maturation)

E [103306-01] Static Airspace Constraints (2030 - 2033) (Concept Exploration & Maturation)

On-Demand NAS Information

Increments/Enabling Activities

C [103306-06] Improved Access to Notice to Air Missions (2023 - 2029)

Increment Overview

Flight planners will have improved accuracy and accessibility to Notice to Air Missions (NOTAM) that will improve situation awareness, flight path efficiency and enhance flight safety. The creation and dissemination of improved NOTAMs (including Special Activity Airspace [SAA], Temporary Flight Restrictions [TFR] and Altitude Reservations [ALTRV]) that include digital airspace descriptions and effective times will enable improvements in flight planning by providing end users the ability to tailor their search to only those airspace NOTAMs that are relevant and active during the planned route of flight. More timely information on the operational status of airspace restrictions, such as event TFRs, can improve flight efficiency by reducing instances of pilots avoiding inactive areas due to uncertainty regarding the activation status. The ability to receive NOTAMs in graphical format on board the aircraft's electronic flight bag will enhance situation awareness while avoiding restricted airspace.

Increment Status

Concept Exploration & Maturation

Success Criteria

2029 : AIMM E1 – FOC for EAST, Enhanced ACS, and Enhanced FNS. Generate and disseminate digital airspace NOTAMs for ALTRV & TFR. Provide capability to filter based on airspace feature and time.

Implementation Approach

AIMM Enhancement 1 (E1) will develop the Enterprise Airspace Tool (EAST) to create digital airspace descriptions associated with TFRs, ALTRVs, and Special Activity Airspace. It will become the authoritative source for airspace for the FAA. It will also create candidate NOTAMs associated with TFRs and ALTRVs which include graphical descriptions of the affected airspace. FNS will be upgraded to support digital NOTAMs, incorporate graphics in airspace NOTAMs, and promulgate NOTAMs in ICAO format. ACS will be enhanced to provide users the ability to subscribe to AI in specific airspace. Beyond AIMM E1, the next goal will be to provide real-time status of SAA to NAS customers. existing systems such as ERAM and STARS will need to be enhanced to provide active/inactive status to the E1 systems so that airspace NOTAMs can be generated in real-time and delivered to subscribers via ACS. Along with system changes, policy changes will be required to ensure that SAA status is updated in a timely manner.

Benefits

Access & Equity Capacity Flexibility Efficiency Environment Predictability Safety

Efficiency (P): Demand prediction and capacity planning is improved as a result of early flight planning and filing which leads to increased capacity and improved efficiency both from flight operators' perspectives as well as ATC.

Safety (S): Providing real-time awareness of SAA status will improve safety by reducing the probability that an aircraft will enter an

On-Demand NAS Information

System Interactions

FNS (Authoritative source) (P): FNS will receive airspace and NOTAM information from EAST, prepare the NOTAM, validate the contents, and distribute them.

EAST (S): The Enterprise Airspace Tool (EAST) will be used to create digital airspace descriptions for incorporation into Temporary Flight Restrictions (TFR) and Altitude Reservations (ALTRV). EAST will also create Special Activity Airspace.

ACS (S): ACS will distribute airspace data including NOTAMs to subscribers based on filtering parameters determined by the user.

SAMS (S): The Special Use Airspace Management System (SAMS) will retain SAA definitions and schedules. It will generate NOTAMs based on the schedule associated with a specific airspace.

TFR(S): TFR Builder provides TFR information for FNS to issue TFR NOTAMS.

CARF(S): Add Description (deprecated by EAST)

E-IDS (S): E-IDS will receive Aeronautical Information from ACS based on facility-specific queries.

ERAM (S): ERAM Displays hot/cold status of SAAs based on input from controllers. When this increment is fully implemented, this status will be routed to EAST where a TFR would be generated, formatted in FNS, and distributed via ACS.

ATOP (S): ATOP displays hot/cold status of SAAs based on input from controllers. When this increment is fully implemented, this status will be routed to EAST where a TFR would be generated, formatted in FNS, and distributed via ACS.

Primary Systems

- FNS: Federal NOTAM System

Secondary Systems

- EAST: Enterprise Air Space Tool
- TFR Bldr: Temporary Flight Restriction Builder
- ACS: Aeronautical Common Service
- CARF: Central Altitude Reservation Function
- E-IDS: Enterprise Information Display System
- SAMS: Special Use Airspace Management System
- ATOP: Advanced Technologies and Oceanic Procedures

On-Demand NAS Information

Increments/Enabling Activities

E [103306-01] Static Airspace Constraints (2030 - 2033)

Increment Overview

FOCs and AOCs access to on demand static aeronautical information will be improved with the addition of airspace constraint information contained in Letters of Agreement and Standard Operating Procedures (LOA/SOPs), Instrument Flight Procedures (IFPs), and Air Traffic Control Assigned Areas (ATCAAs), which will improve their trajectory planning. Users will be able to receive this information based on their trajectory. The information is made available through publish/subscribe access to SWIM and will be Aeronautical Information Exchange Model (AIXM)-compliant.

Increment Status

Concept Exploration & Maturation

Success Criteria

2030 : LOA/SOP constraint information is available through ACS.

Implementation Approach

A national authoritative database will be established to capture LOA/SOP airspace and constraint information digitally. New airspace and constraints will be entered into the database using an appropriate digital capture tool. ACS will make constraint information available via SWIM in AIXM and other formats. This increment is identified to have International harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P): User will have access to real-time updates of NAS status information tailored based on flight planning parameters allowing them to choose a more optimal and efficient available route based on their business objective.

System Interactions

ACS (P): ACS will support the digitization of airspace constraints found in LOAs/SOPs by providing an interface to support the digital data capture of LOA/SOP airspace constraints. It will provide an interface for originators and interaction with an airspace constraint database. ACS will also distribute digitized airspace constraints, subject to NAS data release procedures, via SWIM. NAS systems as well as those systems owned by external users such as AOCs/FOCs will be able to subscribe in order to obtain approved LOA/SOP airspace constraint information available via SWIM.

SWIM (T): SWIM will be used for the dissemination of static airspace constraint for consumption by systems within and outside of the FAA.

On-Demand NAS Information

Primary Systems

ACS: Aeronautical Common Service

Secondary Systems

EAST: Enterprise Air Space Tool

Tertiary Systems

SWIM: System Wide Information Management

On-Demand NAS Information

OI: [101203] UAS Flight Information (2017 - 2030)

Small Unmanned Aircraft Systems (sUAS) have the ability to plan flights, determine flight path, address restrictions in that path, plan for times and days of flights, and share operational intent with other airspace users. UAS operators provide their intended flight information in the form of an airspace authorization request when their intended flight path takes them into controlled airspace and receive automated feedback regarding whether a flight is approved or denied. The FAA has access to UAS flight information, when warranted, in order to generate advisories regarding where UAS are operating for use by ATC.

OI Benefit

Safety (P): ensure that small UAS operations do not pose a safety risk to the NAS.

Flexibility (S): UAS operators have the flexibility to plan flights with an understanding of the NAS constraints.

Increments

Delta

(2026 - 2030)

1

D [101203-02] UAS Flight Information Management System (2025 - 2030) (Concept Exploration & Maturation)

On-Demand NAS Information

Increments/Enabling Activities

D [101203-02] UAS Flight Information Management System (2025 - 2030)

Increment Overview

Small Unmanned Aircraft Systems (sUAS) stakeholders and the FAA exchange information as needed regarding UAS and applicable NAS operations. The FAA provides relevant NAS information such as NAS directives and operating constraints (e.g., airspace restrictions) with UAS operators in order to aid in UAS flight planning. sUAS service providers inform the FAA of any UAS operations which may impact the NAS, in order for the FAA to assess whether any action is needed.

Increment Status

Concept Exploration & Maturation

Success Criteria

To Be Defined

Implementation Approach

The provision of NAS information will be accomplished via a common net-enabled information exchange service to be determined. sUAS service providers will establish the mechanisms to provide any relevant sUAS operating information to the FAA. This increment is identified to have an International harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Flexibility (S): UAS operators have the flexibility to plan flights with an understanding of the NAS constraints.

Safety (P): Ensure that small UAS operations do not pose a safety risk to the NAS.

System Interactions

To be determined

To be determined

On-Demand NAS Information

OI: [103211] Small UAS Advisory Services (2020 - 2025)

Small Unmanned Aircraft Systems (sUAS) have increased access to airspace through the generation of advisory services for sUAS operations. Manned aircraft pilots are able to execute their flights with improved knowledge of the location of small UASs along their flight path through remote identification (RID) and flight intent information. sUAS are able to receive near real-time status information needed to plan and operate their flight. The FAA has information on the location of sUAS operators, when needed, in order to create advisories. In certain airspace, sUAS are required to remain in contact with UAS Traffic Management (UTM) service providers so they can be notified when conditions change that require a change in airspace status. The sharing of advisory information can assist with safety oversight related to conformance auditing and investigations into incidents with UAS. Public safety officials and citizens are able to ascertain the RID of sUAS operating in close proximity to their location. Public safety officials can receive contact information for the sUAS operator if safety concerns need to be discussed.

OI Benefit

Access and Equity (P): sUAS will have increased access to airspace through improved planning and advisory information.

Safety (S): Manned aircraft will have improved knowledge of sUAS through their flight path and can plan their flight around them. Safety oversight will have a means of clearing the airspace of sUAS in the event of an emergency.

Increments

Charlie

(2021 - 2025)

2

C **[103211-01] UAS Advisory Information (2020 - 2025)** (Concept Exploration & Maturation)

C **[103211-02] Traffic Advisory Services for Small UAS (sUAS) (2021 - 2025)** (Development)

On-Demand NAS Information

Increments/Enabling Activities

C [103211-01] UAS Advisory Information (2020 - 2025)

Increment Overview

The UAS community ensures that information based on industry standards is shared in near real-time in order to support separation between UAS operators and other stakeholders. For certain airspace classes and volumes, UAS operations are required to remain in communication with aeronautical information services and adhere to any change in airspace status that would result in terminating the flight or leaving an airspace area in the event of a local emergency or airspace status changes such as Temporary Flight Restrictions (TFR). The sharing of advisory information can assist with safety oversight related to conformance auditing and investigations into incidents with UAS.

