

NAS Enterprise Architecture

Infrastructure Roadmaps Version 6.0

Aircraft—Air-Ground—Automation—Airport—Weather—
Communication—Navigation—Surveillance—Airspace &
Procedures—Enterprise Services—Facilities—Human
Systems Integration—Information Systems Security—Safety

Approved

January 15, 2012



Federal Aviation
Administration

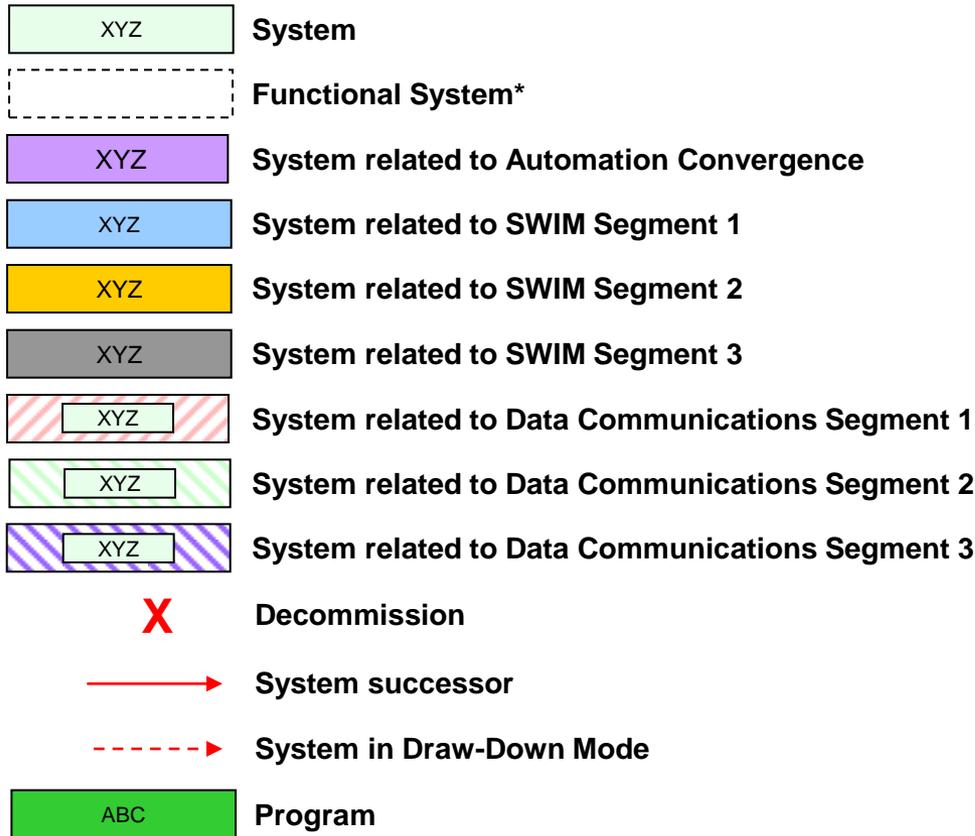


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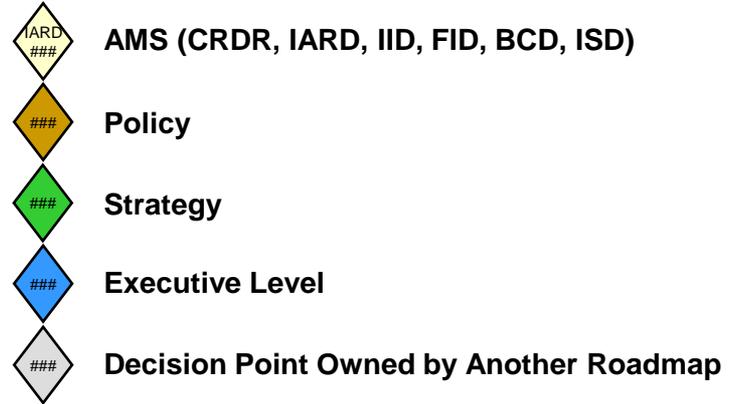
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Infrastructure Roadmap Legend

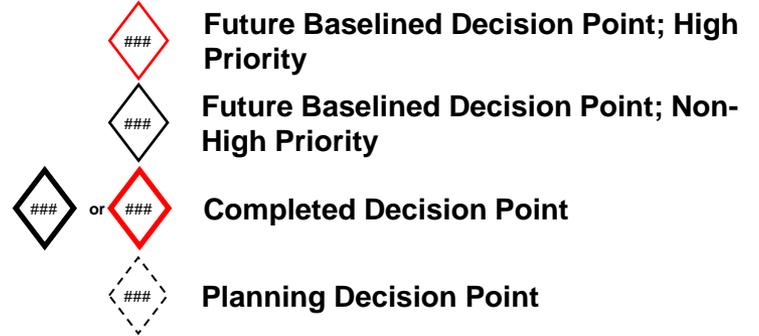
2011 | 2012 | 2013 Timeline



Decision Point Fill Colors



Decision Point Borders**



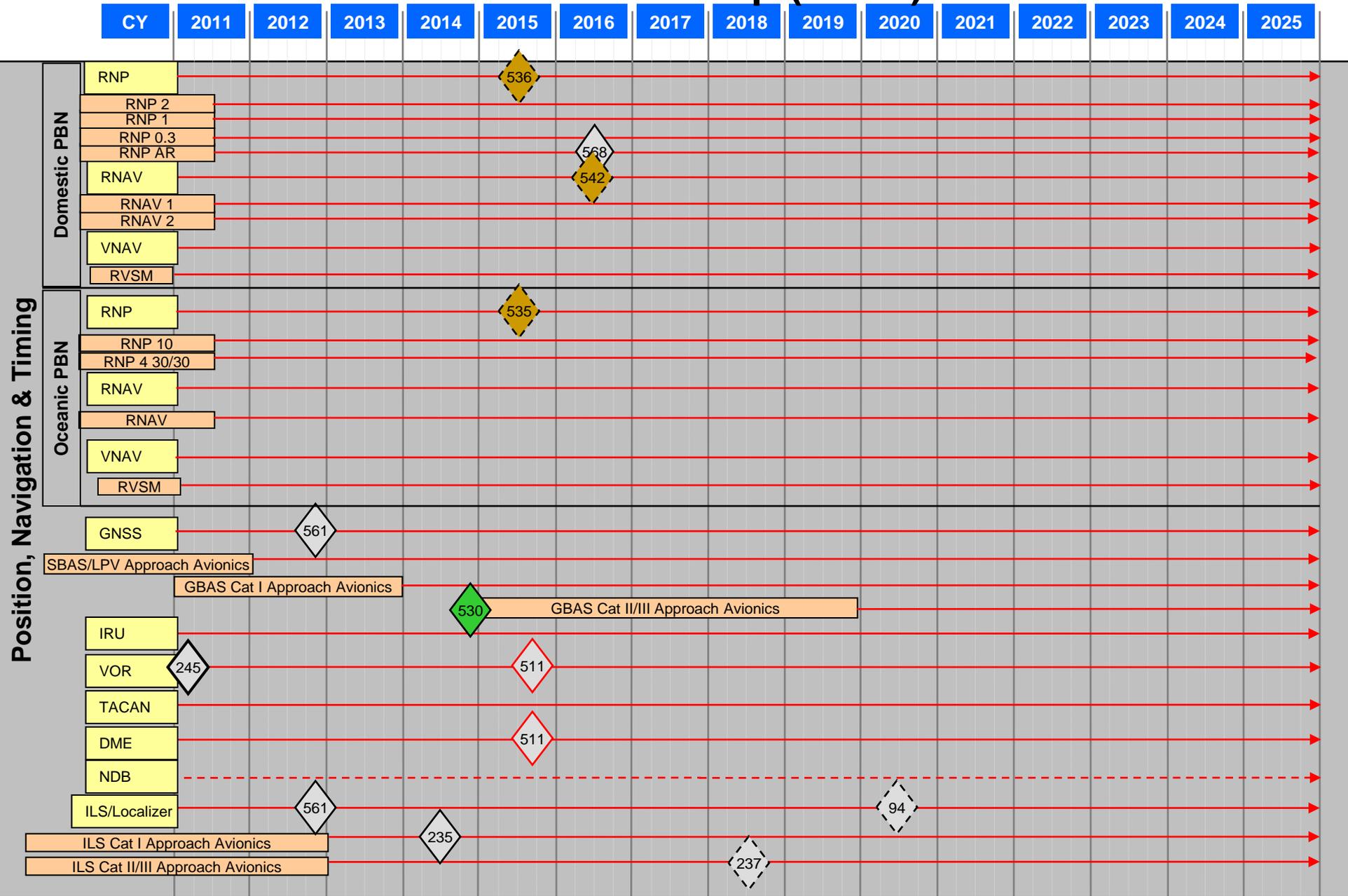
* Applies to any System fill color type

** Applies to any Decision Point fill color type

Aircraft Roadmaps

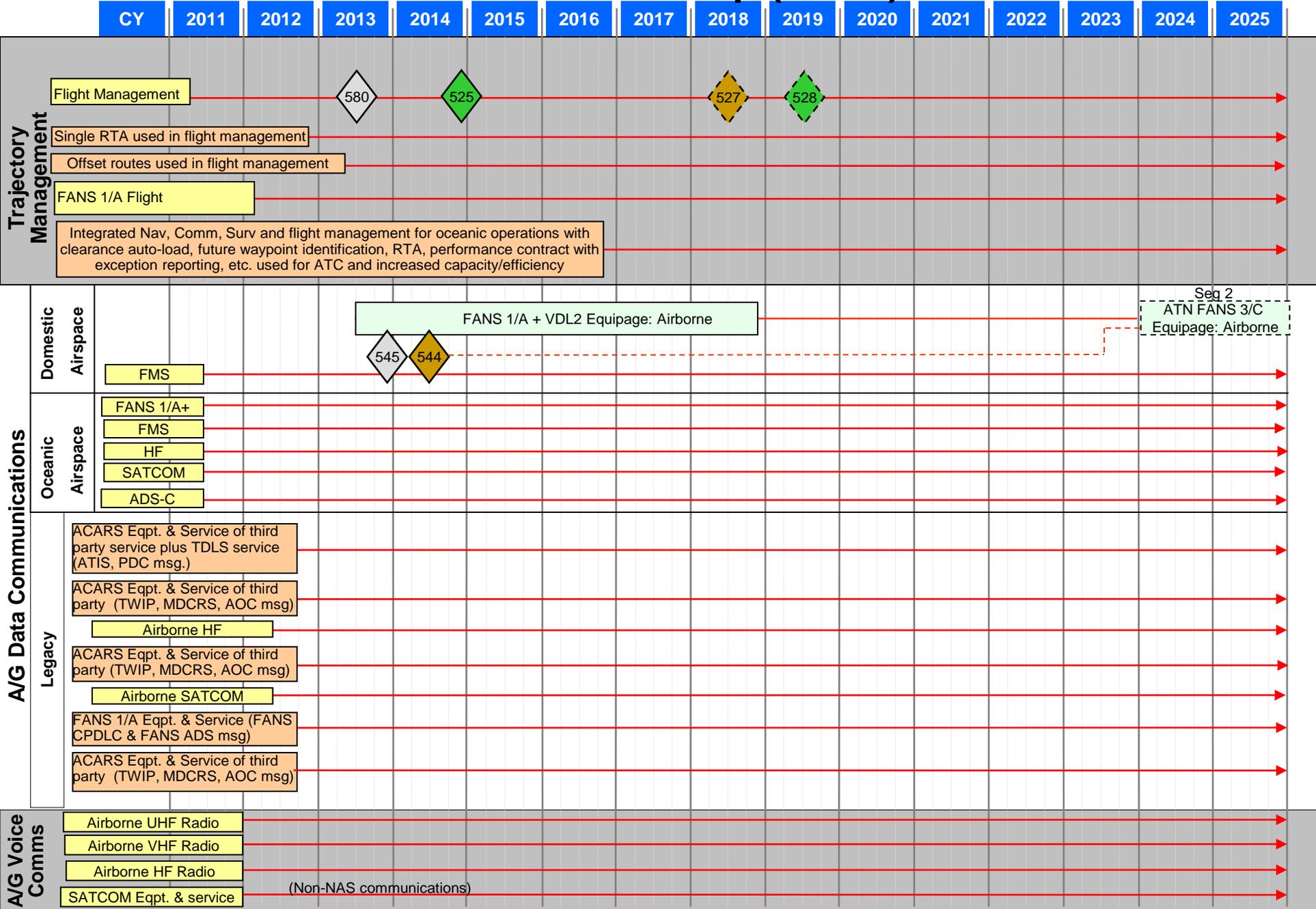
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Aircraft Roadmap (1 of 8)

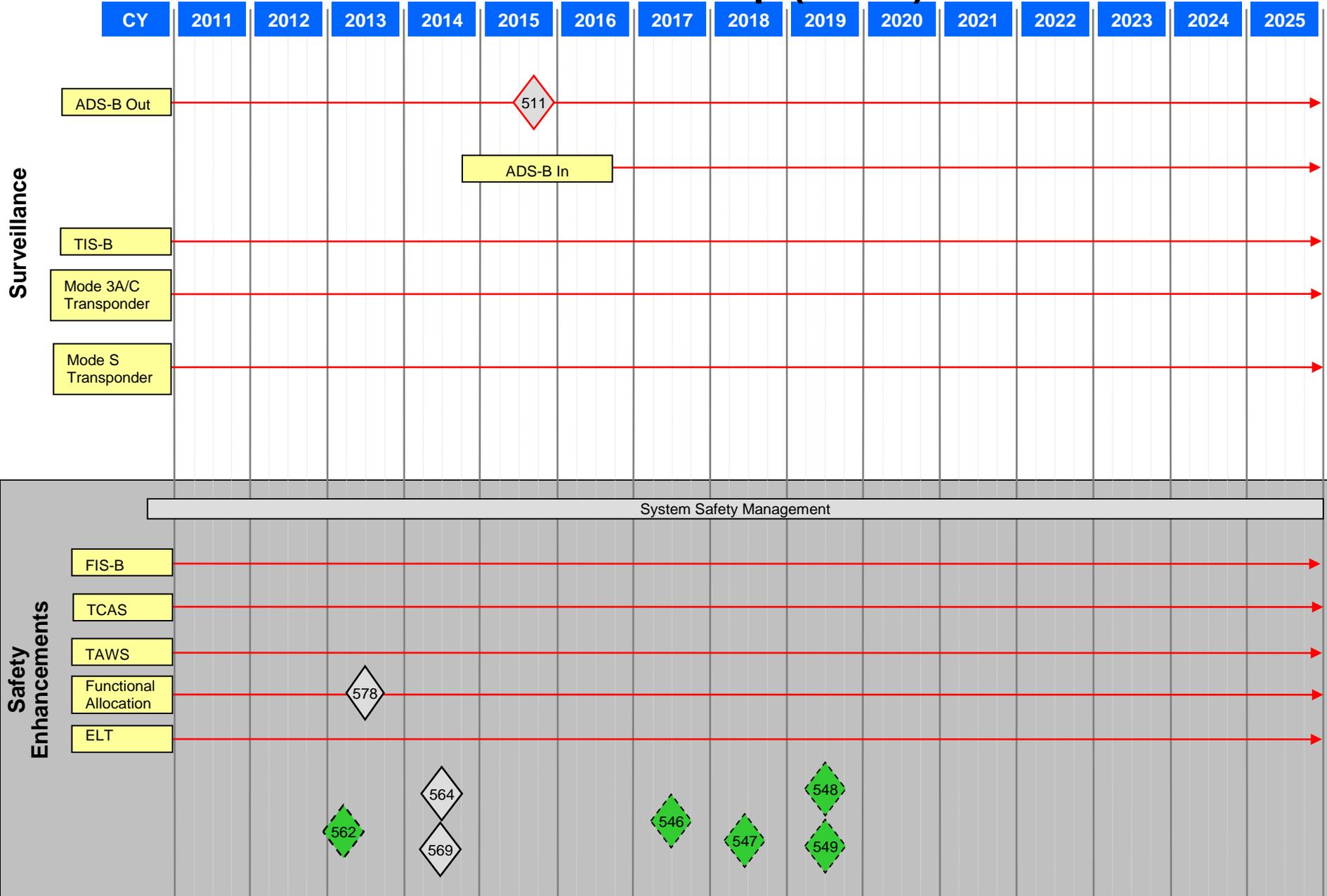


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Aircraft Roadmap (2 of 8)

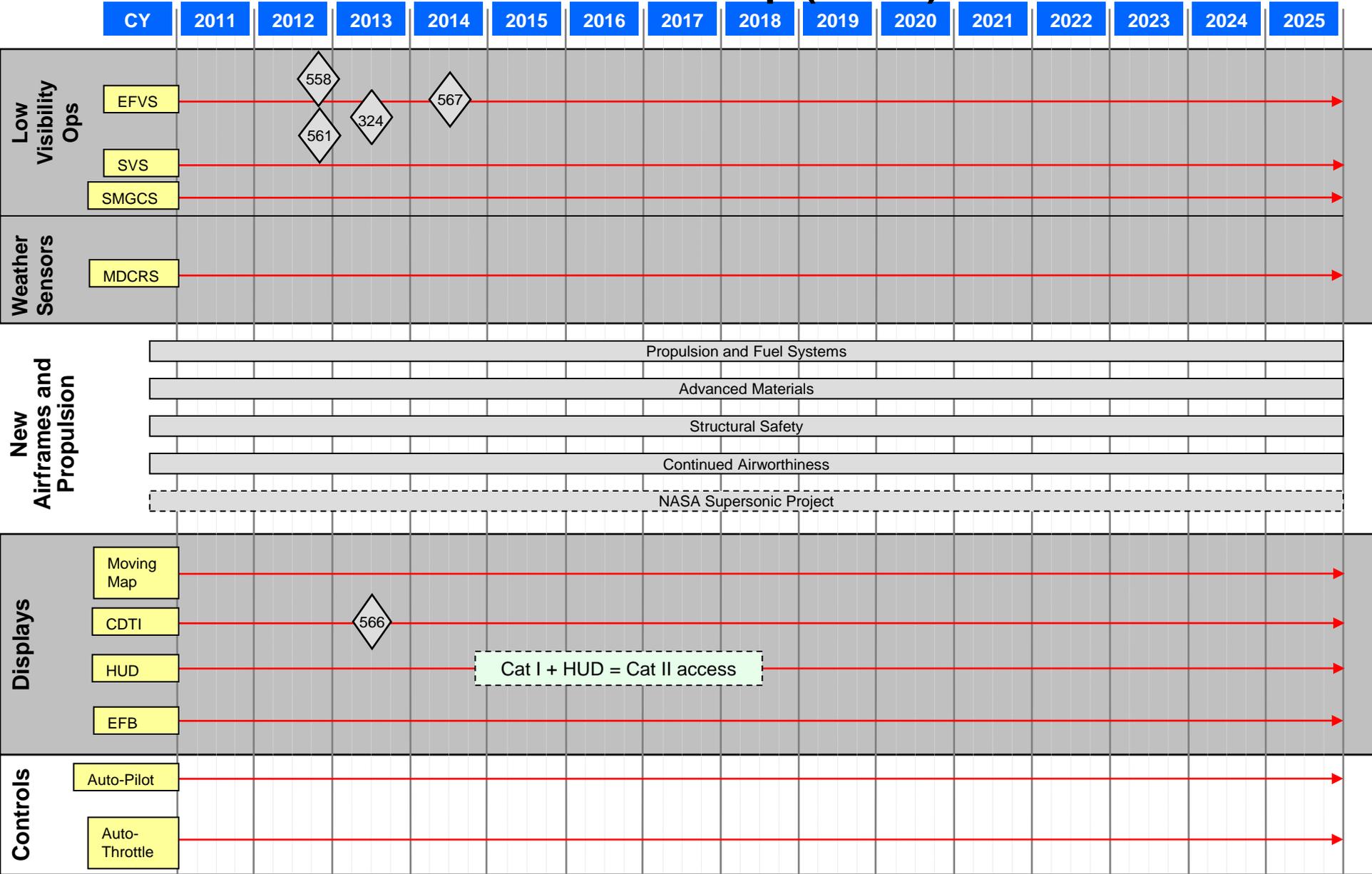


Aircraft Roadmap (3 of 8)



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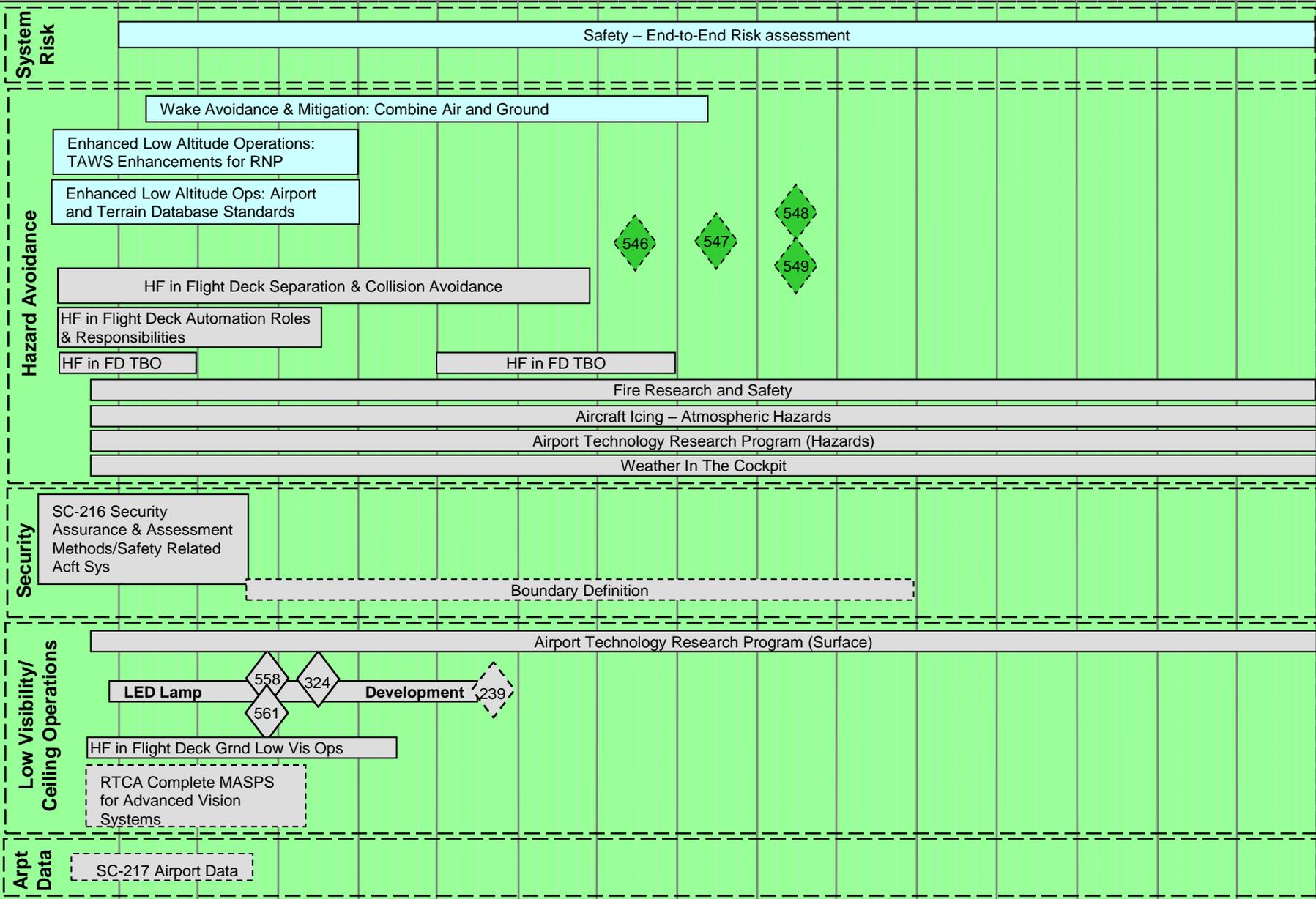
Aircraft Roadmap (4 of 8)



Aircraft Roadmap (5 of 8)

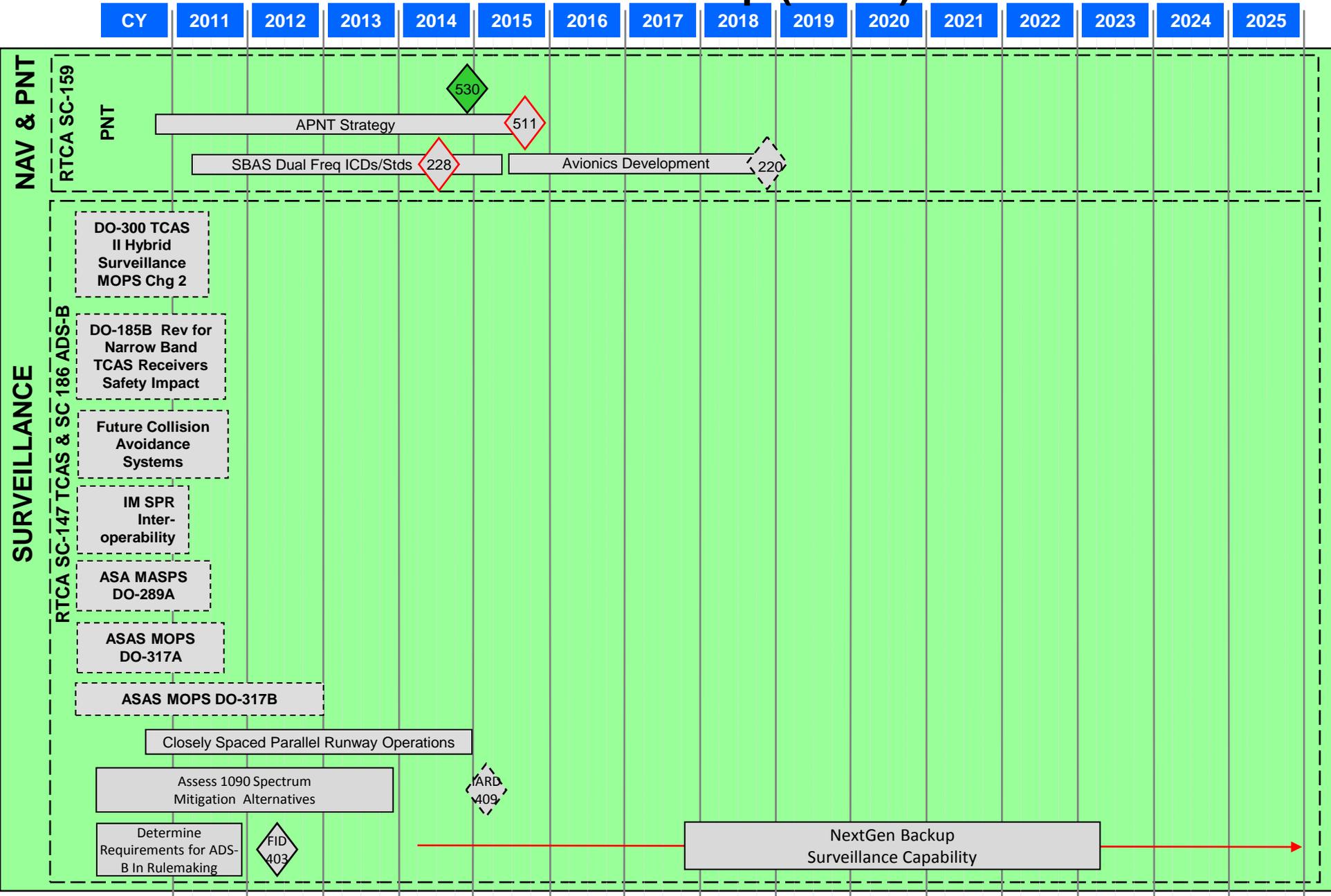
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System Safety & Enhancement



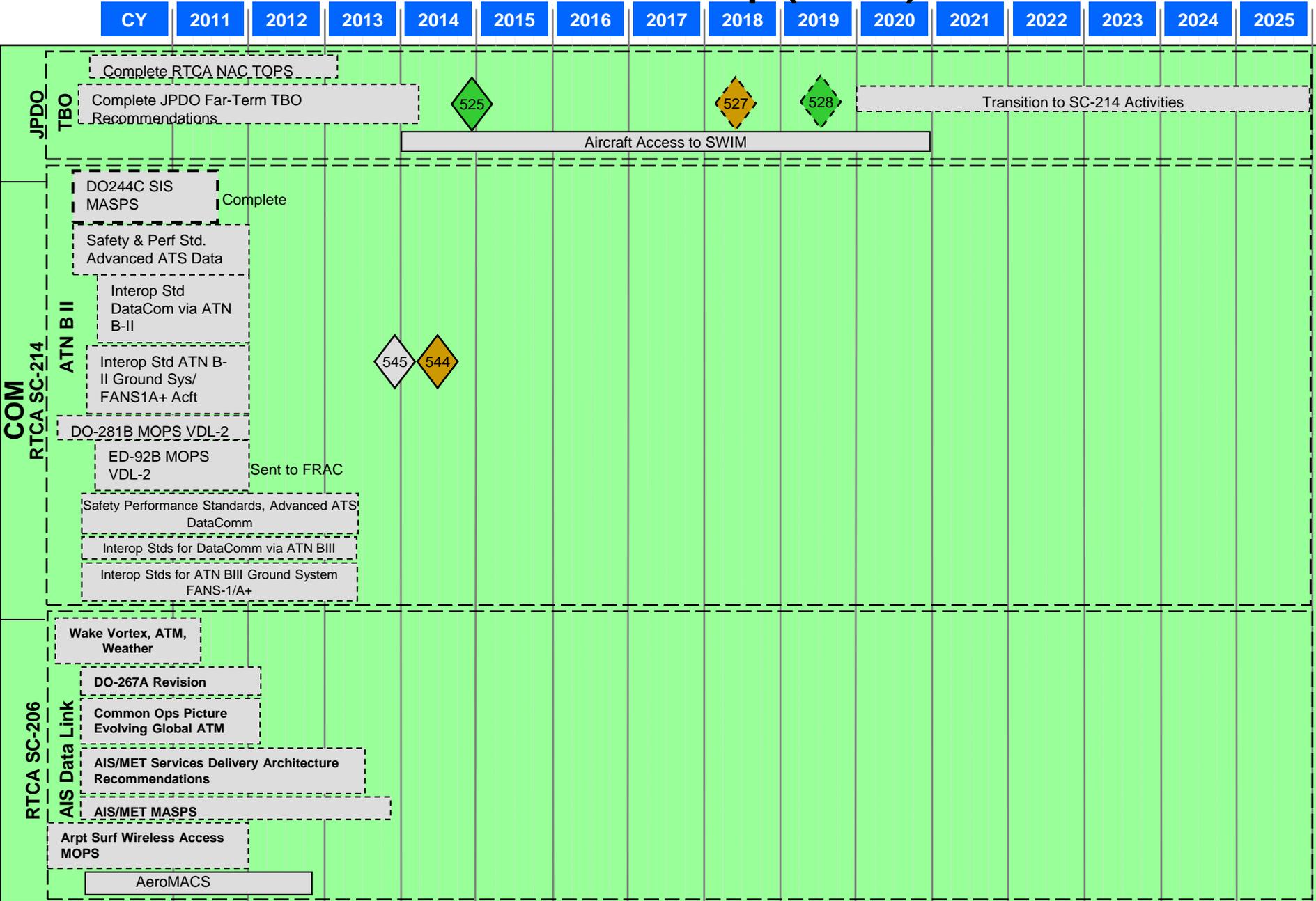
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Aircraft Roadmap (6 of 8)



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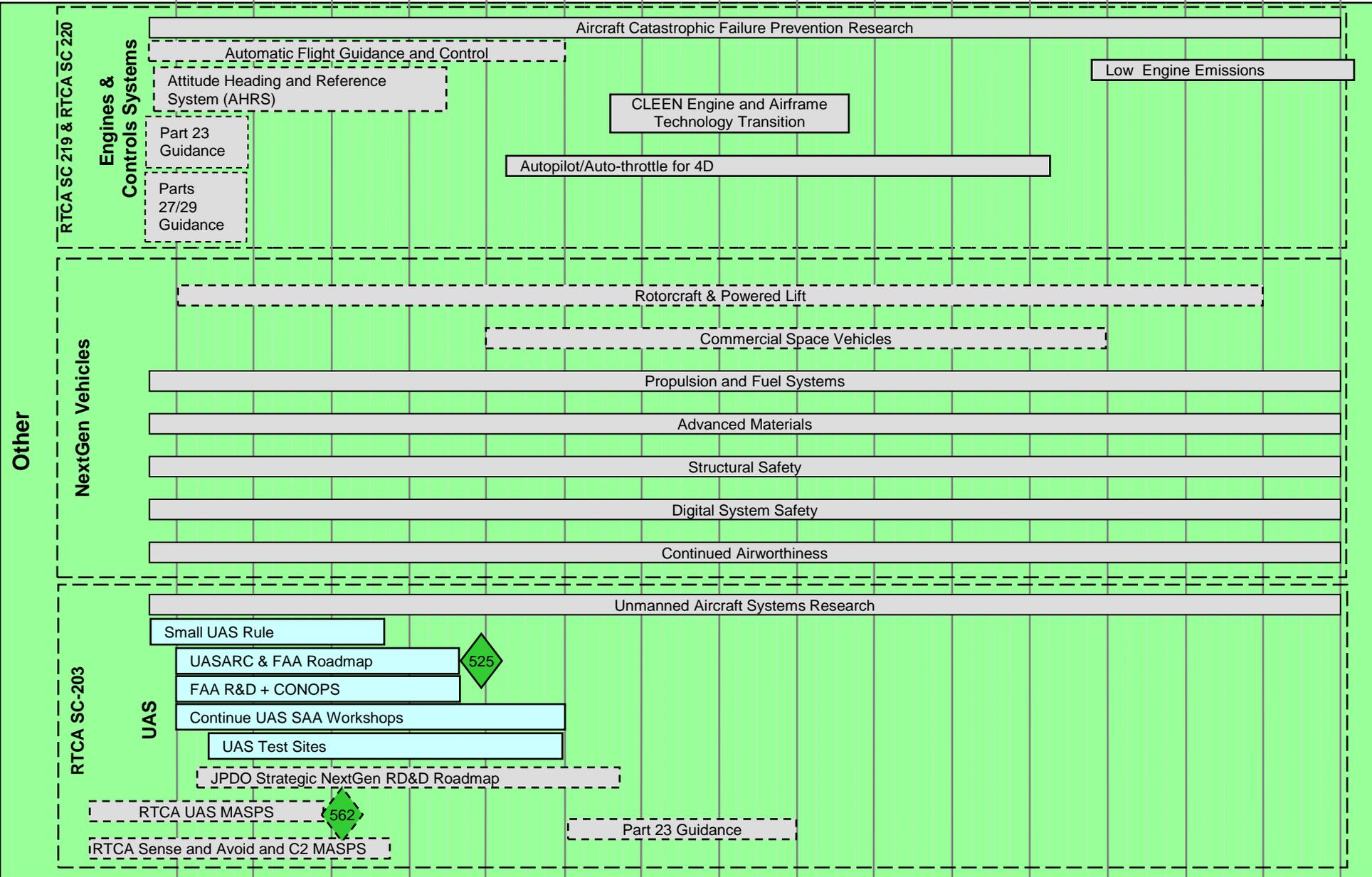
Aircraft Roadmap (7 of 8)



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Aircraft Roadmap (8 of 8)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



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Aircraft Roadmap: Assumptions

Identifier	Description
AC-01	<p>The roadmap identifies four phases</p> <ul style="list-style-type: none"> a) Conops development and R&D in required areas b) Standards development c) AVS Approval d) ATC Procedure development <p>Deployment. After the standards process is complete, and manufacturers have developed, integrated, fully tested and made new avionics available, aircraft, engines and fuels available, an additional 7 to 10 years is needed to achieve wide scale equipage of a new capability.</p> <p>Different aircraft are expected to equip with different equipment. This roadmap does not currently distinguish between aircraft types.</p>
AC-02	<p>The aircraft roadmap includes environment research areas and assumptions and linkage to Non-NAS EA.</p>
AC-03	<p>Any air vehicle to include any UAS that participates in the NAS must operate in a way that is transparent to the ANSP and ATSP.</p>

Aircraft Roadmap: Decision Points (1 of 2)

DP #	Target Date CY	High Priority	Domain	Name
94	2020	N	Navigation	Policy decision on complete Instrument Landing System (ILS) CAT I drawdown
220	2018	N	Navigation	Strategy Decision to cut over to Dual Frequency Operations based on completion of Dual Frequency (GPS L1 and L5) development & testing.
228	2014	Y	Navigation	Strategy Decision to proceed with WAAS dual frequency avionics activities to validate standards and lower risk for avionics development.
235	2014	N	Navigation	Strategy Decision on active drawdown of CAT I ILSs operating in the NAS
237	2018	N	Navigation	Strategy Decision on replacement CAT II/III ILSs operating in the NAS
239	2015	N	Navigation	Strategy Decision to proceed with ALS (I) Production LED Lamps for MALSR systems based on results of Benefit Cost Analysis
245	2011 Q1	N	Navigation	Strategy Decision on near-term minimum operational VOR ground network (Complete)
324	2013	N	Navigation	Decision to proceed with ALS (I) LED lamps, based on Operational Capability Demonstration with Enhanced Flight Vision System (EFVS) aircraft
403	2012 Q2	N	Surveillance	Final Investment Decision (FID) for SBS
409	2015 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for New Beacon/Backup System
511	2015 Q3	Y	Navigation	Alternate Position, Navigation, and Timing (APNT) solution determined
525	2014 Q4	N	Aircraft	Decision to Harmonize UAS ARC Recommendations & FAA Roadmap
527	2018	N	Aircraft	Decision on proposed set of trajectory Management performance levels
528	2019	N	Aircraft	Develop Initial Guidance for NextGen FMS
530	2014	N	Aircraft	Complete Draft GBAS MOPS
535	2015	N	Aircraft	Complete AC for RNAV above FL 180
536	2015	N	Aircraft	Complete AC for RNP 2 above FL 290
542	2016	N	Aircraft	Complete RNAV AC for all of CONUS airspace
544	2014	N	Aircraft	Complete Guidance under SC 214 for Avionics
545	2013 Q4	N	Communication	Draft SC-214 MOPS
546	2017	N	Aircraft	Develop Guidance for Upset Aircraft Recovery-Controls
547	2018	N	Aircraft	Develop Crashworthiness Standards
548	2019	N	Aircraft	Develop Envelope Protection Standards

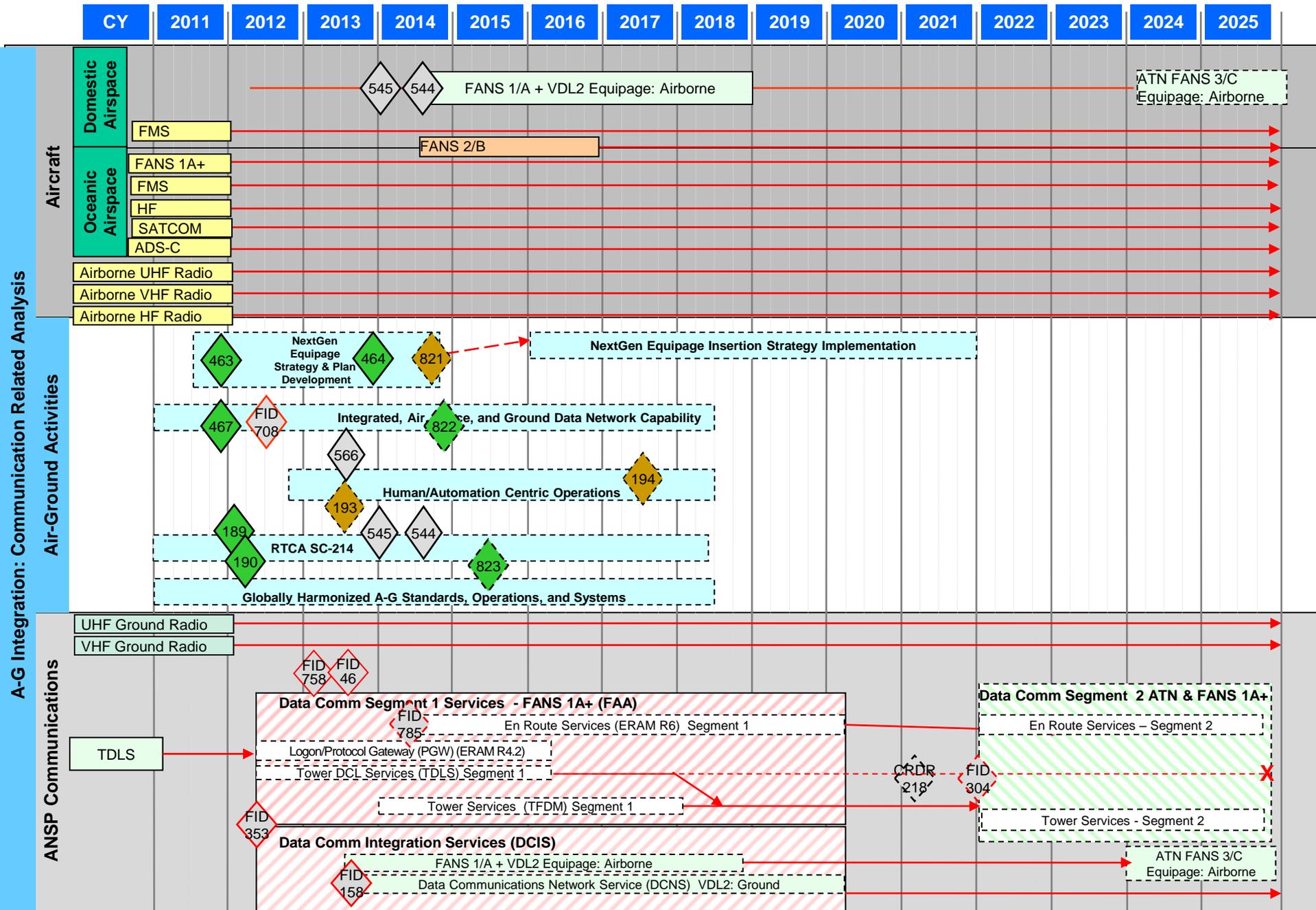
Aircraft Roadmap: Decision Points (2 of 2)