Increment Status

Concept Exploration & Maturation

Success Criteria

2025 : Establish qualified USSs providing UVR services

2025 : Establish criteria for qualified UAS Service Suppliers (USSs) to support UAS Volume Reservation (UVR) services

Implementation Approach

UAS service suppliers to provide the service with data provided by operators, 3rd party service suppliers, and FAA aeronautical information. Specific implementation approach to be determined.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Access and Equity (P): sUAS will have increased access to airspace through improved planning and advisory information.

Safety (S): Operators can be informed of conditions and events that could impact the safety of their operations.

System Interactions

To be determined

To be determined

On-Demand NAS Information

Increments/Enabling Activities

C [103211-02] Traffic Advisory Services for Small UAS (sUAS) (2021 - 2025)

Increment Overview

Remote Identification (RID) of sUAS supports their ability to operate Beyond Visual Line of Sight (BVLOS) and aids in the integration of autonomous UAS operations in the NAS. Public safety officials and citizens are able to ascertain the RID of sUAS operating in close proximity to their location. Public safety officials can receive contact information for the sUAS operator if safety concerns need to be discussed. Manned aircraft pilots are able to execute their flights with improved knowledge of the location of sUAS along their flight path through remote identification.

Increment Status

Development

Success Criteria

2024 : Develop application to accept and manage FAA recognized identification areas (FRIAs)

Implementation Approach

RID rule was published in FY21. This will require the approval and management of FAA recognized identification areas (FRIAs) sponsored by community-based organizations or educational institutions for governance. The FAA will develop the initial implementation of software applications to support the FRIAs capabilities within Drone Zone.

Benefits

Access & Equity Capacity Flexibility Efficiency Environment Predictability Safety

Safety (P): RID will enhance safety in airspace by providing near real-time 4D identification of a UAS enabling manned aircraft and other UAS pilots to avoid interactions by gaining knowledge of the location and identification of the pilot.

Access and Equity (P): RID will enhance access and equity for sUAS to controlled airspace by ensuring situational awareness for other sUAS operators and other aviation.

System Interactions

To be defined.

To be determined

On-Demand NAS Information

OI: [101104] Provide Automated Flight Plan Constraint Evaluation with Feedback (2026 - 2032)

Timely and accurate National Airspace System (NAS) information enables users to plan and fly routings that meet their objectives. Constraint information that impacts the proposed route of flight is incorporated into air navigation service provider (ANSP) automation, and is available to users. Examples of constraint information include special use airspace status, SIGMETS, infrastructure outages, and significant congestion events.

Constraint information is both temporal and volumetric. Constraint volumes can be "hard constraints" (no access to this volume for this time period), "conditional constraints" (flights are subject to access control), and "advisory constraints" (service reduction or significant weather). Flight trajectories are built from the filed flight plan and the trajectory is evaluated against the constraint volumes. Feedback is provided to the filer (not the flight deck) on the computed trajectory with a listing of constraints, the time period for the constraints, and the nature of access.

A user can adjust the flight plan based on available information, and refile as additional information is received, or can wait for a later time to make adjustments. Up to NAS departure time, as constraints change, expire, or are newly initiated, currently filed flight plans are retested. Update notifications are provided to filers if conditions along the trajectory change.

OI Benefit

Flexibility (P): Increased flexibility for users to adjust their planned route to best meets their business objective based on improved knowledge of constraints.

Predictability (P): Improved information on constraints, and the resulting flexibilities and inflight efficiencies resulting from their use, leads to increased predictability across days allowing users to make more informed scheduling decisions.

Efficiency (S): User preferences for the chosen route around a constraint will be the most optimum and efficient route based on their business objective.

Increments

Delta

(2026 - 2030)

1

D **[101104-21] Constraint Evaluation Feedback (2026 - 2030)** (Concept Exploration & Maturation)

On-Demand NAS Information

Increments/Enabling Activities

D [101104-21] Constraint Evaluation Feedback (2026 - 2030)

Increment Overview

This increment provides opportunities to enhance flight efficiency and route predictability by providing flight plan evaluation and feedback that permit the users to see how they can modify their plans to resolve flow problems. Automation provides flight plan format and logic checking, route conversion, and constraint feedback for trial flight plans submitted by aircraft operators, as well as flight plan filing for the users chosen route. Collaboration partners are also provided information on constraints by airspace volume for strategic flow plans that are in effect and flow contingency plans under consideration.

Increment Status

Concept Exploration & Maturation

Success Criteria

2028 : SWIM NAS constraint and preferred ATC routing are integrated with FF-ICE flight plan filing and data standards enabled by CSS-FD.

2030 : Operationally Available NAS-wide

Implementation Approach

Candidate for Common Support Services - Flight Data (CSS-FD). CSS-FD will provide pre-departure flight constraint evaluation, and these capabilities may be expanded in the future to include constraint evaluation for all phases of flight.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P): Improved efficiency of flight planning through awareness and evaluation of constraints along route of flight.

System Interactions

CSS-FD (P): Common Support Services - Flight Data: Provides the exchange of flight data in FIXM format among internal and external NAS users and provides a common view of flight information and applicable (per-flight) constraint information and automated ATC route feedback for airspace users.

NCR (S): Collects and disseminates relevant NAS constraint data to equipped Airspace User (eAU) flight plans and trial requests generated using CSS-FD microservices and international standards.

ERAM (T): Provides preferred ATC routing and status of filed enhanced Flight Plans (eFPLs) via NADIN/NMR

On-Demand NAS Information

Primary Systems

- CSS-FD: Common Support Services - Flight Data

Secondary Systems

- NCR: NAS Common Reference

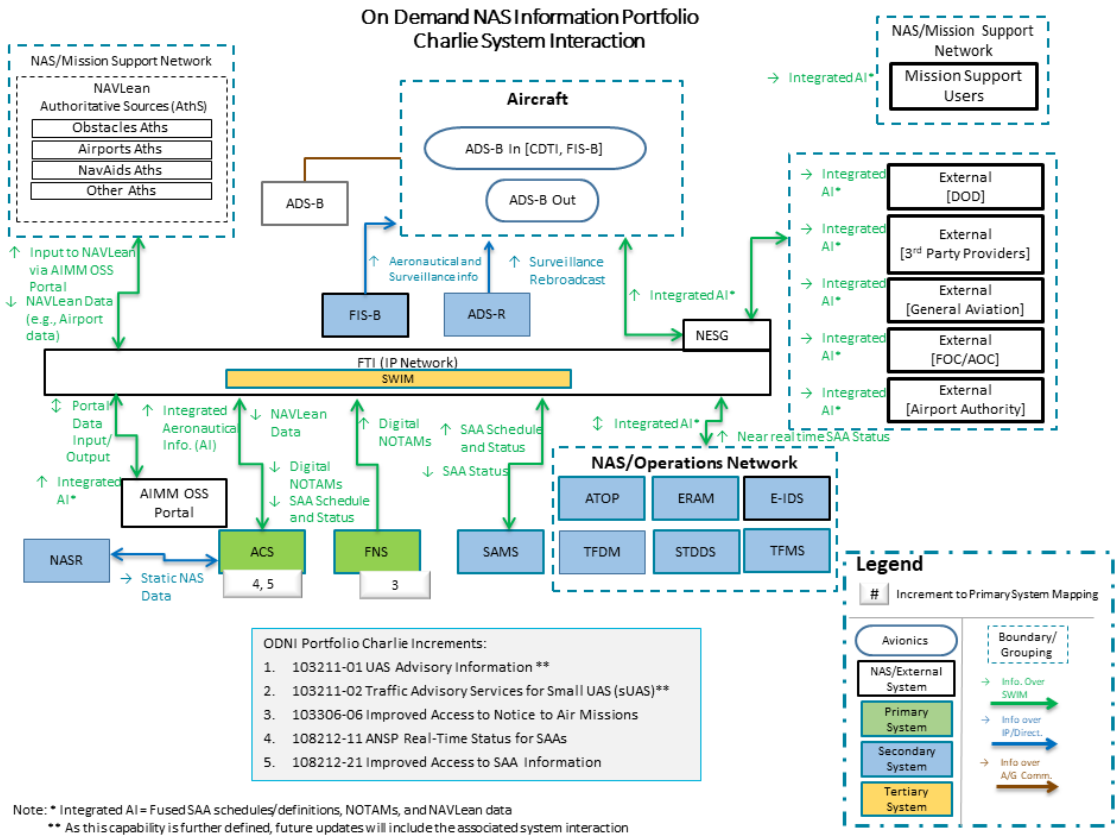
Tertiary Systems

- FMDS: Flow Management Data & Services
- ERAM: En Route Automation Modernization
- SWIM: System Wide Information Management

On-Demand NAS Information

Systems Interactions

The ODNI portfolio system interaction diagrams show NAS information exchanges among NAS automation and dissemination to NAS stakeholders. NAS information (e.g., aeronautical, flight) is consistent, current, and securely accessible across NAS automation systems and the NAS user community. The focus is on enhancing advisory services, quality of information shared with flight operators, management, and distribution of aeronautical information for use in NAS operations, and the movement of flight planning and filing information among NAS automation systems once obtained from NAS users. These interactions will benefit from enhanced information management and secure message exchange mechanisms. Information will be disseminated via System-Wide Information Management (SWIM), Traffic Information Service-Broadcast (TIS-B), and Flight Information Services-Broadcast (FIS-B).



On-Demand NAS Information

Increment	ACS	ATOP	CARF	E-IDS	EAST	ERAM	FNS	SAMS	SWIM	TFMS	TFR Bldr
C [103211-01] UAS Advisory Information											
C [103211-02] Traffic Advisory Services for Small UAS (sUAS)											
C [103306-06] Improved Access to Notice to Air Missions	S	S	S	S	S	S	P	S			S
C [108212-11] ANSP Real-Time Status for SAAs	P	S		S	S	S		S	T	S	
C [108212-21] Improved Access to SAA Information	P				S			S	T	S	

Operationally Available | Complete | In Service System | Planned System

P Primary Systems | S Secondary Systems | T Tertiary Systems | A Avionics Systems

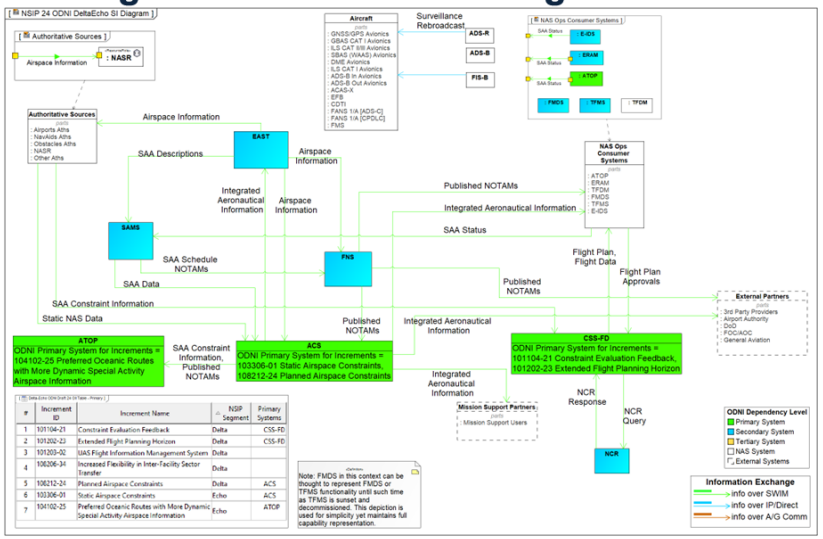
C Charlie

On-Demand NAS Information

Systems Interactions

The ODNI portfolio system interaction diagrams show NAS information exchanges among NAS automation and dissemination to NAS stakeholders. NAS information (e.g., aeronautical, flight) is consistent, current, and securely accessible across NAS automation systems and the NAS user community. The focus is on enhancing advisory services, quality of information shared with flight operators, management, and distribution of aeronautical information for use in NAS operations, and the movement of flight planning and filing information among NAS automation systems once obtained from NAS users. These interactions will benefit from enhanced information management and secure message exchange mechanisms. Information will be disseminated via System-Wide Information Management (SWIM), Traffic Information Service-Broadcast (TIS-B), and Flight Information Services-Broadcast (FIS-B).

ODNI SI Diagram – Delta & Echo Segments



MITRE

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On-Demand NAS Information

Increment	ACS	ATOP	CSS-FD	E-IDS	EAST	ERAM	FMDS	FNS	NCR	SAMS	STARS	SWIM	TFMS
D [101104-21] Constraint Evaluation Feedback			P			T	T		S			T	
D [101202-23] Extended Flight Planning Horizon		S	P			S	S		S			T	
D [101203-02] UAS Flight Information Management System													
D [108206-34] Increased Flexibility in Inter-Facility Sector Transfer						S					S		
D [108212-24] Planned Airspace Constraints	P	S		S	S	S		S		S		T	S

Operationally Available | Complete | In Service System | Planned System

P Primary Systems | S Secondary Systems | T Tertiary Systems | A Avionics Systems

D Delta

On-Demand NAS Information

Stakeholders

Specific roles and responsibilities for the implementation of all capabilities in this portfolio are outlined in the RASCI (Responsible, Accountable, Supporting, Consulted, Informed) matrix below. All stakeholder organizations involved in the delivery of Segment Alpha capabilities are listed across the top. Portfolio capabilities are listed on the left side of the table, organized by OI and increment. The On-Demand portfolio affects two key interactions with NAS users: flight planning and notification of the flight crew of any change in information critical to the conduct of the flight. The TFMS Program Office will use the information to forecast capacity constraints to support flight planning. The flight plan generation and flight plan filing primarily affect TFMS. The Collaborative Decision-Making Future Concept Team is the forum for engaging users in development of these capabilities. This has also served as the forum for FAA operational inputs from Workforce and Procedures. No relationship currently exists for coordination of the regulatory changes and FAA orders affected by the change in operations. For this reason, a separate forum may be established to address workforce and regulatory/procedural changes. These relationships are coordinated under the leadership of AJM-22. The accountable office for the increment related to Improve SUA-Based Flow Predictions is AJM-22; the responsible role goes to AJM-33. AJE-3 provides support and AFS-400 is consulted. APO provides support in developing policy for information sharing. The SBS Program Office, AJM-23, is accountable for implementing Broadcast Flight and Status Data to Pilots, and responsibility is shared among AJM-33, AFS-400, and AIR-130. The principal stakeholder body is RTCA, which serves to generate standards. APO provides support in developing policy for information sharing. For the increment Provide NAS Status via Digital NOTAMs for FOCs/AOCs, AJM-33, the AIM program office, is accountable. AIR-130 and AFS-400 have responsibility. The supporting role belongs to AJM-31. Flight Standards, AFS-400, will be responsible for the pilot use of the information. TSAA is being led by the SBS Program Office in AJM-23. AIR-130 and AFS-400 are responsible offices. ANG-D2 will be accountable for the overall implementation of these capabilities.

A	Accountable for the completion of NextGen capability. The highest level within the RASCI matrix, this office is charged by the FAA to deliver a particular capability. Typically, this designation is provided via an AcquisitionProgram Baseline. To foster a clear line of accountability, two different offices can never be Accountable for the same increment, andAccountability can never be delegated to another office.
R	Responsible for the successful completion of NextGen capability or a critical component of the capability. This office is responsible to theAccountable office. The Responsible office is responsible for initiating an actual change to the NAS such as automation changes, and is often also designated as the Accountable office for that increment. However, there are examples in the NSIP where one office is Accountable for an increment while another office (or offices) is actually making a change in the NAS on behalf of the Accountable office.
A/R	Accountable for the completion of NextGen capability as well as Responsible for its implementation.
S	Supports the Responsible office in the implementation of NextGen capability.Typically, this support is in the form of subject matter expertise, procedural guidance, or training activities.
C	Consulted for input during the implementation of NextGen capability. Provides input on a specific aspect in the development and implementation of a capability, such as safety analysis or approval. Input may or may not be used as determined by the Responsible and Accountable offices.
I	Informed about the progress of implementation.

On-Demand NAS Information

RASCI Matrix	ANG			APO	AUS	AJM								AJI			AJV		AFS		AAE	ASH	AIR	AJR	AJT
	C	C5	C7	001	001	2	31	33	3	22	23	25	0	1	2	3	2	0	001	400	001	001	001	0	0
• C [103211-01] UAS Advisory Information (2020 - 2025)		A/R																							
• C [103211-02] Traffic Advisory Services for Small UAS (sUAS) (2021 - 2025)	C		C						A/R					R	S			R	S			S		S	I
• C [103306-06] Improved Access to Notice to Air Missions (2023 - 2029)																									
• C [108212-11] ANSP Real-Time Status for SAAs (2025 - 2029)			C																	S					
• C [108212-21] Improved Access to SAA Information (2021 - 2029)			C																	S					
• D [101104-21] Constraint Evaluation Feedback (2026 - 2030)		A/R	C										S												
• D [101202-23] Extended Flight Planning Horizon (2027 - 2032)		R	A																						
• D [101203-02] UAS Flight Information Management System (2025 - 2030)		A/R																							
• D [108206-34] Increased Flexibility in Inter-Facility Sector Transfer (2026 - 2030)		A/R	C																						
• D [108212-24] Planned Airspace Constraints (2026 - 2029)			C			S	S	A/R												S					
• E [103306-01] Static Airspace Constraints (2030 - 2033)			C			S	S	A/R												S					
• E [104102-25] Preferred Oceanic Routes with More Dynamic Special Activity Airspace Information (2035 - 2039)			C	S								R		S	S	S			R		S		R		

Operationally Available | Complete | External Commitment | C Charlie | D Delta | E Echo | F Foxtrot

On-Demand NAS Information

Appendix A

Alpha Increments

Portfolio Overview

The On-Demand National Airspace System (NAS) Information portfolio will implement programs and processes to ensure that NAS and aeronautical information are consistent across applications and locations, and are available to authorized subscribers and equipped aircraft. Users will request NAS information when planning flights through services that will allow them to collaborate with Air Navigation Service Providers (ANSPs), resulting in improved flow management and efficient use of resources. In-flight Air Traffic Management (ATM) planning will be improved by making consistent data on constraints available to all NAS users. For example, it will increase the ability to adapt to changing conditions by making better use of flight paths through inactive Special-Use Airspace (SUA) and adjusting routes per event notification information. The initial Segment Alpha capabilities were delivered primarily as part of capabilities implemented by the Aeronautical Information Management (AIM) program. The capabilities focused on providing users within (i.e., ANSP) and outside of the NAS with reliable and relevant SUA schedule changes and Notice to Airmen (NOTAM) constraints. This information is disseminated via a System-Wide Information Management (SWIM)-based approach, Traffic Information Service-Broadcast (TIS-B), and Flight Information Services-Broadcast (FIS-B).

In the Bravo timeframe this portfolio focused on enhancing advisory services and quality of information shared with flight operators. When airspace users are unable to receive consistent information, status, or conditions affecting flight planning and flight operations, the result is inefficient and inflexible routing options. The manual nature of record-keeping and updating the information, as well as the manual sharing of the information, leads to the user's being presented with inconsistent, incomplete, and in some instances irrelevant information.