DP #	Target Date CY	High Priority	Domain	Name
549	2019	N	Aircraft	Develop Standards for Flight Crew Awareness
558	2012 Q4	N	Airport	Decision to Implement LED Airport Lighting Phase In
561	2012 Q4	N	Airport	Decision to Implement Energy Independence and Security Act (EISA) Compliance Policy
562	2013	N	Aircraft	Draft SC-203 MASPS
564	2014	N	Human Systems Integration	Decision to use Safety Requirements for NextGen Single Pilot Operations
566	2013	N	Human Systems Integration	Decision to use Air Crew DataComm Requirements for Displays & Procedures
567	2014	N	Human Systems Integration	Decision to use Procedures and Training Requirements for Low Visibility Ground Operations
568	2016	N	Human Systems Integration	Decision to use Human Factors Guidelines for NextGen Instrument Procedures
569	2014	N	Human Systems Integration	Decision to use Requirements for Enhanced Flight Deck Displays for Separation and Collision Avoidance
578	2013	N	Human Systems Integration	Decision to use Guidelines for Flight Deck Functional Allocation and Roles for New Automated Systems
580	2013	N	Human Systems Integration	Decision to use Recommended Methods and Training for Managing Error with Flight Deck User Interfaces

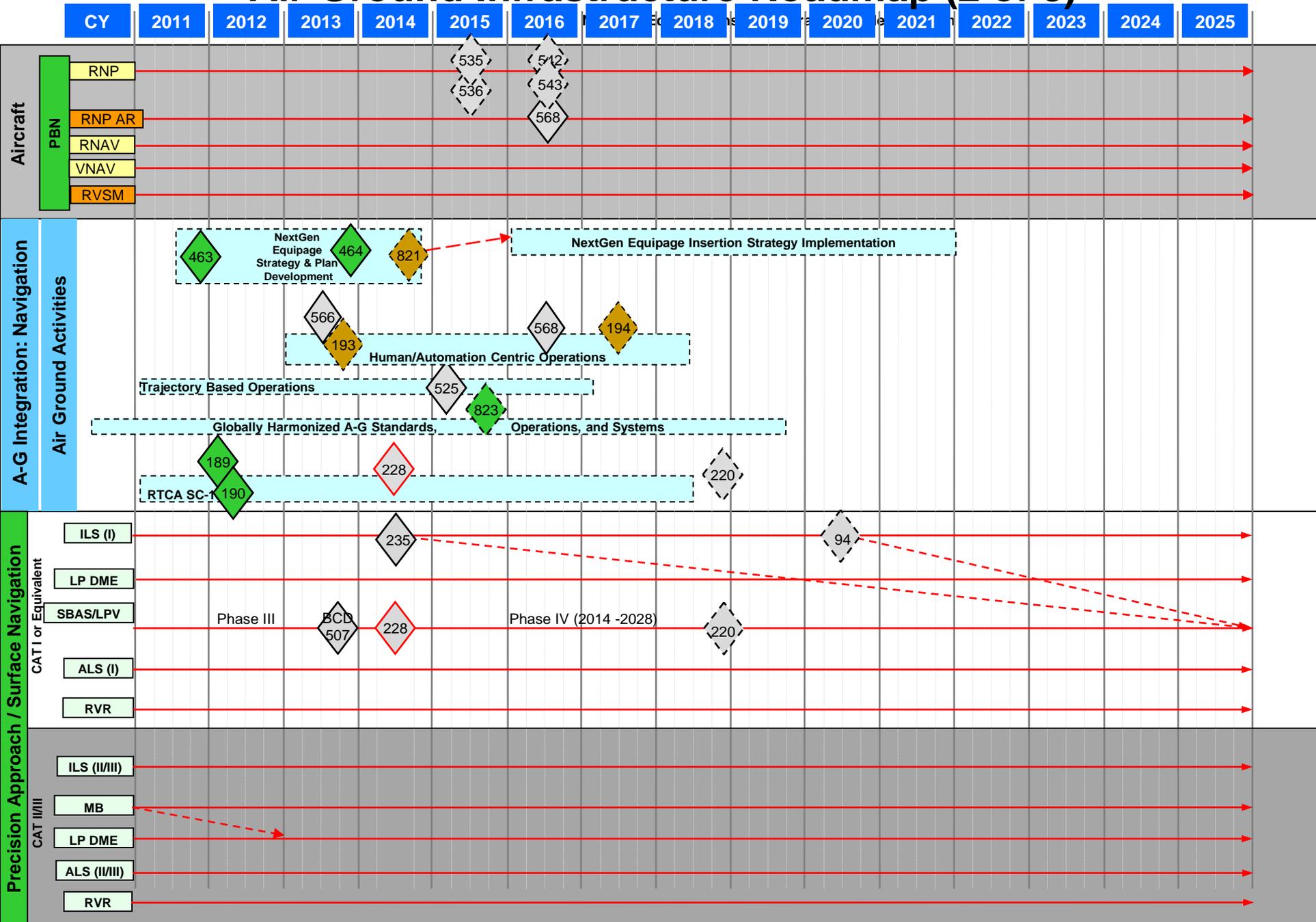
Air-Ground Roadmaps

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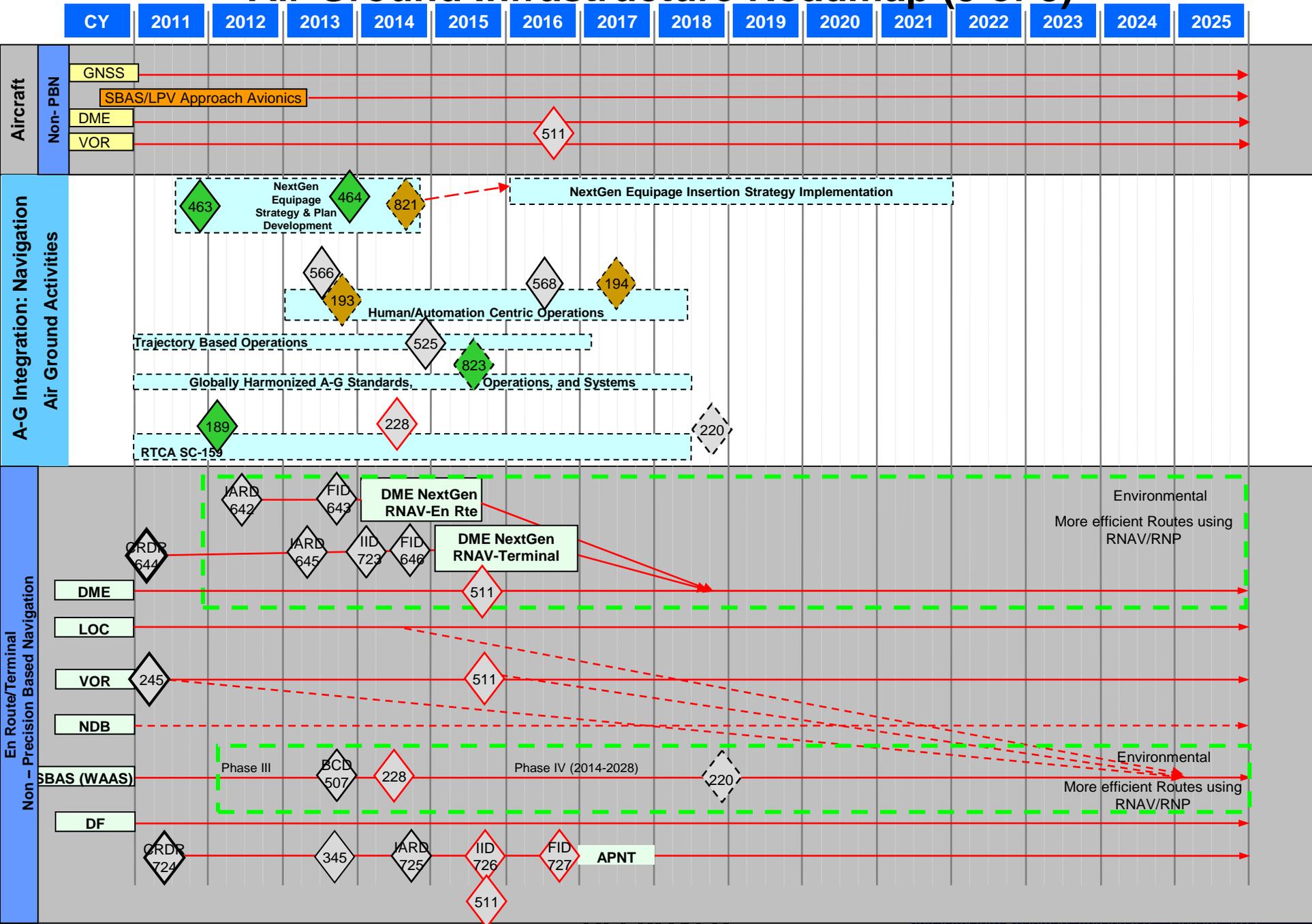
Air-Ground Infrastructure Roadmap (1 of 8)



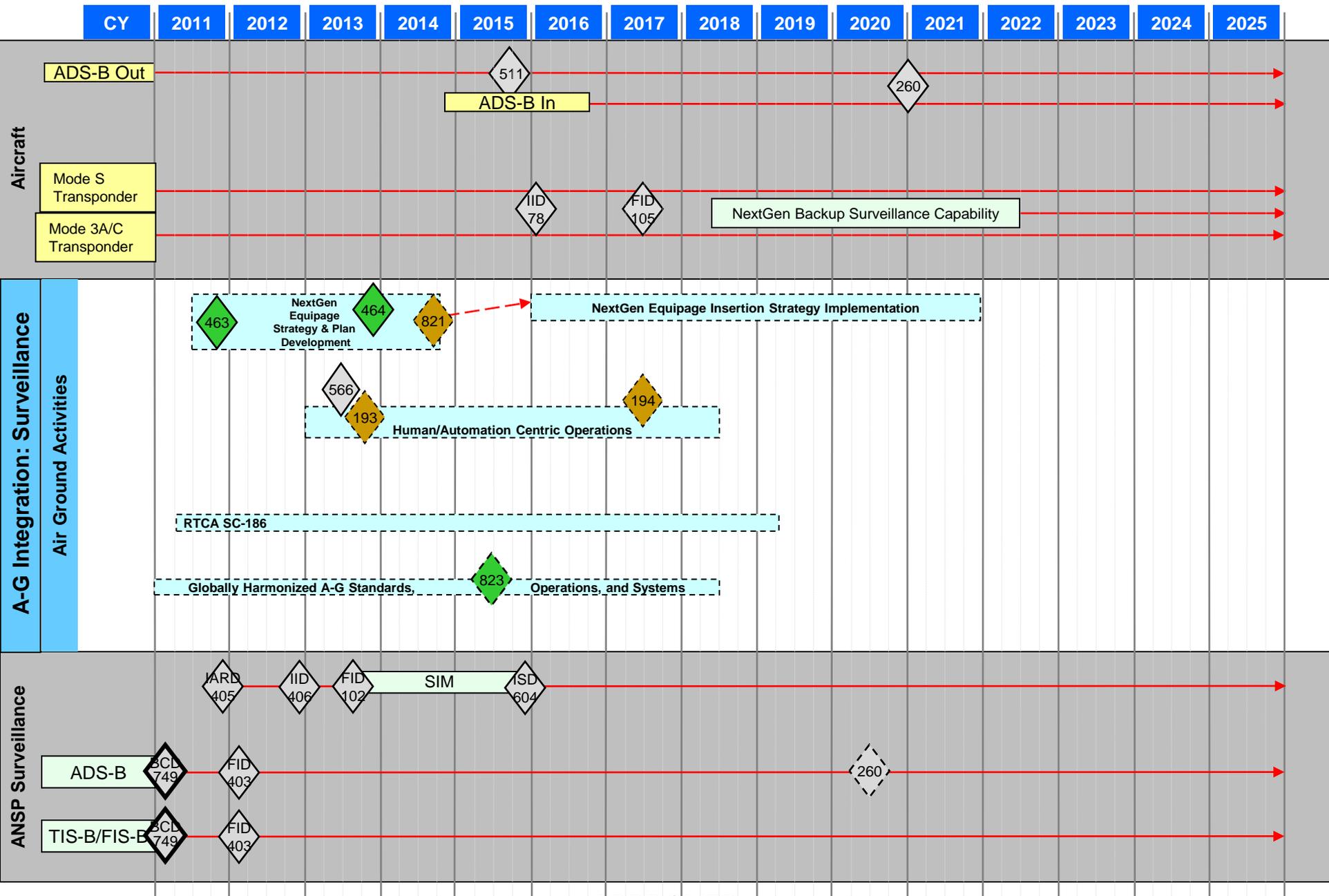
Air-Ground Infrastructure Roadmap (2 of 8)



Air-Ground Infrastructure Roadmap (3 of 8)

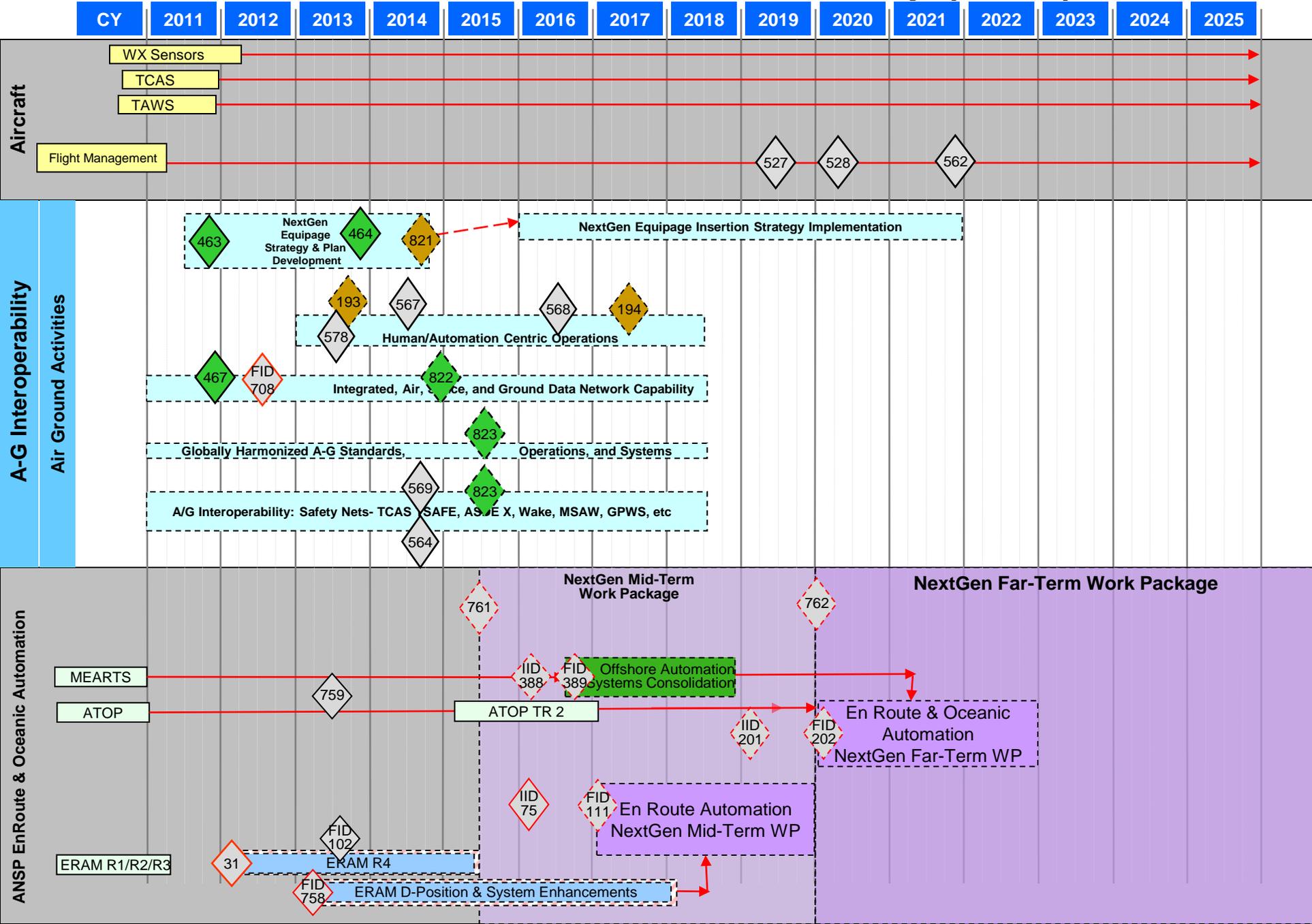


Air-Ground Infrastructure Roadmap (4 of 8)

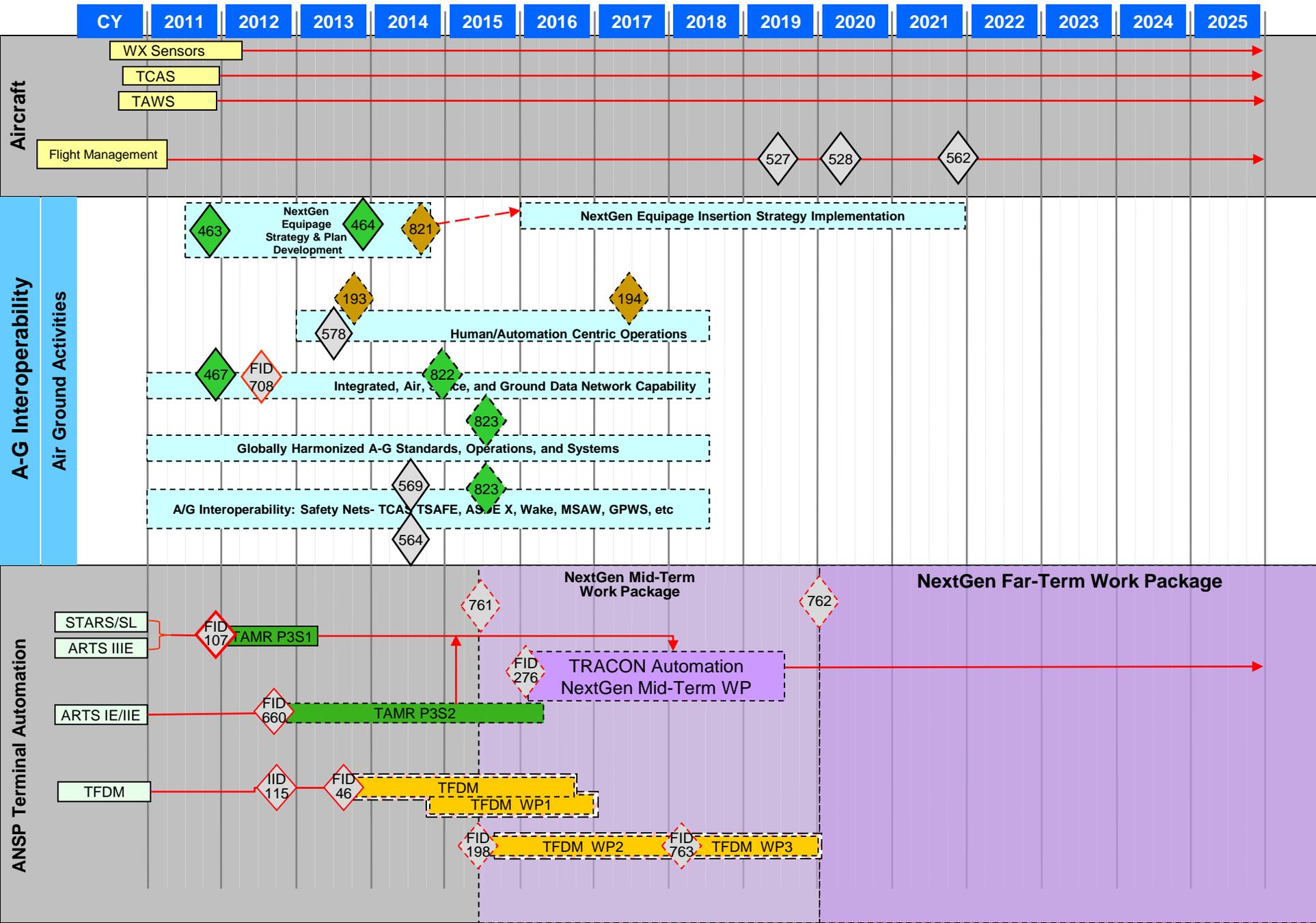


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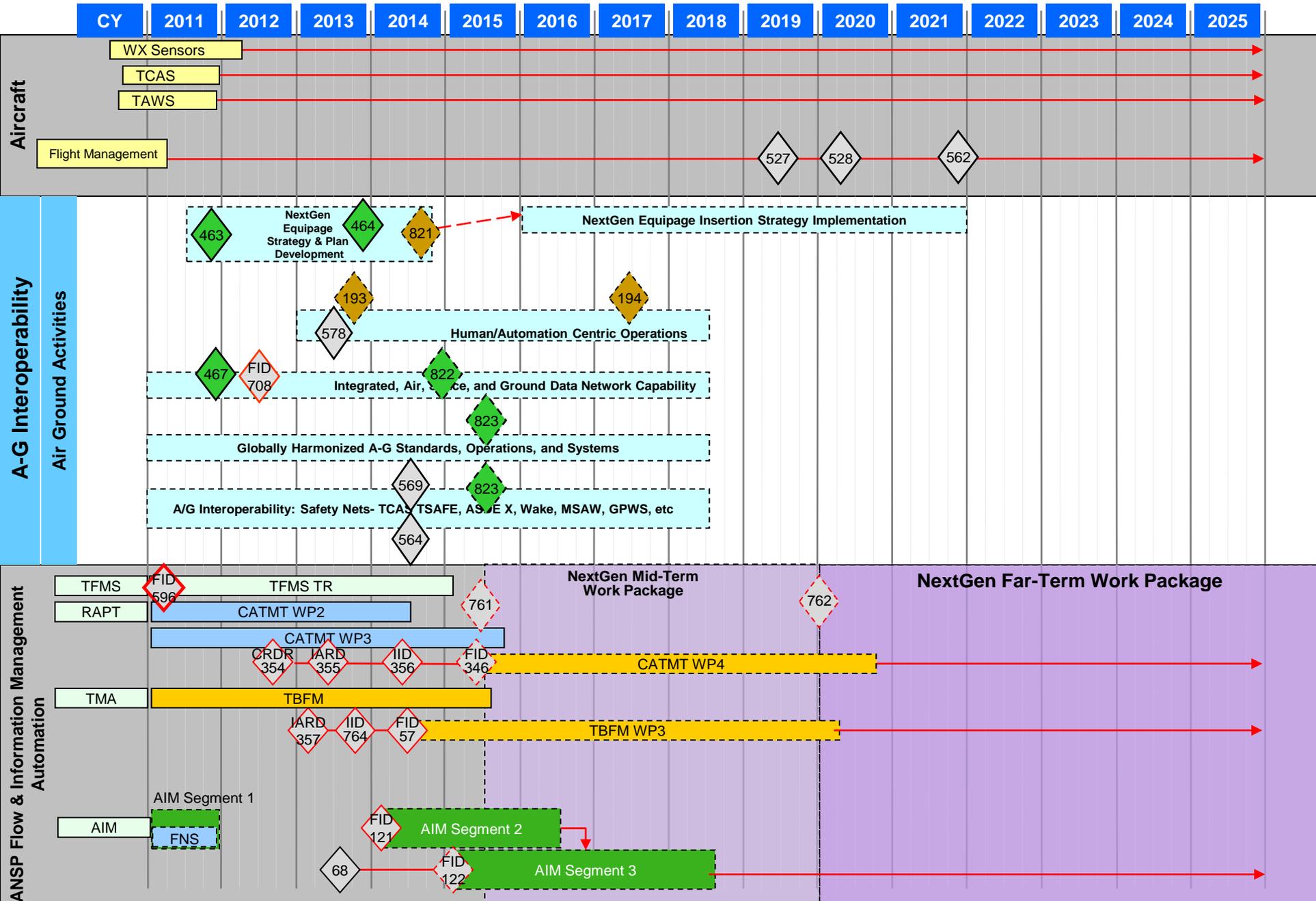
Air-Ground Infrastructure Roadmap (5 of 8)



Air-Ground Infrastructure Roadmap (6 of 8)

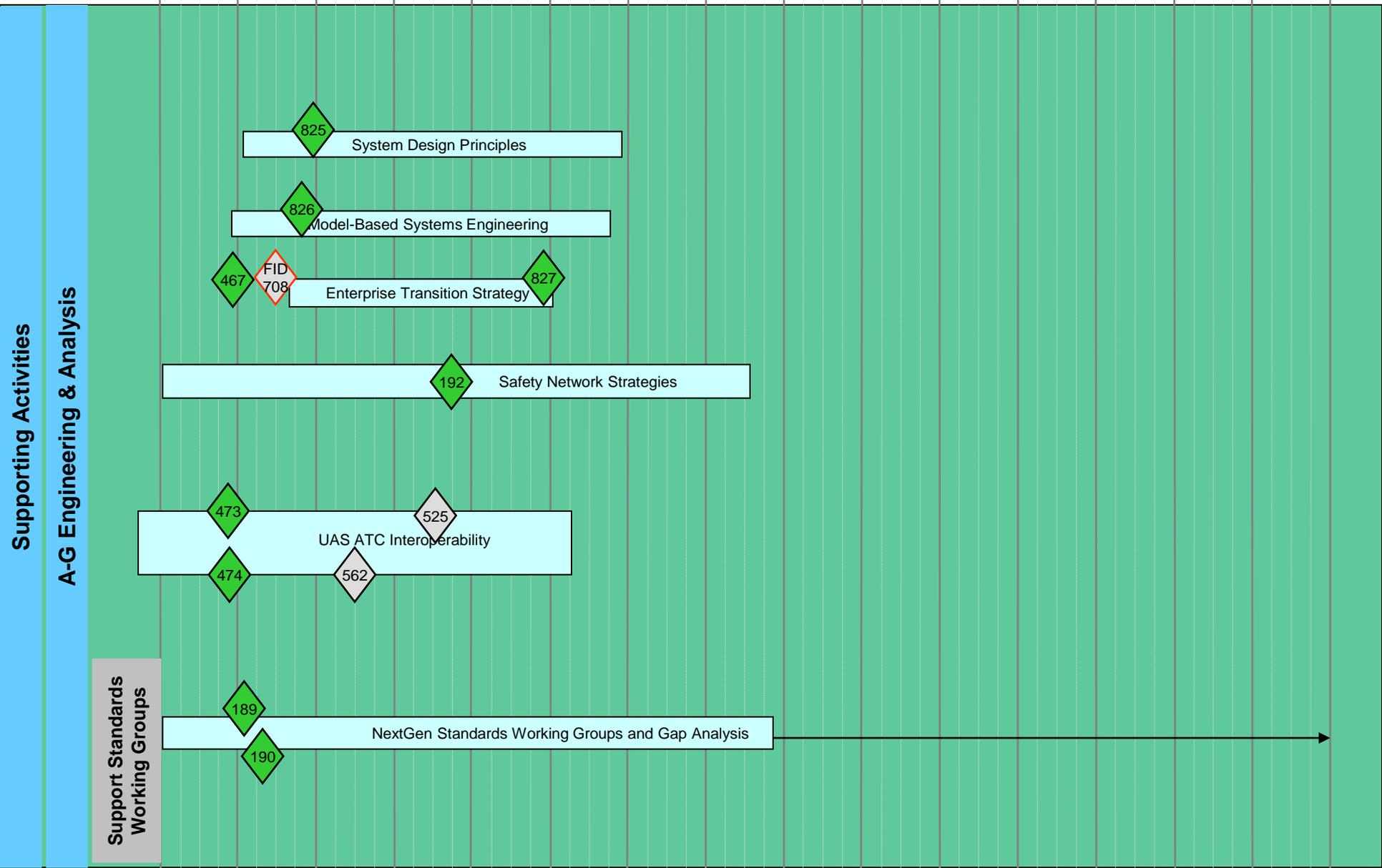


Air-Ground Infrastructure Roadmap (7 of 8)



Air-Ground Infrastructure Roadmap (8 of 8)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



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Air-Ground Roadmap: Assumptions (1 of 2)

Identifier	Description
AG-01	<p>Harmonization of Air/Ground System functions not complete:</p> <p>a) Any operations or improvement that is dependent on ACAS (TCAS), Airborne Automation (upgraded and standardized FMS), ADS-B In, and IP Addressing are far-term implementations.</p>
AG-02	<p>Synchronization of airborne and ground capabilities and infrastructure remains open</p> <p>a) A minimum of 7-10 years is needed to achieve fleet wide aircraft equipage from the time an equipment standard is acknowledged.</p> <p>b) A minimum of 3-4 years is needed to achieve pair-wise aircraft equipage from the time an equipment standard is acknowledged.</p>
AG-03	<p>Air-Ground standards will evolve from a technology-based to an integrated performance-based approach.</p>
AG-04	<p>Federated Air and Ground Safety tools are overlapping temporally leading to a need to develop an integrated safety net strategy</p> <p>a) TCAS, ADS-B Conflict Management Conflict Probe, Conflict Alert, and TSAFE to support separation management and collision avoidance of other aircraft.</p> <p>b) TAWS, EGPWS and MSAW to support separation management and collision avoidance of objects and obstacles.</p>
AG-05	<p>Reserved</p>
AG-06	<p>NAS weather systems are not depicted on the A/G Roadmap. (See Weather Roadmap).</p>
AG-07	<p>The A-G Roadmap facilitates the interoperability among roadmaps and does not include stand alone systems, but may identify integrated concepts/strategies not yet under consideration by individual programs.</p>
AG-08	<p>Reserved</p>
AG-09	<p>SWIM Air Capabilities:</p> <p>1) Airborne SWIM supports advisory communications through NNEW and commercial communication services (e.g. Iridium, InmarsatSBB, AirCell, XM Aviator).</p> <p>2) No mandatory equipment envisioned for airborne SWIM capability.</p>
AG-10	<p>A-G tasks are aligned and compliment NASEA DP' s and Air-Ground Evolution Environment. NASEA DP' s should address A-G Challenge to support NextGen success.</p>

Air-Ground Roadmap: Assumptions (2 of 2)

Identifier	Description
AG-11	Reserved
AG-12	An operations-based approach is applied to provide consistent context across the domains.
AG-13	NAS Voice switching systems are not depicted on the A-G Roadmap (CCS, ICSS, GSA 400/466, RDVS, STVS, ETVS, IVSR, VSCS/VTABS, and NVS).

Air-Ground Roadmap: Decision Points (1 of 4)

DP #	Target Date CY	High Priority	Domain	Name
31	2012 Q1	Y	Automation	Strategy Decision to proceed with ERAM R4 functions using combined program funds from SWIM, DATA COMM, Airborne Reroute and GIM
46	2013 Q3	Y	Automation	Final Investment Decision (FID) for Tower Flight Data Manager (TFDM)
57	2014 Q2	Y	Automation	Final Investment Decision (FID) for TBFM/WP3
75	2016	Y	Automation	Initial Investment Decision (IID) for En Route Automation NextGen Mid-Term WP
78	2016 Q1	N	Surveillance	Initial Investment Decision (IID) to implement a NextGen beacon/backup radar system for ATC
94	2020	N	Navigation	Policy decision on complete Instrument Landing System (ILS) CAT I drawdown
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems
105	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen beacon/backup radar system for ATC
107	2011 Q4	Y	Automation	Final Investment Decision (FID) for TAMR Phase 3 Segment 1 (Complete)
111	2017	Y	Automation	Final Investment Decision (FID) for En Route Automation NextGen Mid-Term WP
115	2012 Q3	Y	Automation	Initial Investment Decision (IID) for Tower Flight Data Manager
121	2014 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 2
122	2015 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 3
158	2013 Q3	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Network Service
189	2012 Q1	N	Air-Ground	Develop a means to manage standards bodies to efficiently and effectively utilize resources and meet needs of NextGen
190	2012 Q2	N	Air-Ground	Move standards bodies to develop standards that are sufficient to support NextGen
192	2014 Q3	N	Air-Ground	Incorporate expected changes to TCAS, Conflict Probe, and Conflict Management into coordinated Air-Ground Safety Network
193	2013 Q3	N	Air-Ground	Define Human/Automation design principles to support NextGen infrastructure
194	2017	N	Air-Ground	Incorporate results into future Requirement for NextGen Technology and Human/Automation intensive operations
198	2015	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 2
201	2019	Y	Automation	Initial Investment Decision (IID) for En Route & Oceanic Automation NextGen Far-Term WP
202	2020	Y	Automation	Final Investment Decision (FID) for En Route & Oceanic Automation NextGen Far-Term WP
218	2021	N	Communication	Concept and Requirements Definition Readiness (CRDR) Decision for DataComm Segment 3 and the migration to L-band

Air-Ground Roadmap: Decision Points (2 of 4)

DP #	Target Date CY	High Priority	Domain	Name
220	2018	N	Navigation	Strategy Decision to cut over to Dual Frequency Operations based on completion of Dual Frequency (GPS L1 and L5) development & testing.
228	2014	Y	Navigation	Strategy Decision to proceed with WAAS dual frequency avionics activities to validate standards and lower risk for avionics development.
235	2014	N	Navigation	Strategy Decision on active drawdown of CAT I ILSs operating in the NAS
245	2011 Q1	N	Navigation	Strategy Decision on near-term minimum operational VOR ground network (Complete)
260	2020	N	Surveillance	Decision on ADS-B Rule Compliance
304	2022	Y	Communication	Final Investment Decision (FID) for Data Comm Segment 2
344	2011 Q1	N	Enterprise Services	Establish Requirements for a Backup Timing Source (Complete)
345	2013 Q4	N	Enterprise Services	Strategy Decision for the implementation of a GPS timing backup
353	2012 Q2	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Phase 1: Tower Services, DCIS Contract and ERAM PGW and Logon
388	2016 Q1	Y	Automation	Initial Investment Decision (IID) for Offshore Automation Systems Consolidation
389	2016 Q3	Y	Automation	Final Investment Decision (FID) for Offshore Automation Systems Consolidation
403	2012 Q2	N	Surveillance	Final Investment Decision (FID) for SBS
405	2011 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for SIM in terminal and en route legacy radar systems
406	2012 Q4	N	Surveillance	Initial Investment Decision (IID) for SIM in terminal and en route legacy radar systems
463	2011 Q3	N	Air-Ground	Deliver NextGen Equipage Insertion Strategy
464	2013 Q4	N	Air-Ground	Deliver Equipage Insertion Plan- Output Boeing OTA
467	2011 Q4	N	Air-Ground	Deliver A-G Future Communications Analysis
473	2011 Q4	N	Air-Ground	Planning Decision: Develop Requirements for UAS Performance Envelope for UAS Fleets
474	2011 Q4	N	Air-Ground	Planning Decision: Develop UAS ATC Interoperability Performance Requirements
507	2013	N	Navigation	Baseline Change Decision (BCD) to move WAAS from Phase III to Phase IV
511	2015 Q3	Y	Navigation	Alternate Position, Navigation, and Timing (APNT) solution determined
525	2014 Q4	N	Aircraft	Decision to Harmonize UAS ARC Recommendations & FAA Roadmap
527	2018	N	Aircraft	Decision on proposed set of Trajectory Management performance levels
528	2019	N	Aircraft	Develop Initial Guidance for NextGen FMS
535	2015	N	Aircraft	Complete AC for RNAV above FL 180

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Air-Ground Roadmap: Decision Points (3 of 4)

DP #	Target Date CY	High Priority	Domain	Name
544	2014	N	Aircraft	Complete Guidance under SC 214 for Avionics
545	2013 Q4	N	Communication	Draft SC-214 MOPS
562	2013	N	Aircraft	Draft SC-203 MASPS
564	2014	N	Human Systems Integration	Decision to use Safety Requirements for NextGen Single Pilot Operations
566	2013	N	Human Systems Integration	Decision to use Air Crew DataComm Requirements for Displays & Procedures
568	2016	N	Human Systems Integration	Decision to use Human Factors Guidelines for NextGen Instrument Procedures
569	2014	N	Human Systems Integration	Decision to use Requirements for Enhanced Flight Deck Displays for Separation and Collision Avoidance
578	2013	N	Human Systems Integration	Decision to use Guidelines for Flight Deck Functional Allocation and Roles for New Automated Systems
604	2015 Q4	N	Surveillance	In-Service Decision (ISD) for SIM in Terminal and En Route Legacy Radar Systems for first platform
642	2012 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - En Route Distance Measuring Equipment (DME)
644	2011 Q1	N	Navigation	Concept & Requirements Definition Readiness (CRDR) Decision for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME) (Complete)
645	2013 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)
646	2014 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)
660	2012 Q3	Y	Automation	Final Investment Decision (FID) for TAMR P3S2 (Phase 3 Segment 2)
708	2012 Q2	Y	Enterprise Services	Final Investment Decision (FID) for SWIM Segment 2
723	2014 Q1	N	Navigation	Initial Investment Decision (IID) for the acquisition of NextGen RNAV-Terminal Distance Measuring Equipment (DME)

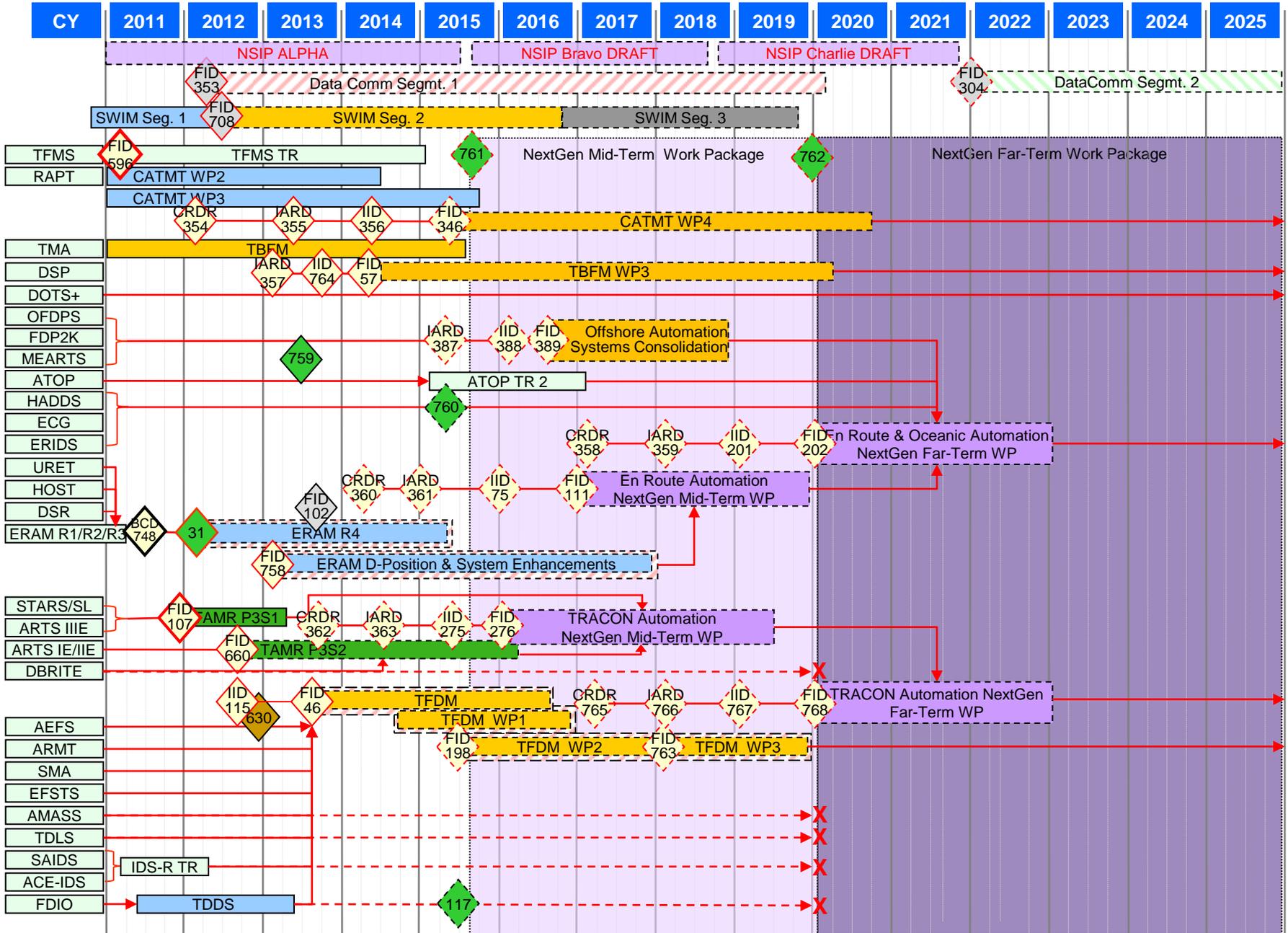
Air-Ground Roadmap: Decision Points (4 of 4)

DP #	Target Date CY	High Priority	Domain	Name
724	2011 Q2	N	Navigation	Concept & Requirements Definition Readiness (CRDR) Decision for Alternate Positioning, Navigation and Timing (APNT) (Complete)
725	2014 Q3	N	Navigation	Investment Analysis Readiness Decision (IARD) for Alternate Positioning, Navigation and Timing (APNT)
726	2015 Q3	Y	Navigation	Initial Investment Decision (IID) for Alternate Positioning, Navigation and Timing (APNT)
727	2016 Q3	Y	Navigation	Final Investment Decision (FID) for Alternate Positioning, Navigation and Timing (APNT)
749	2011 Q1	N	Surveillance	Baseline Change Decision (BCD) for SBS (Complete)
758	2013 Q1	Y	Automation	Final Investment Decision (FID) for ERAM D-Position and System Enhancements
759	2013	N	Automation	Strategy decision on direction of oceanic and offshore platforms including sustainment, termination, migration, and consolidation
761	2015	Y	Automation	Strategy decision on the content and allocation of functions to Program Office For NextGen Mid-Term Work Package
762	2020	Y	Automation	Strategy decision on the content and allocation of functions to Program Office For NextGen Far-Term Work Package
763	2018	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 3
785	2014 Q2	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Phase 2 En Route Services
821	2014 Q3	N	Air-Ground	Decision execute NextGen Enabler Plan (Evolving Equipage Plan) (was 188)
822	2014 Q4	N	Air-Ground	Define strategy for Integrated Air, Space, and Ground Data Network. (was 183 & 184)
823	2015	N	Air-Ground	Define NextGen - SESAR Harmonization Strategy
824	2015	N	Air-Ground	Define A-G Safety net Strategy
825	2012 Q4	N	Air-Ground	Define strategy to incorporate System Design Principles
826	2012 Q3	N	Air-Ground	Define strategy to incorporate Model-based Systems Engineering
827	2015 Q4	N	Air-Ground	Define Enterprise Transition Strategy

Automation Roadmaps

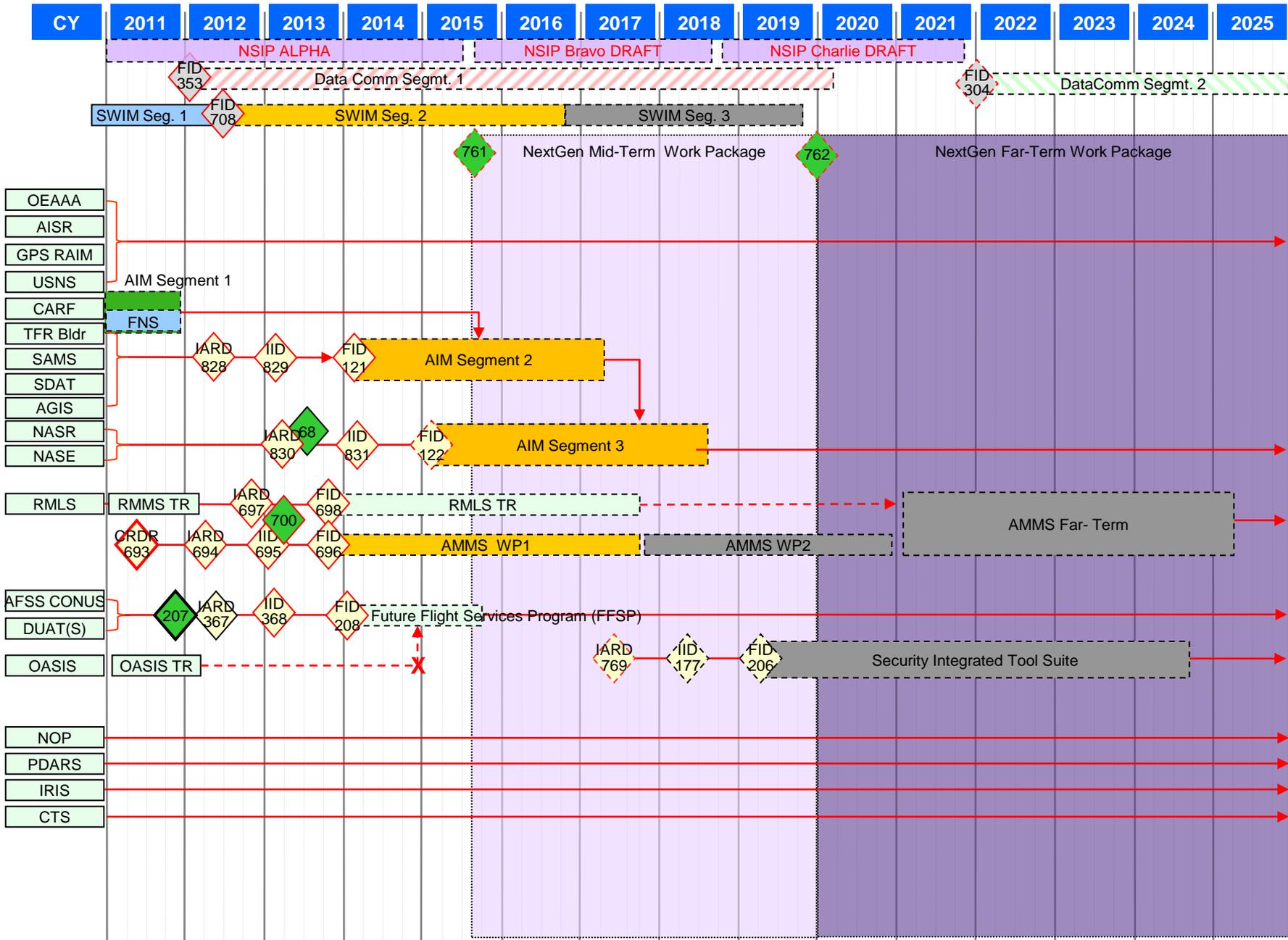
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Automation Roadmap (1 of 16)



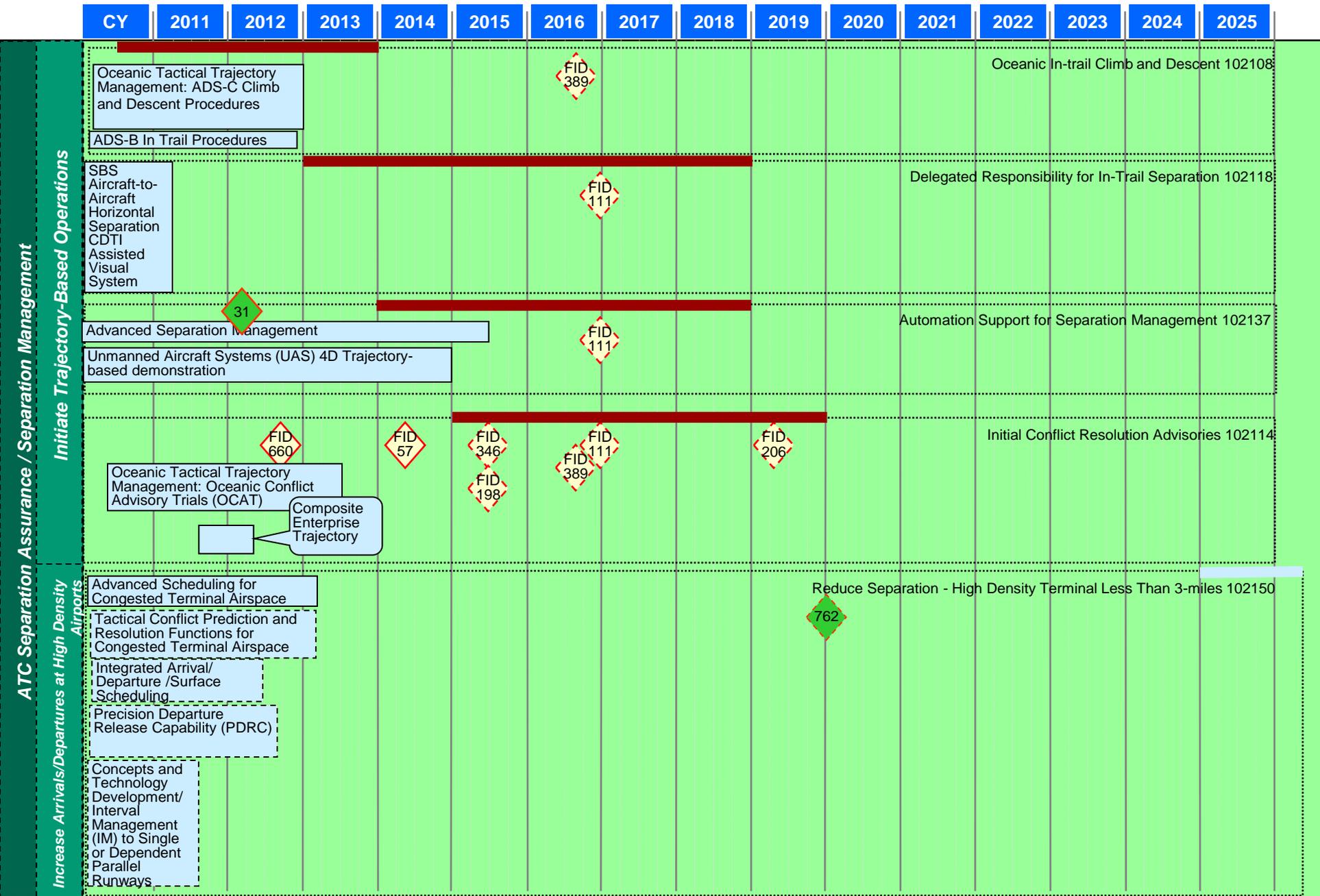
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Automation Roadmap (2 of 16)



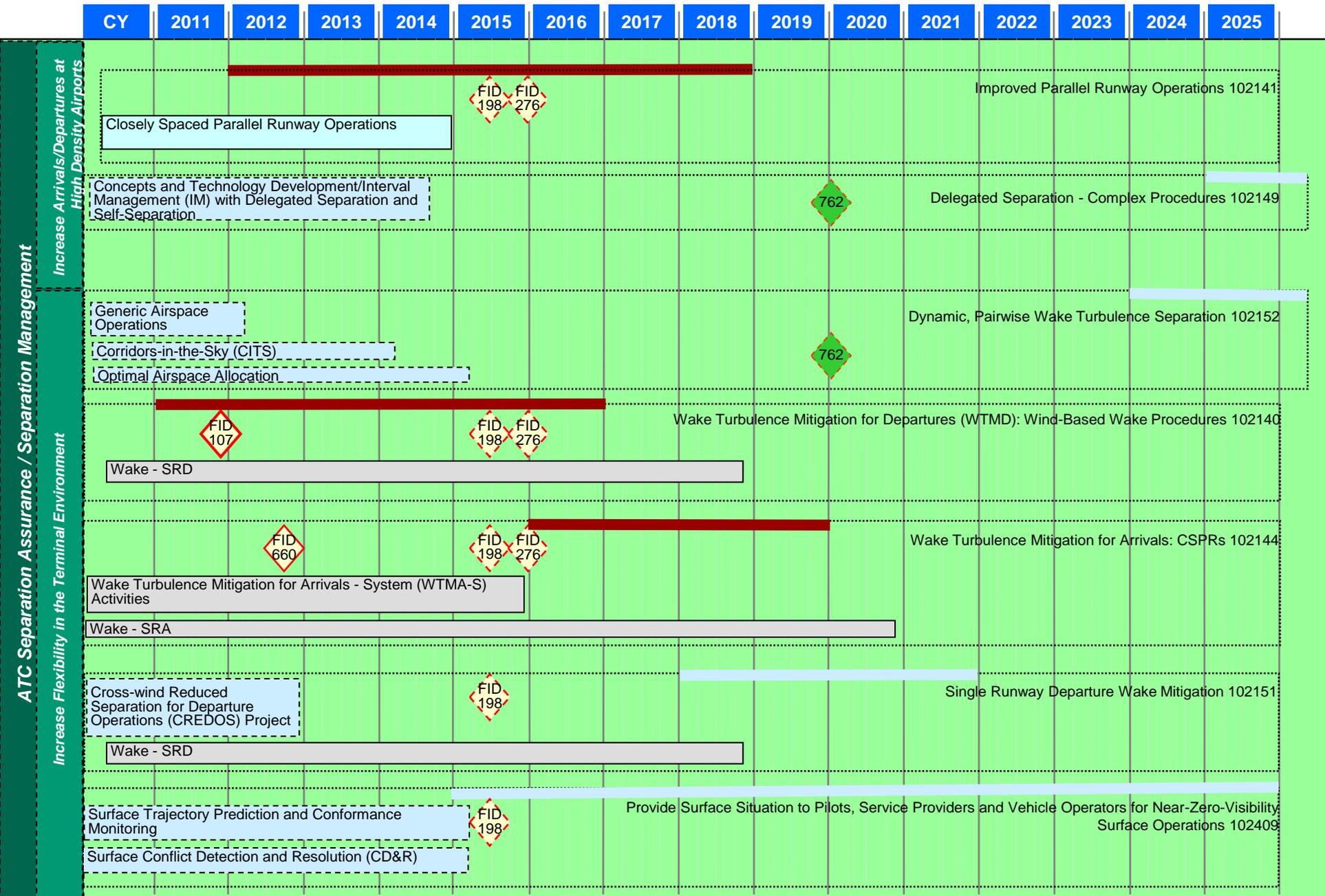
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Automation Roadmap (3 of 16)



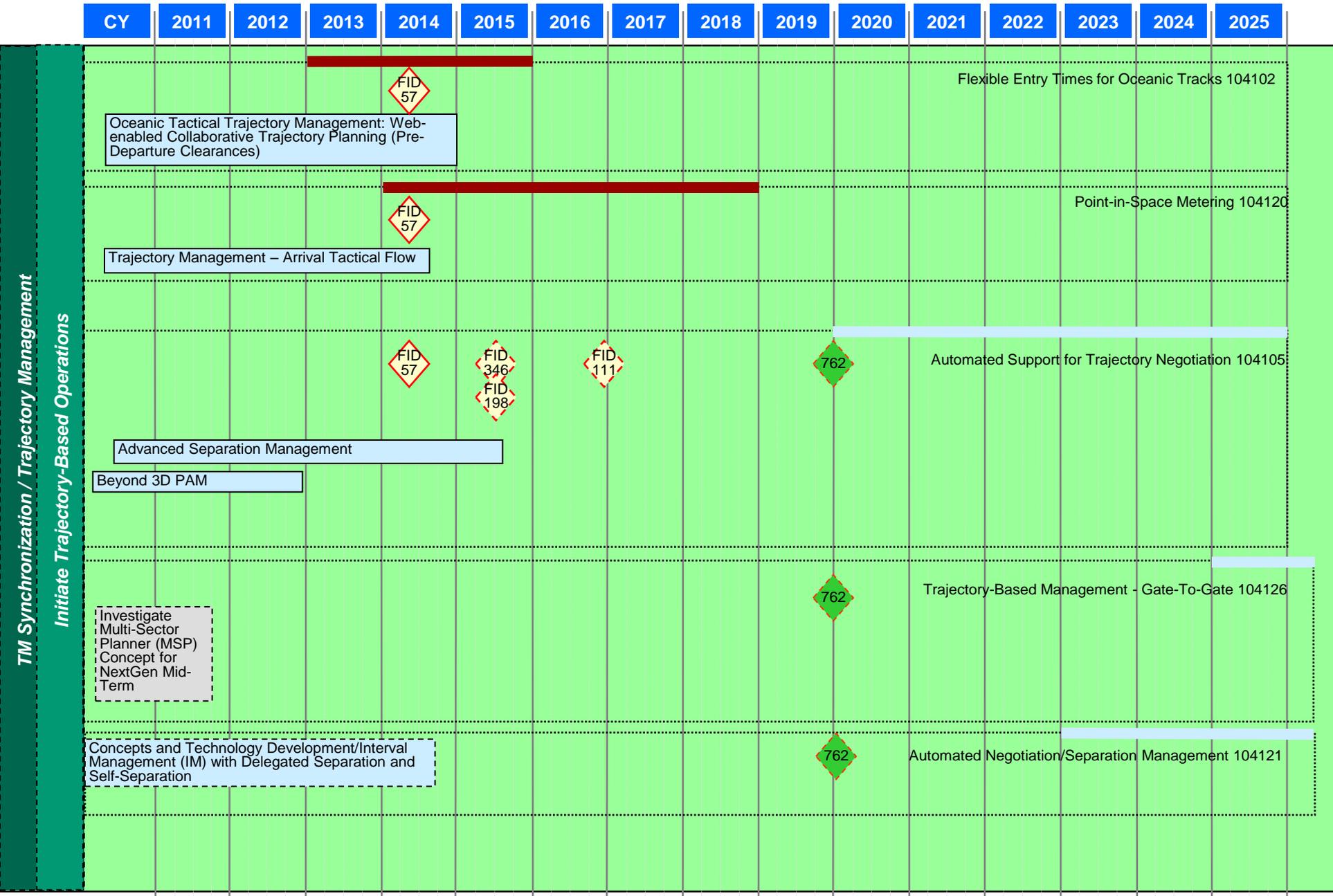
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Automation Roadmap (4 of 16)



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Automation Roadmap (5 of 16)

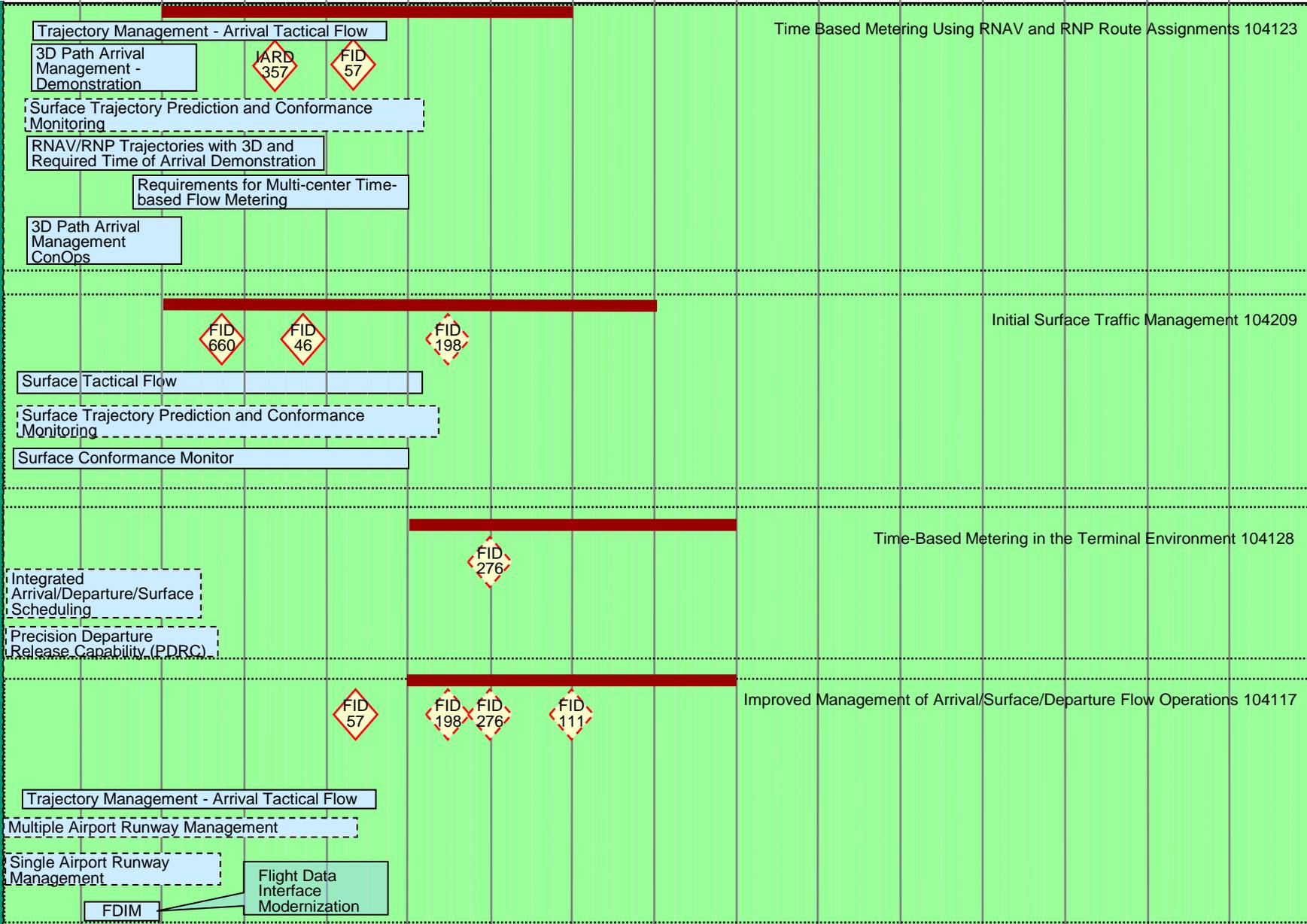


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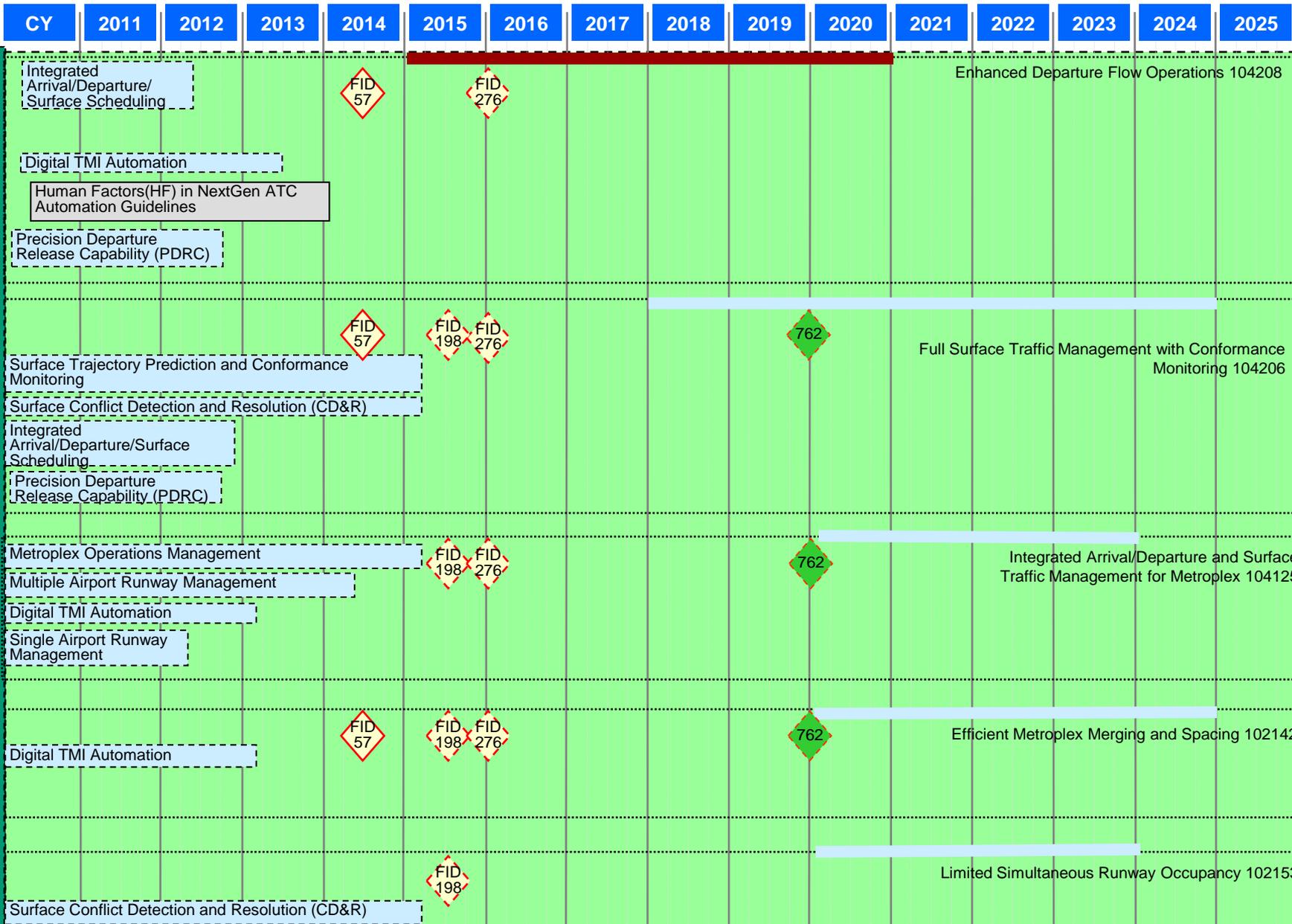
CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

TM Synchronization / Trajectory Management
Increase Arrivals/Departures at High Density Airports



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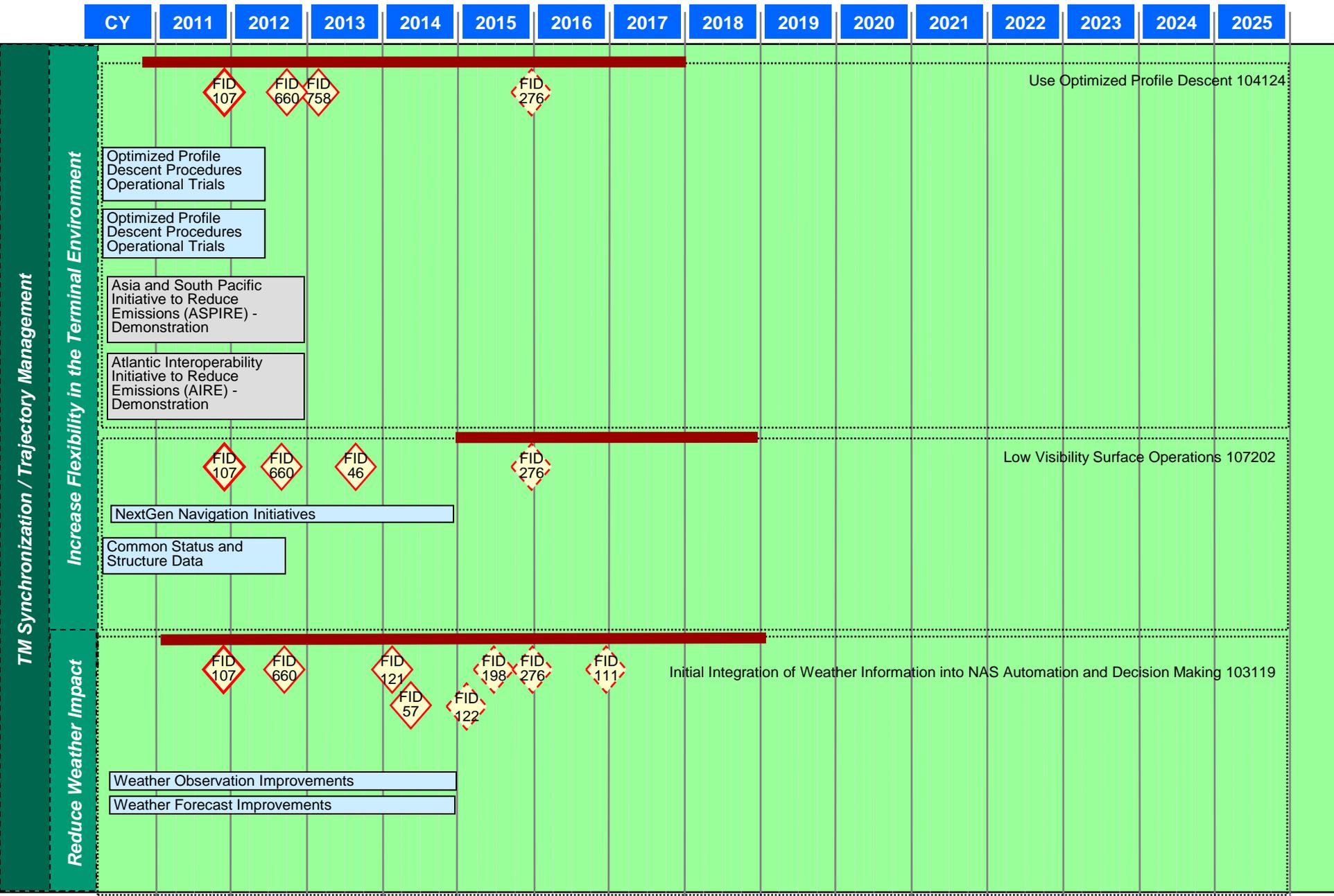
Automation Roadmap (7 of 16)



TM Synchronization / Trajectory Management
Increase Arrivals/Departures at High Density Airports

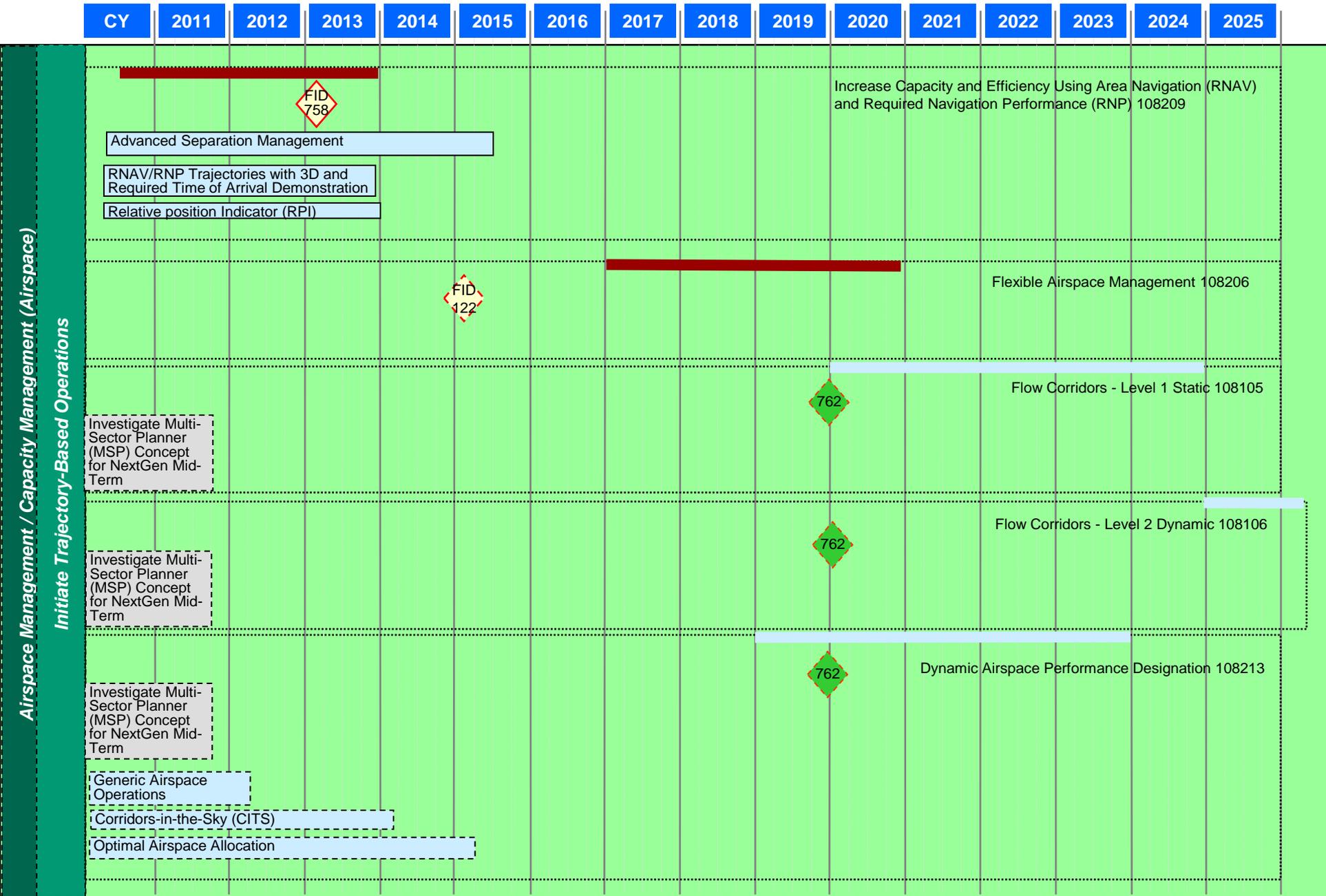
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Automation Roadmap (8 of 16)



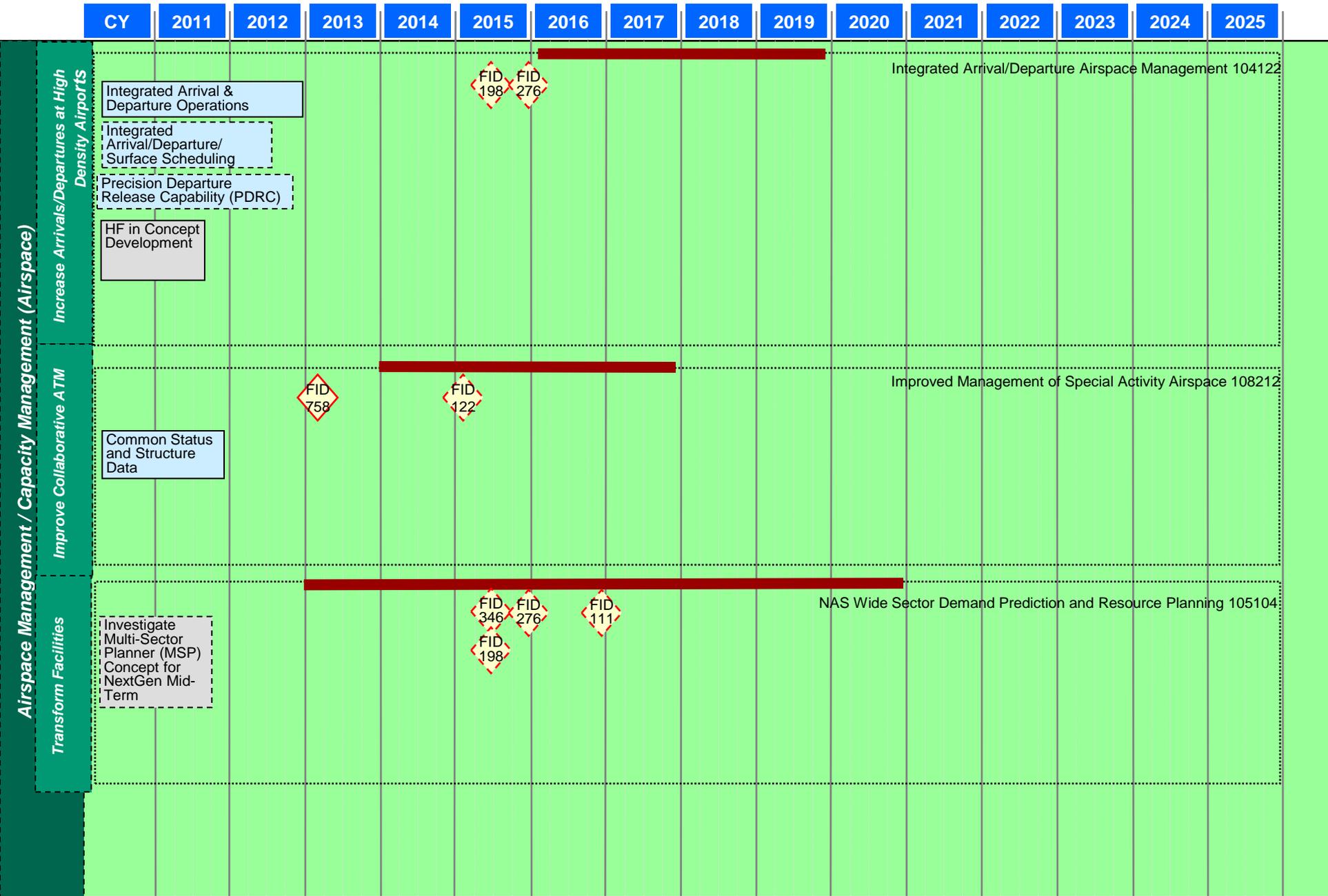
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Automation Roadmap (9 of 16)



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Automation Roadmap (10 of 16)



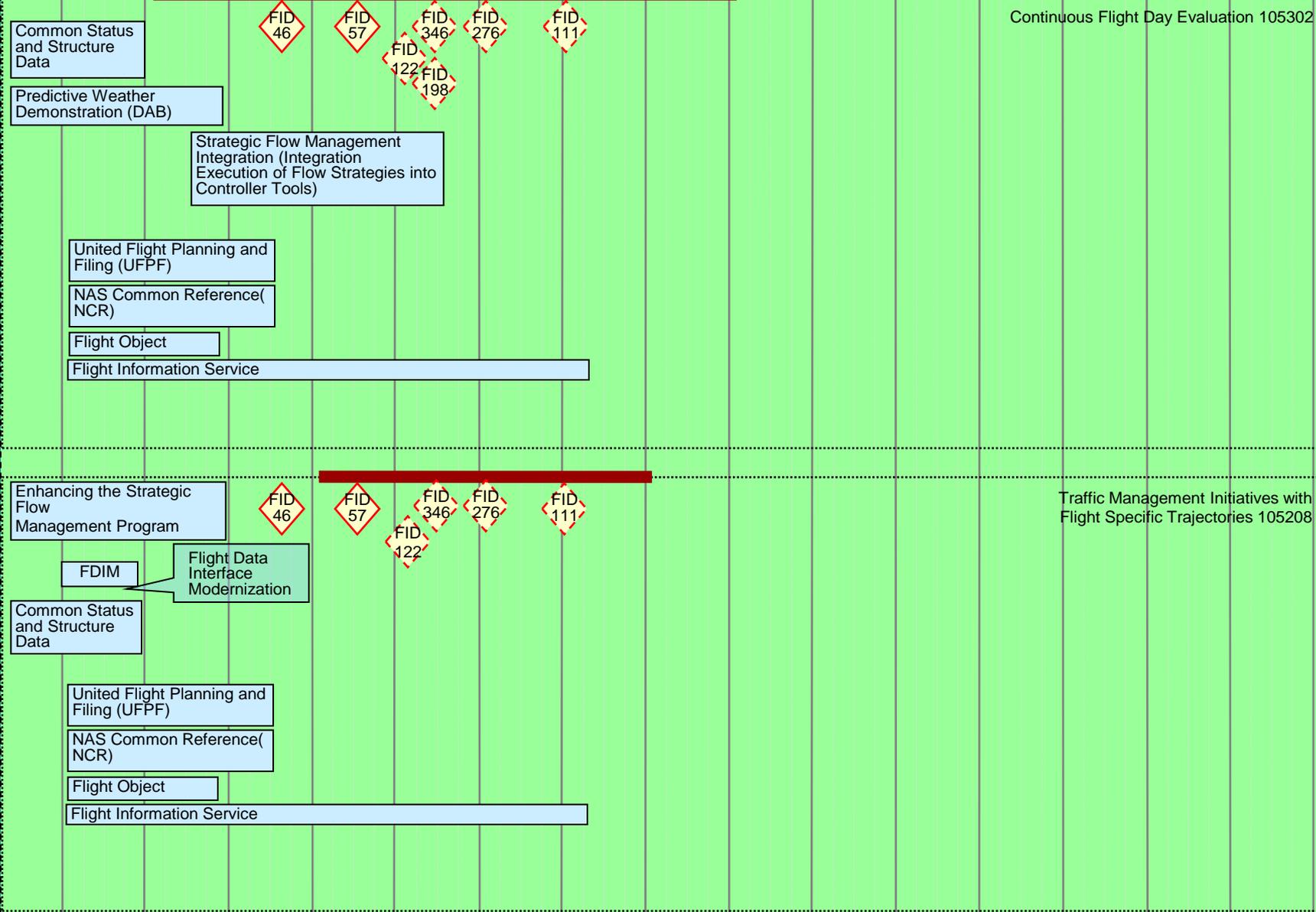
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Automation Roadmap (11 of 16)