In the Charlie timeframe, AIMM Segment 2 fielded the Aeronautical Common Services (ACS) platform which provides SUA schedules integrated with static SUA descriptions. This capability will be expanded to include additional airspace types and their schedules as well as digital TFRs. Additionally, the Notice to Air Missions (NOTAM) system will be enhanced to increase the use of digital NOTAMs as well as transitioning to ICAO format.

In the Charlie timeframe, AIMM Segment 2 fielded the Aeronautical Common Services (ACS) platform which provides SUA schedules integrated with static SUA descriptions. This capability will be expanded to include additional airspace types and their schedules as well as digital TFRs. Additionally, the Notice to Air Missions (NOTAM) system will be enhanced to increase the use of digital NOTAMs as well as transitioning to ICAO format.

Furthermore, In the Delta timeframe extended collaborative flight planning horizon will be supported. The exchange of flight plan information will be standards based. Flight plan information will be available for both FAA internal and external users (for strategic planning and during active flight) resulting in the improvement of the overall accuracy of demand estimates made throughout the system. The portfolio will also improve flight information management. In particular, the movement of flight data supporting tactical operations in terminal and en-route domains will benefit from enhanced information management and infrastructure implementation. This allows ATM automation systems (command and control systems) across domains to have synchronized real-time flight information as safety critical flight information is exchanged.

Improving the consistency, completeness, and accuracy of the NAS advisory service information has the following anticipated benefits:

- Reduced fuel burn and operating costs related to planning around constraints that are not accurate representations of NAS status and airspace usage
- Increased flexibility of the NAS to enable users to adapt according to their own needs
- Maintenance and improved safety of the NAS.

Note: The dates and timelines included in the NAS Segment Implementation Plan (NSIP) are for planning purposes only. All capability schedules are tentative until their supporting programs are officially baselined.

On-Demand NAS Information

Portfolio Content Summary Statistics

		Increment Status				
Segment	Total by Segment	Planned	Concept Exploration & Maturation	Development	Initial Operational Availability	Completed
*Alpha (2010 - 2015)	5	0	0	0	0	5
TOTAL	5	0	0	0	0	5
Segment	**% by Segment**	**% by Segment/Increment Status**				
*Alpha (2010 - 2015)	100%	0 %	0 %	0 %	0 %	100 %
TOTAL	100%	0 %	0 %	0 %	0 %	100 %

On-Demand NAS Information

Operational Improvements/Current Operations & Increments

Benefits

OI: [108212] Improved Management of Special Activity Airspace (2015 - 2030)

A [108212-12] Improve SUA-Based Flow Predictions **(2015 - 2018)**

CO: [103305] On-Demand NAS Information (2011 - 2021)

A [103305-11] Broadcast Flight and Status Data to Pilots **(2010 - 2014)**

A [103305-13] Provide NAS Status via Digital Notices to Airmen (NOTAMs) for FOCs/AOCs **(2010 - 2015)**

A [103305-23] Airborne Access to Information Portal **(2015 - 2015)**

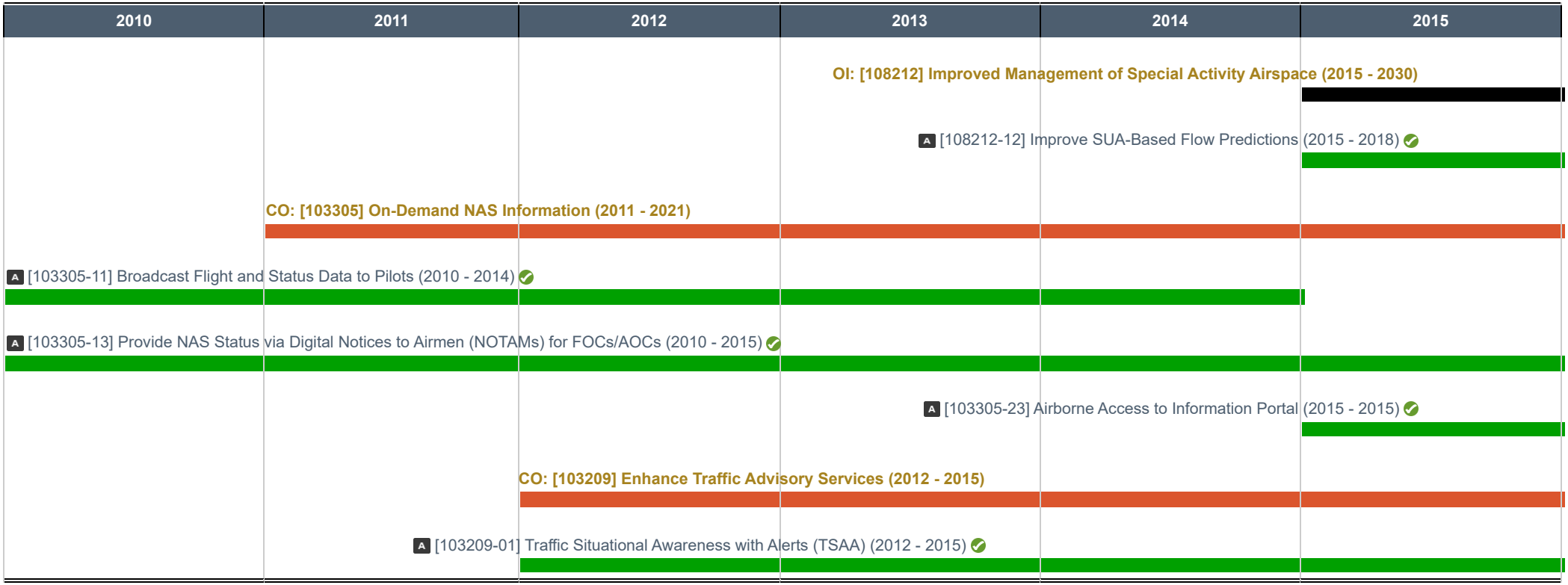
CO: [103209] Enhance Traffic Advisory Services (2012 - 2015)

A [103209-01] Traffic Situational Awareness with Alerts (TSAA) **(2012 - 2015)**

External Commitment | Primary Benefit | Secondary Benefit | Operationally Available | Complete

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety | Alpha

On-Demand NAS Information



Planned | Concept Exploration & Maturation | Development | Inital Operation Available | Complete

OI | CO | COE/CBTE | A Alpha | External Commitment

2024 Approved Baseline

FOR INTERNAL FAA USE ONLY

On-Demand NAS Information

OI: [108212] Improved Management of Special Activity Airspace (2015 - 2030)

Special Activity Airspace (SAA) assignments, schedules, coordination, and status changes are conducted automation-to-automation. Changes to status of SAA are readily available for operators and Air Navigation Service Providers (ANSP). Status changes are transmitted to the flight deck via voice or data communications. Flight trajectory planning is managed dynamically based on real-time use of airspace.

Airspace use is optimized and managed in real-time, based on actual flight profiles and real-time operational use parameters. Airspace reservations for military operations, unmanned aircraft system flights, space flight and re-entry, restricted or warning areas, and flight training areas are managed on an as-needed basis. Enhanced automation-to-automation communications and collaboration enables decision-makers to dynamically manage airspace for special use, increasing real-time access and use of unused airspace.

This will enable ANSP decision-support tools, integrated with automation-to-automation flight planning, to have increased access and improved coordination of airspace use.

Flight deck automation is enhanced to include data communications capabilities and to recognize SUA-encoded data. The SUA status is available via uplink to the cockpit in graphical (e.g., additional airspace information over FIS-B) and automation-readable form, supporting pre-flight and in-flight planning.

OI Benefit

Efficiency (P): Automated real-time management of special activity airspace use will increase access when available enabling aircraft to fly more direct routes.

Access and Equity (P): Automated status changes for special activity airspace increase access to when available.

Predictability (S): The predictability of the NAS is increased with timely and accurate SAA information being used in flow planning.

Increments

Alpha

(2010 - 2015)

1

A **[108212-12] Improve SUA-Based Flow Predictions (2015 - 2018)** (Complete)

External Commitment | Primary Benefit | Secondary Benefit | Operationally Available | Complete

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety | Alpha

On-Demand NAS Information

Increments/Enabling Activities

A [108212-12] Improve SUA-Based Flow Predictions (2015 - 2018)

Increment Overview

This increment improves the efficiency of cruise operations by increasing the ability to disseminate real-time airspace status and schedules with respect to special activity airspace. Flow management is improved by better utilizing metering and flight operator capabilities.

Under this increment the SUA activation schedule and knowledge of the airspace configurations are integrated with predicted traffic flow constraints.Route impact assessments would therefore account for forecast airspace capacity loss and route blockage, including SUAs.

Increment Status

Complete

Success Criteria

2015 : Operationally available to internal users.

Implementation Approach

TFMS receives the approved schedule for use in flow planning as well as sending to NTML.This increment is identified to have an International harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P):Aircraft operators will get automated SUA information from an authoritative source in order have better planning that will result in more efficiency and cost savings (e.g. fuel).

Predictability (S):The predictability of the NAS is increased with timely and accurate SUA information being used in flow planning.Increased predictability results in more corrective actions being taken.

System Interactions

TFMS (P):TFMS will undergo functional modifications to translate SUA activation schedules and knowledge of airspace configurations into predicted traffic flow constraints, providing route impact assessments that account for forecast airspace capacity loss and route blockage, including SUAs.

SAMS (S):SAMS is the authoritative a source of SUA schedule information for TFMS.SUA schedule information is provided to TFMS via SWIM (NEMS).

On-Demand NAS Information

Primary Systems

- TFMS: Traffic Flow Management System

Secondary Systems

- SAMS: Special Use Airspace Management System

Tertiary Systems

- SWIM: System Wide Information Management

On-Demand NAS Information

CO: [103305] On-Demand NAS Information (2011 - 2021)

National Airspace System (NAS) and aeronautical information will be available to users on demand. NAS and aeronautical information is consistent across applications and locations, and available to authorized subscribers and equipped aircraft. Proprietary and security sensitive information is not shared with unauthorized agencies/individuals.