CY	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
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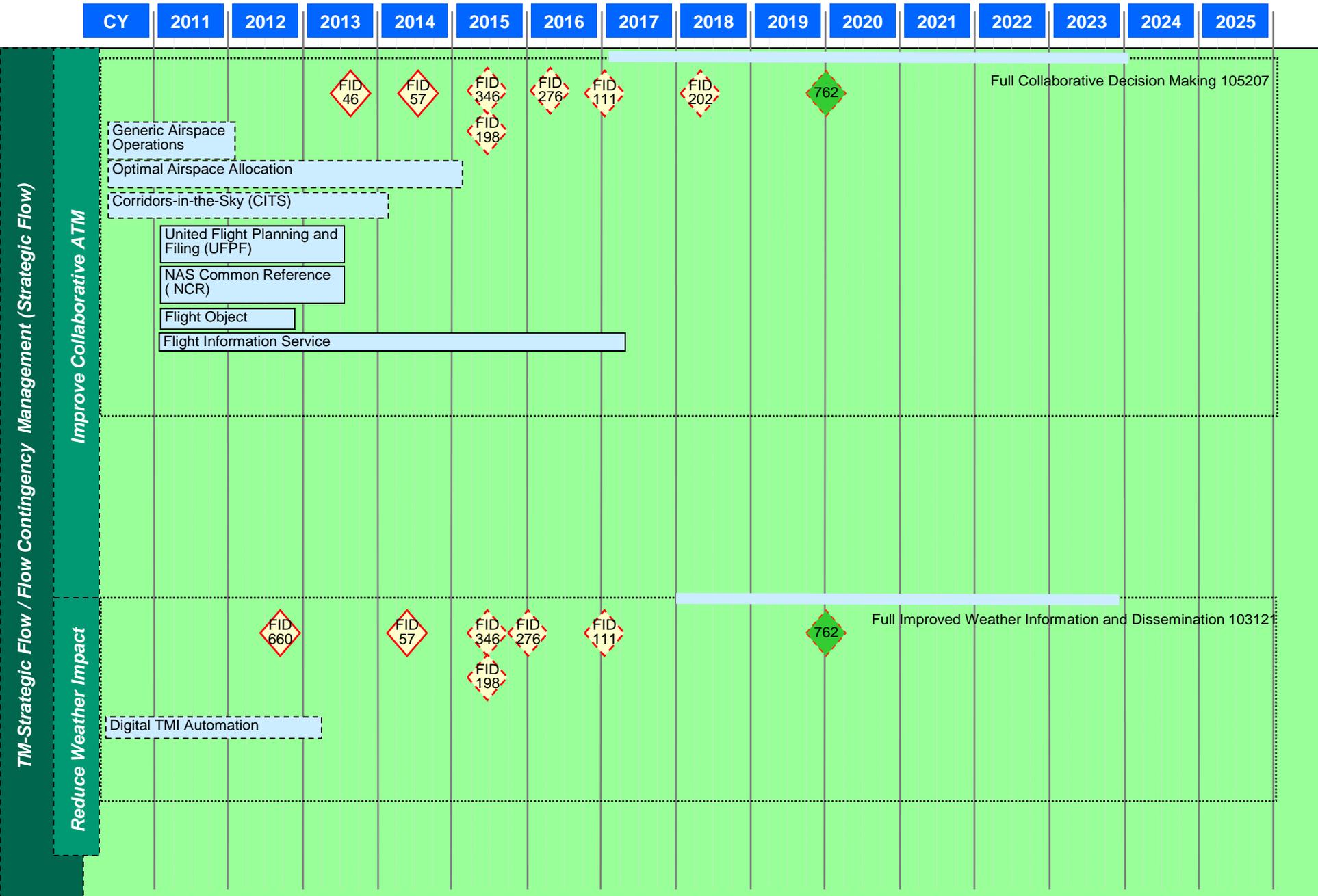
TM-Strategic Flow / Flow Contingency Management (Strategic Flow)

Improve Collaborative ATM

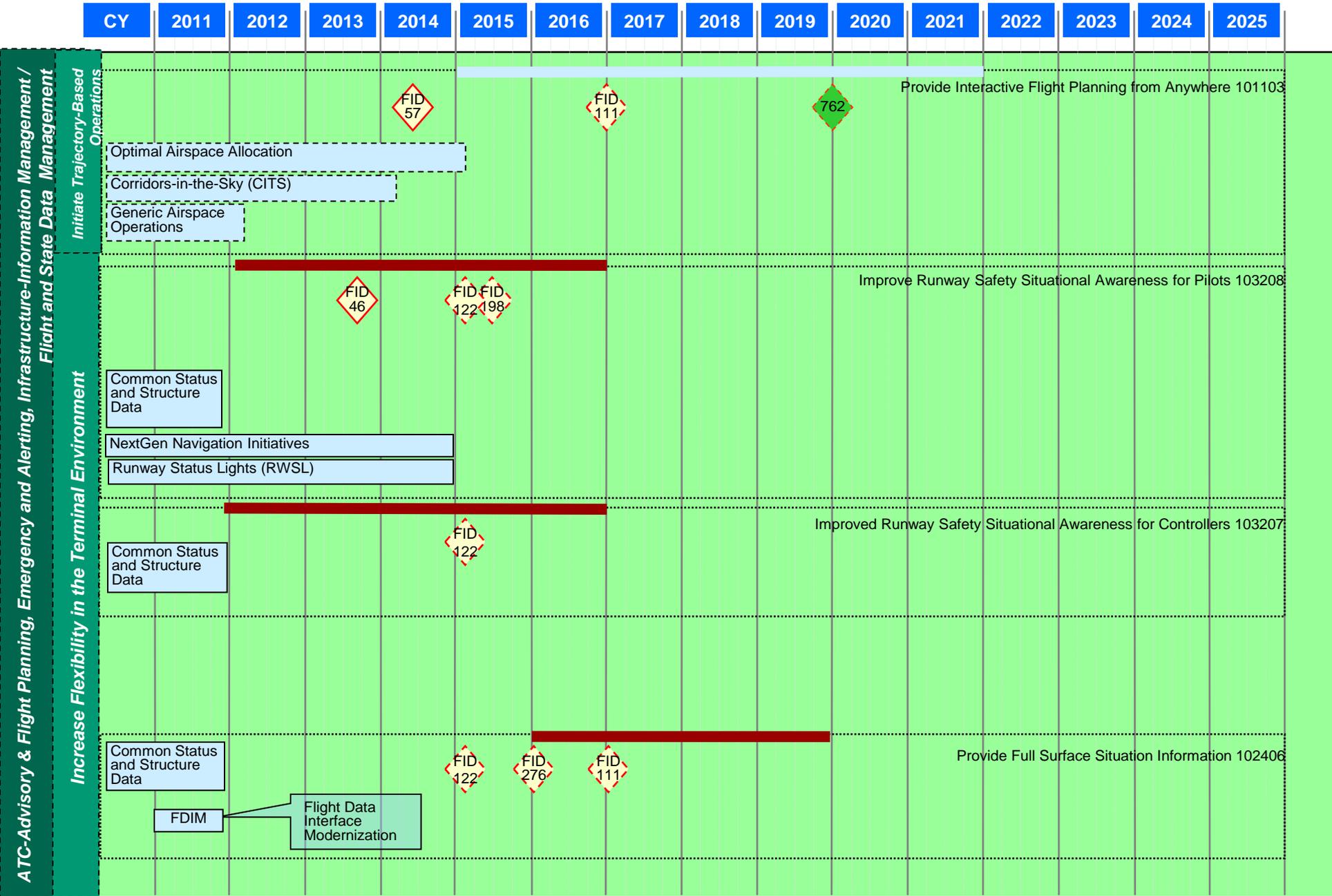


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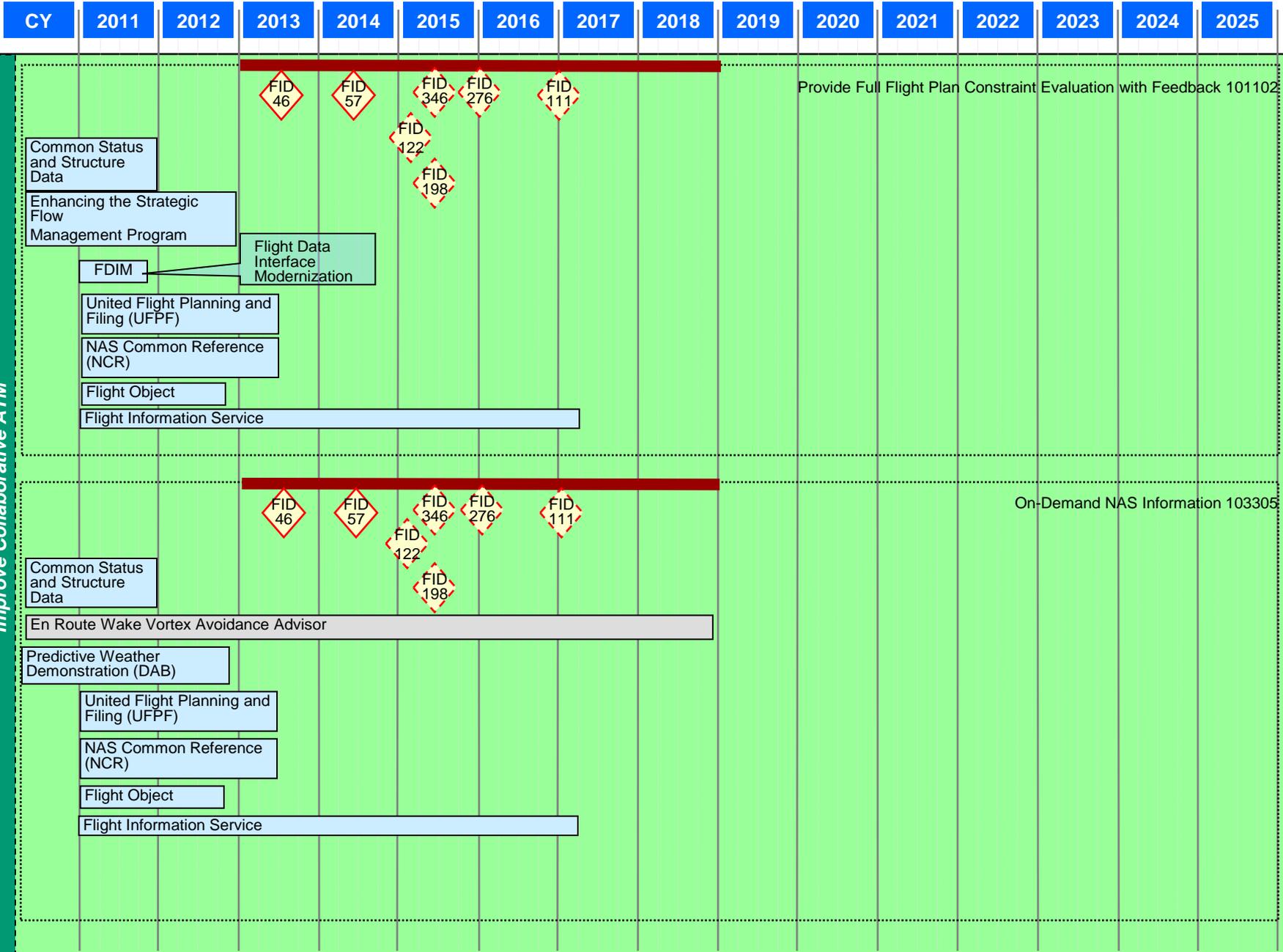


Automation Roadmap (13 of 16)



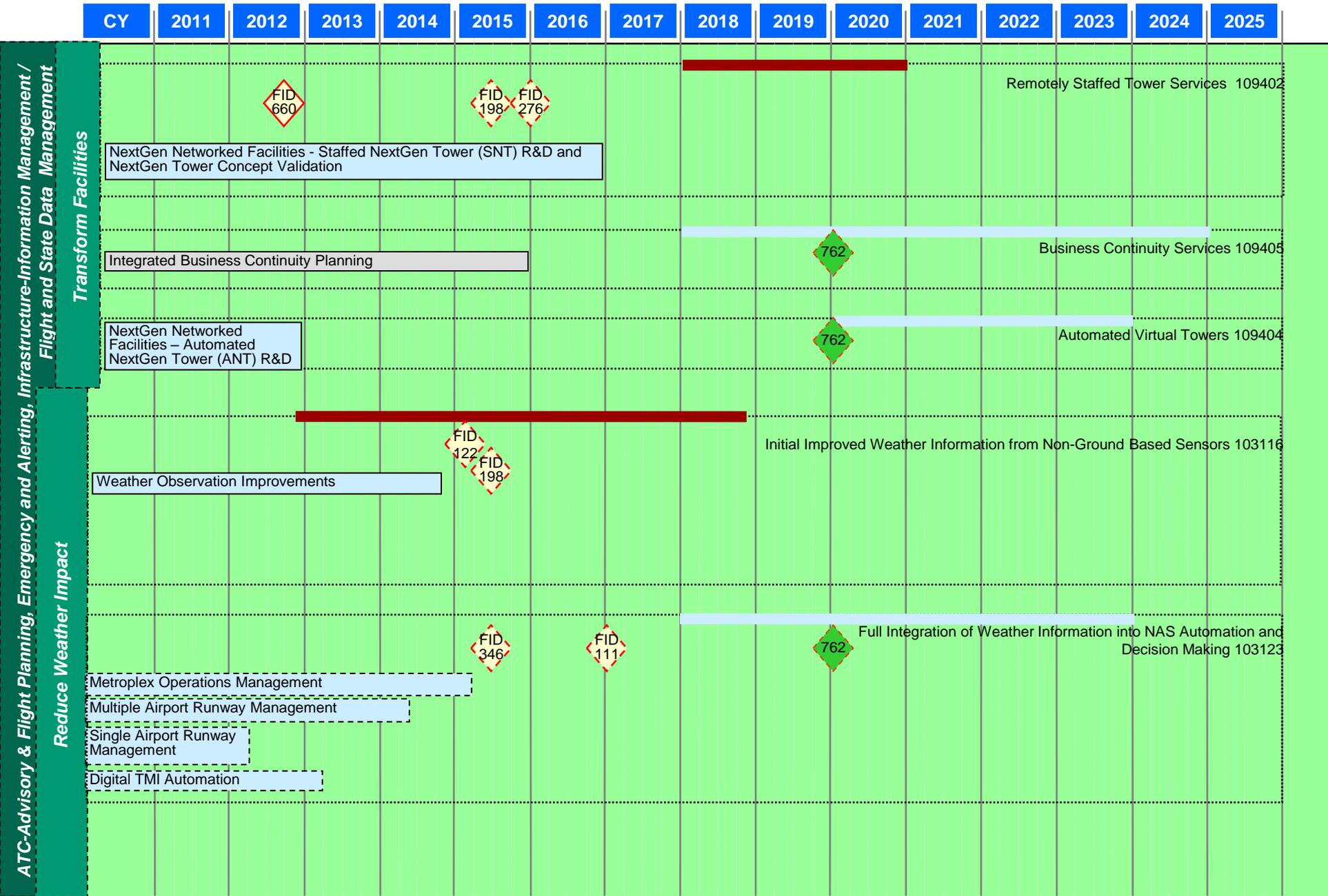
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Automation Roadmap (14 of 16)



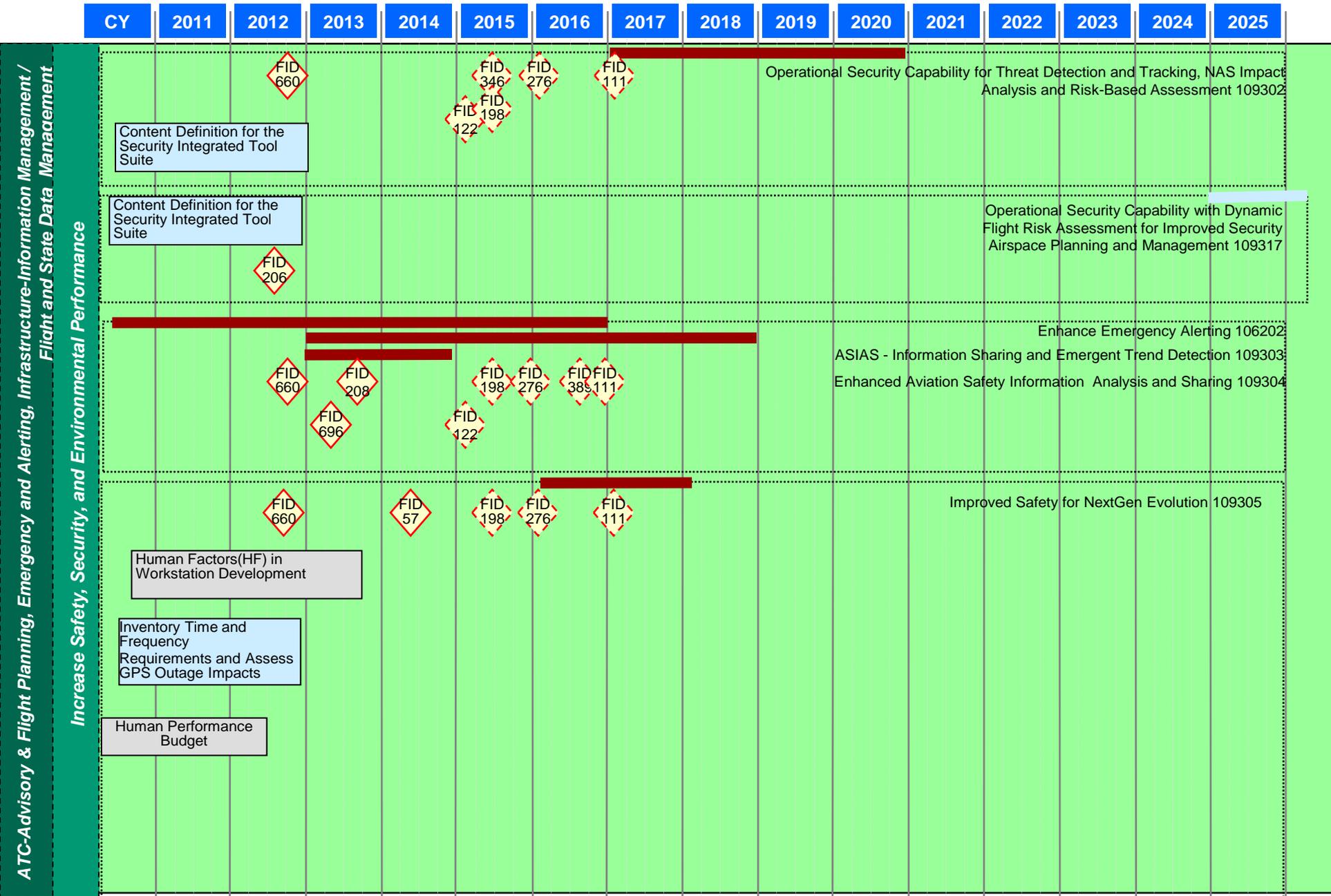
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Automation Roadmap (15 of 16)



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Automation Roadmap (16 of 16)



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Automation Roadmap: Assumptions

Identifier	Description
AUTO-01	Net-centric Enterprise Services will replace designated existing point to point interfaces with a system based on a Service Oriented Architecture providing enhanced data exchange, enhanced flexibility, and enhanced security for FAA Operations Personnel, and airspace users within a common information environment to support NextGen Operational Improvements.
AUTO-02	ADS-B is a necessary infrastructure element to support Trajectory Based Operations, Flexible Terminal, and High Density Terminal solution sets.
AUTO-03	Data Communication is a necessary infrastructure element to support Trajectory Based Operations, Flexible Terminal, and High Density Terminal solution sets.
AUTO-06	Operational Service Units will be responsible for JRC Final Investment Decisions.
AUTO-07	Policy and standards decisions prescribing the use of hand-held devices for data messaging by General Aviation pilots and aircraft are established.
AUTO-08	Consistent security management across Data Communication, Automation and SWIM support the evolution.
AUTO-09	Human-system integration will be conducted during analysis, design, development, and testing of Automation programs.
AUTO-10	Safety analysis and considerations will be included in all applicable phases of Automation analysis, design, development, and testing and platforms will provide data as required for safety monitoring and analysis.
AUTO-11	Automation platform designs will support environmental and energy saving initiatives.

Automation Roadmap: Decision Points (1 of 3)

DP #	Target Date CY	High Priority	Domain	Name
31	2012 Q1	Y	Automation	Strategy Decision to proceed with ERAM R4 functions using combined program funds from SWIM, DATA COMM, Airborne Reroute and GIM
46	2013 Q3	Y	Automation	Final Investment Decision (FID) for Tower Flight Data Manager (TFDM)
57	2014 Q2	Y	Automation	Final Investment Decision (FID) for TBFM/WP3
68	2013	N	Automation	Strategy Decision to support NASE integration with AIM
75	2016	Y	Automation	Initial Investment Decision (IID) for En Route Automation NextGen Mid-Term WP
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems
107	2011 Q4	Y	Automation	Final Investment Decision (FID) for TAMR Phase 3 Segment 1 (Complete)
111	2017	Y	Automation	Final Investment Decision (FID) for En Route Automation NextGen Mid-Term WP
115	2012 Q3	Y	Automation	Initial Investment Decision (IID) for Tower Flight Data Manager
117	2015	N	Automation	Strategy Decision to decommission FDIO systems
121	2014 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 2
122	2015 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 3
177	2018	Y	Automation	Initial Investment Decision (IID) for Security Integrated Tool Suite (SITS)
198	2015	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 2
201	2019	Y	Automation	Initial Investment Decision (IID) for En Route & Oceanic Automation NextGen Far-Term WP
202	2020	Y	Automation	Final Investment Decision (FID) for En Route & Oceanic Automation NextGen Far-Term WP
206	2019	Y	Automation	Final Investment Decision (FID) for Security Integrated Tool Suite (SITS)
207	2011 Q4	N	Automation	Strategy decision for the continuation of DUAT (Complete)
208	2013 Q3	Y	Automation	Final Investment Decision (FID) for Future Flight Services Program (FFSP)
275	2015	Y	Automation	Initial Investment Decision (IID) for TRACON Automation NextGen Mid-Term WP
276	2016	Y	Automation	Final Investment Decision (FID) for TRACON Automation NextGen Mid-Term WP
304	2022	Y	Communication	Final Investment Decision (FID) for Data Comm Segment 2
346	2015	Y	Automation	Final Investment Decision (FID) for CATMT Work Package 4

Automation Roadmap: Decision Points (2 of 3)

DP #	Target Date CY	High Priority	Domain	Name
353	2012 Q2	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Phase 1: Tower Services, DCIS Contract and ERAM PGW and Logon
354	2012 Q1	Y	Automation	Concept Requirements (CRDR) for CATMT Work Package 4
355	2013	Y	Automation	Investment Analysis Readiness Decision (IARD) for CATMT Work Package 4
356	2014	Y	Automation	Initial Investment Decision (IID) for CATMT Work Package 4
357	2013 Q1	Y	Automation	Investment Analysis Readiness Decision (IARD) for TBFM/WP3
358	2017	Y	Automation	Concept and Requirements Definition Readiness (CRDR) for En Route & Oceanic Automation NextGen Far-Term WP
359	2018	Y	Automation	Investment Analysis Readiness Decision (IARD) for En Route & Oceanic Automation NextGen Far-Term WP
360	2014	Y	Automation	Concept and Requirements Definition Readiness (CRDR) for En Route Automation NextGen Mid-Term WP.
361	2015	Y	Automation	Investment Analysis Readiness Decision (IARD) for En Route Automation NextGen Mid-Term WP.
362	2013	Y	Automation	Concept and Requirements Definition Readiness (CRDR) for TRACON Automation NextGen Mid-Term WP.
363	2014	Y	Automation	Investment Analysis Readiness Decision (IARD) for TRACON Automation NextGen Mid-Term WP.
367	2012 Q2	N	Automation	Investment Analysis Readiness Decision (IARD) for Future Flight Services Program (FFSP)
368	2013 Q1	Y	Automation	Initial Investment Decision (IID) for Future Flight Services Program (FFSP)
387	2015 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for Offshore Automation Systems Consolidation
388	2016 Q1	Y	Automation	Initial Investment Decision (IID) for Offshore Automation Systems Consolidation
389	2016 Q3	Y	Automation	Final Investment Decision (FID) for Offshore Automation Systems Consolidation
596	2011 Q1	N	Automation	Final Investment Decision (FID) for Traffic Flow Management Sustainment Final Investment Decision
630	2012 Q4	N	Automation	Policy Decision on Data Rights and Release Policies For Sharing Surface and Arrival Data
660	2012 Q3	Y	Automation	Final Investment Decision (FID) for TAMR P3S2 (Phase 3 Segment 2)
694	2012 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for AMMS Work Package 1 and Work Package 2

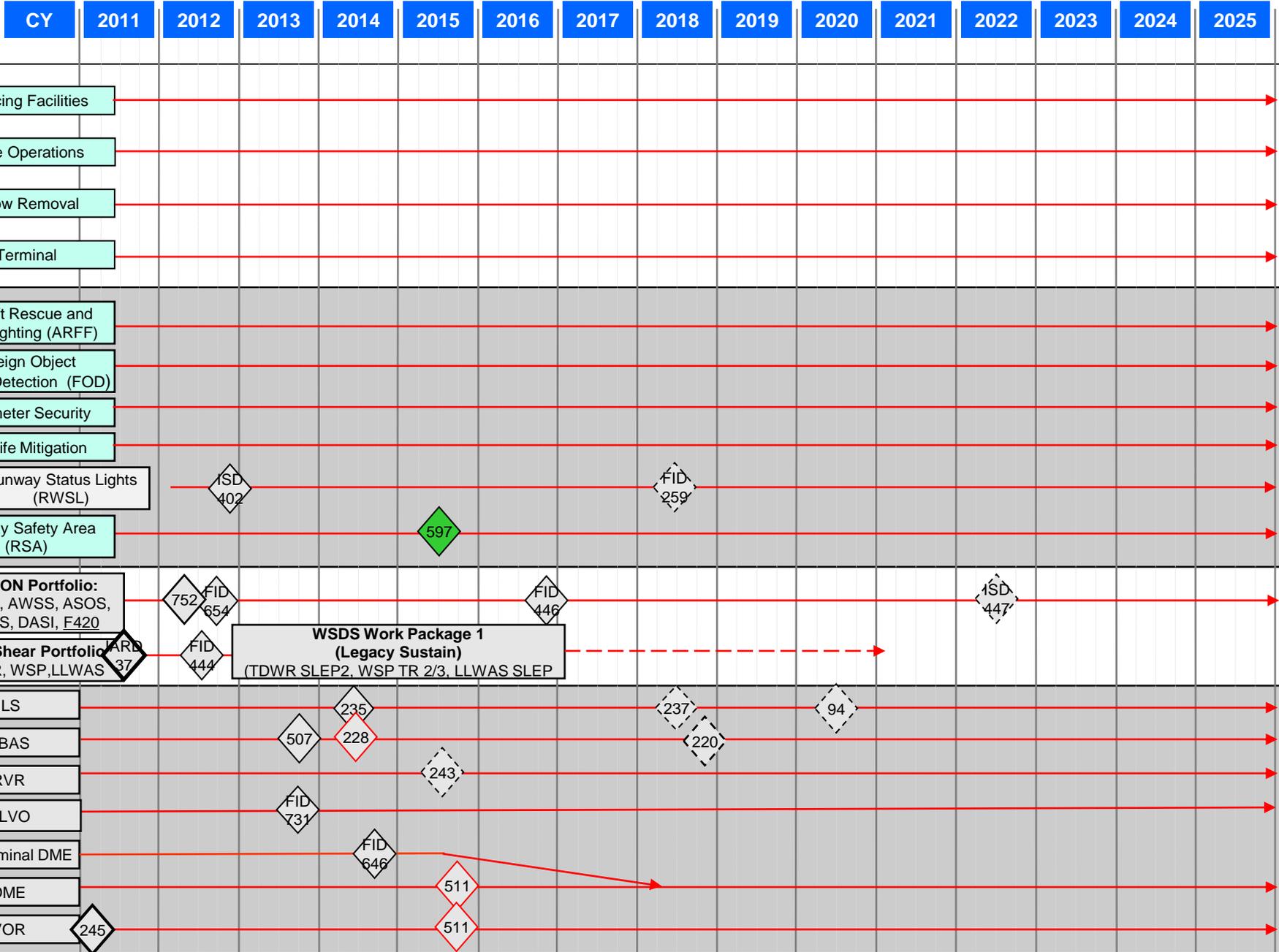
Automation Roadmap: Decision Points (3 of 3)

DP #	Target Date CY	High Priority	Domain	Name
695	2013 Q1	Y	Automation	Initial Investment Decision (IID) for AMMS Work Package 1 and Work Package 2
696	2013 Q4	Y	Automation	Final Investment Decision (FID) for AMMS Work Package 1 and Work Package 2
697	2012 Q4	Y	Automation	Investment Analysis Readiness Decision (IARD) for RMLS Technology Refresh
698	2013 Q4	Y	Automation	Final Investment Decision (FID) for RMLS Technology Refresh
700	2013 Q1	Y	Automation	Strategy Decision for AMMS and RMLS NextGen Integration
748	2011 Q2	N	Automation	Baseline Change Decision (BCD) for ERAM
765	2017	Y	Automation	Concept and Requirements Definition Readiness (CRDR) for TRACON Automation NextGen Far-Term WP
766	2018	Y	Automation	Investment Analysis Readiness Decision (IARD) for TRACON Automation NextGen Far-Term WP
767	2019	Y	Automation	Initial Investment Decision (IID) for TRACON Automation NextGen Far-Term WP
768	2020	Y	Automation	Final Investment Decision (FID) for TRACON Automation NextGen Far-Term WP
769	2017	Y	Automation	Investment Analysis Readiness Decision (IARD) for Security Integrated Tool Suite (SITS)
758	2013 Q1	Y	Automation	Final Investment Decision (FID) for ERAM D-Position and System Enhancements
759	2013	N	Automation	Strategy decision on direction of oceanic and offshore platforms including sustainment, termination, migration, and consolidation
760	2015	N	Automation	Strategy decision on the direction of HADDS, ECG and ERIDS including sustainment, termination, migration, and consolidation
761	2015	Y	Automation	Strategy decision on the content and allocation of functions to Program Office For NextGen Mid-Term Work Package
762	2020	Y	Automation	Strategy decision on the content and allocation of functions to Program Office For NextGen Far-Term Work Package
763	2018	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 3
764	2013 Q3	Y	Automation	Initial Investment Decision (IID) for TBFM Work Package 3
828	2012 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for AIM Segment 2
829	2013 Q1	Y	Automation	Initial Investment Decision (IID) for AIM Segment 2
830	2013 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for AIM Segment 3
831	2014 Q1	Y	Automation	Initial Investment Decision (IID) for AIM Segment 3

Airport Roadmaps

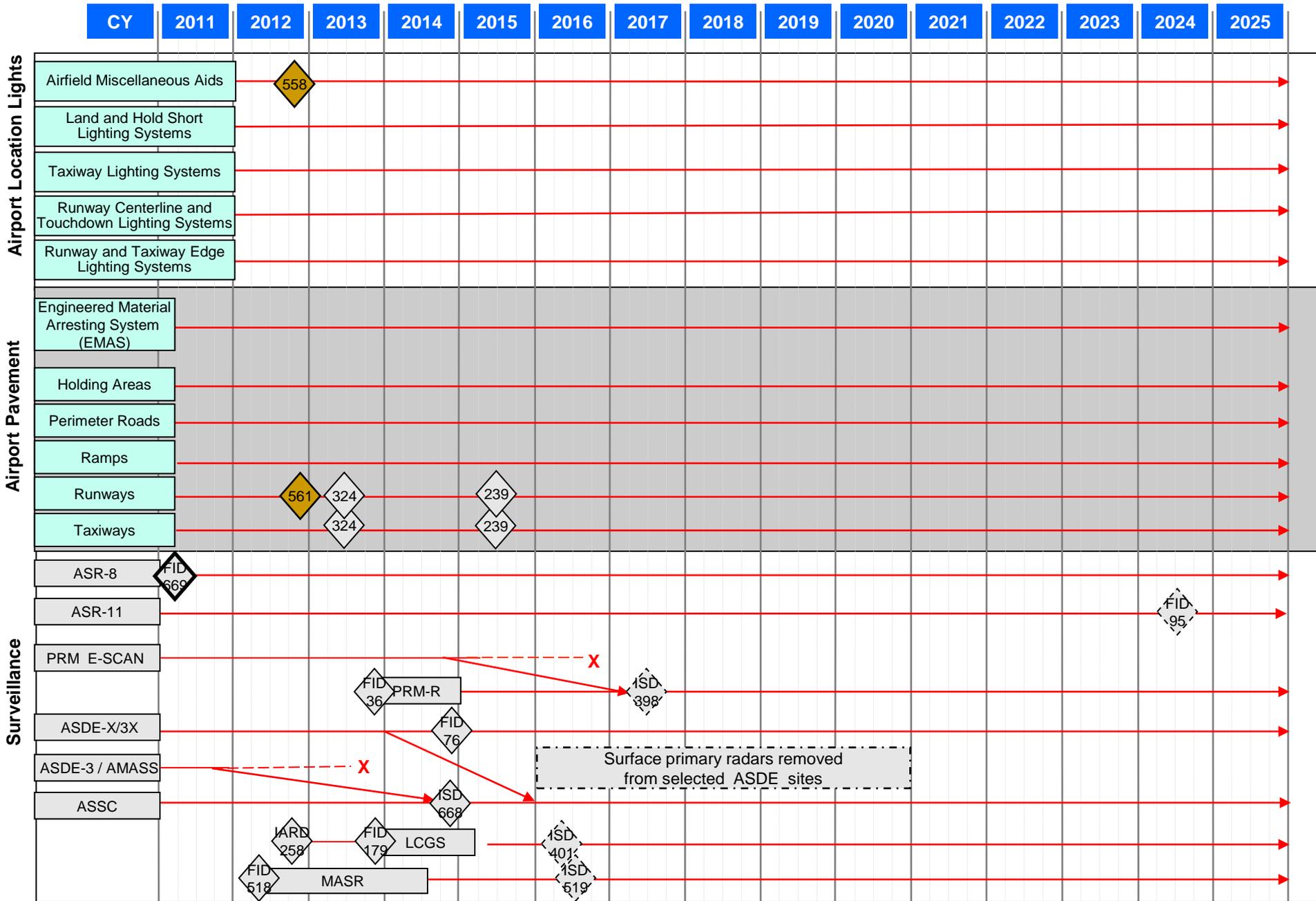
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Airport Roadmap (1 of 5)



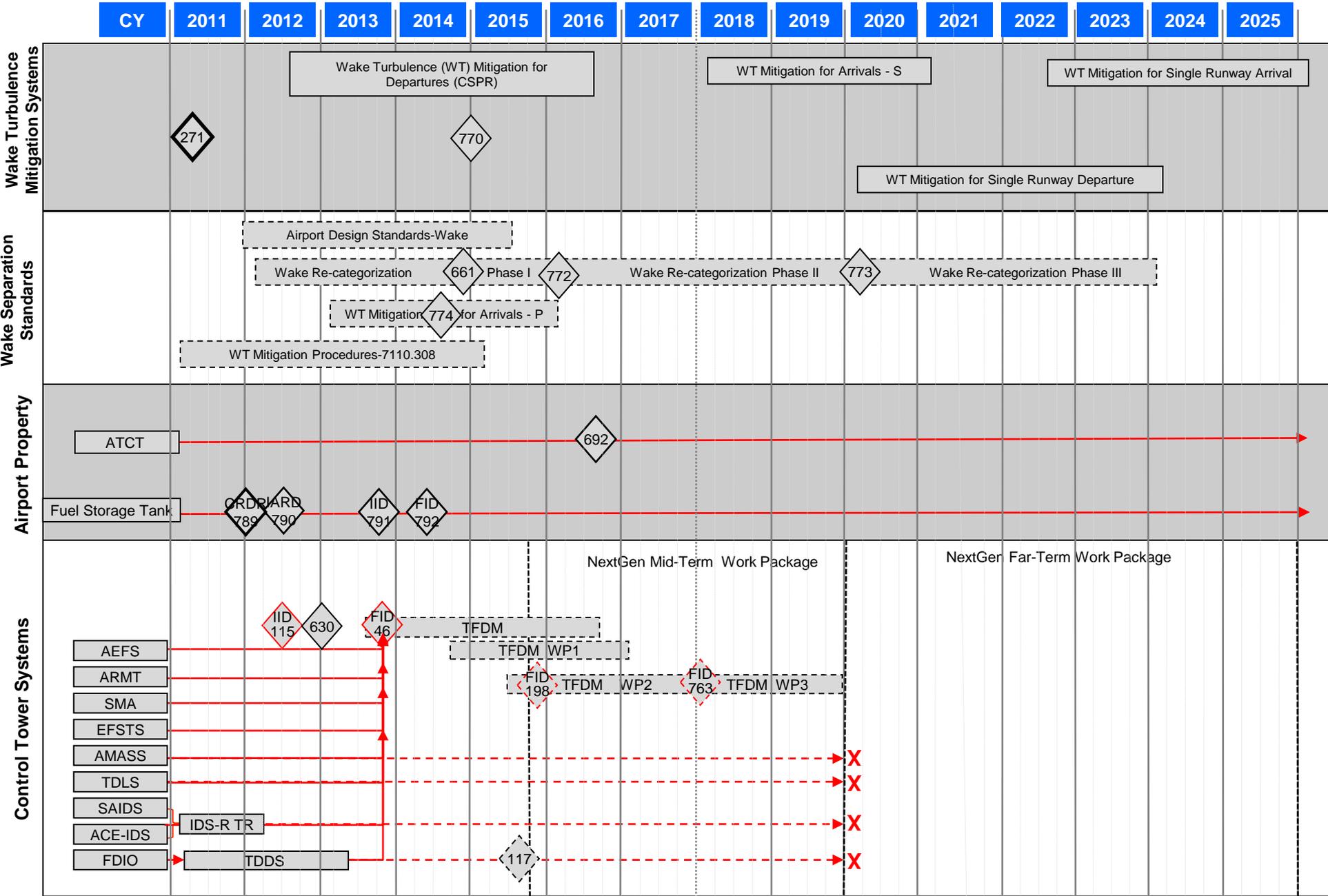
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Airport Roadmap (2 of 5)



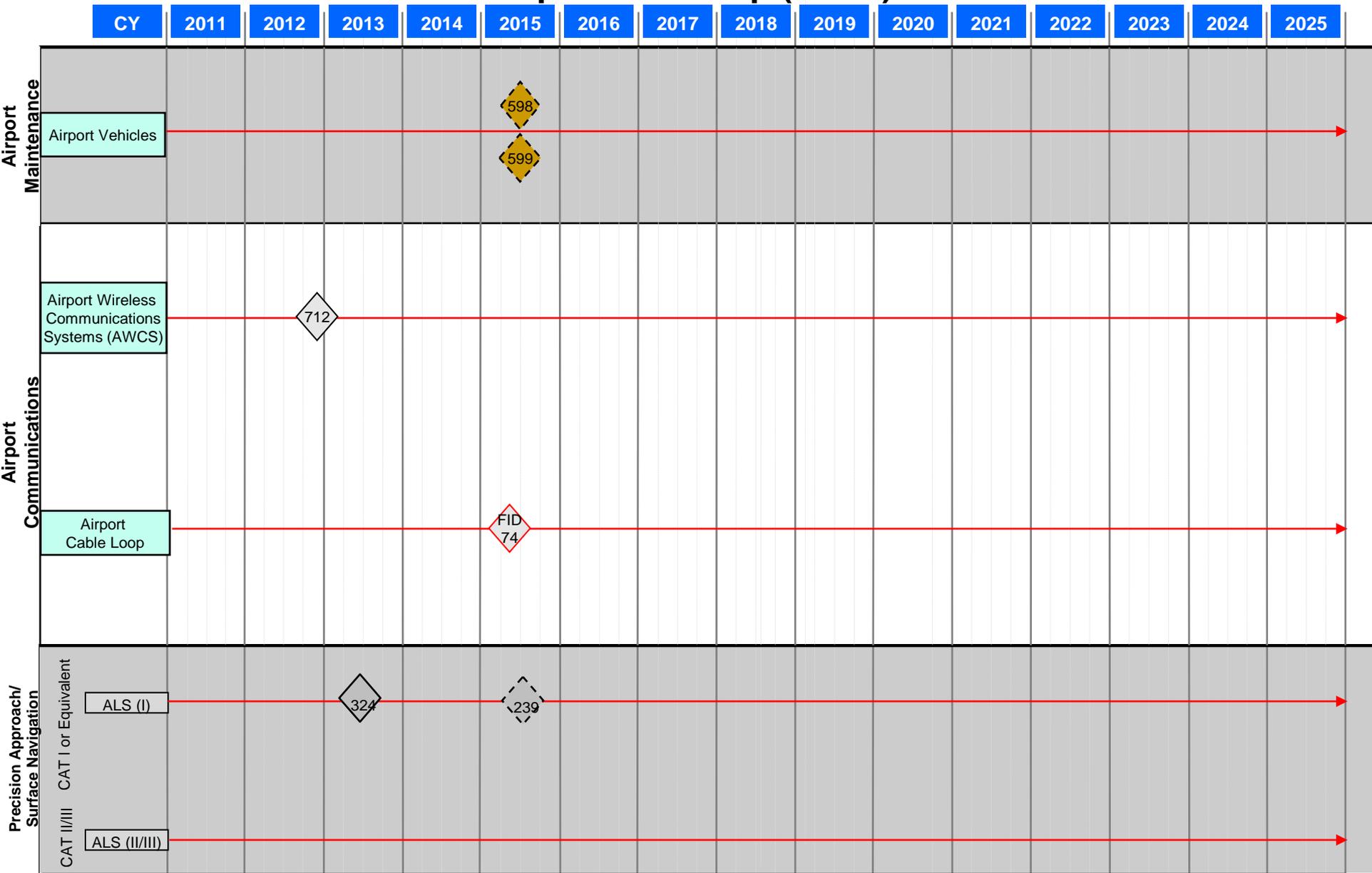
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Airport Roadmap (3 of 5)



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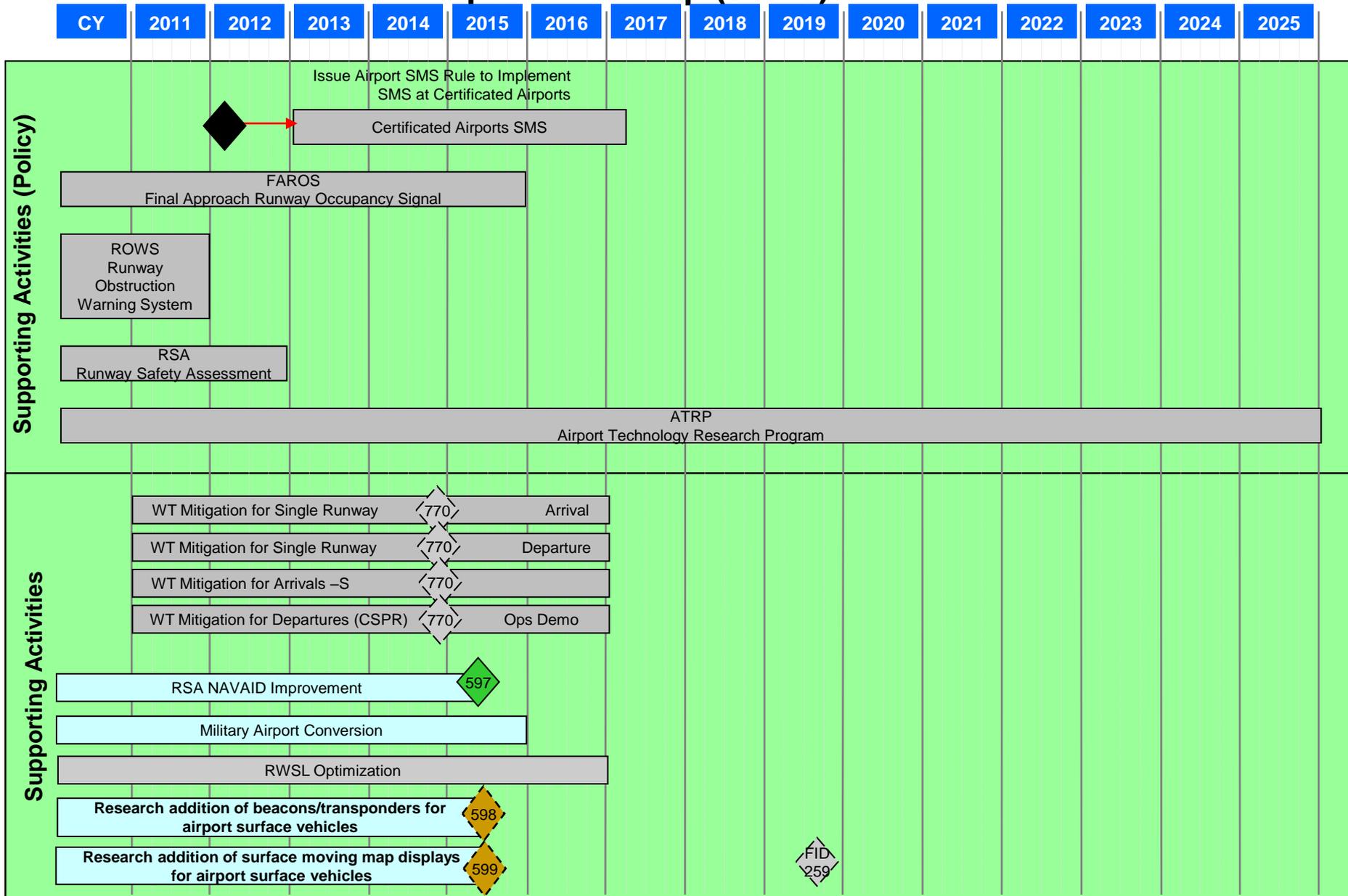
Airport Roadmap (4 of 5)



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Airport Roadmap (5 of 5)

Infrastructure



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Airport Roadmap: Assumptions

Identifier	Description
APT-01	This roadmap will focus on airport airside and landside activities (not including inside the airport terminal), and arrival/departure operations out to about 5 miles.
APT-02	Airports are covered in general; specific airports are not described.
APT-03	Initial work covers large/medium hub airports.
APT-04	Key decisions are pulled from other roadmaps.
APT-05	This is an initial roadmap that connects FAA infrastructure elements to airport airside infrastructure elements, and provides a basis for future tracking of the boundary and boundary issues.

Airport Roadmap: Decision Points (1 of 3)

DP #	Target Date CY	High Priority	Domain	Name
36	2013 Q4	N	Surveillance	Final Investment Decision (FID) for migration of PRM to PRM-R (based on multilateration)
37	2011 Q2	N	Weather	Investment Analysis Readiness Decision (IARD) for Wind Shear Detection Services (WSDS) Work Pkg 1 to 1) SLEP/Tech Refresh Legacy Wind Shear systems (TDWR, WSP & LLWAS) & 2) includes System Eng'g and Level 1 activity & funding (2014/15) for work-ups for New York TDWR Relocation. Note: Pgm Ofc to query AEB if IID needed (DP 443) or combine with tailored IARD (Complete)
46	2013 Q3	Y	Automation	Final Investment Decision (FID) for Tower Flight Data Manager (TFDM)
74	2015 Q2	Y	Communication	Final Investment Decision (FID) for FTI 2
76	2014 Q4	N	Surveillance	Final Investment Decision (FID) for removal or SLEP/replace ASDE surface primary radars (evolving requirements for safety and security may impact decision)
94	2020	N	Navigation	Policy decision on complete Instrument Landing System (ILS) CAT I drawdown
95	2024	N	Surveillance	Final Investment Decision (FID) for replacement of terminal primary radars (ASR-11 PSR) and removal of terminal beacons (ASR-11 MSSR)
115	2012 Q3	Y	Automation	Initial Investment Decision (IID) for Tower Flight Data Manager
117	2015	N	Automation	Strategy Decision to decommission FDIO systems
179	2013 Q4	N	Surveillance	Combined Initial Investment Decision (IID) and Final Investment Decision (FID) for LCGS
198	2015	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 2
220	2018	N	Navigation	Strategy Decision to cut over to Dual Frequency Operations based on completion of Dual Frequency (GPS L1 and L5) development & testing.
228	2014	Y	Navigation	Strategy Decision to proceed with WAAS dual frequency avionics activities to validate standards and lower risk for avionics development.
235	2014	N	Navigation	Strategy Decision on active drawdown of CAT I ILSs operating in the NAS
237	2018	N	Navigation	Strategy Decision on replacement CAT II/III ILSs operating in the NAS
239	2015	N	Navigation	Strategy Decision to proceed with ALS (I) Production LED Lamps for MALSR systems based on results of Benefit Cost Analysis
243	2015	N	Navigation	Strategy Decision to implement enhanced capability based on results of Surface Navigation R&D
245	2011 Q1	N	Navigation	Strategy Decision on near-term minimum operational VOR ground network (Complete)

Airport Roadmap: Decision Points (2 of 3)

DP #	Target Date CY	High Priority	Domain	Name
258	2012 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Low Cost Ground Surveillance (LCGS)
259	2018	N	Navigation	Final Investment Decision (FID) for RWSL Technology Refresh
271	2011 Q2	N	Airspace & Procedures	Wake Turbulence Procedures (Complete)
324	2013	N	Navigation	Decision to proceed with ALS (I) LED lamps, based on Operational Capability Demonstration with Enhanced Flight Vision System (EFVS) aircraft
398	2017 Q3	N	Surveillance	In-Service Decision (ISD) for PRM-R (based on multilateration)
401	2016 Q2	N	Surveillance	In-Service Decision (ISD) for Low Cost Ground Surveillance system
402	2012 Q4	N	Navigation	In-Service decision for Runway Status Light System
444	2012 Q2	N	Weather	Investment Decision (FID) to Tech Refresh/SLEP wind shear detection services legacy systems to sustain capability (to include level 1 activity/funding for New York TDWR relocation)
446	2017 Q2	N	Weather	Final Investment Decision (FID) to consolidate and replace ASWON automated surface observing capability (replacement for all ASWON sensors plus NextGen requirements)
447	2023	N	Weather	In-Service Decision (ISD) to consolidate and replace all automated surface observing systems with NextGen Surface Observing Capability plus NextGen requirements
507	2013	N	Navigation	Baseline Change Decision (BCD) to move WAAS from Phase III to Phase IV
511	2015 Q3	Y	Navigation	Alternate Position, Navigation, and Timing (APNT) solution determined
518	2012 Q2	N	Surveillance	Final Investment Decision (FID) for a Mobile/Transportable Airport Surveillance Radar (MASR)
519	2016	N	Surveillance	In-Service Decision (ISD) for a Mobile/Transportable Airport Surveillance Radar (MASR)
558	2012 Q4	N	Airport	Decision to Implement LED Airport Lighting Phase In
561	2012 Q4	N	Airport	Decision to Implement Energy Independence and Security Act (EISA) Compliance Policy
597	2015	N	Airport	Runway Safety Area (RSA) NAVAID Improvements
598	2015	N	Airport	Decision on Requirements/Policy for beacon/transponders in airport surface vehicles
599	2015	N	Airport	Decision on Requirements/Policy for Surface Moving Maps in airport surface vehicles
630	2012 Q4	N	Automation	Policy Decision on Data Rights and Release Policies For Sharing Surface and Arrival Data
646	2014 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)

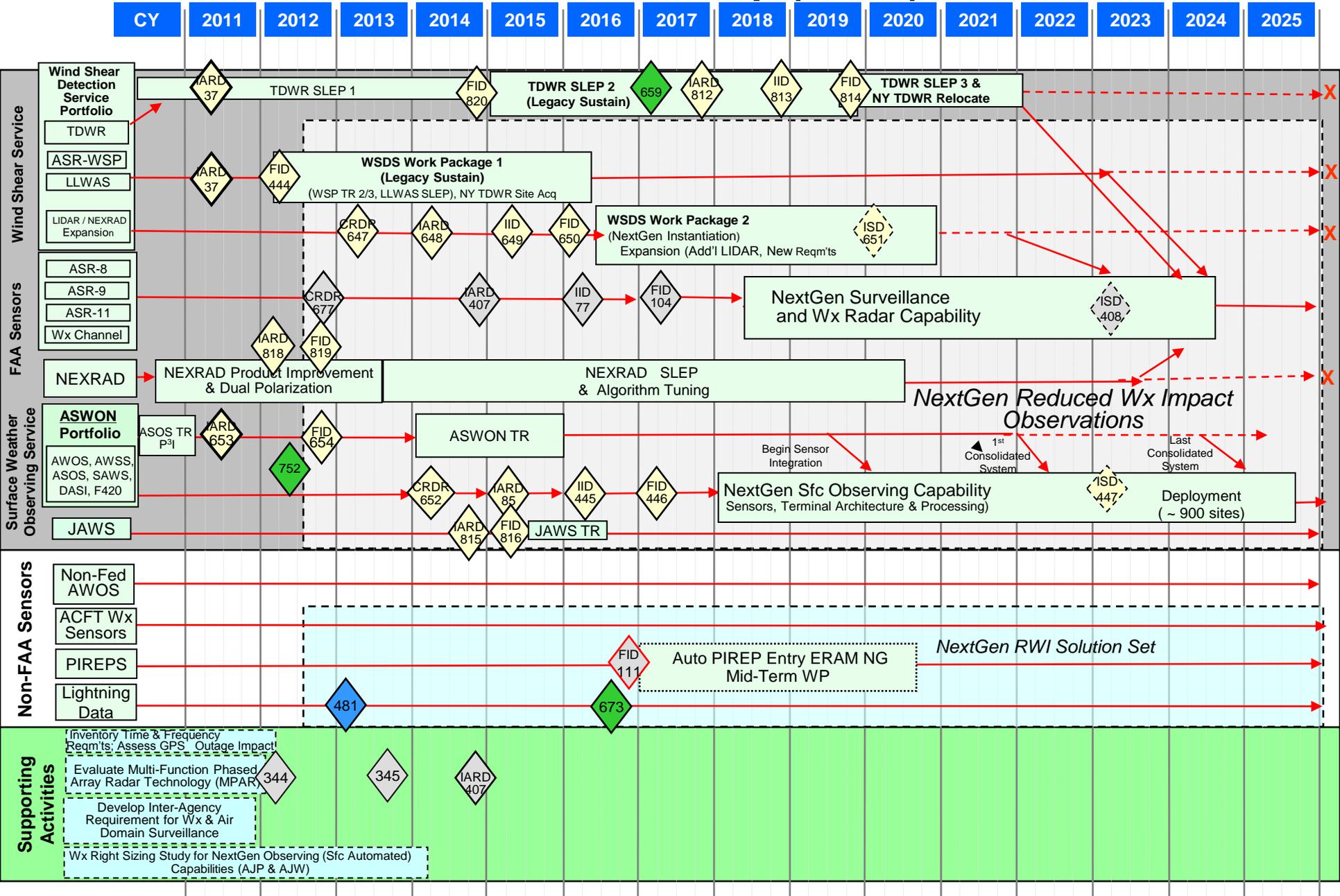
Airport Roadmap: Decision Points (3 of 3)

DP #	Target Date CY	High Priority	Domain	Name
654	2012 Q3	N	Weather	Investment Decision (FID) for ASWON Tech Refresh of ASOS/AWOS/AWSS processors & S/W until NextGen Surface Observing Capability FOC circa 2027
661	2014 Q4	N	Airspace & Procedures	Wake Re-Categorization
668	2014 Q4	N	Surveillance	In Service Decision (ISD) for Airport Surface Surveillance Capability
669	2011 Q1	N	Surveillance	Final Investment Decision (FID) for legacy radar (ASR-8) facility improvements (Complete)
692	2016	N	Facilities	Strategy Decision for Integration of Certain ATCT Functions into NextGen Facilities
712	2012 Q4	N	Communication	Strategy Decision on procurement of AeroMACS capability
731	2013 Q3	N	Navigation	Final Investment Decision (FID) for Enhanced Low Visibility Operations (ELVO)
752	2012 Q2	N	Weather	Strategy Decision for ASWON (ASOS P ³ I) pending reinstatement of EPI sensor work <i>Changed from BCD to Strategy DP; see Comment Resolution</i>
763	2018	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 3
770	2014 Q4	N	Airspace & Procedures	Strategy Decision to incorporate Wake Turbulence system functions & wake procedures into the TRACON/Terminal Mid-Term Work Package
772	2016 Q1	N	Airspace & Procedures	Decision to incorporate Wake Re-Categorization (Phase 2) into 7110.65
773	2020 Q1	N	Airspace & Procedures	Decision to incorporate Wake Re-Categorization (Phase 3) into 7110.65
774	2014 Q2	N	Airspace & Procedures	Decision to incorporate En Route Wake procedures into policy (7110.65, 7110.308, or new policy)
789	2011 Q4	N	Facilities	Concept and Requirements Definition Decision (CRDR) for Fuel Storage Tank (Complete)
790	2012 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for Fuel Storage Tank
791	2013 Q3	N	Facilities	Initial Investment Decision (IID) for Fuel Storage Tank
792	2014 Q2	N	Facilities	Final Investment Decision (FID) for Fuel Storage Tank

Weather Roadmaps

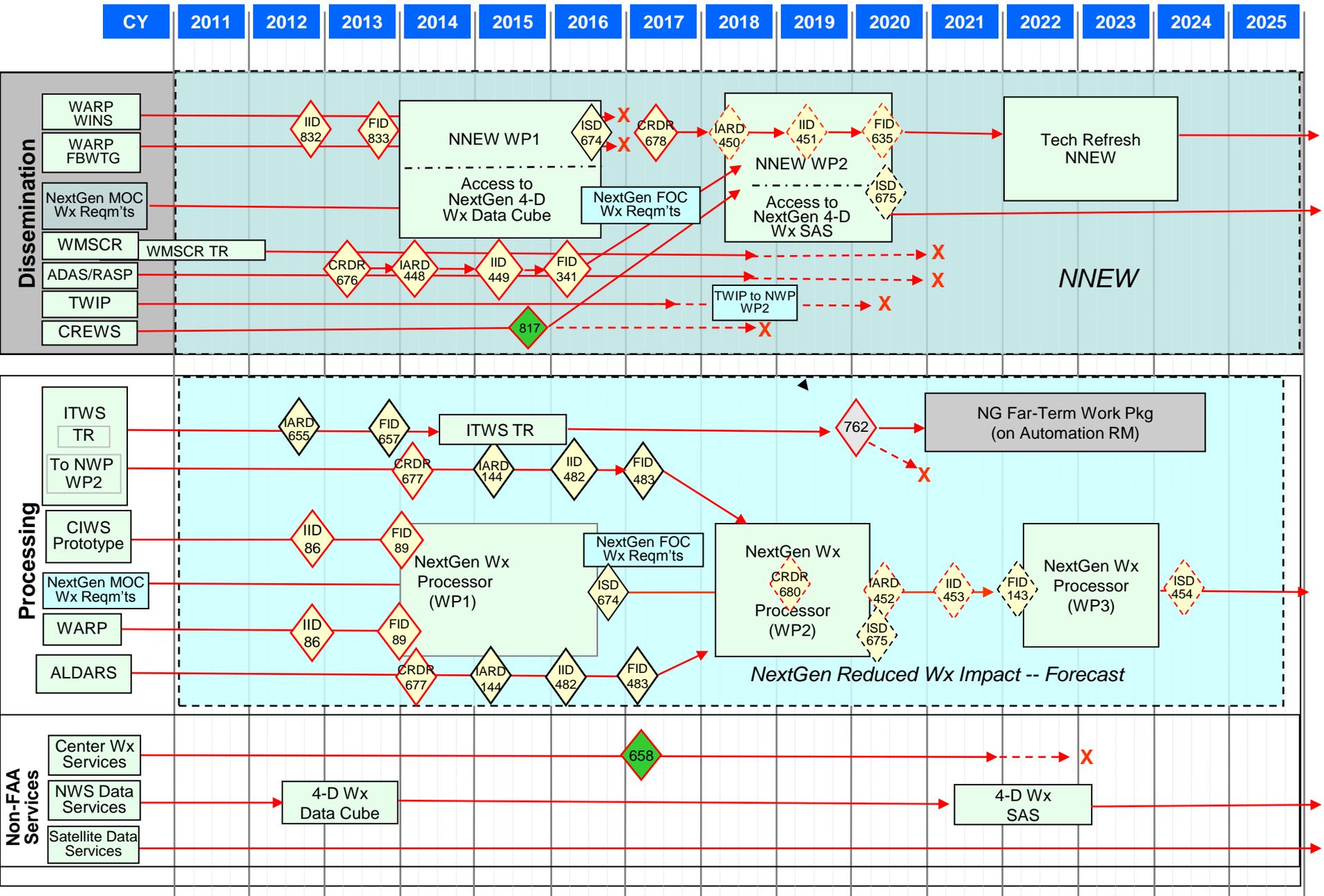
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Weather Roadmap (1 of 4)



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Weather Roadmap (2 of 4)

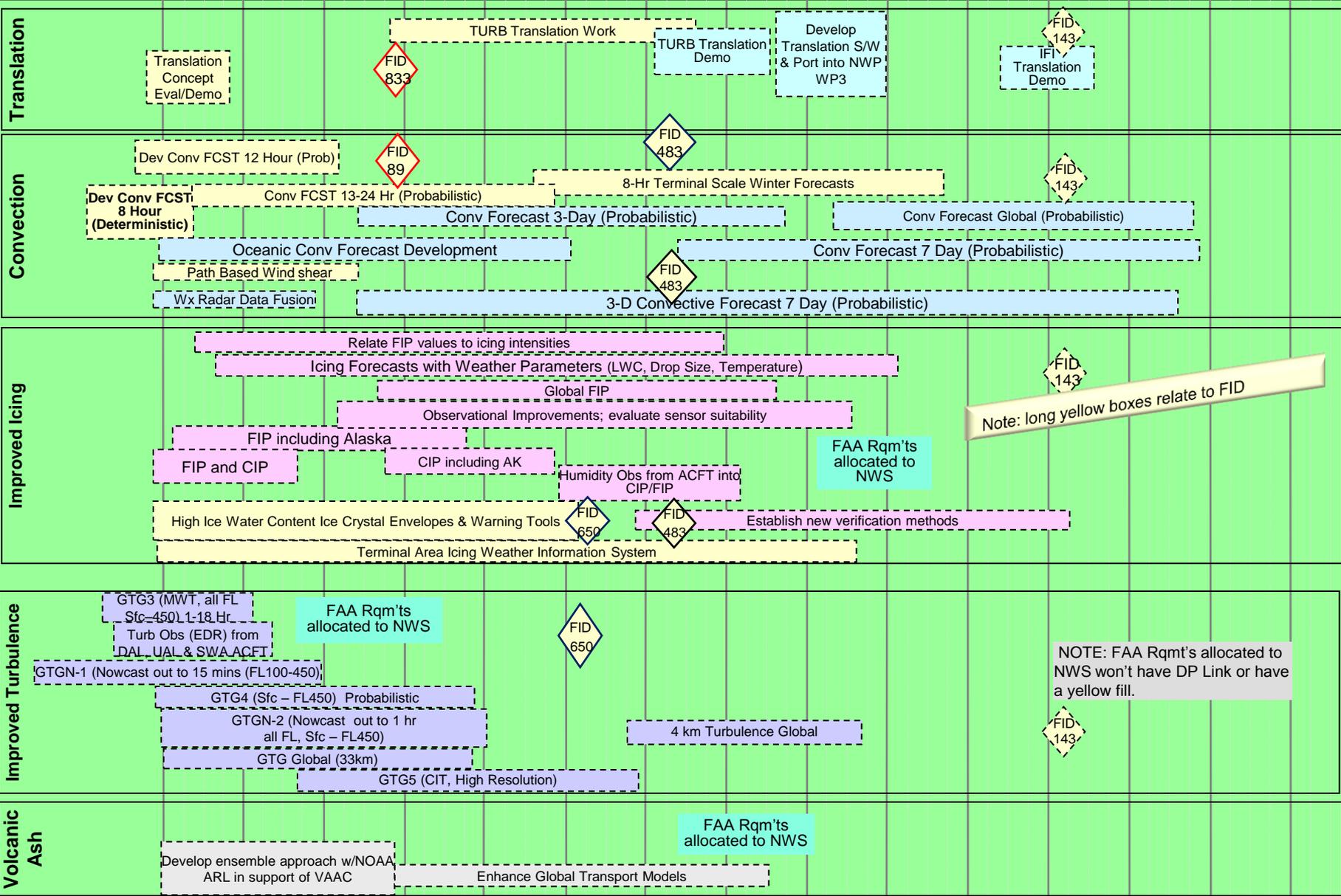


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Weather Roadmap (3 of 4)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

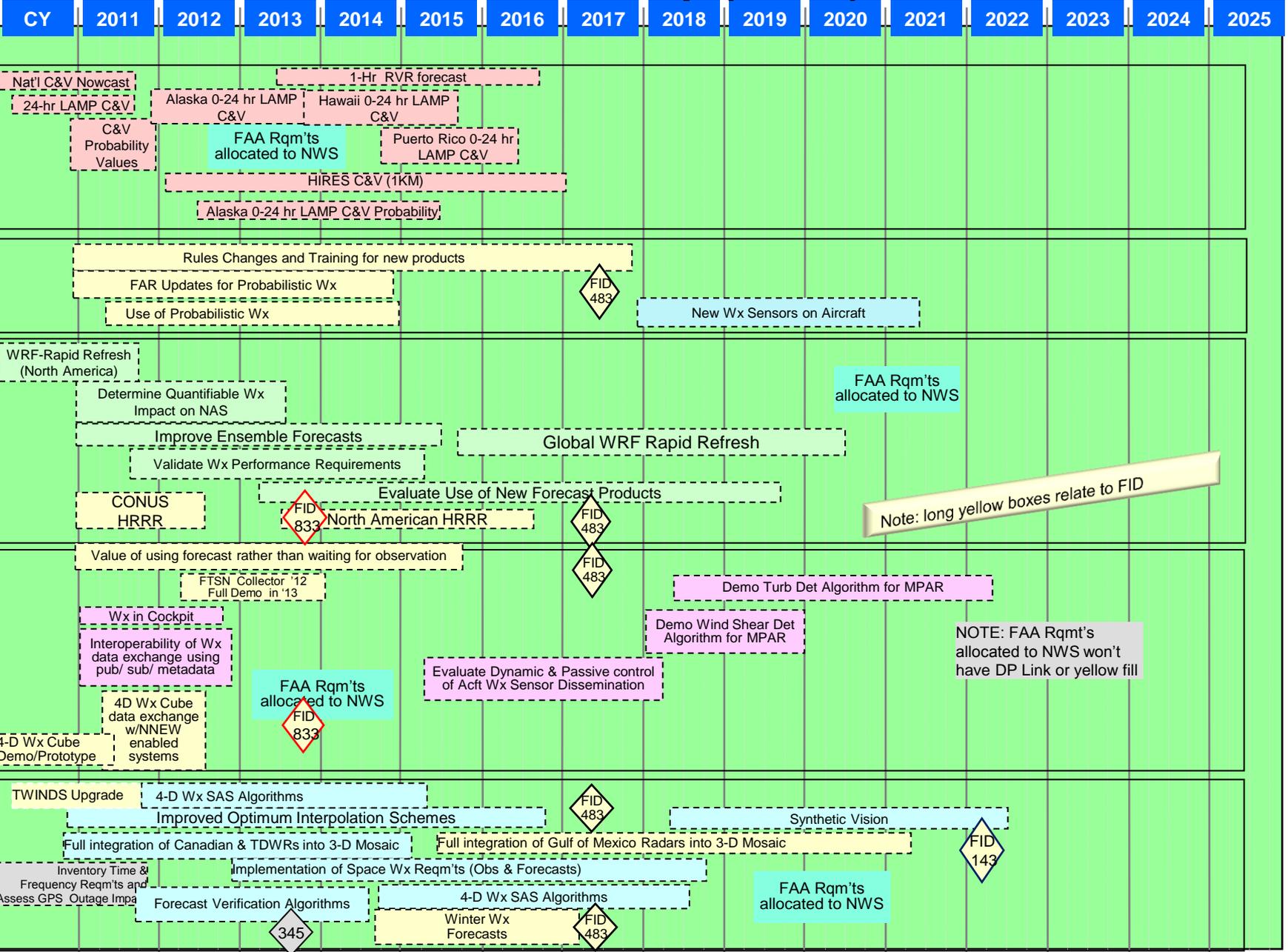
Supporting Activities & Strategy



Note: long yellow boxes relate to FID

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Weather Roadmap (4 of 4)



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Weather Roadmap: Assumptions (1 of 2)

Identifier	Description
WX-01	Ongoing NextGen (NG) Weather functional & performance requirements development for Midterm may result in new/emerging requirements that create perturbations in NextGen Weather Architecture
WX-02	<p>Weather Sensor Sustainment Issues:</p> <ol style="list-style-type: none"> 1) Terminal Portfolio approach <ol style="list-style-type: none"> a) Wind Shear systems (LLWAS, WSP & LIDAR) consolidated into Wind Shear Detection Services (WSDS) to sustain capabilities with DP's for IARD, IID, FID & ISD; WSDS to split into 2 Work Pkgs—Sustain & NextGen Instantiation (Sensor Expansion, LIDAR, New Reqmts) – TDWR SLEP 2 is pulled out of Portfolio and reinstated as a separate swim lane b) Perform ATO-W/ATO-P 'Right Sizing' study for NextGen Observing (Sfc Automated) Capability <ol style="list-style-type: none"> a) Consolidate Automated Surface Observing systems (ASOS/SAWS, AWOS, AWSS) plus F-420, DASI, WME & CHI into a single capability if NextGen Surface Observing requirements permit b) NextGen Surveillance/Weather Radar continues to support Weather requirements for Terminal & En route 2) Continue obtaining Surface Observations from non-Fed AWOS systems 3) Both NextGen Surveillance and Weather (Radar & Surface Observing) capabilities will consider multi-agency requirements
WX-03	<ol style="list-style-type: none"> 1) Having replaced aging technology, ADAS-Rehost serves as a consolidating access point for Wx observations at NNCCs (National Network Control Center) for NNEW 2) Evaluation of WMSCR communications to determine if movement of functionality to NNEW should occur in WP1 or WP2. ALDARS functionality (in ADAS) to be subsumed by NNEW WP 2 (information extraction functionality of NNEW WP1 enables publishing of lightning reports to NextGen Surface Observing Capability)
WX-04	Wind Shear/Microburst functionality continues to be ground based unless aircraft avionics technology matures to the point where the capability can be transferred to the aircraft in NextGen era
WX-05	<p>Migrate Weather information to JPDO envisioned common Network Enabled Operations (NEO)</p> <ol style="list-style-type: none"> 1) Provide FAA Requirements for 4-D Weather Data Cube & 4-D Weather SAS information <p>NOTE: 1) NWS modeling capability not part of the 4-D Wx SAS but required to create data 2) IAW ICAO ConOps for ATM, ATM includes Service Providers & Users, e.g., pilots & dispatchers</p>
WX-06	<p>To provide improved observations & enhanced forecasts, significant R&D and infrastructure changes are required</p> <ol style="list-style-type: none"> 1) R&D prioritized to meet NextGen Capabilities 2) In view of reduced funding for Wx R&D, near-/mid-Term capabilities may not be realized until NextGen era 3) The output of R&D-developed Algorithms will be available via the 4-D Wx SAS (~ 2022/23) 4) Sensor measurement, accuracy & frequency must be increased in accordance with mid-term & far-term Performance Rqmts

Weather Roadmap: Assumptions (2 of 2)

Identifier	Description
WX-07	<p>Convergence of Wx Processing Capability into NextGen Wx Processor (NWP)</p> <ol style="list-style-type: none"> 1) NextGen Weather Processor Work Package 1 (NWP WP 1) <ol style="list-style-type: none"> a) CIWS continues as prototype until integrated into NWP WP1 as part of 0-8 hour convective forecast (CoSPA) capability; CIWS Comms functionality (CDDS) subsumed into NNEW WP1 b) WARP RAMP (radar acquisition & mosaic processor) must be sustained until functionality transferred to NWP WP1. c) NAS IDS (or NIDS) incorporates WARP Remote BT functions, CIWS product display, ITWS display and NNEW-provided data (Note: not a Wx display). d) Strategy Decision to either perform ITWS Tech Refresh (and incorporate into NWP WP2), or include ITWS into NWP WP1 <ol style="list-style-type: none"> a) Pending 1) d) - ITWS TR may be required to continue functionality until NWP WP2 fielded 2) NWP WP2: <ol style="list-style-type: none"> a) Selected Wx R&D algorithms matured since WP1 baseline frozen will be incorporated, e.g., 2-8 hour Winter Wx Forecast b) Implement improved Convective algorithms from Aviation Wx R&D c) Pending 1) e) – ITWS functionality transferred at this time except functions allocated to NextGen Far-Term Work Pkg to meet latency requirements of Wind shear/Microburst Detection & Prediction alerts 3) NWP WP3: Selected Wx R&D algorithms matured since WP2 baseline was frozen; most likely not an FAA ‘box’
WX-8	NextGen Weather information becomes available at user-specified resolution but weather impact is determined by user DST
WX-9	Wx Communications functionality to be provided by NNEW
WX-10	NextGen Sfc Observing Capability & NextGen Surv/Wx Radar Capability [systems] implemented as multi-agency systems
WX-11	CWSU support addressed as Strategy DP 658 Center Weather Services to discontinue as advanced DSTs are fielded
WX-12	NWP WP1 will implement a convective “translation” product that provides Weather Avoidance Fields (WAFS) to change state of the atmosphere information into weather-related constraints to NAS airspace delivered by NNEW Segment 1
WX-13	Weather-related constraints on NAS Airspace will be translated into NAS operational Impacts by User DSTs
WX-14	For products developed from Reqmnts allocated to NWS, as they become operational they will be accessible via NNEW
WX-15	EPI sensor essential to mitigate ASOS shortfalls in Aircraft and Airport Ground Anti/De-icing operations in support of NextGen capacity/safety goals
WX-16	FTSN (Flex Terminal Sensor Network) Collector Demo in CY mid-2012; Full FTSN Demo starting in CY mid-2013

Weather Roadmap: Decision Points (1 of 5)

DP#	Target Date CY	High Priority	Domain	Name
37	2011 Q2	N	Weather	Investment Decision (IARD) for Wind Shear Detection Services (WSDS) Work Pkg 1 to 1) SLEP/Tech Refresh Legacy Wind Shear systems (TDWR, WSP & LLWAS) & 2) includes System Eng'g and Level 1 activity & funding (2014/15) for work-ups for New York TDWR Relocation. Note: Pgm Ofc to query AEB if IID needed (DP 443) or combine with tailored IARD
77	2016 Q1	N	Surveillance	Investment Decision (IID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
85	2015 Q2	N	Weather	Investment Decision (IARD) to Consolidate & Replace ASWON automated surface observing systems (replacement for all ASWON sensors plus NextGen requirements)
86	2012 Q4	Y	Weather	Investment Decision (IID) for NextGen Wx Processor WP1 (includes CIWS functionality & RAMP WARP functionality)
89	2013 Q4	Y	Weather	Investment Decision (FID) for NextGen Wx Processor WP1 (includes CIWS functionality & RAMP WARP functionality)
104	2017	N	Surveillance	Investment Decision (FID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
111	2015 Q4	Y	Automation	Investment Decision (FID) for 'auto PIREP' in En Route Automation Mid-term Work Package; Wx NI&I working up sponsor Note: implementation in ERAM Post Rel 3 unlikely but in Mid-term Wk Pkg
143	2022	N	Weather	Investment Decision (FID) to Provide 12-Hour Convective Forecast Capability in NextGen Weather Processor WP3
144	2015 Q2	N	Weather	IARD to transfer ITWS functionality to NWP WP2 (includes improved data quality, TWIP, upgraded TWINDS & path-based wind shear from TR; Microburst Predict (safety) may remain local or transfer to Automation DP83; transfer ALDARS from ADAS to NWP WP2)
341	2016 Q2	Y	Weather	Investment Decision (FID) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2

Weather Roadmap: Decision Points (2 of 5)

DP#	Target Date CY	High Priority	Domain	Name
344	2012 Q1	N	Enterprise Services	Establish Requirements for a Backup Timing Source (Moved 1 year to right)
345	2013 Q3	N	Enterprise Services	Implementation strategy decision for GPS timing backup (Moved 1 year to right)
407	2014 Q4	N	Surveillance	Investment Decision (IARD) for NextGen Surveillance and Weather Radar Capability
408	2023	N	Surveillance	In-Service Decision (ISD) for NextGen Surveillance and Weather Radar Capability
444	2012 Q2	N	Weather	Investment Decision (FID) to Tech Refresh/SLEP wind shear detection services legacy systems to sustain capability (to include level 1 activity/funding for New York TDWR relocation)
445	2016 Q2	N	Weather	Investment Decision (IID) to consolidate and replace ASWON automated surface observing capability (replacement for all ASWON sensors plus NextGen requirements)
446	2017 Q2	N	Weather	Investment Decision (FID) to consolidate and replace ASWON automated surface observing capability (replacement for all ASWON sensors plus NextGen requirements)
447	2023	N	Weather	In Service Decision (ISD) to consolidate and replace all automated surface observing systems with NextGen Surface Observing Capability plus NextGen requirements
448	2014 Q1	Y	Weather	Investment Decision (IARD) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2
449	2015 Q2	Y	Weather	Investment Decision (IID) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2
450	2018	Y	Weather	Investment Decision (IARD) for NNEW Tech Refresh
451	2019	Y	Weather	Investment Decision (IID) for NNEW Tech Refresh
452	2020	Y	Weather	Investment Decision (IARD) to provide 12-hour Convective Forecast capability to NWP WP3 and in-flight Icing Observation from airborne aircraft to NWP WP3
453	2021	Y	Weather	Investment Decision (IID) to provide 12-hour Convective Forecast capability to NWP WP3 and provide in-flight Icing Observation from airborne aircraft to NWP WP3
454	2024	Y	Weather	In Service Decision (ISD) to document final configuration of the NextGen Wx Processor Work Pkg 3 (NWP WP3)
481	2013	N	Weather	Executive Level Decision to move access to Lightning data to NNEW

Weather Roadmap: Decision Points (3 of 5)

DP #	Target Date CY	High Priority	Domain	Name
482	2016 Q2	N	Weather	IID to transfer ITWS functionality to NWP WP2 (includes improved data quality, TWIP, upgraded TWINDS & path-based wind shear from TR; Microburst Predict (safety) may remain local or transfer to Automation DP83; transfer ALDARS from ADAS to NWP WP2)
483	2017 Q2	N	Weather	FID to transfer ITWS functionality to NWP WP2 (includes improved data quality, TWIP, upgraded TWINDS & path-based wind shear from TR; Microburst Predict (safety) may remain local or transfer to Automation DP83; transfer ALDARS from ADAS to NWP WP2)
635	2020	Y	Weather	Investment Decision (FID) for NNEW Tech Refresh
647	2013 Q2	N	Weather	Investment Decision (CRDR) for WSDS Work Pkg 2 using rightsizing study to examine new technology, NEXRAD improvements & additional LIDAR to extend WSDS coverage expansion to un-/under-protected sites
648	2014 Q2	N	Weather	Investment Decision (IARD) for WSDS Work Pkg 2 using rightsizing study to examine new technology, NEXRAD improvements & additional LIDAR to extend WSDS coverage expansion to un-/under-protected sites.
649	2015 Q2	N	Weather	Investment Decision (IID) for WSDS Work Pkg 2 using rightsizing study to examine new technology, NEXRAD improvements & additional LIDAR to extend WSDS coverage expansion to un-/under-protected sites
650	2016 Q1	N	Weather	Investment Decision (FID) for WSDS Work Pkg 2 using rightsizing study to examine new technology, NEXRAD improvements & additional LIDAR to extend WSDS coverage expansion to un-/under-protected sites
651	2020 Q1	N	Weather	In Service Decision (ISD) for WSDS Work Pkg 2 using rightsizing study to examine new technology, NEXRAD improvements & additional LIDAR to extend WSDS coverage expansion to un-/under-protected sites
652	2014 Q2	N	Weather	Investment Decision (CRDR) for NextGen Surface Observing Capability (replacement for all ASWON sensors plus NextGen requirements)