Information is collected from both ground systems and airborne users (via ground support services), aggregated, and provided via a system-wide information environment or other means. Information and updates are obtained in near real-time and distributed in a user-friendly digital or graphic format. The data is machine-readable and supports automated data processing. Flight Service Stations will be able to provide improved information for flight planning and in-flight advisories.

CO Benefit

Flexibility (P): On-demand access to NAS information provide better data on the availability of route access and enables users to choose the available route options to best meet their business objective.

Efficiency (S): User will have access to real-time updates of NAS status information allowing them to choose a more optimal and efficient available route based on their business objective.

Predictability (S): Improved and real-time updates of constraint information enable users to make more informed decisions.

Increments

Alpha

(2010 - 2015)

3

A **[103305-11] Broadcast Flight and Status Data to Pilots (2010 - 2014)** (Complete)

A **[103305-13] Provide NAS Status via Digital Notices to Airmen (NOTAMs) for FOCs/AOCs (2010 - 2015)** (Complete)

A **[103305-23] Airborne Access to Information Portal (2015 - 2015)** (Complete)

On-Demand NAS Information

Increments/Enabling Activities

A [103305-11] Broadcast Flight and Status Data to Pilots (2010 - 2014)

Increment Overview

This increment provides nationwide service coverage to deliver TIS-B for both Universal Access Transceiver (UAT) and 1090 MHz Mode S Extended Squitter (1090 ES). The increment also provides nationwide service coverage to deliver FIS-B for UAT. Flight information services from the essential services specification are available for UAT operators.

Increment Status

Complete

Success Criteria

2011 : Operationally available at one of the following: ZAB, ZLA, ZOA, ZSE.

2013 : Operationally available at one of the following: ZDV, ZLC, ZID, ZME, ZKC, Puerto Rico, Guam, or more of ZAN.Also operationally available at all Class B, Class C terminals, and Class D terminals with existing radar.

Implementation Approach

As ADS-B is deployed nationwide by the ADS-B service provider, enable FIS-B ground infrastructure including FIS-B servers and TIS-B so that ADS-B equipped aircraft can take advantage of advisory information made available via FIS-B (supported by UAT) and traffic information available via TIS-B (supported by both UAT and 1090 ES).

Benefits

Access & Equity Capacity Flexibility Efficiency Environment Predictability Safety

Traffic and flight information delivered to the flight deck provides the benefit of an additional margin of safety by providing flight crews information quickly in a usable form.

System Interactions

TSAA operates directly aircraft-to-aircraft, via ADS-B Out transmissions, which are received by ADS-B In avionics on the aircraft equipped with TSAA. Where available, traffic information from ADS-R and TIS-B are also received and processed.

ADS-B: Airborne/ Ground CDTI Flight Deck (A)

Primary Systems

- FIS-B: Flight Information Service-Broadcast
- ADS-B: Automatic Dependent Surveillance - Broadcast

Avionics Systems

On-Demand NAS Information

Increments/Enabling Activities

A [103305-13] Provide NAS Status via Digital Notices to Airmen (NOTAMs) for FOCs/AOCs (2010 - 2015)

Increment Overview

This improvement enables the issuance of digital NOTAMs for those airspace constraints affecting a flight based on its trajectory to improve situational awareness and flight planning. The initial implementation includes distribution outside of the ANSP, including airports, Flight and Airline Operations Centers (FOCs and AOCs) and potentially the flight deck.

Increment Status

Complete

Success Criteria

2015 : Make digital NOTAMs operationally available NAS-wide. Make digital NOTAMs available to AOCs and FOCs via SWIM for user-based criteria.

Implementation Approach

Automation systems of external consumers can access Digital NOTAMs via SWIM while humans can query FNS via its portal. Distribution Service will be upgraded to allow for limited filtering and query via FNS. The FNS/NDS will make digital NOTAM information available to external users (automation systems) via SWIM/NEMS. This increment is identified to have an International harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P): Pilots are able to easily sort and filter digital NOTAMs resulting in time savings and efficiency.

Predictability (P): Providing NAS status via Digital NOTAMs (includes graphics) results in increased timeliness, accuracy, and relevancy of NOTAM information.

Safety (P): This results in improved situational awareness for AOC operators and pilots who view the information.

System Interactions

FNS (P): The Federal NOTAM System (FNS) makes digital NOTAMs available via its NOTAM Distribution Service (NDS) which is on-ramped to SWIM/NEMS.

SWIM (T): FNS/NDS distributes NOTAM information to external consumers via SWIM.

On-Demand NAS Information

Primary Systems

FNS: Federal NOTAM System

Tertiary Systems

SWIM: System Wide Information Management

Avionics Systems

ADS-B In Avionics: Automatic Dependent Surveillance - Broadcast In Avionics

On-Demand NAS Information

Increments/Enabling Activities

[A] [103305-23] Airborne Access to Information Portal (2015 - 2015)

Increment Overview

Improved flight plan and airborne route change assessments result from the creation of a standard service and subscription process for third-party data acquisition and delivery to the flight deck.

Increment Status

Complete

Success Criteria

2015 : Establish regulation and certificationfor use of FAA information via SWIM on the Flight Deck

Implementation Approach

FAA will create a set of standard services to be distributed via SWIM to the external NAS Community. These services are the same as those available to internal NAS users providing a common data picture to both internal and external users. Through the use of 3rd Party data management service providers, NAS users will be able to subscribe and consume FAA information for the purposes of planning and coordination. Operators will be able to access this information on the Flight Deck through the use of a commercial data link service provider and an electronic Flight Bag display. This increment is identified to have an International harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Capacity (P): Increased level of service to all NAS users due to increase in type of flight operators that can participate in collaborative exchanges.

Efficiency (P): Enables aircrew to fully participate in planning and re-planning of trajectories to achieve more efficient trajectories.There will also be Reduced workload for FAA ATC operational staff.

Environment (P): Reduced miles flown by decreasing en route vectoring and terminal area holding which results in reduced fuel burn which in turn results in improved environment. Cost is also reduced.

Safety (P): Improved situational awareness by aircrew and reduced workload for ATC operations allowing more focus on pressing matters resulting in improved safety.

System Interactions

On-Demand NAS Information

SWIM (P): Third party systems interface to SWIM in order to consume information which gets delivered to the cockpit.

SAMS (S): SAMS is the authoritative source for SUA information and publishes SUA information onto SWIM.

FNS (S): FNS is the authoritative source for Digital NOTAM information which gets published onto SWIM for access by third party systems which have interface with the cockpit.

ACS (S): When ACS SAA services become available in 2016, SAA information will be published onto SWIM by ACS.

Primary Systems

- SWIM: System Wide Information Management

Secondary Systems

- ACS: Aeronautical Common Service
- SAMS: Special Use Airspace Management System
- FNS: Federal NOTAM System

On-Demand NAS Information

CO: [103209] Enhance Traffic Advisory Services (2012 - 2015)

Traffic information is available to the flight deck and the UAS's control station. This includes automatic dependent surveillance (ADS) information and the rebroadcast of aircraft on secondary networks, e.g., UAT, to UAS operators.

Aircraft equipped with ADS-B avionics and UAS equipped with sense and avoid avionics broadcast their position (derived from onboard position, navigation and timing systems). Additional information broadcast may include airspeed, altitude, and vector data. Equipped aircraft and UAS receive these broadcasts and display traffic data to the flight crew and UAS operators. Ground based systems receive surveillance broadcast reports and rebroadcast them through the surveillance data network (SDN).

CO Benefit

Safety (P): Improved situational awareness and broadcast information increases user safety for aircraft and UAS.

Increments

Alpha

(2010 - 2015)

1

A **[103209-01] Traffic Situational Awareness with Alerts (TSAA) (2012 - 2015)** (Complete)

On-Demand NAS Information

Increments/Enabling Activities

A [103209-01] Traffic Situational Awareness with Alerts (TSAA) (2012 - 2015)

Increment Overview

This increment is aimed at general aviation aircraft without an existing Traffic Advisory capability (via either TAS or TCAS I) to improve situational awareness of other aircraft. ADS-B reports from airborne aircraft are processed by onboard avionics to provide pilots with an indication of a potential traffic conflict. TSAA is intended to reduce the number of mid-air collisions and near collisions involving general aviation aircraft. TSAA provides voice annunciations to flight crews to draw attention to alerted traffic and adds visual cues to the underlying basic traffic situation awareness application in installations where a traffic display is available. The TSAA application uses ADS-B information, and where available Automatic Dependent Surveillance-Rebroadcast (ADS-R), to provide the flight crew with indications of nearby aircraft in support of their see-and-avoid responsibility. This capability may be extendable to rotorcraft operations.

Increment Status

Complete

Success Criteria

2015 : Operationally available for suitably equipped operators

Implementation Approach

TSAA capability development and integration completion will be followed by completion of flight tests, standards development for Minimum Operational Performance Standard (MOPS), publication of Technical Standard Order (TSO), and Advisory Circular (AC) for installation guidance. TSAA will then be operationally available for suitably equipped operators. This increment is identified to have an International Harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Safety (P):The intended function of TSAA is to improve safety by providing timely alerts of qualified airborne traffic in the vicinity in order to increase flight crew traffic situational awareness. TSAA is intended to reduce the risk of a collision or near-collision by aiding in visual acquisition as part of the flight crew's existing see-and-avoid responsibility. This application is intended for use by the GA community and by aircraft not equipped with Traffic Alert and Collision Avoidance System (TCAS) II.

System Interactions

ADS-B (P): TSAA operates directly aircraft-to-aircraft, via ADS-B Out transmissions, which are received by ADS-B In avionics on the aircraft equipped with TSAA. Where available, traffic information from ADS-R and TIS-B are also received and processed.

ADS-R (S): ADS-R is a one-way outgoing broadcast.