Weather Roadmap: Decision Points (4 of 5)

DP #	Target Date CY	High Priority	Domain	Name
653	2011 Q2	N	Weather	Investment Decision (IARD) for ASWON Tech Refresh of ASOS/AWOS/AWSS processors & S/W until NextGen Surface Observing Capability FOC circa 2027 (Complete)
654	2012 Q3	N	Weather	Investment Decision (FID) for ASWON Tech Refresh of ASOS/AWOS/AWSS processors & S/W until NextGen Surface Observing Capability FOC circa 2027
655	2012 Q3	N	Weather	Investment Decision (IARD) to Tech Refresh all 34 ITWS systems
656	2013 Q1	N	Weather	Investment Decision (IID) to Tech Refresh all 34 ITWS systems (AJW to provide AEB confirmation of waiver as ACAT4/5 TR with no new functions enables skipping IID)
657	2013 Q4	N	Weather	Investment Decision (FID) to Tech Refresh all 34 ITWS systems
658	2017	Y	Weather	Strategy Decision to determine if Automation/DSTs can provide sufficient Weather support services that CWSU contract with NWS may not need to be renewed
659	2017	N	Weather	Strategy Decision for SLEP 3 on TDWR if Wind Shear Functionality not viable in NG Surveillance & Wx Radar Capability
667	2012 Q4	N	Surveillance	Investment Decision (CRDR) for NextGen Surveillance and Weather Radar Capability
673	2016 Q3	N	Weather	Strategy Decision to execute option for FAA obtaining Total Lightning Data
674	2016 Q3	Y	Weather	In Service Decision (ISD) for both NNEW WP 1 & NWP WP1
675	2020 Q2	Y	Weather	In Service Decision (ISD) for both NNEW WP 2 & NWP WP2
676	2013 Q2	Y	Weather	Investment Decision (CRDR) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2

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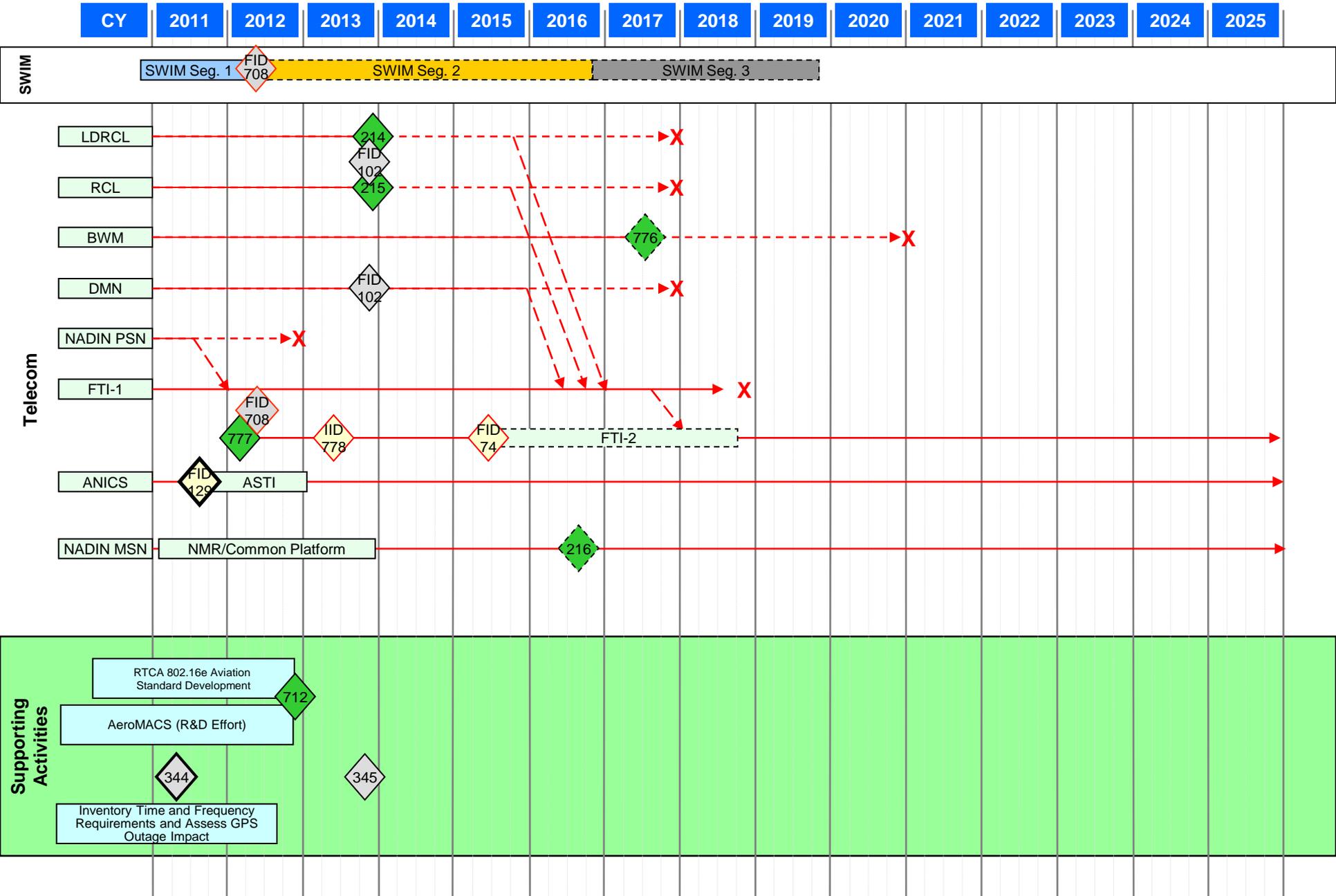
Weather Roadmap: Decision Points (5 of 5)

DP #	Target Date CY	High Priority	Domain	Name
677	2014 Q1	Y	Weather	CRDR to transfer ITWS functionality to NWP WP2 (includes improved data quality, TWIP, upgraded TWINDS & path-based wind shear from TR; Microburst Predict (safety) may remain local or transfer to Automation DP83; transfer ALDARS from ADAS to NWP WP2)
678	2017 Q2	Y	Weather	Investment Decision (CRDR) to fund NNEW Tech Refresh
680	2019	Y	Weather	Investment Decision (CRDR) to provide 12-hour Convective Forecast capability to NWP WP3 and in-flight Icing Observations from airborne aircraft to NWP WP3
751	2011 Q1	N	Weather	Baseline Change Decision (BCD) for TDWR
752	2012 Q2	N	Weather	Strategy Decision for ASWON (ASOS P3I) (pending EPI implementation resulting from FAA negotiations with NWS re sites, options & schedule)
762	2020	N	Automation	Strategy decision on the content and allocation of functions to Program Office For NextGen Far-Term Work Package
812	2017 Q4	N	Weather	Investment Decision (IARD) for TDWR SLEP 3 and re-site of NY TDWR
813	2018 Q4	N	Weather	Investment Decision (IID) for TDWR SLEP 3 and re-site of NY TDWR
814	2019 Q4	N	Weather	Investment Decision (FID) for TDWR SLEP 3 and re-site of NY TDWR
815	2014 Q4	N	Weather	Investment Decision (IARD) for JAWS SLEP
816	2015 Q2	N	Weather	Investment Decision (FID) for JAWS SLEP
817	2015 Q3	N	Weather	Strategy Decision to move source of TMA model data (RUC) from CREWS (CTAS Remote Weather System) to NNEW
818	2012 Q1	N	Weather	Investment Decision (IARD) for NEXRAD (12 FAA Radars) SLEP
819	2012 Q3	N	Weather	Investment Decision (FID) for NEXRAD (12 FAA Radars) SLEP
820	2014 Q4	N	Weather	Investment Decision (FID) for TDWR SLEP 2
832	2012 Q3	Y	Weather	Investment Decision (IID) for NNEW WP1 (includes WARP WINS & FBWTG functionality, may also include WMSCR Wx Communications functionality)
833	2013 Q3	Y	Weather	Investment Decision (FID) for NNEW WP1 functionality (includes WARP WINS & FBWTG, may also include WMSCR Wx Communications functionality)

Communication Roadmaps

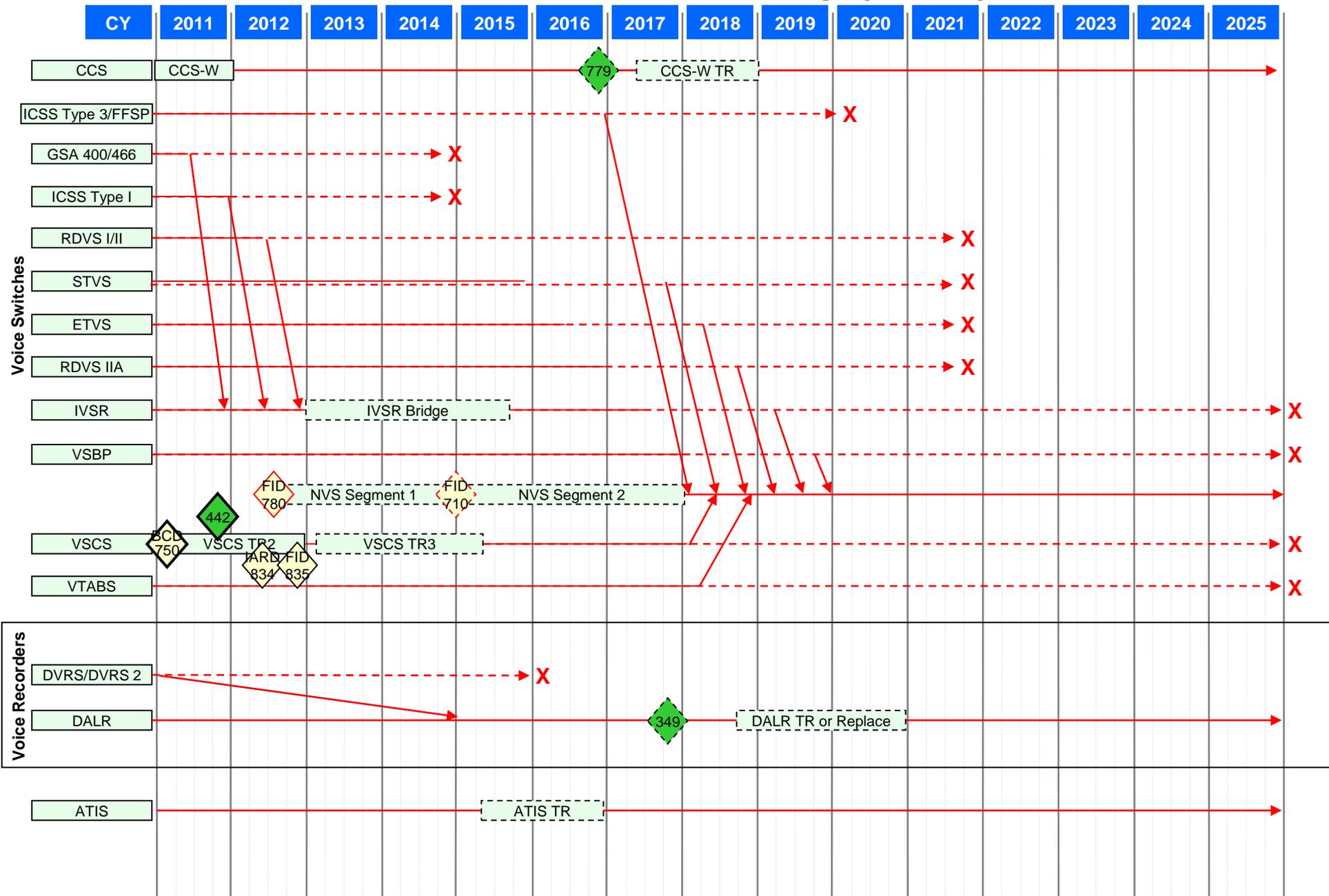
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Communication Roadmap (1 of 4)



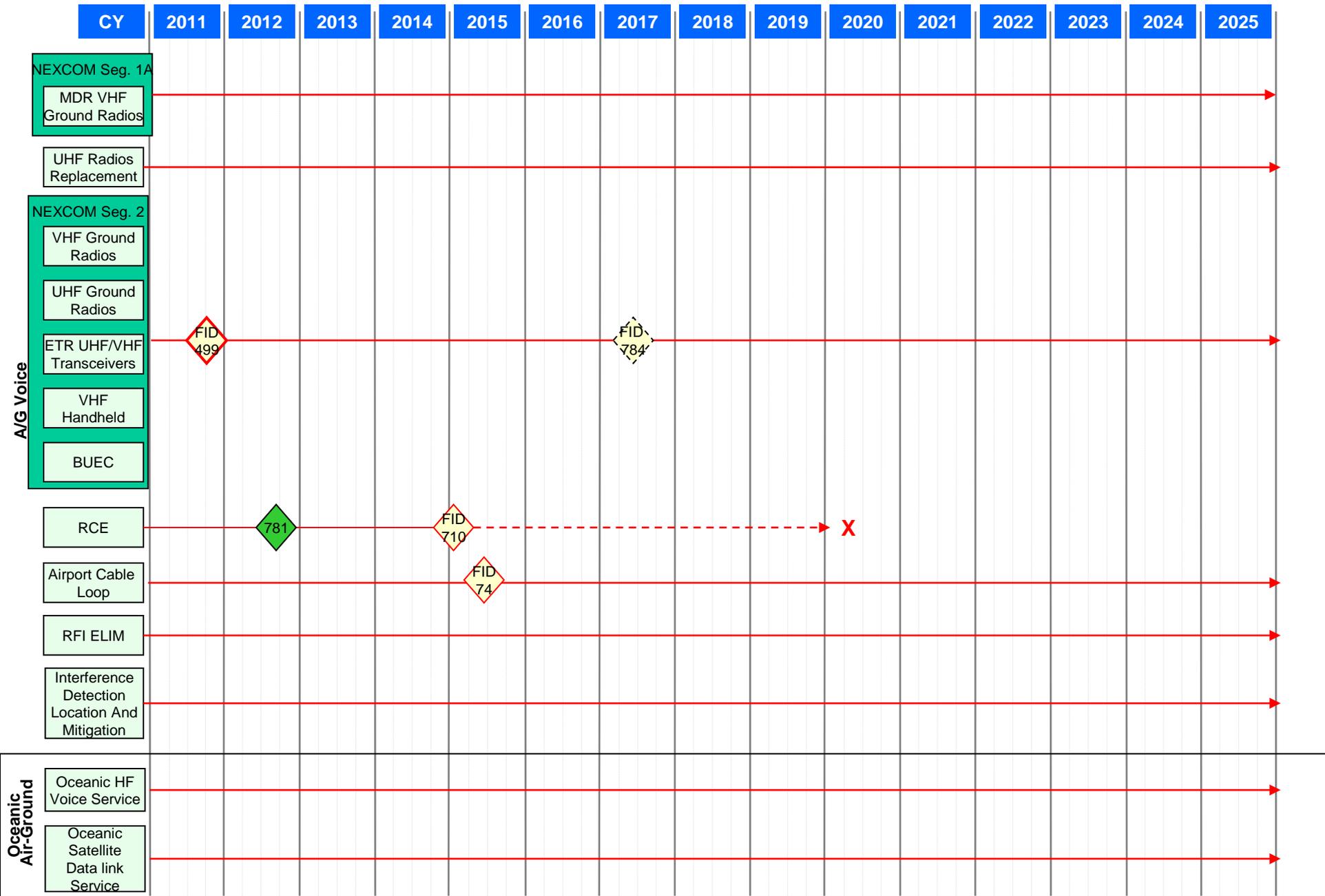
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Communication Roadmap (2 of 4)



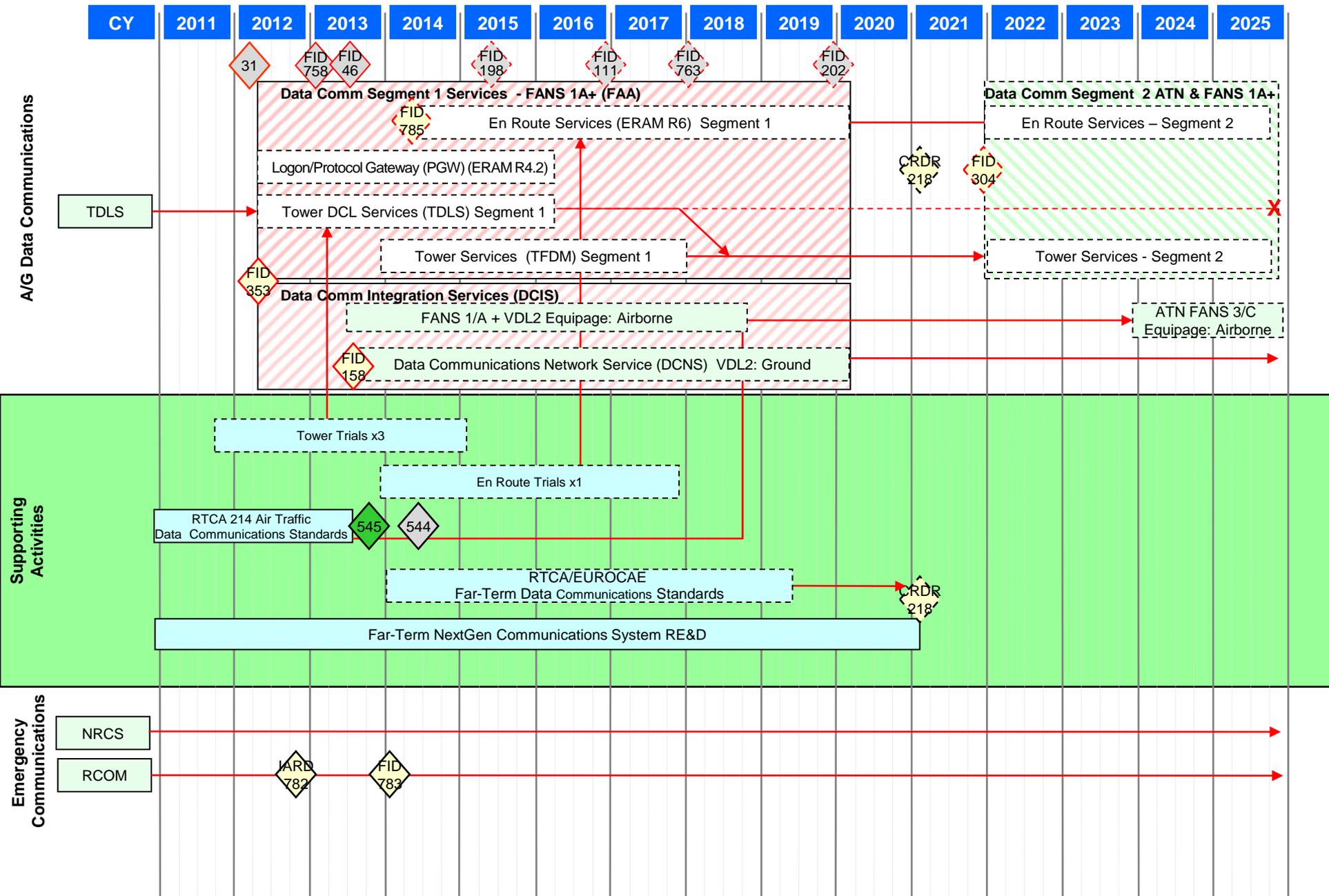
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Communication Roadmap (3 of 4)



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Communication Roadmap (4 of 4)



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Communication Roadmap: Assumptions (1 of 2)

Identifier	Description
COMM-01	NAS must transition from dedicated “nailed up” sector-based and independent facility operations to networked area-based operations
COMM-02	FTI will become the primary ground-based Voice/Data transport system.
COMM-03	The NAS Voice System (NVS) is required to meet the following FAA business objectives: Consolidation/collocation; Business Continuity Plan; Load Balancing/Load Sharing; 4D Trajectory concepts
COMM-04	All flight safety critical A/G communications are over VHF based systems. Advisory communications (e.g. Weather, NAS Status, NOTAMS) may be supported by commercial communications services through "airborne access to SWIM" services.
COMM-05	<p>Infrastructure evolution is driven by:</p> <ul style="list-style-type: none"> a) Transition strategies start in higher altitude airspaces migrating toward lower altitudes b) Implementation starts in large facilities migrating to small facilities c) Expectation for reduction in number of facilities—(staffed and unstaffed) d) Infrastructure and people “dedicated to specific airspace” changing to “quickly and easily adapted to airspace as needed” e) Expectation for very low growth in number of operational sectors (“airspace growth”) through the mid term, limiting demand on dedicated resources
COMM-07	There will be a JRC decision in 2013 Q4 (DP 214) to decommission LDRCL.
COMM-08	There will be a JRC decision in 2013 Q4 (DP 215) to decommission RCL. Schedule will be determined based on the SIM program milestones. BWM will remain and transition to the replacement RCL service.
COMM-09	There is an approved transition plan for migrating real-time surveillance data directly onto FTI services in order to allow DMN decommissioning. Plan on hold awaiting SIM decision.

Communication Roadmap: Assumptions (2 of 2)

Identifier	Description
COMM-10	There will be a decision (DP 218) whether to implement ATC data communications capabilities using yet to be defined broad-band communications links in addition to VDL-2.
COMM-11	Relationship between SWIM and Communications: SWIM Dataflows all leverage NAS OPS IP service and initial SWIM Segment 2 infrastructure is being implemented with FTI.
COMM-12	Three ICSS switches in Alaska AFSSs are to be replaced by NVS switches.
COMM-13	ASTI (ANICS) will not be integrated into FAA Telecommunications Infrastructure contract .

Communication Roadmap: Decision Points (1 of 2)

DP #	Target Date CY	High Priority	Domain	Name
31	2012 Q1	Y	Automation	Strategy Decision to proceed with ERAM R4 functions using combined program funds from SWIM, DATA COMM, Airborne Reroute and GIM
46	2013 Q3	Y	Automation	Final Investment Decision (FID) for Tower Flight Data Manager (TFDM)
74	2015 Q2	Y	Communication	Final Investment Decision (FID) for FTI 2
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems
111	2017	Y	Automation	Final Investment Decision (FID) for En Route Automation NextGen Mid-Term WP
129	2011 Q3	Y	Communication	Final Investment Decision (FID) for Alaska Satellite Telecommunications Infrastructure (ASTI)
158	2013 Q3	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Network Service
198	2015	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 2
202	2020	Y	Automation	Final Investment Decision (FID) for En Route & Oceanic Automation NextGen Far-Term WP
214	2013 Q4	N	Communication	Strategy Decision to determine to sustain or decommission LDRCL
215	2013 Q4	N	Communication	Strategy Decision to determine to sustain or decommission RCL
216	2016	N	Communication	Strategy Decision to sustain or replace NMR
218	2021	N	Communication	Concept and Requirements Definition Readiness (CRDR) Decision for DataComm Segment 3 and the migration to L-band
304	2022	Y	Communication	Final Investment Decision (FID) for Data Comm Segment 2
344	2011 Q1	N	Enterprise Services	Establish Requirements for a Backup Timing Source (Complete)
345	2013 Q4	N	Enterprise Services	Strategy Decision for the implementation of a GPS timing backup
349	2017	N	Communication	Strategy Decision to approve digital audio legal recorder replacement
353	2012 Q2	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Phase 1: Tower Services, DCIS Contract and ERAM PGW and Logon
442	2011 Q4	N	Communication	Strategy Decision to determine need for VSCS sustainment (Complete)
499	2011 Q3	Y	Communication	Final Investment Decision (FID) for NEXCOM Segment 2
545	2013 Q4	N	Communication	Draft SC-214 MOPS
708	2012 Q2	Y	Enterprise Services	Final Investment Decision (FID) for SWIM Segment 2

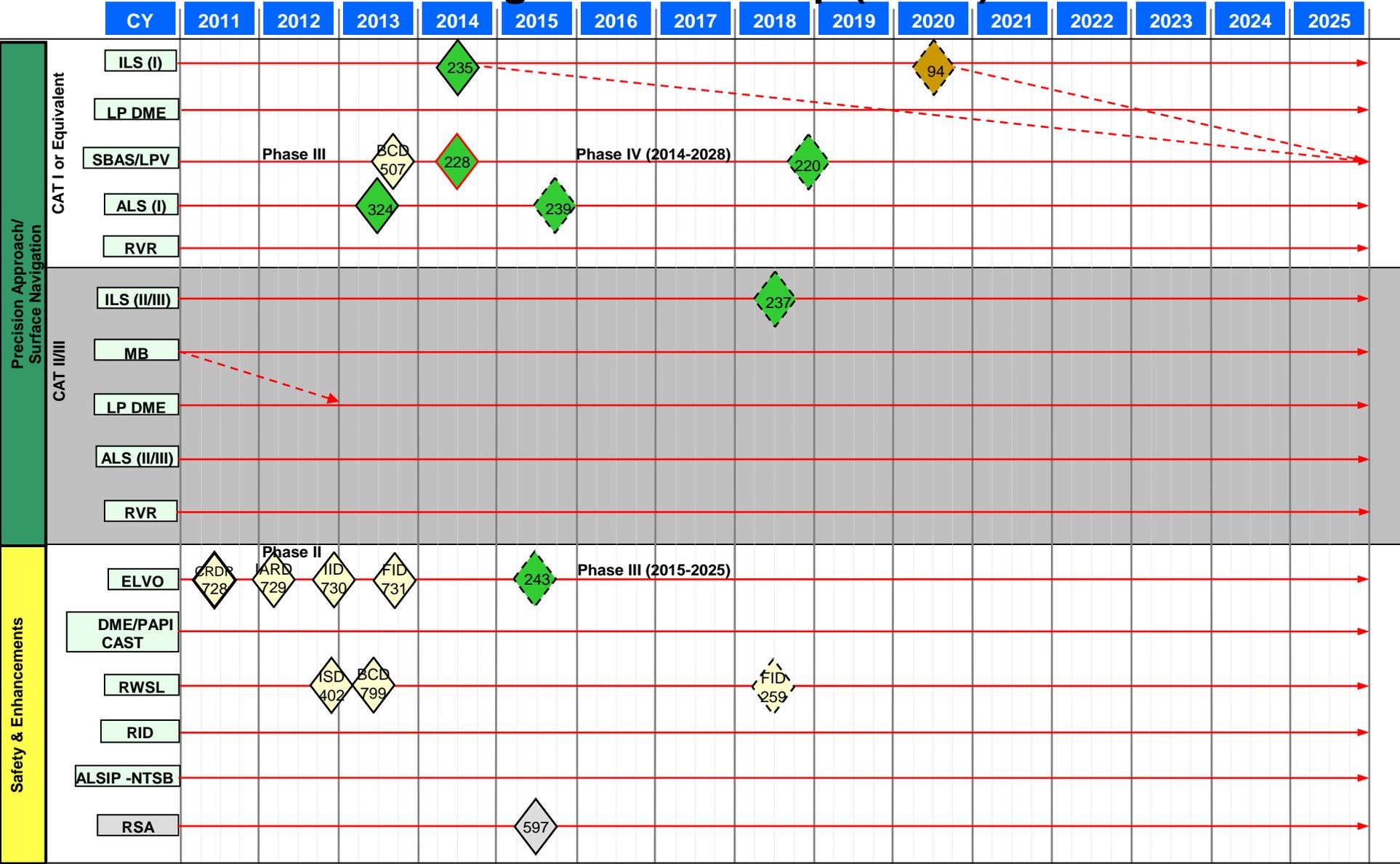
Communication Roadmap: Decision Points (2 of 2)

DP #	Target Date CY	High Priority	Domain	Name
710	2015	Y	Communication	Final Investment Decision (FID) for NVS Segment 2
712	2012 Q4	N	Communication	Strategy Decision on procurement of AeroMACS capability
750	2011 Q1	N	Communication	Baseline Change Decision (BCD) for VSCS
758	2013 Q1	Y	Automation	Final Investment Decision (FID) for ERAM D-Position and System Enhancements
763	2018	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 3
776	2017	N	Communication	Strategy Decision for future of BWM
783	2014 Q1	N	Communication	Final Investment Decision (FID) for RCOM
784	2017	N	Communication	Final Investment Decision (FID) for NEXCOM Segment 2 Phase 2 in remaining Terminal and Flight Service areas
785	2014 Q2	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Phase 2 En Route Services
777	2012 Q1	N	Communication	Strategy Decision to determine the direction of the FTI-2 program
778	2013 Q2	Y	Communication	Initial Investment Decision (IID) for FTI-2 program
779	2016	N	Communication	Strategy Decision to set future direction of CCS-W technical platform and need for refresh
780	2012 Q3	Y	Communication	Final Investment Decision (FID) for NVS Segment 1
781	2012 Q3	N	Communication	Strategy Decision to determine RCE replacement by NVS
782	2012 Q4	N	Communication	Investment Analysis Readiness Decision (IARD) for RCOM
834	2012 Q2	N	Communication	Investment Analysis Readiness Decision (IARD) for VSCS
835	2012 Q4	N	Communication	Final Investment Decision (FID) for VSCS

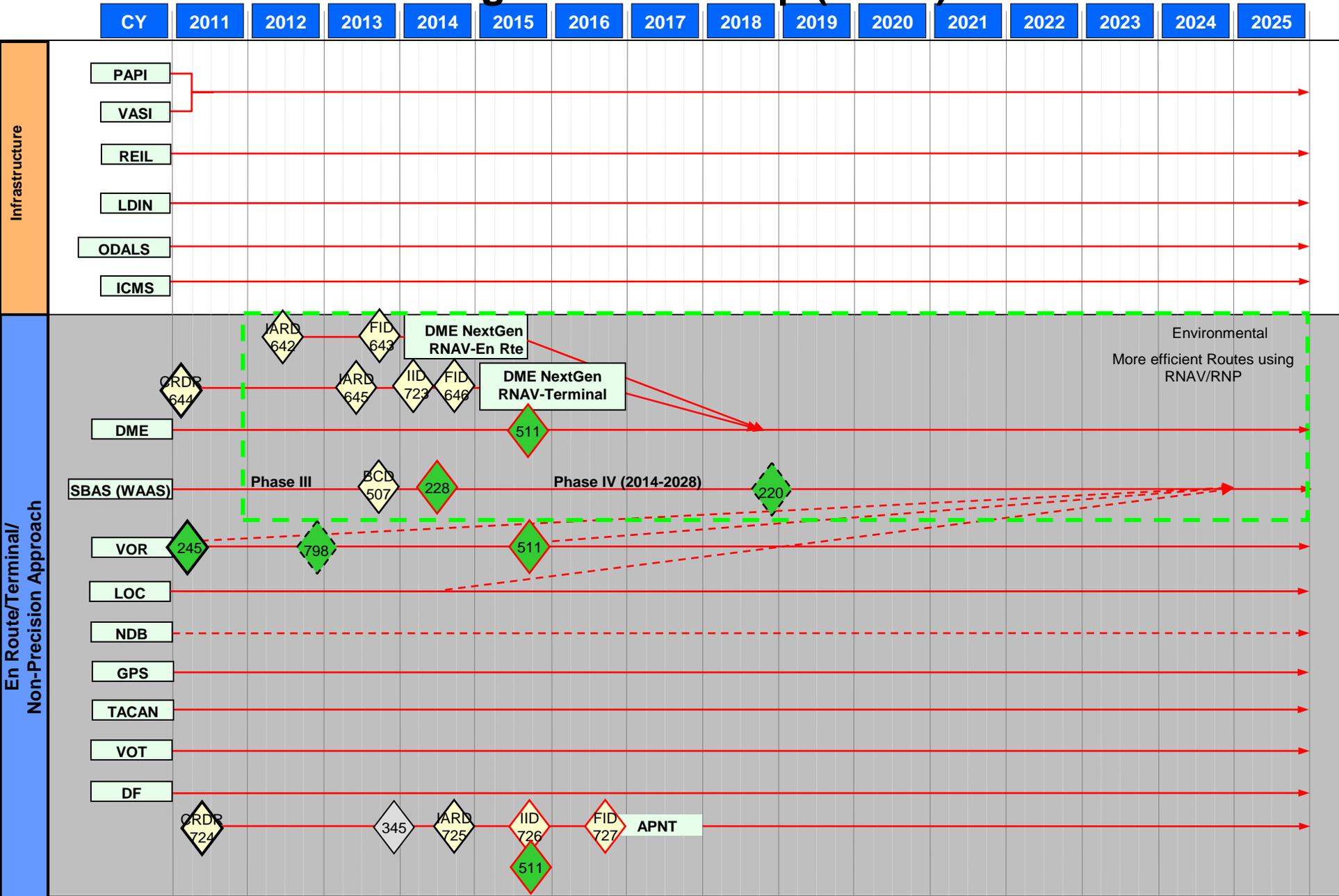
Navigation Roadmaps

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Navigation Roadmap (1 of 3)

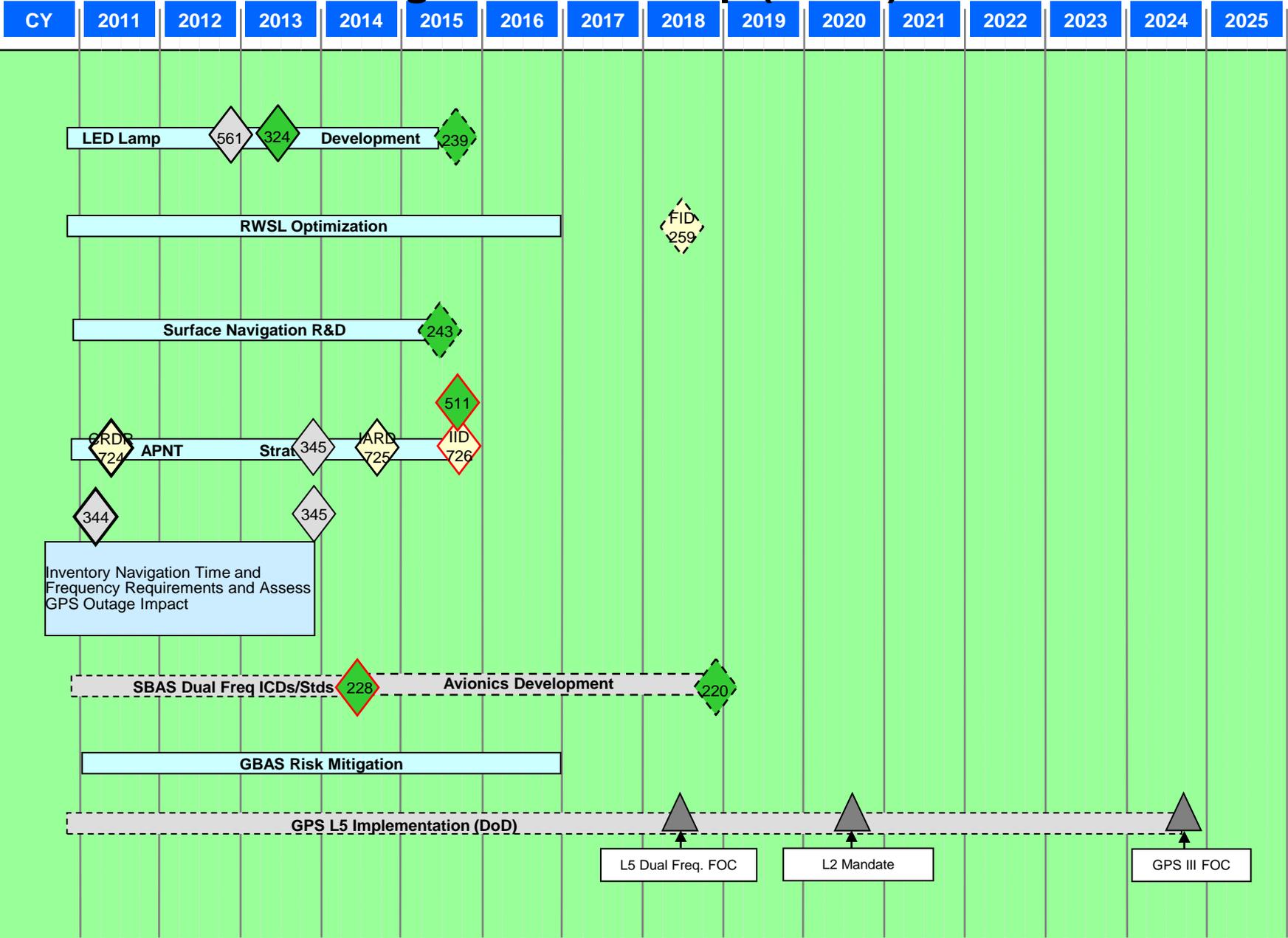


Navigation Roadmap (2 of 3)



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Navigation Roadmap (3 of 3)



Supporting Activities

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Navigation Roadmap: Assumptions

Identifier	Description
NAV-01	<p>NextGen implementation requires an aggressive transition to services that support performance-based navigation. This requires:</p> <ul style="list-style-type: none"> a) Close collaboration with the aviation community b) A clear definition of the standard services that will be provided by FAA c) Other services supported by non-Federal entities
NAV-02	<p>FAA is migrating to NAS-wide performance-based navigation—RNAV/RNP/LPV using GNSS and DME/DME for en route, terminal, and approach & landing domains. This will include:</p> <ul style="list-style-type: none"> a) Transition from VORs to GNSS RNAV and APNT for en route and terminal b) Transition from ILS to GNSS (SBAS/GBAS)* for approach and landing c) Provision for CAT I or equivalent approach & landing service by SBAS at airports meeting minimum criteria d) Extent of CAT II and CAT III service by GBAS is TBD <p>* SBAS is WAAS; GBAS is LAAS</p>
NAV-03	<p>Need to continue working closely with users and the avionics industry on equipage issues</p> <ul style="list-style-type: none"> a) Current equipage is insufficient to support transition from ground-based infrastructure to performance-based navigation b) In the future, equipage will be in place to support transition to performance-based navigation c) Implementation dates allow sufficient lead time to accommodate time-lines
NAV-04	<p>Policy will be in place to maintain safety, security, and capacity and preclude significant economic impact during GNSS outages</p>
NAV-05	<p>Department of Defense will maintain a GPS constellation consistent with the Standard Positioning Service.</p>

Navigation Roadmap: Decision Points (1 of 2)

DP #	Target Date CY	High Priority	Domain	Name
94	2020	N	Navigation	Policy decision on complete Instrument Landing System (ILS) CAT I drawdown
220	2018	N	Navigation	Strategy Decision to cut over to Dual Frequency Operations based on completion of Dual Frequency (GPS L1 and L5) development & testing.
228	2014	Y	Navigation	Strategy Decision to proceed with WAAS dual frequency avionics activities to validate standards and lower risk for avionics development.
235	2014	N	Navigation	Strategy Decision on active drawdown of CAT I ILSs operating in the NAS
237	2018	N	Navigation	Strategy Decision on replacement CAT II/III ILSs operating in the NAS
239	2015	N	Navigation	Strategy Decision to proceed with ALS (I) Production LED Lamps for MALSR systems based on results of Benefit Cost Analysis
243	2015	N	Navigation	Strategy Decision to implement enhanced capability based on results of Surface Navigation R&D
245	2011 Q1	N	Navigation	Strategy Decision on near-term minimum operational VOR ground network (Complete)
259	2018	N	Navigation	Final Investment Decision (FID) for RWSL Technology Refresh
324	2013	N	Navigation	Decision to proceed with ALS (I) LED lamps, based on Operational Capability Demonstration with Enhanced Flight Vision System (EFVS) aircraft
344	2011 Q1	N	Enterprise Services	Establish Requirements for a Backup Timing Source (Complete)
345	2013 Q4	N	Enterprise Services	Strategy Decision for the implementation of a GPS timing backup
402	2012 Q4	N	Navigation	In-Service decision for Runway Status Light System
507	2013	N	Navigation	Baseline Change Decision (BCD) to move WAAS from Phase III to Phase IV
511	2015 Q3	Y	Navigation	Alternate Position, Navigation, and Timing (APNT) solution determined
561	2012 Q4	N	Airport	Decision to Implement Energy Independence and Security Act (EISA) Compliance Policy
597	2015	N	Airport	Runway Safety Area (RSA) NAVAID Improvements
642	2012 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - En Route Distance Measuring Equipment (DME)
643	2013 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - En Route Distance Measuring Equipment (DME)