On-Demand NAS Information

Primary Systems

ADS-B: Automatic Dependent Surveillance - Broadcast

Secondary Systems

ADS-R: Automatic Dependent Surveillance Rebroadcast

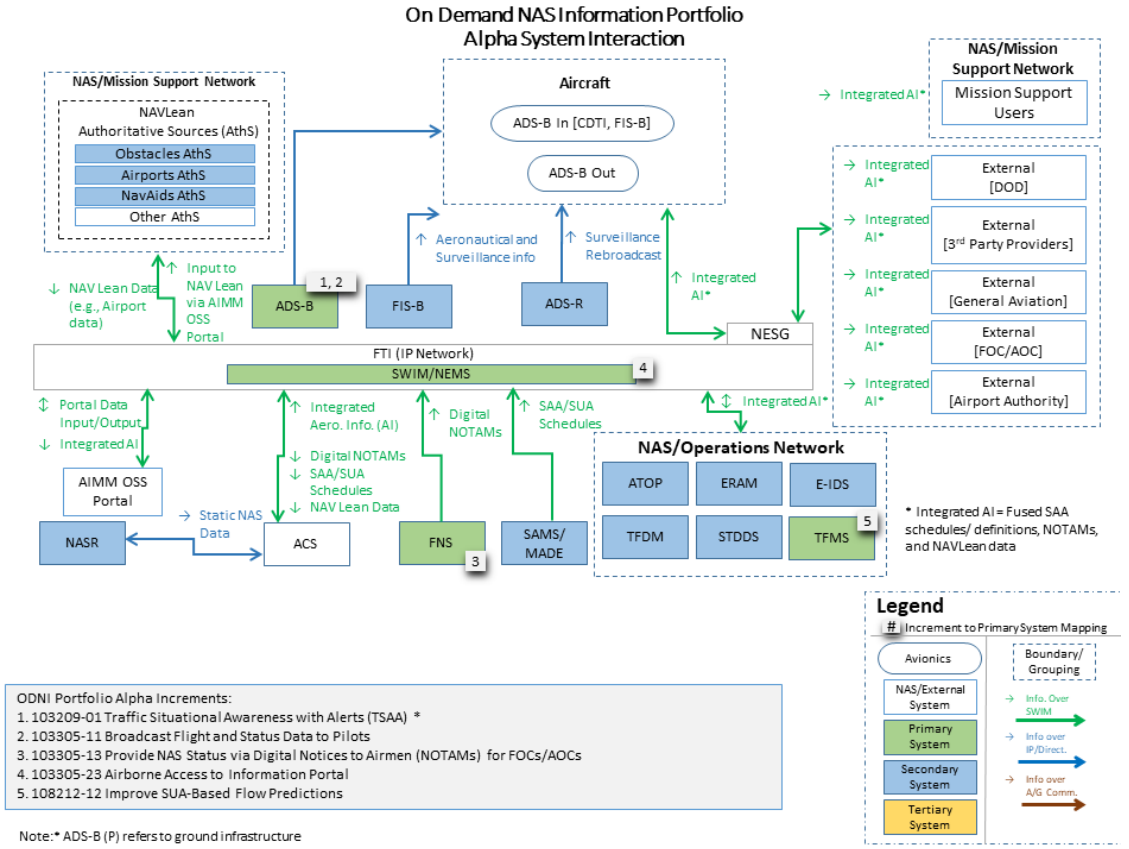
Avionics Systems

ADS-B In Avionics: Automatic Dependent Surveillance - Broadcast In Avionics

On-Demand NAS Information

Systems Interactions

The ODNI portfolio system interaction diagrams show NAS information exchanges among NAS automation and dissemination to NAS stakeholders. NAS information (e.g., aeronautical, flight) is consistent, current, and securely accessible across NAS automation systems and the NAS user community. The focus is on enhancing advisory services, quality of information shared with flight operators, management, and distribution of aeronautical information for use in NAS operations, and the movement of flight planning and filing information among NAS automation systems once obtained from NAS users. These interactions will benefit from enhanced information management and secure message exchange mechanisms. Information will be disseminated via System-Wide Information Management (SWIM), Traffic Information Service-Broadcast (TIS-B), and Flight Information Services-Broadcast (FIS-B).



On-Demand NAS Information

Increment	ACS	ADS-B	ADS-B In Avionics	ADS-B Out Avionics	ADS-R	FIS-B	FNS	SAMS	SWIM	TFMS
A [103209-01] Traffic Situational Awareness with Alerts (TSAA) ✓		P	A		S					
A [103305-11] Broadcast Flight and Status Data to Pilots ✓		P		A		P				
A [103305-13] Provide NAS Status via Digital Notices to Airmen (NOTAMs) for FOCs/AOCs ✓			A				P		T	
A [103305-23] Airborne Access to Information Portal ✓	S						S	S	P	
A [108212-12] Improve SUA-Based Flow Predictions ✓								S	T	P

Operationally Available ✓ Complete In Service System Planned System

P Primary Systems S Secondary Systems T Tertiary Systems A Avionics Systems

A Alpha

On-Demand NAS Information

Stakeholders

Specific roles and responsibilities for the implementation of all capabilities in this portfolio are outlined in the RASCI (Responsible, Accountable, Supporting, Consulted, Informed) matrix below. All stakeholder organizations involved in the delivery of Segment Alpha capabilities are listed across the top. Portfolio capabilities are listed on the left side of the table, organized by OI and increment. The On-Demand portfolio affects two key interactions with NAS users: flight planning and notification of the flight crew of any change in information critical to the conduct of the flight. The TFMS Program Office will use the information to forecast capacity constraints to support flight planning. The flight plan generation and flight plan filing primarily affect TFMS. The Collaborative Decision-Making Future Concept Team is the forum for engaging users in development of these capabilities. This has also served as the forum for FAA operational inputs from Workforce and Procedures. No relationship currently exists for coordination of the regulatory changes and FAA orders affected by the change in operations. For this reason, a separate forum may be established to address workforce and regulatory/procedural changes. These relationships are coordinated under the leadership of AJM-22. The accountable office for the increment related to Improve SUA-Based Flow Predictions is AJM-22; the responsible role goes to AJM-33. AJE-3 provides support and AFS-400 is consulted. APO provides support in developing policy for information sharing. The SBS Program Office, AJM-23, is accountable for implementing Broadcast Flight and Status Data to Pilots, and responsibility is shared among AJM-33, AFS-400, and AIR-130. The principal stakeholder body is RTCA, which serves to generate standards. APO provides support in developing policy for information sharing. For the increment Provide NAS Status via Digital NOTAMs for FOCs/AOCs, AJM-33, the AIM program office, is accountable. AIR-130 and AFS-400 have responsibility. The supporting role belongs to AJM-31. Flight Standards, AFS-400, will be responsible for the pilot use of the information. TSAA is being led by the SBS Program Office in AJM-23. AIR-130 and AFS-400 are responsible offices. ANG-D2 will be accountable for the overall implementation of these capabilities.

A	Accountable for the completion of NextGen capability. The highest level within the RASCI matrix, this office is charged by the FAA to deliver a particular capability. Typically, this designation is provided via an AcquisitionProgram Baseline. To foster a clear line of accountability, two different offices can never be Accountable for the same increment, andAccountability can never be delegated to another office.
R	Responsible for the successful completion of NextGen capability or a critical component of the capability. This office is responsible to theAccountable office. The Responsible office is responsible for initiating an actual change to the NAS such as automation changes, and is often also designated as the Accountable office for that increment. However, there are examples in the NSIP where one office is Accountable for an increment while another office (or offices) is actually making a change in the NAS on behalf of the Accountable office.
A/R	Accountable for the completion of NextGen capability as well as Responsible for its implementation.
S	Supports the Responsible office in the implementation of NextGen capability.Typically, this support is in the form of subject matter expertise, procedural guidance, or training activities.
C	Consulted for input during the implementation of NextGen capability. Provides input on a specific aspect in the development and implementation of a capability, such as safety analysis or approval. Input may or may not be used as determined by the Responsible and Accountable offices.
I	Informed about the progress of implementation.

On-Demand NAS Information

RASCI Matrix	ANG			APO	AUS	AJM								AJI			AJV		AFS		AAE	ASH	AIR	AJR	AJT
	C	C5	C7	001	001	2	31	33	3	22	23	25	0	1	2	3	2	0	001	400	001	001	001	0	0
• A [103209-01] Traffic Situational Awareness with Alerts (TSAA) (2012 - 2015)			C								A/R									R			R		
• A [103305-11] Broadcast Flight and Status Data to Pilots (2010 - 2014)			C	S				R			A			S	S	S			R				R		
• A [103305-13] Provide NAS Status via Digital Notices to Airmen (NOTAMs) for FOCs/AOCs (2010 - 2015)			C				S	A											R						
• A [103305-23] Airborne Access to Information Portal (2015 - 2015)			C																						
• A [108212-12] Improve SUA-Based Flow Predictions (2015 - 2018)			C	S				R		A										C					S

On-Demand NAS Information

Appendix B

Bravo Increments

Portfolio Overview

The On-Demand National Airspace System (NAS) Information portfolio will implement programs and processes to ensure that NAS and aeronautical information are consistent across applications and locations, and are available to authorized subscribers and equipped aircraft. Users will request NAS information when planning flights through services that will allow them to collaborate with Air Navigation Service Providers (ANSPs), resulting in improved flow management and efficient use of resources. In-flight Air Traffic Management (ATM) planning will be improved by making consistent data on constraints available to all NAS users. For example, it will increase the ability to adapt to changing conditions by making better use of flight paths through inactive Special-Use Airspace (SUA) and adjusting routes per event notification information. The initial Segment Alpha capabilities were delivered primarily as part of capabilities implemented by the Aeronautical Information Management (AIM) program. The capabilities focused on providing users within (i.e., ANSP) and outside of the NAS with reliable and relevant SUA schedule changes and Notice to Airmen (NOTAM) constraints. This information is disseminated via a System-Wide Information Management (SWIM)-based approach, Traffic Information Service-Broadcast (TIS-B), and Flight Information Services-Broadcast (FIS-B).

In the Bravo timeframe this portfolio focused on enhancing advisory services and quality of information shared with flight operators. When airspace users are unable to receive consistent information, status, or conditions affecting flight planning and flight operations, the result is inefficient and inflexible routing options. The manual nature of record-keeping and updating the information, as well as the manual sharing of the information, leads to the user's being presented with inconsistent, incomplete, and in some instances irrelevant information.

In the Charlie timeframe, AIMM Segment 2 fielded the Aeronautical Common Services (ACS) platform which provides SUA schedules integrated with static SUA descriptions. This capability will be expanded to include additional airspace types and their schedules as well as digital TFRs. Additionally, the Notice to Air Missions (NOTAM) system will be enhanced to increase the use of digital NOTAMs as well as transitioning to ICAO format.

In the Charlie timeframe, AIMM Segment 2 fielded the Aeronautical Common Services (ACS) platform which provides SUA schedules integrated with static SUA descriptions. This capability will be expanded to include additional airspace types and their schedules as well as digital TFRs. Additionally, the Notice to Air Missions (NOTAM) system will be enhanced to increase the use of digital NOTAMs as well as transitioning to ICAO format.

Furthermore, In the Delta timeframe extended collaborative flight planning horizon will be supported. The exchange of flight plan information will be standards based. Flight plan information will be available for both FAA internal and external users (for strategic planning and during active flight) resulting in the improvement of the overall accuracy of demand estimates made throughout the system. The portfolio will also improve flight information management. In particular, the movement of flight data supporting tactical operations in terminal and en-route domains will benefit from enhanced information management and infrastructure implementation. This allows ATM automation systems (command and control systems) across domains to have synchronized real-time flight information as safety critical flight information is exchanged.

Improving the consistency, completeness, and accuracy of the NAS advisory service information has the following anticipated benefits:

- Reduced fuel burn and operating costs related to planning around constraints that are not accurate representations of NAS status and airspace usage
- Increased flexibility of the NAS to enable users to adapt according to their own needs
- Maintenance and improved safety of the NAS.

Note: The dates and timelines included in the NAS Segment Implementation Plan (NSIP) are for planning purposes only. All capability schedules are tentative until their supporting programs are officially baselined.

On-Demand NAS Information

Portfolio Content Summary Statistics

		Increment Status				
Segment	Total by Segment	Planned	Concept Exploration & Maturation	Development	Initial Operational Availability	Completed
*Bravo (2016 - 2020)	2	0	0	0	0	2
TOTAL	2	0	0	0	0	2
Segment	**% by Segment**	**% by Segment/Increment Status**				
*Bravo (2016 - 2020)	100%	0 %	0 %	0 %	0 %	100 %
TOTAL	100%	0 %	0 %	0 %	0 %	100 %

On-Demand NAS Information

Operational Improvements/Current Operations & Increments

Benefits

CO: [103305] On-Demand NAS Information (2011 - 2021)

B [103305-12] Improved Access to NAS Aeronautical, Status, and Constraint Information for Authorized NAS Users and Subscribers **(2018 - 2021)**

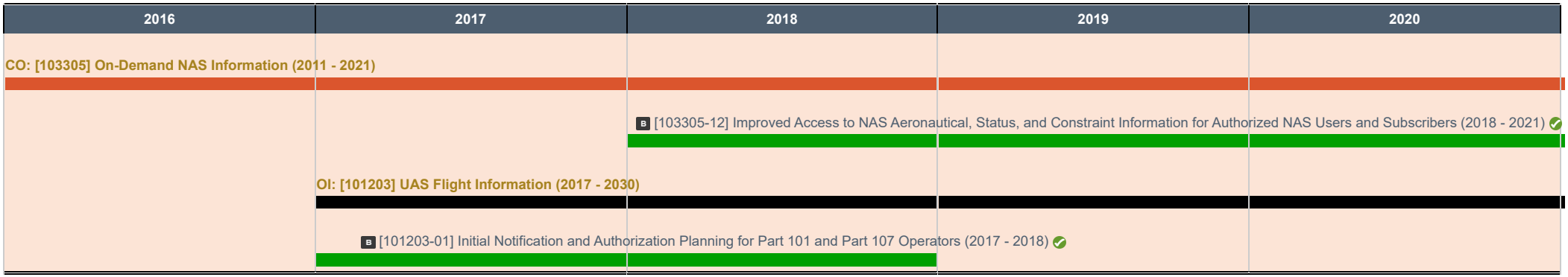
OI: [101203] UAS Flight Information (2017 - 2030)

B [101203-01] Initial Notification and Authorization Planning for Part 101 and Part 107 Operators **(2017 - 2018)**

External Commitment | Primary Benefit | Secondary Benefit | Operationally Available | Complete

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety | B Bravo

On-Demand NAS Information



Planned | Concept Exploration & Maturation | Development | Inital Operation Available | Complete

OI | CO | COE/CBTE | B Bravo | External Commitment

On-Demand NAS Information

CO: [103305] On-Demand NAS Information (2011 - 2021)

National Airspace System (NAS) and aeronautical information will be available to users on demand. NAS and aeronautical information is consistent across applications and locations, and available to authorized subscribers and equipped aircraft. Proprietary and security sensitive information is not shared with unauthorized agencies/individuals.

Information is collected from both ground systems and airborne users (via ground support services), aggregated, and provided via a system-wide information environment or other means. Information and updates are obtained in near real-time and distributed in a user-friendly digital or graphic format. The data is machine-readable and supports automated data processing. Flight Service Stations will be able to provide improved information for flight planning and in-flight advisories.

CO Benefit

Flexibility (P): On-demand access to NAS information provide better data on the availability of route access and enables users to choose the available route options to best meet their business objective.

Efficiency (S): User will have access to real-time updates of NAS status information allowing them to choose a more optimal and efficient available route based on their business objective.

Predictability (S): Improved and real-time updates of constraint information enable users to make more informed decisions.

Increments

Bravo

(2016 - 2020)

1

B **[103305-12] Improved Access to NAS Aeronautical, Status, and Constraint Information for Authorized NAS Users and Subscribers (2018 - 2021)** (Complete)

On-Demand NAS Information

Increments/Enabling Activities

B [103305-12] Improved Access to NAS Aeronautical, Status, and Constraint Information for Authorized NAS Users and Subscribers (2018 - 2021)

Increment Overview

An integrated picture of cross-domain NAS information is available to users such as air navigation service providers (ANSPs), flight operations centers (FOCs), airport operations centers (AOCs), flight operators, and FAA systems. Geospatial and temporal correlation of national airspace system (NAS) information from a singular source enables improved common situational awareness and operational decision making by reducing or eliminating the need to access multiple NAS systems and to manually interpret the combined impacts of disparate NAS information. Users can access NAS status and constraint information such as static aeronautical information (Centers, Sectors, etc.), NOTAMs, SUAs, and Advisories for more timely and more accurate decision making needs in situations such as identifying predicted constraints along a 4-D flight trajectory, or assessing the combined impacts of weather and SUAs in a geographical region.

Increment Status

Complete

Success Criteria

- 2016 : Providing access to SAA/(less TFR) information for distribution from ACS
- 2017 : Incorporate existing SWIM NOTAM Service into ACS distribution
- 2021 : Provide static airport reference and configuration information utilizing the AIXM standard to provide improved situational awareness to AOCs/FOCs via SWIM and achieve full operational capability for ACS

Implementation Approach

OAS, NASR, and FNS provide static airport and NOTAM information to ACS which in turn publishes AIXM based static airport reference and configuration information via SWIM. ACS also publishes SUA information via SWIM. AIMM Phase 2 will make tailored digital NOTAMs available to NAS automation systems. This increment is identified to have an International harmonization dependency.

Benefits

Access & Equity | Capacity | Flexibility | Efficiency | Environment | Predictability | Safety

Efficiency (P): This increment allows for improved efficiency by ensuring that NAS and aeronautical information is consistent, allowing users to subscribe to and receive current information from a single source. Use of AIXM should reduce the cost of an AOC developing interfaces to the information systems of the FAA and other ANSPs. This will result in better management of aeronautical information and a path to turn off legacy standalone systems.

Safety (S): Access to NAS and aeronautical information that is consistent and provided from a single source results in enhanced safety due to the fact that the information is reliable and there are no duplicate information sources that could create confusion and

On-Demand NAS Information

ACS (P): The Aeronautical Common Services (ACS) will be developed in the Bravo timeframe to provide integrated aeronautical information to include improved advisory information for FOCs/AOCs.

E-IDS (S): To be defined.

FNS (S): FNS is the authoritative source for digital NOTAMS in the NAS which will provide NOTAM information to ACS.

NASR (S): NASR will act as the authoritative source for airport and NAVAID information and provide static airport reference and configuration information to ACS.

SAMS(S): SAMS is an important secondary system just like FNS which will be interfacing with the primary system for providing authoritative information.
SAMS is an authoritative source of SAA schedule information for ACS.

STDDS (S): STDDS converts raw surface data collected form airport towers and TRACON facilities into easily accessible information.

TFDM (S): TFDM is a potential consumer of integrated aeronautical information, to include improved advisory information. TFDM may require interface modifications.

SWIM (T): ACS information is distributed using SWIM. ACS will be on-ramped to SWIM/NEMS.

Primary Systems

- ACS: Aeronautical Common Service

Secondary Systems

- SAMS: Special Use Airspace Management System
- STDDS: SWIM Terminal Data Distribution System
- TFDM: Terminal Flight Data Manager
- FNS: Federal NOTAM System
- NASR: National Airspace System Resources

Tertiary Systems

- SWIM: System Wide Information Management

On-Demand NAS Information

OI: [101203] UAS Flight Information (2017 - 2030)

Small Unmanned Aircraft Systems (sUAS) have the ability to plan flights, determine flight path, address restrictions in that path, plan for times and days of flights, and share operational intent with other airspace users. UAS operators provide their intended flight information in the form of an airspace authorization request when their intended flight path takes them into controlled airspace and receive automated feedback regarding whether a flight is approved or denied. The FAA has access to UAS flight information, when warranted, in order to generate advisories regarding where UAS are operating for use by ATC.