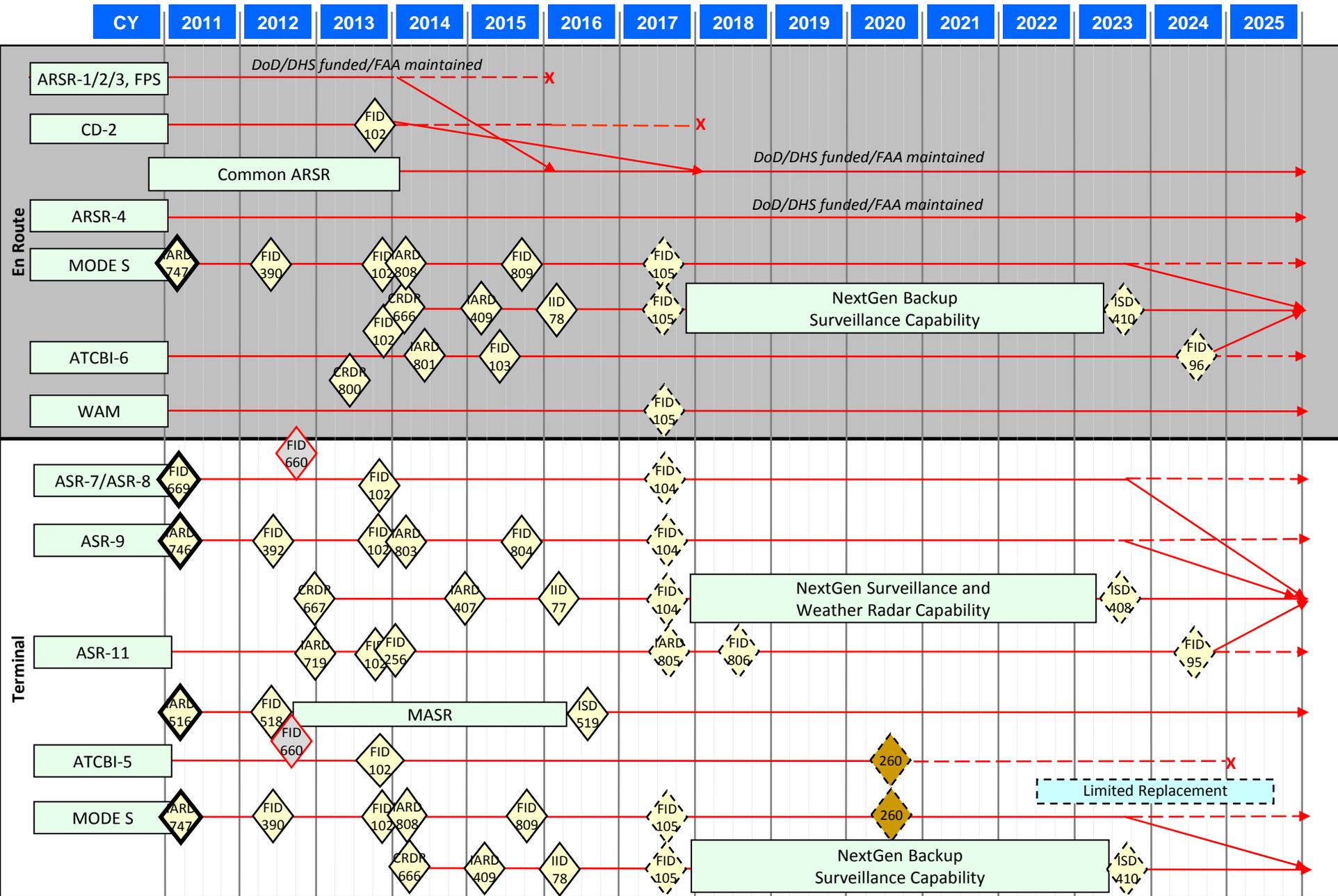
Navigation Roadmap: Decision Points (2 of 2)

DP #	Target Date CY	High Priority	Domain	Name
644	2011 Q1	N	Navigation	Concept & Requirements Definition Readiness (CRDR) Decision for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME) (Complete)
645	2013 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)
646	2014 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)
723	2014 Q1	N	Navigation	Initial Investment Decision (IID) for the acquisition of NextGen RNAV-Terminal Distance Measuring Equipment (DME)
724	2011 Q2	N	Navigation	Concept & Requirements Definition Readiness (CRDR) Decision for Alternate Positioning, Navigation and Timing (APNT) (Complete)
725	2014 Q3	N	Navigation	Investment Analysis Readiness Decision (IARD) for Alternate Positioning, Navigation and Timing (APNT)
726	2015 Q3	Y	Navigation	Initial Investment Decision (IID) for Alternate Positioning, Navigation and Timing (APNT)
727	2016 Q3	Y	Navigation	Final Investment Decision (FID) for Alternate Positioning, Navigation and Timing (APNT)
728	2011 Q2	N	Navigation	Concept & Requirements Definition Readiness (CRDR) Decision for Enhanced Low Visibility Operations (ELVO) (Complete)
729	2012 Q1	N	Navigation	Investment Analysis Readiness Decision (IARD) for Enhanced Low Visibility Operations (ELVO)
730	2012 Q4	N	Navigation	Initial Investment Decision (IID) for Enhanced Low Visibility Operations (ELVO)
731	2013 Q3	N	Navigation	Final Investment Decision (FID) for Enhanced Low Visibility Operations (ELVO)
798	2012 Q4	N	Navigation	Determine Strategy for VOR Discontinuance and Sustainment
799	2013 Q2	N	Navigation	Baseline Change Decision (BCD) for Runway Status Light Program

Surveillance Roadmaps

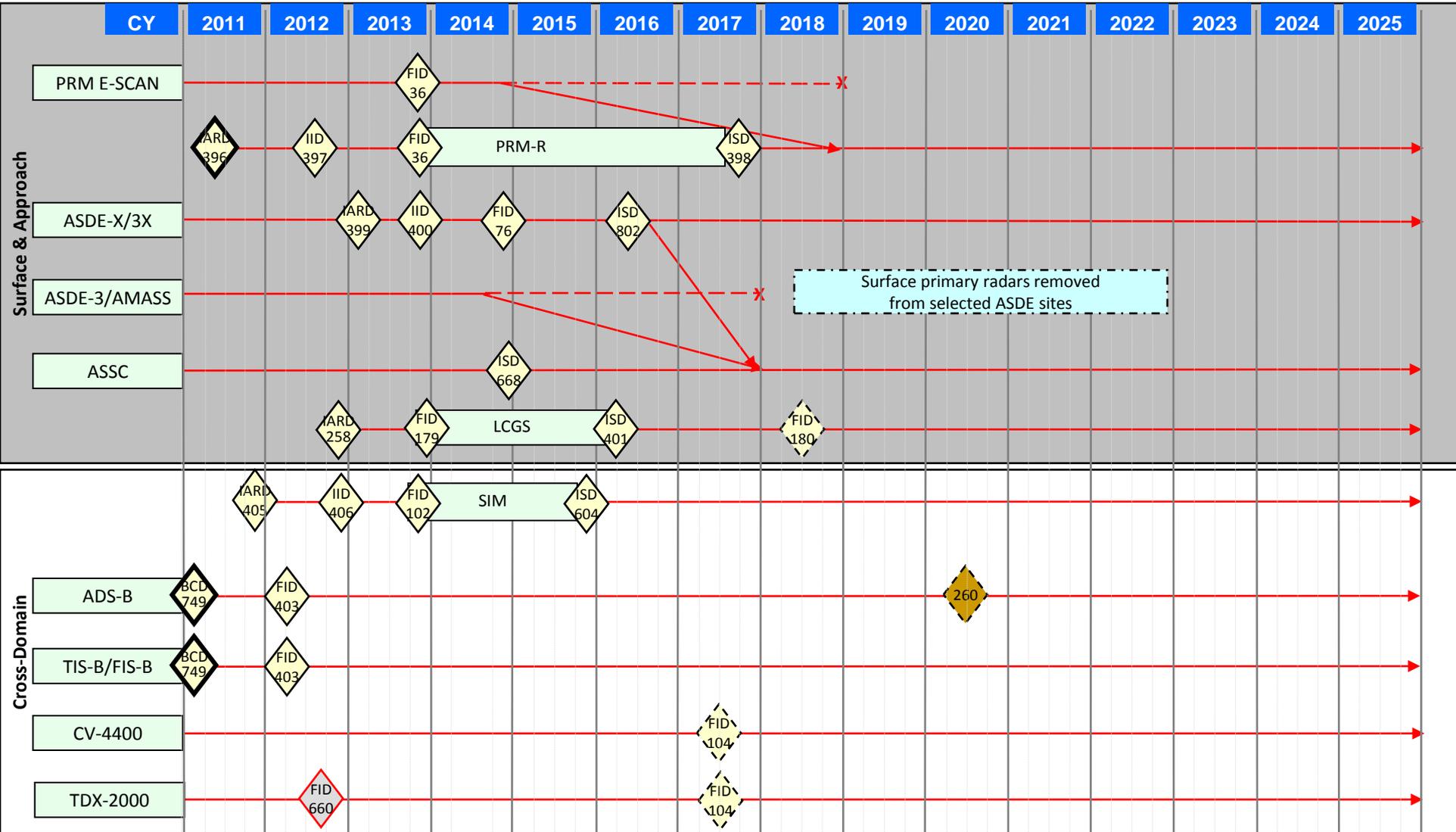
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Surveillance Roadmap (1 of 3)



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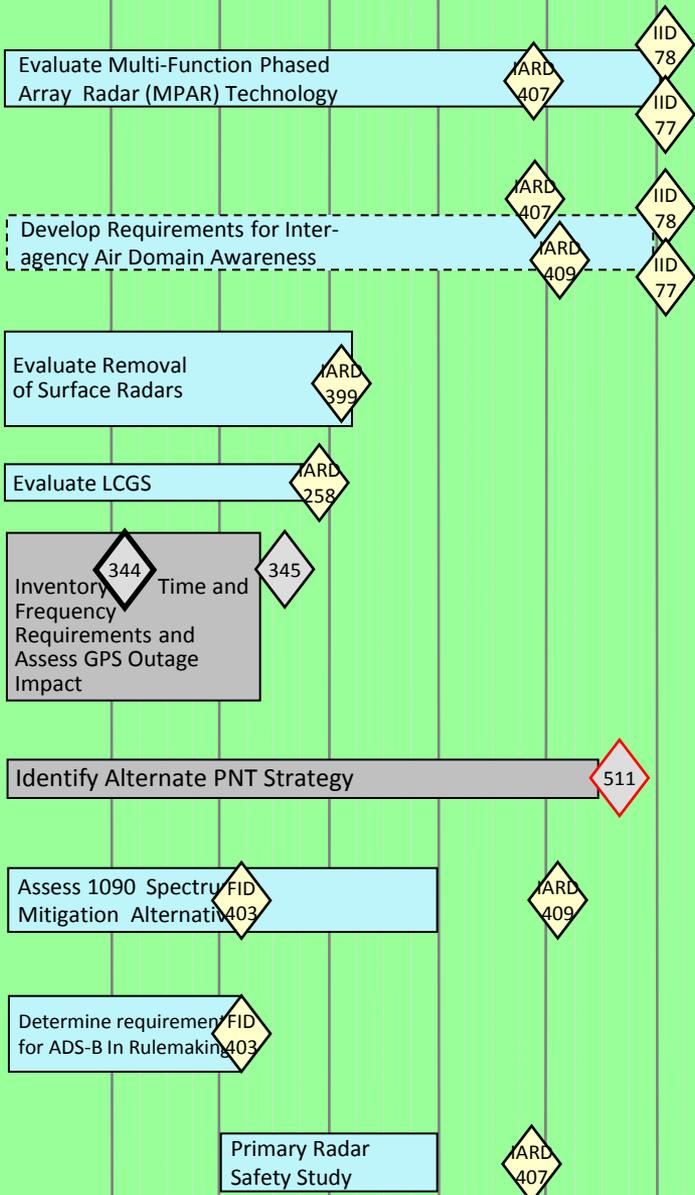
Surveillance Roadmap (2 of 3)



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Surveillance Roadmap (3 of 3)

CY	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
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Surveillance Roadmap: Assumptions

Identifier	Description
SURV-01	<p>Migration to Automatic Dependent Surveillance—Broadcast (ADS-B) as primary means of surveillance</p> <p>a) Airspace rule to be in effect and backup to be in place by 2020 (compliance date)</p> <ol style="list-style-type: none"> 1. Existing surveillance infrastructure will remain in place until 2020
SURV-02	<p>Backup to mitigate loss of on-board GPS positioning source required</p> <p>a) Backup strategy was identified in January 2007</p> <ol style="list-style-type: none"> 1. Retain all en route beacons (~150 monopulse systems with selective interrogation) 2. Retain limited set of terminal beacons at Operational Evolution Partnership (OEP)/High Density Terminals (~43 locations) <p>b) All terminal primary radars are retained</p> <ol style="list-style-type: none"> 1. Used as safety (ATC) backup 2. May also be retained for aviation security and/or weather requirements
SURV-03	<p>Surface primary radar surveillance will not be required at selected ASDE sites</p> <p>a) Requires mandated equipage of all surface vehicles</p> <p>b) Surface surveillance to be supported by multilateration and ADS-B at these sites</p>
SURV-04	<p>PRM-A, with multilateration technology, will replace PRM E-Scan</p>
SURV-06	<p>Department of Defense/Department of Homeland Security continues to fund LRR systems through 2025</p>
SURV-07	<p>Digital automation system inputs are assumed for implementation of SIM</p>

Surveillance Roadmap: Decision Points (1 of 3)

DP #	Target Date CY	High Priority	Domain	Name
36	2013 Q4	N	Surveillance	Final Investment Decision (FID) for migration of PRM to PRM-R (based on multilateration)
76	2014 Q4	N	Surveillance	Final Investment Decision (FID) for removal or SLEP/replace ASDE surface primary radars (evolving requirements for safety and security may impact decision)
77	2016 Q1	N	Surveillance	Initial Investment Decision (IID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
78	2016 Q1	N	Surveillance	Initial Investment Decision (IID) to implement a NextGen beacon/backup radar system for ATC
95	2024	N	Surveillance	Final Investment Decision (FID) for replacement of terminal primary radars (ASR-11 PSR) and removal of terminal beacons (ASR-11 MSSR)
96	2024	N	Surveillance	Final Investment Decision (FID) for replacement of en route beacons (ATCBI-6)
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems
103	2015 Q2	N	Surveillance	Final Investment Decision (FID) for technology refresh of beacons (ATCBI-6)
104	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
105	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen beacon/backup radar system for ATC
179	2013 Q4	N	Surveillance	Combined Initial Investment Decision (IID) and Final Investment Decision (FID) for LCGS
180	2018	N	Surveillance	Final Investment Decision (FID) for ADS-B to assume LCGS function, or approve a Technology Refresh for LCGS
256	2013 Q4	N	Surveillance	Final Investment Decision (FID) for ASR-11 Technology Refresh Segment 2 (through 2025)
258	2012 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Low Cost Ground Surveillance (LCGS)
260	2020	N	Surveillance	Decision on ADS-B Rule Compliance
344	2011 Q1	N	Enterprise Services	Establish Requirements for a Backup Timing Source (Complete)
345	2013 Q4	N	Enterprise Services	Strategy Decision for the implementation of a GPS timing backup

Surveillance Roadmap: Decision Points (2 of 3)

DP #	Target Date CY	High Priority	Domain	Name
390	2012 Q2	N	Surveillance	Final Investment Decision (FID) for legacy beacon (Mode S) SLEP through 2028
392	2012 Q2	N	Surveillance	Final Investment Decision (FID) for legacy radar (ASR-9) SLEP through 2027
396	2011 Q2	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Precision Runway Monitor-Replacement (Complete)
397	2012 Q3	N	Surveillance	Initial Investment Decision (IID) for migration of PRM to PRM-R (based on multilateralation)
398	2017 Q3	N	Surveillance	In-Service Decision (ISD) for PRM-R (based on multilateralation)
399	2013 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for removal or SLEP/replace ASDE surface primary radars
400	2013 Q4	N	Surveillance	Initial Investment Decision (IID) for removal or SLEP/replace ASDE surface primary radars
401	2016 Q2	N	Surveillance	In-Service Decision (ISD) for Low Cost Ground Surveillance system
403	2012 Q2	N	Surveillance	Final Investment Decision (FID) for SBS
405	2011 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for SIM in terminal and en route legacy radar systems
406	2012 Q4	N	Surveillance	Initial Investment Decision (IID) for SIM in terminal and en route legacy radar systems
407	2014 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for NextGen Surveillance and Weather Radar Capability
408	2023	N	Surveillance	In-Service Decision (ISD) for NextGen Surveillance and Weather Radar Capability
409	2015 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for New Beacon/Backup System
410	2023	N	Surveillance	In-Service Decision (ISD) for New Beacon/Backup System
511	2015 Q3	Y	Navigation	Alternate Position, Navigation, and Timing (APNT) solution determined
516	2011 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for a Mobile/Transportable Airport Surveillance Radar (MASR) (Complete)
518	2012 Q2	N	Surveillance	Final Investment Decision (FID) for a Mobile/Transportable Airport Surveillance Radar (MASR)
519	2016	N	Surveillance	In-Service Decision (ISD) for a Mobile/Transportable Airport Surveillance Radar (MASR)
604	2015 Q4	N	Surveillance	In-Service Decision (ISD) for SIM in Terminal and En Route Legacy Radar Systems for first platform
660	2012 Q3	Y	Automation	Final Investment Decision (FID) for TAMR P3S2 (Phase 3 Segment 2)

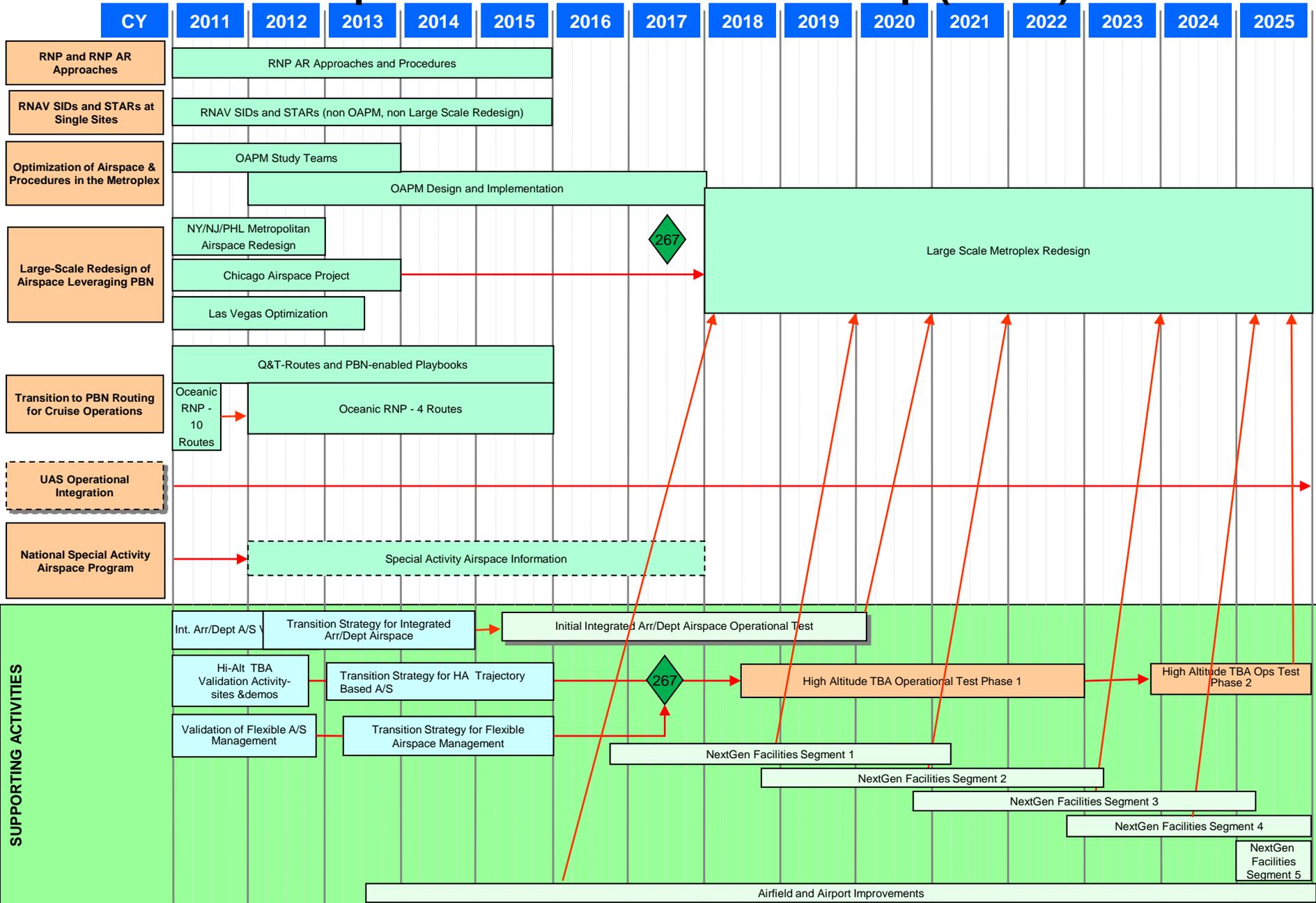
Surveillance Roadmap: Decision Points (3 of 3)

DP #	Target Date CY	High Priority	Domain	Name
666	2014 Q1	N	Surveillance	Concept and Requirements Definition Readiness (CRDR) Decision for New Beacon/Backup System
667	2012 Q4	N	Surveillance	Concept and Requirements Definition Readiness (CRDR) Decision for NextGen Surveillance and Weather Radar Capability
668	2014 Q4	N	Surveillance	In Service Decision (ISD) for Airport Surface Surveillance Capability
669	2011 Q1	N	Surveillance	Final Investment Decision (FID) for legacy radar (ASR-8) facility improvements (Complete)
719	2012 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for ASR-11 Technology Refresh Segment 2 (through 2025)
746	2011 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for legacy radar (ASR-9) SLEP, through 2025 (Complete)
747	2011 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for legacy beacon (Mode S) SLEP through 2025 (Complete)
749	2011 Q1	N	Surveillance	Baseline Change Decision (BCD) for SBS (Complete)
800	2013 Q2	N	Surveillance	Concept and Requirements Definition Readiness (CRDR) Decision for technology refresh of beacons (ATCBI-6)
808	2014 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Phase 3 legacy beacon (Mode S) SLEP through 2028
809	2015 Q3	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Phase 3 legacy beacon (Mode S) SLEP through 2028
801	2014 Q2	N	Surveillance	Investment Analysis Readiness Decision (IARD) for technology refresh of beacons (ATCBI-6)
802	2016 Q2	N	Surveillance	In Service Decision (ISD) for removal or SLEP/replace ASDE surface primary radars
803	2014 Q1	N	Surveillance	Investment Analysis Readiness Decision for ASR-9 SLEP Phase 3
804	2015 Q3	N	Surveillance	Final Investment Decision (FID) for ASR-9 SLEP Phase 3
805	2017	N	Surveillance	Investment Analysis Readiness Decision (IARD) for ASR-11 Technology Refresh Segment 3
806	2018	N	Surveillance	Final Investment Decision (FID) for ASR-11 Technology Refresh Segment 3

Airspace & Procedures Roadmaps

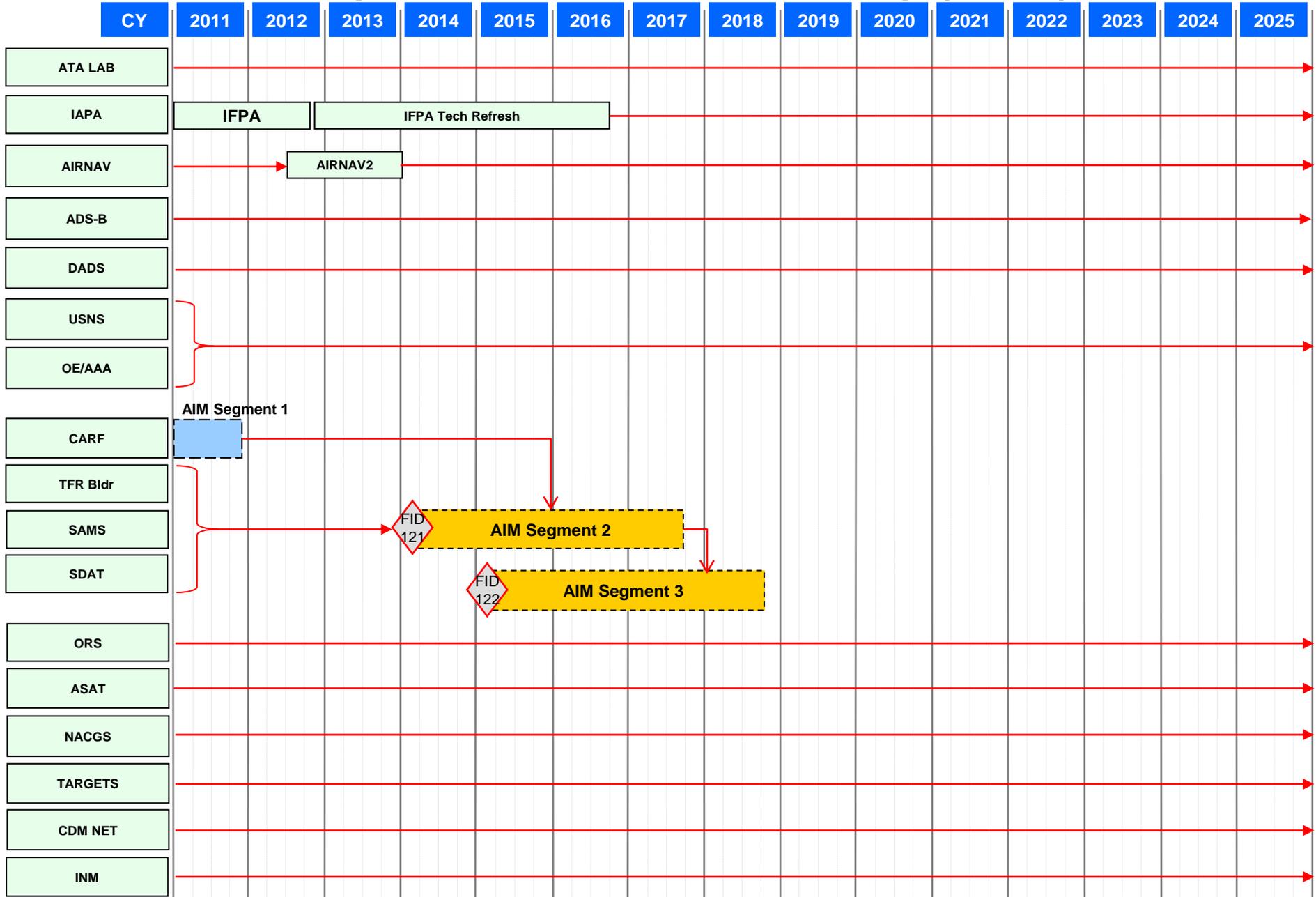
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Airspace & Procedures Roadmap (1 of 6)



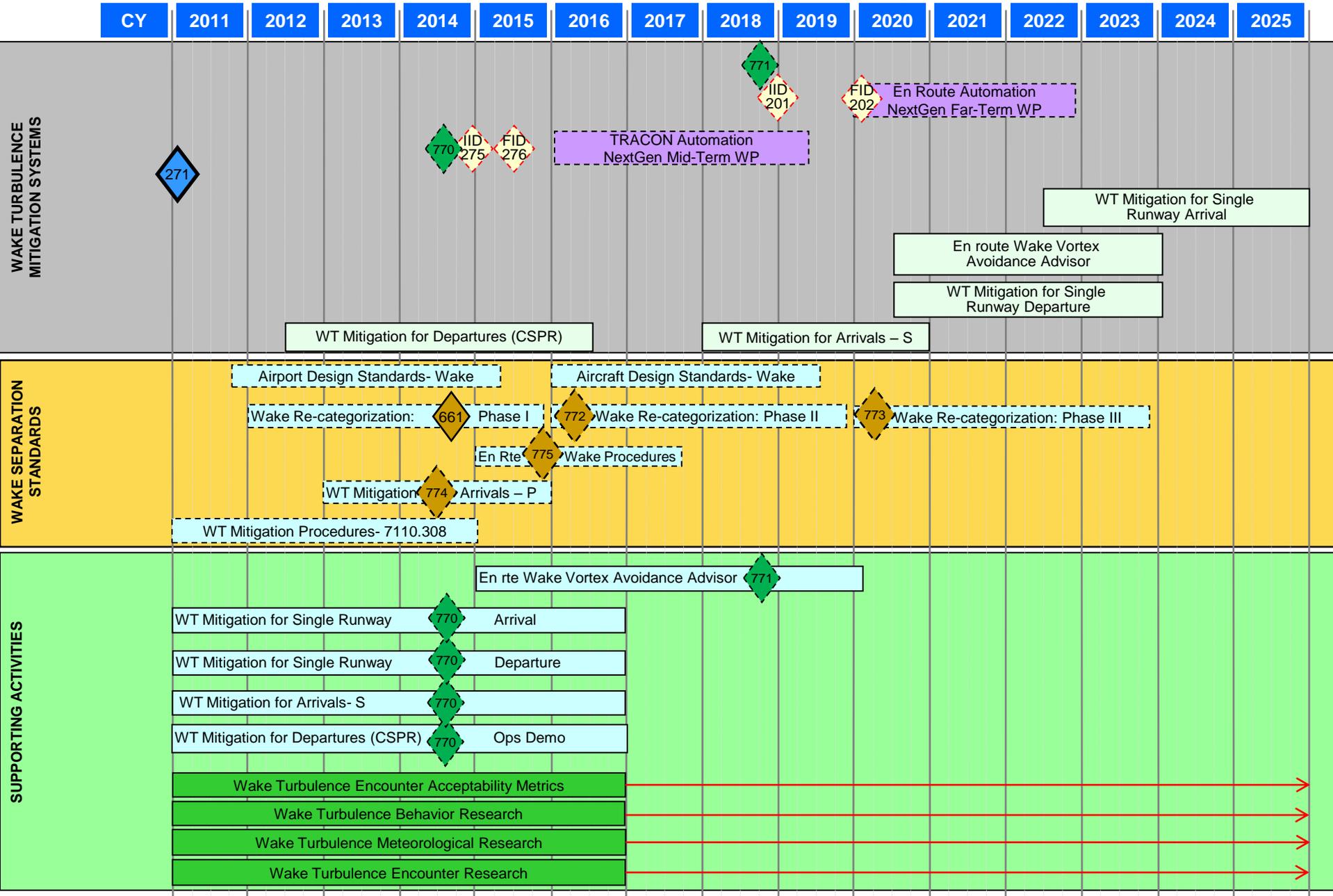
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Airspace & Procedures Roadmap (2 of 6)



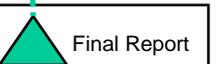
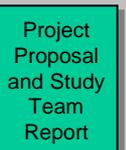
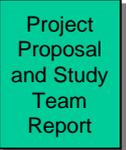
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Airspace & Procedures Roadmap (3 of 6)



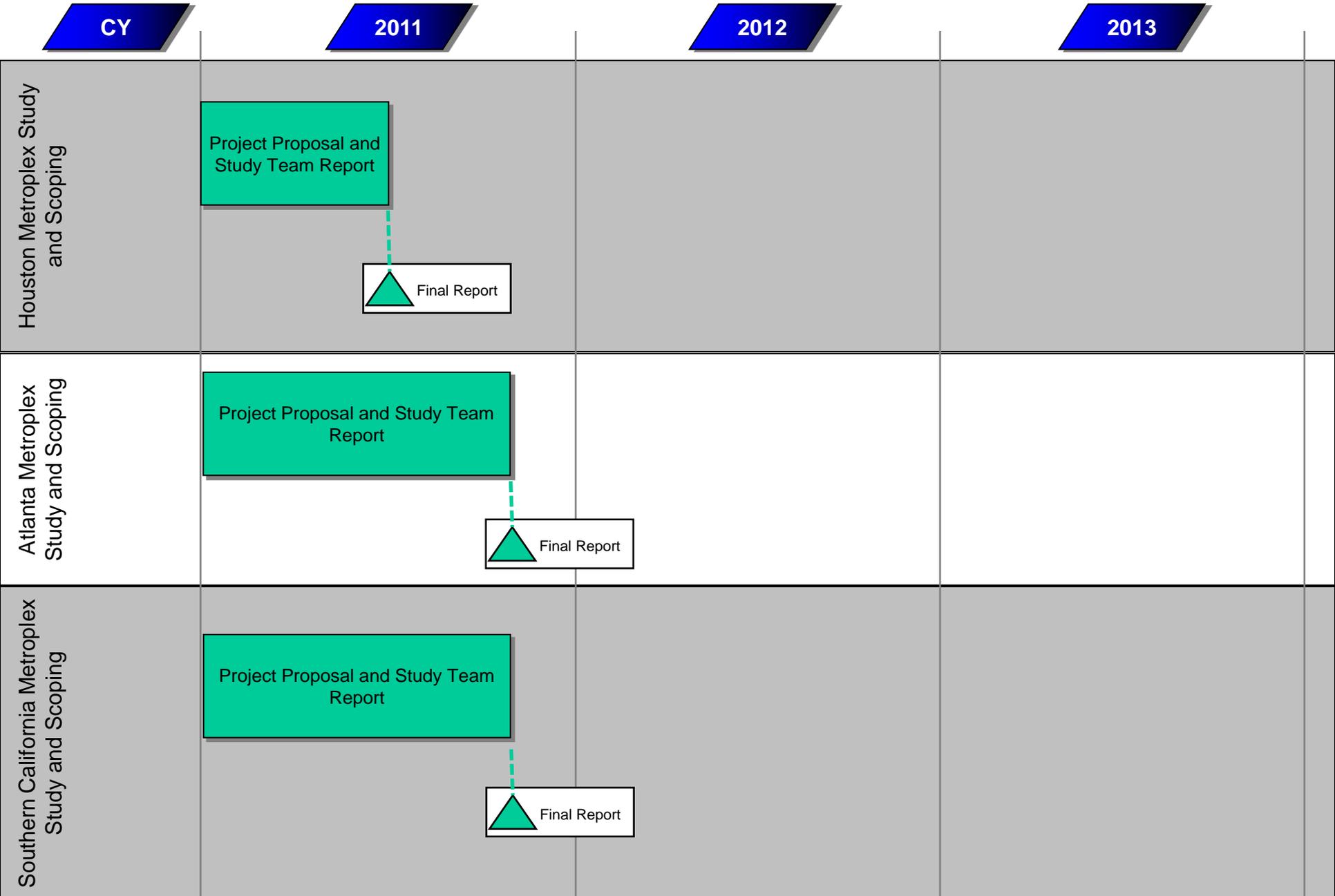
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Airspace & Procedures Roadmap (4 of 6)

CY	2011	2012	2013
DC Metroplex Design and Procedure Development	 		
North Texas Metroplex Design and Procedure Development	 		
Charlotte Metroplex Study and Scoping	 		
Northern California Metroplex Study and Scoping	 		

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Airspace & Procedures Roadmap (5 of 6)



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Airspace & Procedures Roadmap (6 of 6)

CY 2011 2012 2013 2014 2015

Optimization of Airspace and Procedures in the Metroplex
Integrated Airspace and Procedures

Execute Study Teams (23-29 metroplexes)
Mature Study Teams

Execute Design and Implementation (per metroplex)
Includes RNAV SIDs, STARs, Q-routes, airspace changes and realignment supporting optimization

Design & Analysis Process Environmental and Operational Review (includes SRM) Implementation

~3-5 Integrated Airspace and Procedures projects running per year through 2015-2016

Multi-Year Plan with Schedule, Initial Version
Initial Program Management Plan
Multi-Year Plan with Schedule, Update

Repeated for 23-29 metroplexes

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Airspace & Procedures Roadmap: Assumptions

Identifier	Description
A&P-01	<p>Airspace Modernization Assumptions</p> <ul style="list-style-type: none"> a) Flexibility into any of the agency's facility plans b) Future Airspace & NASA research funding is sufficient and provides favorable benefits c) System Dependencies <ul style="list-style-type: none"> 1. ADS-B 2. ERAM 3. TFMS WP2 4. DataComm
A&P-02	<p>Integrated Arrival/Departure Airspace (Big Airspace) Assumptions</p> <ul style="list-style-type: none"> a) Key Integrated Arrival/Departure Airspace enablers: <ul style="list-style-type: none"> 1. Extension of 3 Mile Separation & Terminal Procedures 2. Integrated arrival/departure airspace configurations 3. Flexible sector & bi-directional routes published 4. 5 mile lateral spacing for Required Navigation Performance (RNP) enables 5 mile lateral route spacing 5. New voice system (NAS Voice System), leased circuits, and Air-Ground communications channels to handle transition 6. Cost benefits are based on creating X Integrated Arrival/Departure (Big Airspace) facilities, covering X major metropolitan areas b) Cost analysis based on general assumptions about the concept, not on any detailed requirements or technical solutions c) Benefits analysis based on extrapolating results from FT simulations to other sites given traffic forecasts and historical weather patterns d) Sites identified where large TRACON facilities exist could accommodate additional BA operational positions with refurbishment. New buildings would be needed where no large TRACON exists.