OI Benefit

Safety (P): ensure that small UAS operations do not pose a safety risk to the NAS.

Flexibility (S): UAS operators have the flexibility to plan flights with an understanding of the NAS constraints.

Increments

Bravo

(2016 - 2020)

1

B [101203-01] Initial Notification and Authorization Planning for Part 101 and Part 107 Operators (2017 - 2018) (Complete)

On-Demand NAS Information

Increments/Enabling Activities

B [101203-01] Initial Notification and Authorization Planning for Part 101 and Part 107 Operators (2017 - 2018)

Increment Overview

Part 101 hobbyist operators who must notify ATC prior to operating near airports and Part 107 non-hobbyist operators who must obtain ATC authorization prior to operating in controlled airspace have the ability to plan flights, address restrictions in that path, plan for times and days of flights and receive automated feedback regarding whether a flight is approved or denied when needed. This increment also enables ATC to review planned flight areas and to approve or deny those flights for which authorization is needed.

Increment Status

Complete

Success Criteria

- 2017 : Portal available for Part 107 Operators to enter information into the exchange
- 2018 : LAANC operational at 292 facilities; UAS Facility Maps are available to the public at over 500 controlled airspace sites.

Implementation Approach

Develop Low Altitude Authorization and Notification Capability (LAANC) application hosted on FAA cloud services. This increment is identified to have an International harmonization dependency.

Benefits

Access & Equity Capacity Flexibility Efficiency Environment Predictability Safety

Flexibility (S): Provides flexibility in methods to access airspace for sUAS VLOS operations.

Safety (P): Ensure that small UAS operations do not pose a safety risk to manned aircraft operations.

System Interactions

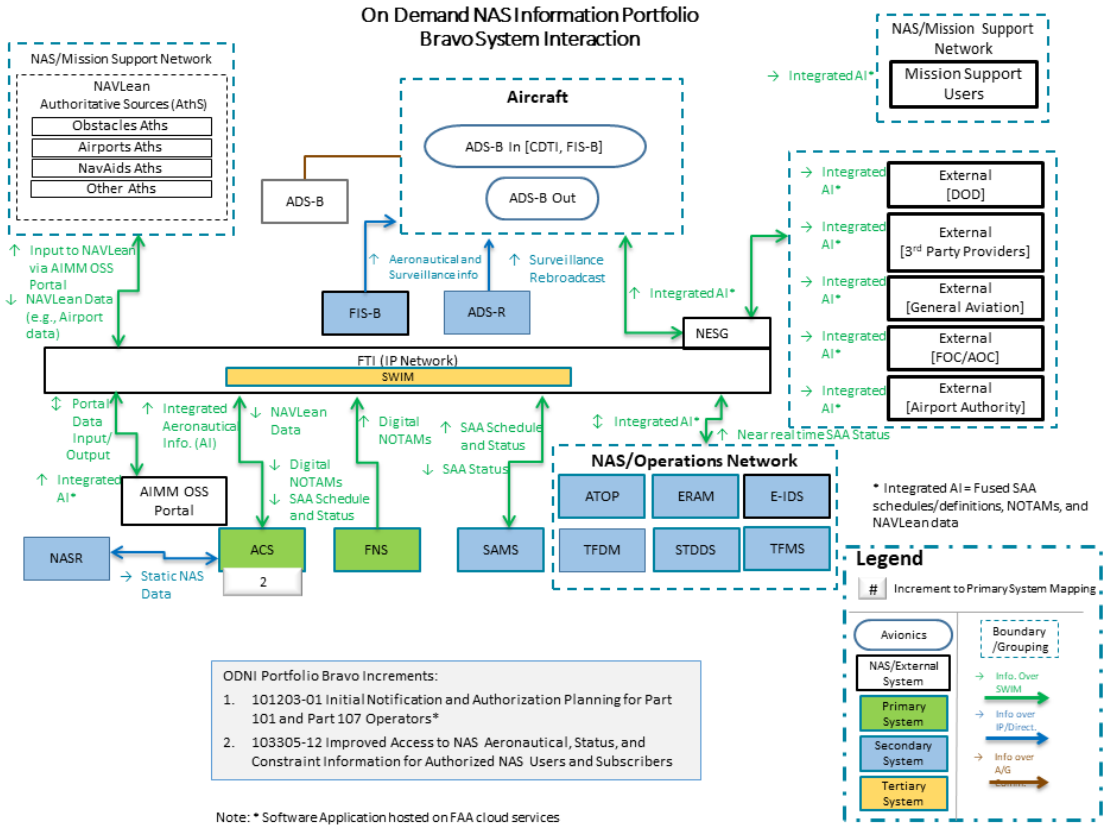
Software application hosted on FAA Cloud Services.

To be determined

On-Demand NAS Information

Systems Interactions

The ODNI portfolio system interaction diagrams show NAS information exchanges among NAS automation and dissemination to NAS stakeholders. NAS information (e.g., aeronautical, flight) is consistent, current, and securely accessible across NAS automation systems and the NAS user community. The focus is on enhancing advisory services, quality of information shared with flight operators, management, and distribution of aeronautical information for use in NAS operations, and the movement of flight planning and filing information among NAS automation systems once obtained from NAS users. These interactions will benefit from enhanced information management and secure message exchange mechanisms. Information will be disseminated via System-Wide Information Management (SWIM), Traffic Information Service-Broadcast (TIS-B), and Flight Information Services-Broadcast (FIS-B).



On-Demand NAS Information

Increment	ACS	FNS	NASR	SAMS	STDDS	SWIM	TFDM
B [101203-01] Initial Notification and Authorization Planning for Part 101 and Part 107 Operators ✔							
B [103305-12] Improved Access to NAS Aeronautical, Status, and Constraint Information for Authorized NAS Users and Subscribers ✔	P	S	S	S	S	T	S

Operationally Available | Complete | In Service System | Planned System

P Primary Systems | S Secondary Systems | T Tertiary Systems | A Avionics Systems

B Bravo

On-Demand NAS Information

Stakeholders

Specific roles and responsibilities for the implementation of all capabilities in this portfolio are outlined in the RASCI (Responsible, Accountable, Supporting, Consulted, Informed) matrix below. All stakeholder organizations involved in the delivery of Segment Alpha capabilities are listed across the top. Portfolio capabilities are listed on the left side of the table, organized by OI and increment. The On-Demand portfolio affects two key interactions with NAS users: flight planning and notification of the flight crew of any change in information critical to the conduct of the flight. The TFMS Program Office will use the information to forecast capacity constraints to support flight planning. The flight plan generation and flight plan filing primarily affect TFMS. The Collaborative Decision-Making Future Concept Team is the forum for engaging users in development of these capabilities. This has also served as the forum for FAA operational inputs from Workforce and Procedures. No relationship currently exists for coordination of the regulatory changes and FAA orders affected by the change in operations. For this reason, a separate forum may be established to address workforce and regulatory/procedural changes. These relationships are coordinated under the leadership of AJM-22. The accountable office for the increment related to Improve SUA-Based Flow Predictions is AJM-22; the responsible role goes to AJM-33. AJE-3 provides support and AFS-400 is consulted. APO provides support in developing policy for information sharing. The SBS Program Office, AJM-23, is accountable for implementing Broadcast Flight and Status Data to Pilots, and responsibility is shared among AJM-33, AFS-400, and AIR-130. The principal stakeholder body is RTCA, which serves to generate standards. APO provides support in developing policy for information sharing. For the increment Provide NAS Status via Digital NOTAMs for FOCs/AOCs, AJM-33, the AIM program office, is accountable. AIR-130 and AFS-400 have responsibility. The supporting role belongs to AJM-31. Flight Standards, AFS-400, will be responsible for the pilot use of the information. TSAA is being led by the SBS Program Office in AJM-23. AIR-130 and AFS-400 are responsible offices. ANG-D2 will be accountable for the overall implementation of these capabilities.

A	Accountable for the completion of NextGen capability. The highest level within the RASCI matrix, this office is charged by the FAA to deliver a particular capability. Typically, this designation is provided via an AcquisitionProgram Baseline. To foster a clear line of accountability, two different offices can never be Accountable for the same increment, andAccountability can never be delegated to another office.
R	Responsible for the successful completion of NextGen capability or a critical component of the capability. This office is responsible to theAccountable office. The Responsible office is responsible for initiating an actual change to the NAS such as automation changes, and is often also designated as the Accountable office for that increment. However, there are examples in the NSIP where one office is Accountable for an increment while another office (or offices) is actually making a change in the NAS on behalf of the Accountable office.
A/R	Accountable for the completion of NextGen capability as well as Responsible for its implementation.
S	Supports the Responsible office in the implementation of NextGen capability.Typically, this support is in the form of subject matter expertise, procedural guidance, or training activities.
C	Consulted for input during the implementation of NextGen capability. Provides input on a specific aspect in the development and implementation of a capability, such as safety analysis or approval. Input may or may not be used as determined by the Responsible and Accountable offices.
I	Informed about the progress of implementation.

On-Demand NAS Information

RASCI Matrix	ANG			APO	AUS	AJM								AJI			AJV		AFS		AAE	ASH	AIR	AJR	AJT
	C	C5	C7	001	001	2	31	33	3	22	23	25	0	1	2	3	2	0	001	400	001	001	001	0	0
• B [101203-01] Initial Notification and Authorization Planning for Part 101 and Part 107 Operators (2017 - 2018)	C		C		I			A/R							S										S
• B [103305-12] Improved Access to NAS Aeronautical, Status, and Constraint Information for Authorized NAS Users and Subscribers (2018 - 2021)			C	S				A/R									S			C					S

Operationally Available Complete External Commitment B Bravo