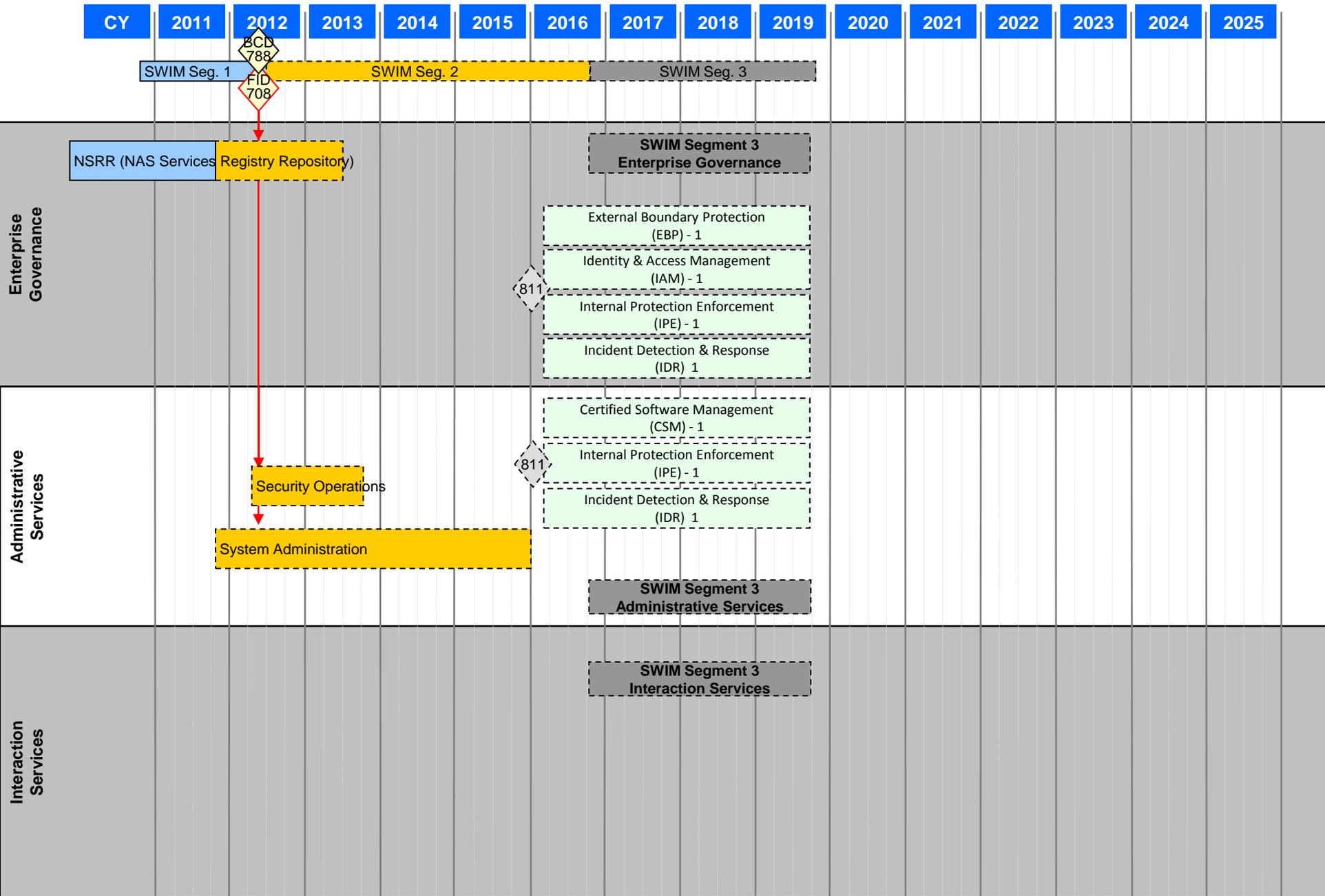
Airspace & Procedures Roadmap: Decision Points (1 of 1)

DP #	Target Date CY	High Priority	Domain	Name
121	2014 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 2
122	2015 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 3
267	2017	N		Decision to proceed with High Altitude Trajectory Based Airspace Concept Phase 1
271	2011 Q2	N		Wake Turbulence Procedures (Complete)
661	2014 Q4	N		Decision to incorporate Wake Re-Categorization (Phase 1) into 7110.65
770	2014 Q4	N		Strategy Decision to incorporate Wake Turbulence system functions & wake procedures into the TRACON/Terminal Mid-Term Work Package
275	2015	Y	Automation	Initial Investment Decision (IID) for TRACON Automation NextGen Mid-Term WP
276	2016	Y	Automation	Final Investment Decision (FID) for TRACON Automation NextGen Mid-Term WP
771	2018 Q4	N		Strategy Decision to incorporate Wake Turbulence system functions & wake procedures into the En Route Automation Mid-Term Work Package
201	2019	Y	Automation	Initial Investment Decision (IID) for En Route & Oceanic Automation NextGen Far-Term WP
202	2020	Y	Automation	Final Investment Decision (FID) for En Route & Oceanic Automation NextGen Far-Term WP
772	2016 Q1	N		Decision to incorporate Wake Re-Categorization (Phase 2) into 7110.65
773	2020 Q1	N		Decision to incorporate Wake Re-Categorization (Phase 3) into 7110.65
774	2014 Q2	N		Decision to incorporate En Route Wake procedures into policy (7110.65, 7110.308, or new policy)
775	2015 Q4	N		Decision to incorporate Wake Turbulence mitigation procedures into policy (7110.65, 7110.308, or new policy)

Enterprise Services Roadmaps

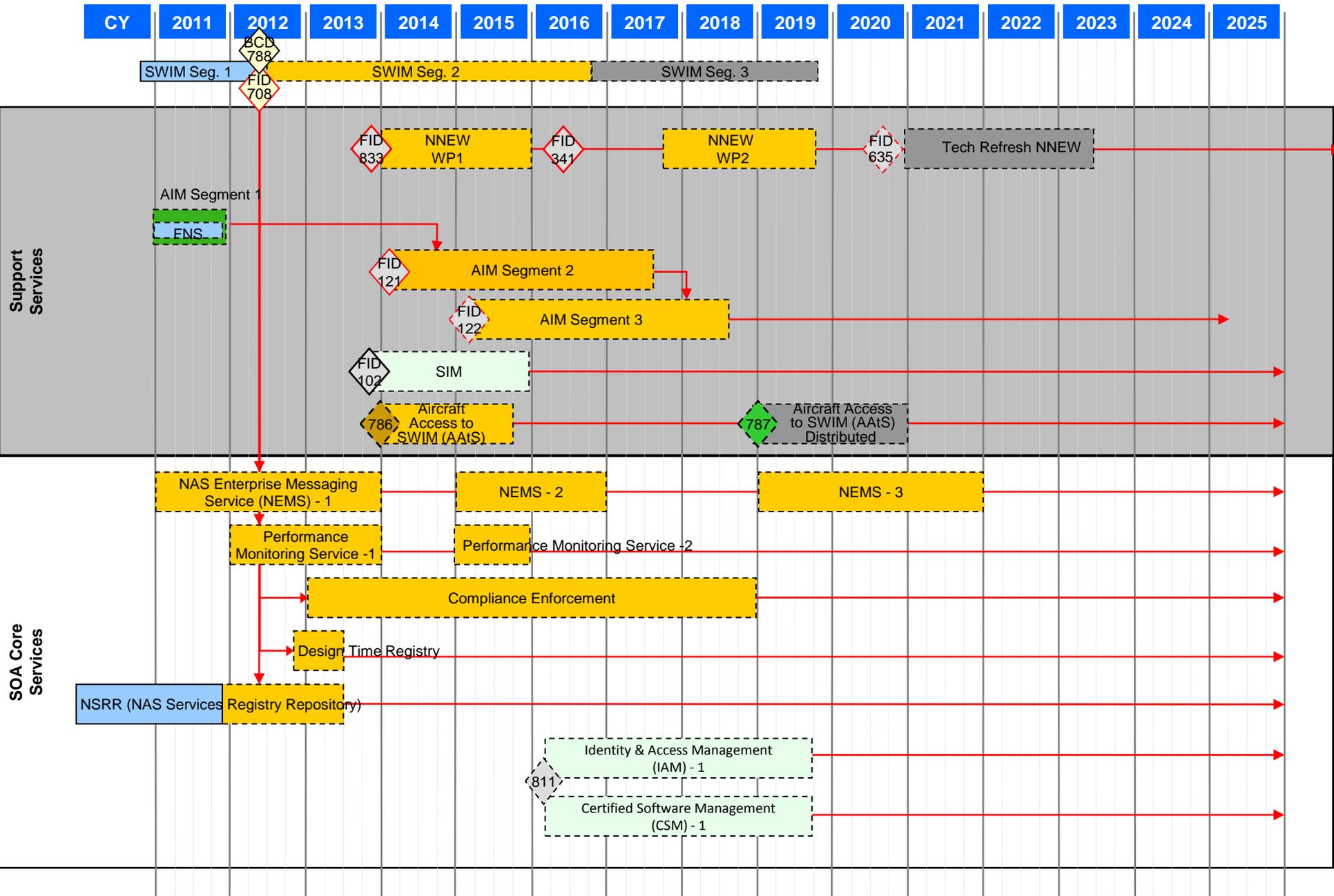
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Enterprise Services Roadmap (1 of 7)



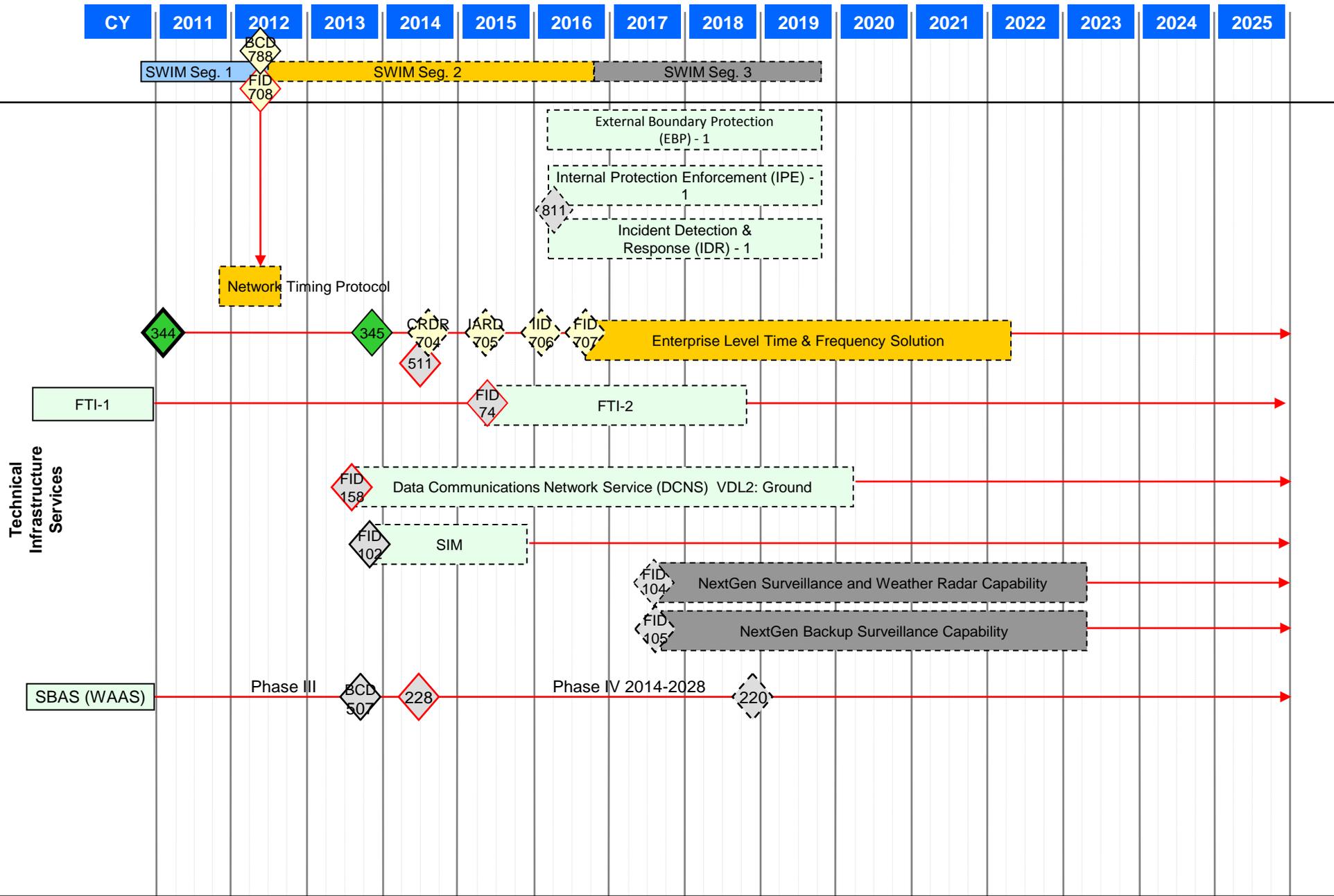
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Enterprise Services Roadmap (2 of 7)



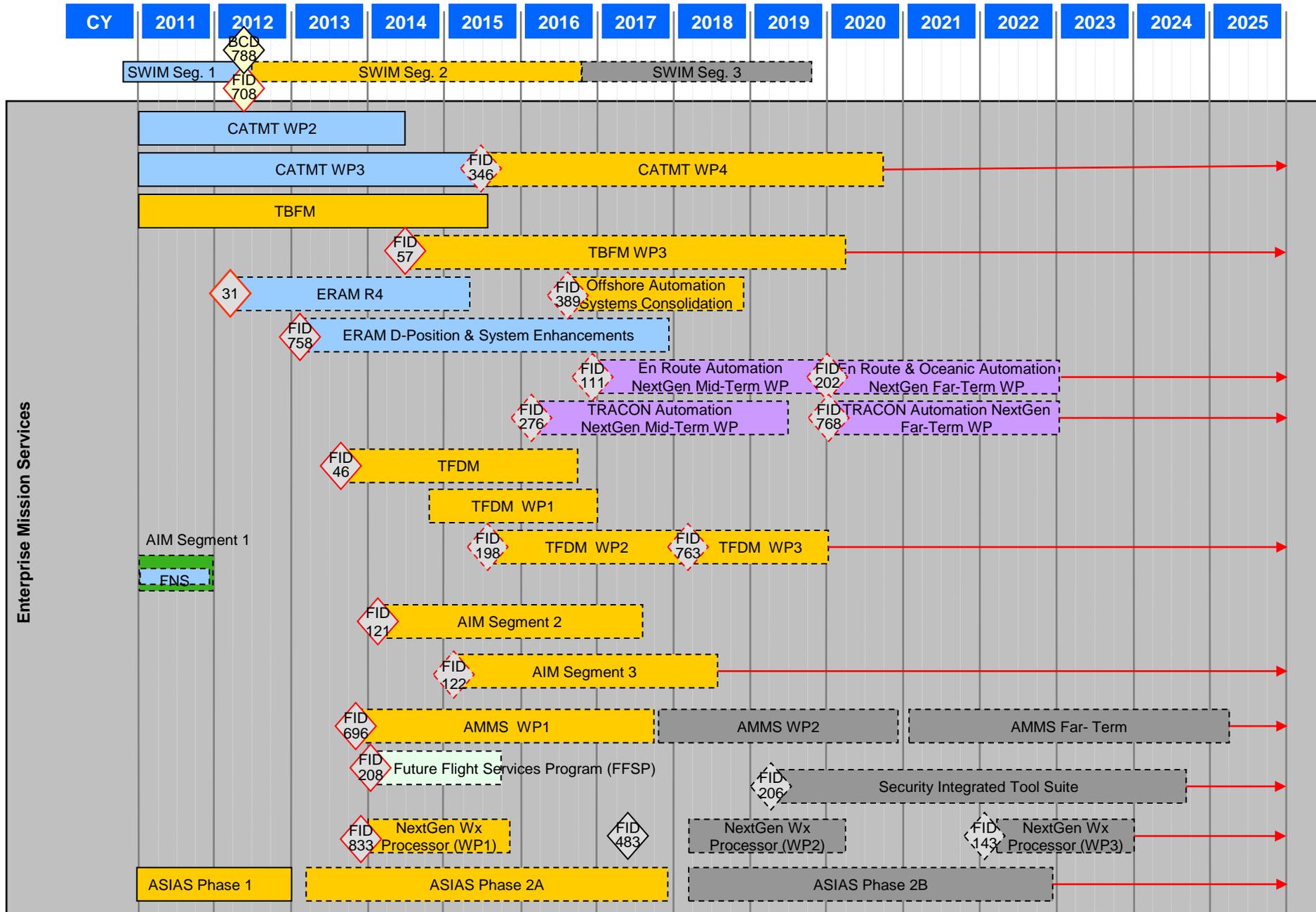
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Enterprise Services Roadmap (3 of 7)



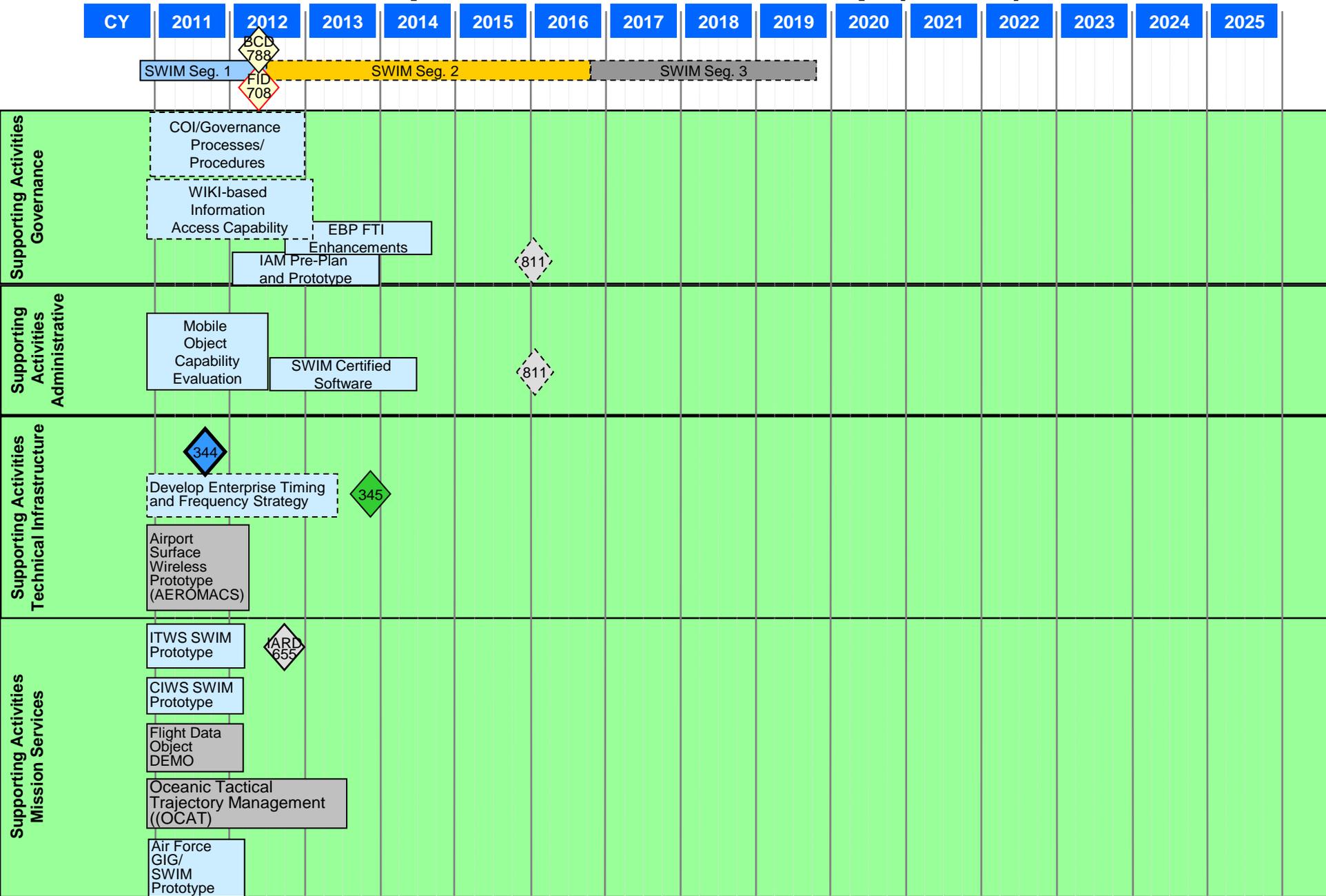
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Enterprise Services Roadmap (4 of 7)



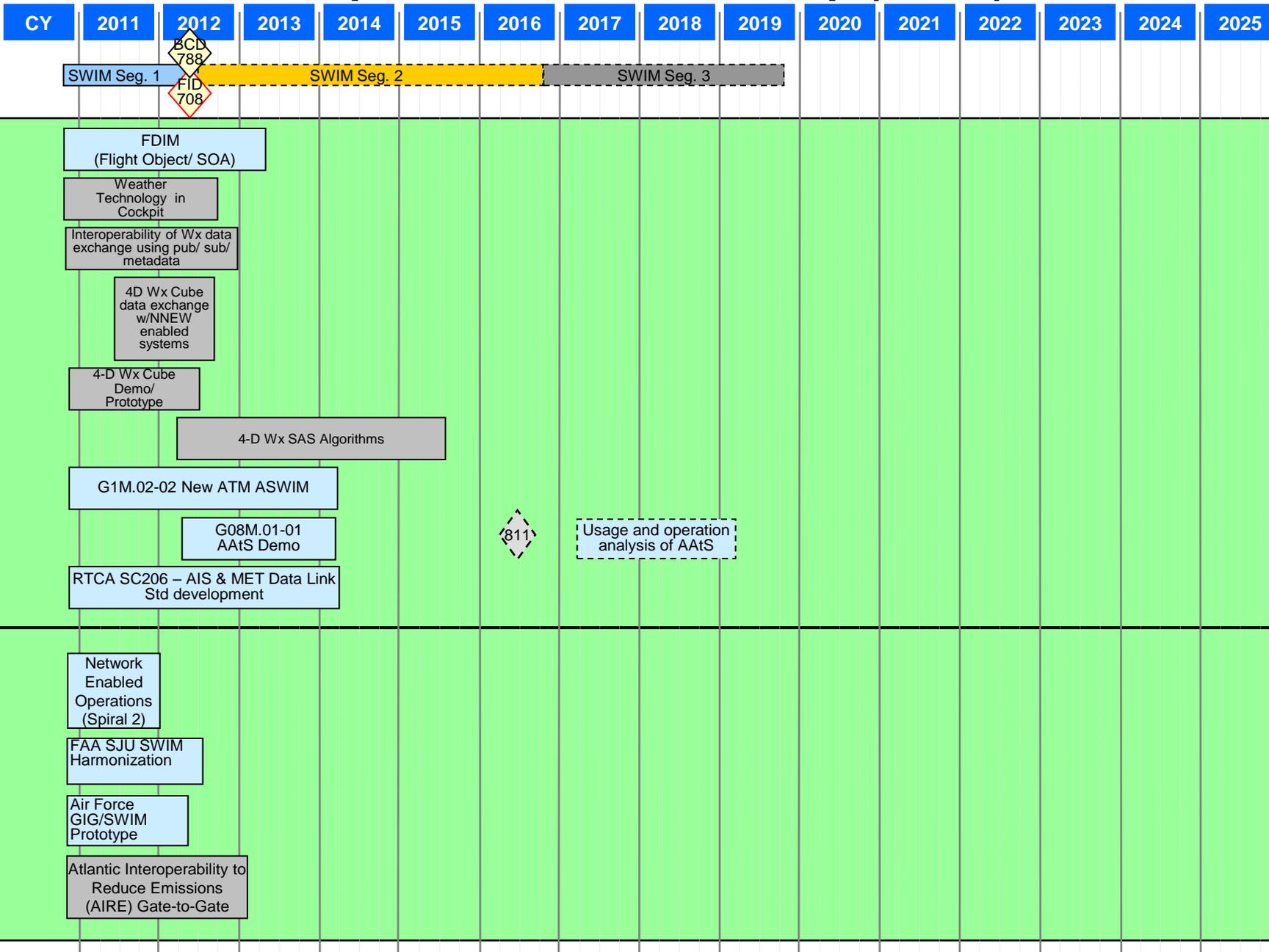
Enterprise Mission Services

Enterprise Services Roadmap (5 of 7)



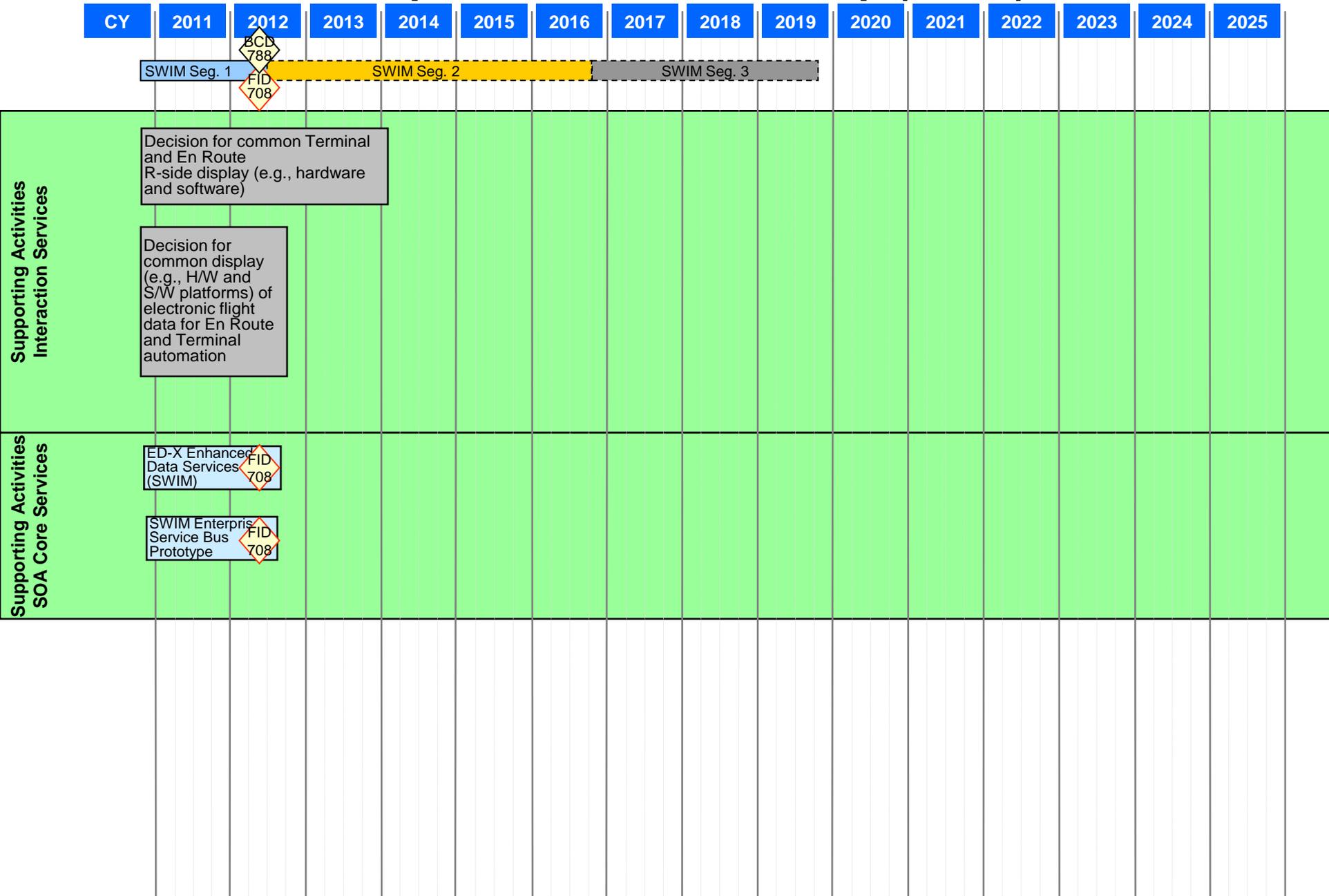
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Enterprise Services Roadmap (6 of 7)



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Enterprise Services Roadmap (7 of 7)



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Enterprise Services Roadmap: Assumptions

Identifier	Description
786	FAA Net Centric Programs will exchange information based on Service Oriented Architecture principles, comply with SWIM policies and standards and use SWIM core infrastructure to the extent practicable
787	SWIM will provide policies, standards, and core infrastructure to support data management, based on existing systems and networks to the extent practicable, and using proven technologies to reduce cost and risk

Enterprise Services Roadmap: Decision Points (1 of 2)

DP #	Target Date CY	High Priority	Domain	Name
31	2012 Q1	Y	Automation	Strategy Decision to proceed with ERAM R4 functions using combined program funds from SWIM, DATA COMM, Airborne Reroute and GIM
46	2013 Q3	Y	Automation	Final Investment Decision (FID) for Tower Flight Data Manager (TFDM)
57	2014 Q2	Y	Automation	Final Investment Decision (FID) for TBFM/WP3
74	2015 Q2	Y	Communication	Final Investment Decision (FID) for FTI 2
833	2013 Q4	Y	Weather	Final Investment Decision (FID) for NNEW WP1 (includes WARP WINS & FBWTG, may also include WMSCR Wx Communications functionality)
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems
104	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
105	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen beacon/backup radar system for ATC
121	2014 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 2
122	2015 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 3
143	2022	N	Weather	Final Investment Decision (FID) to Provide 12-Hour Convective Forecast Capability in NextGen Weather Processor WP3
158	2013 Q3	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Network Service
198	2015	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 2
206	2019	Y	Automation	Final Investment Decision (FID) for Security Integrated Tool Suite (SITS)
208	2013 Q3	Y	Automation	Final Investment Decision (FID) for Future Flight Services Program (FFSP)
220	2018	N	Navigation	Strategy Decision to cut over to Dual Frequency Operations based on completion of Dual Frequency (GPS L1 and L5) development & testing.
228	2014	Y	Navigation	Strategy Decision to proceed with WAAS dual frequency avionics activities to validate standards and lower risk for avionics development.
341	2016 Q2	Y	Weather	Final Investment Decision (FID) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2

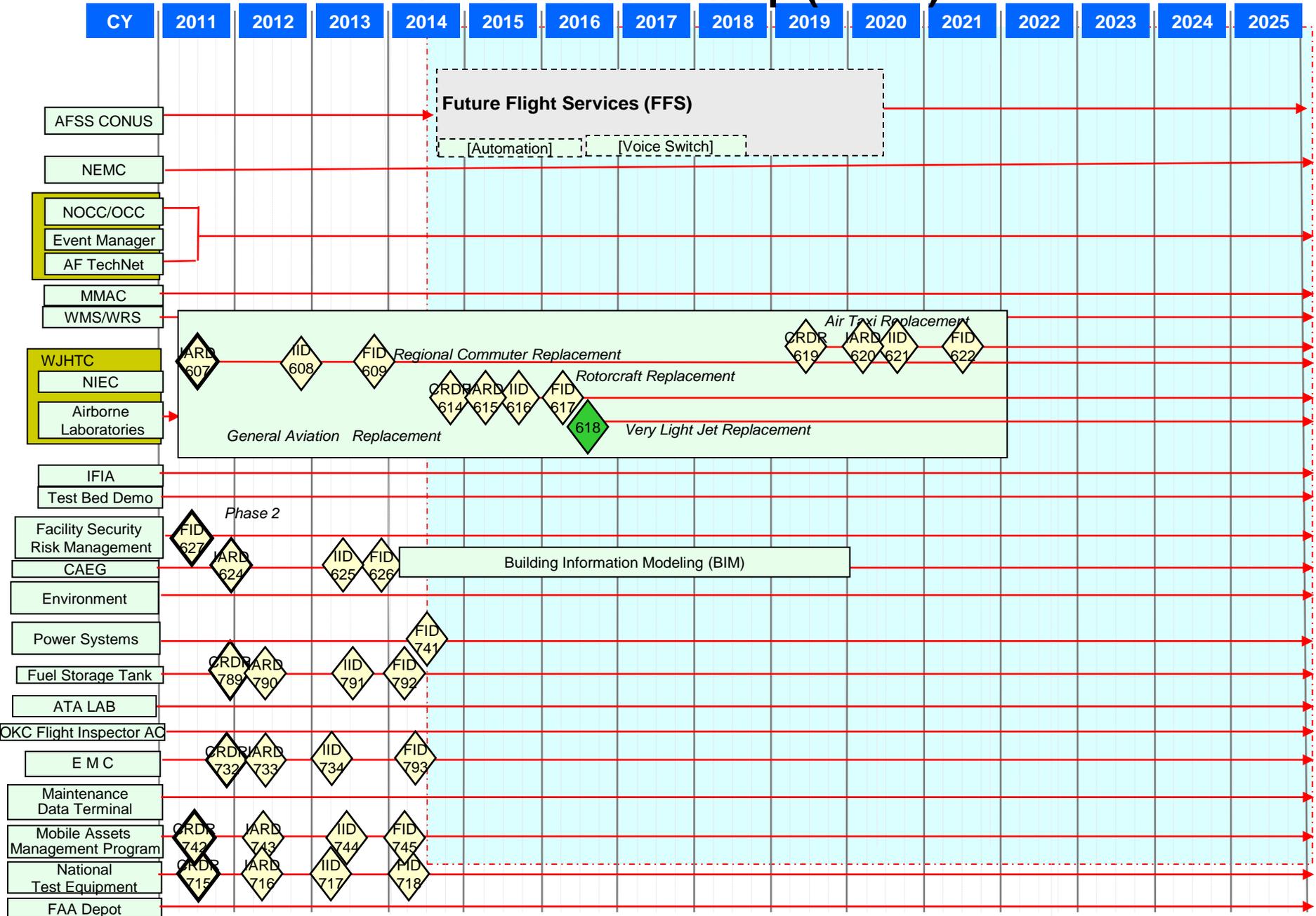
Enterprise Services Roadmap: Decision Points (2 of 2)

DP #	Target Date CY	High Priority	Domain	Name
344	2011 Q1	N	Enterprise Services	Establish Requirements for a Backup Timing Source (Complete)
345	2013 Q4	N	Enterprise Services	Strategy Decision for the implementation of a GPS timing backup
346	2015	Y	Automation	Final Investment Decision (FID) for CATMT Work Package 4
389	2016 Q3	Y	Automation	Final Investment Decision (FID) for Offshore Automation Systems Consolidation
507	2013	N	Navigation	Baseline Change Decision (BCD) to move WAAS from Phase III to Phase IV
511	2015 Q3	Y	Navigation	Alternate Position, Navigation, and Timing (APNT) solution determined
635	2020	Y	Weather	Final Investment Decision (FID) for NNEW Tech Refresh
655	2012 Q3	N	Weather	Investment Analysis Readiness Decision (IARD) to Tech Refresh all 34 ITWS systems
696	2013 Q4	Y	Automation	Final Investment Decision (FID) for AMMS Work Package 1 and Work Package 2
704	2014	N	Enterprise Services	Concept and Requirements Definition Readiness (CRDR) for the Enterprise Level Time and Frequency Solution
705	2015	N	Enterprise Services	Investment Analysis Readiness Decision (IARD) for the Enterprise Level Time and Frequency Solution
706	2016	N	Enterprise Services	Initial Investment Decision (IID) for the Enterprise Level Time and Frequency Solution
707	2016	N	Enterprise Services	Final Investment Decision (FID) for the Enterprise Level Time and Frequency Solution
708	2012 Q2	Y	Enterprise Services	Final Investment Decision (FID) for SWIM Segment 2
758	2013 Q1	Y	Automation	Final Investment Decision (FID) for ERAM D-Position and System Enhancements
786	2014 Q1	N	Enterprise Services	Policy decision to enable operational capability of Aircraft Access to SWIM (AAtS)
787	2019 Q1	N	Enterprise Services	Strategy decision based on the Usage and Operation analysis to determine the long term Aircraft Access to SWIM (AAtS) strategy.
788	2012 Q2	N	Enterprise Services	Baseline Change Decision (BCD) for SWIM Segment 1
811	2016	N	Information System Security	Strategy Decision to review recommendations from Mid-term IPE and IDR RE&D and Policy support activities and approve next steps for IPE and IDR.

Facilities Roadmaps

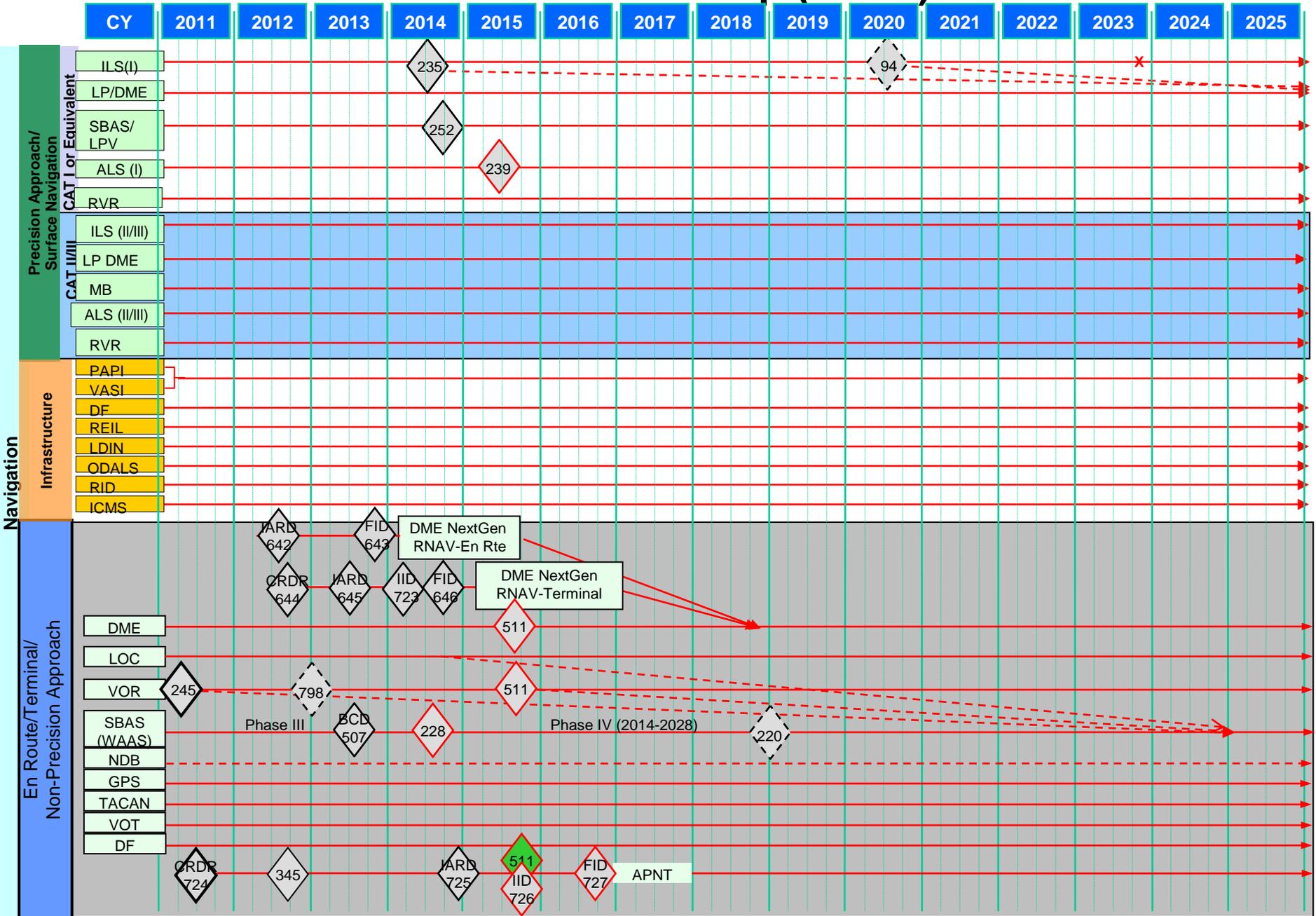
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Facilities Roadmap (2 of 5)



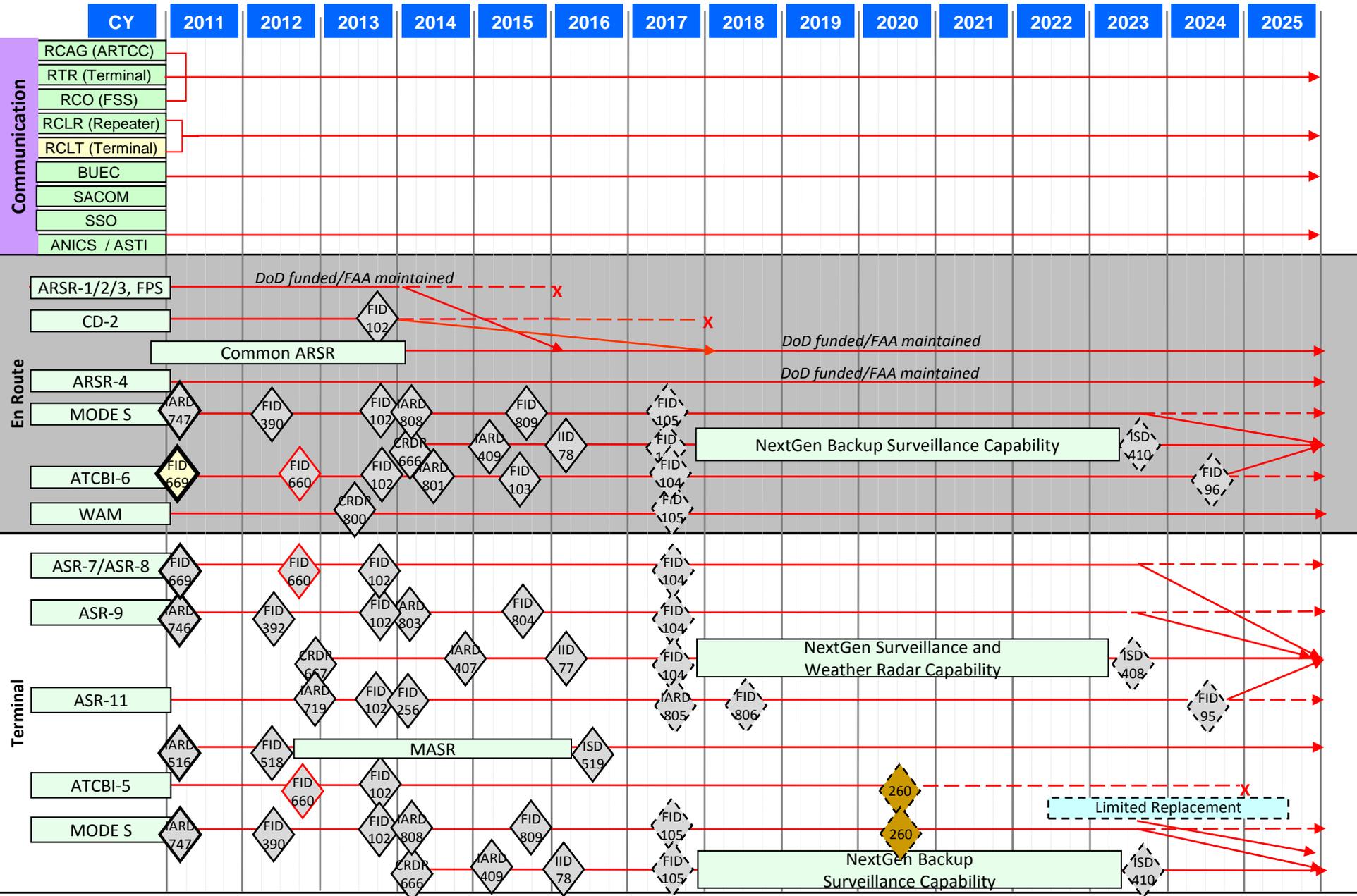
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Facilities Roadmap (3 of 5)



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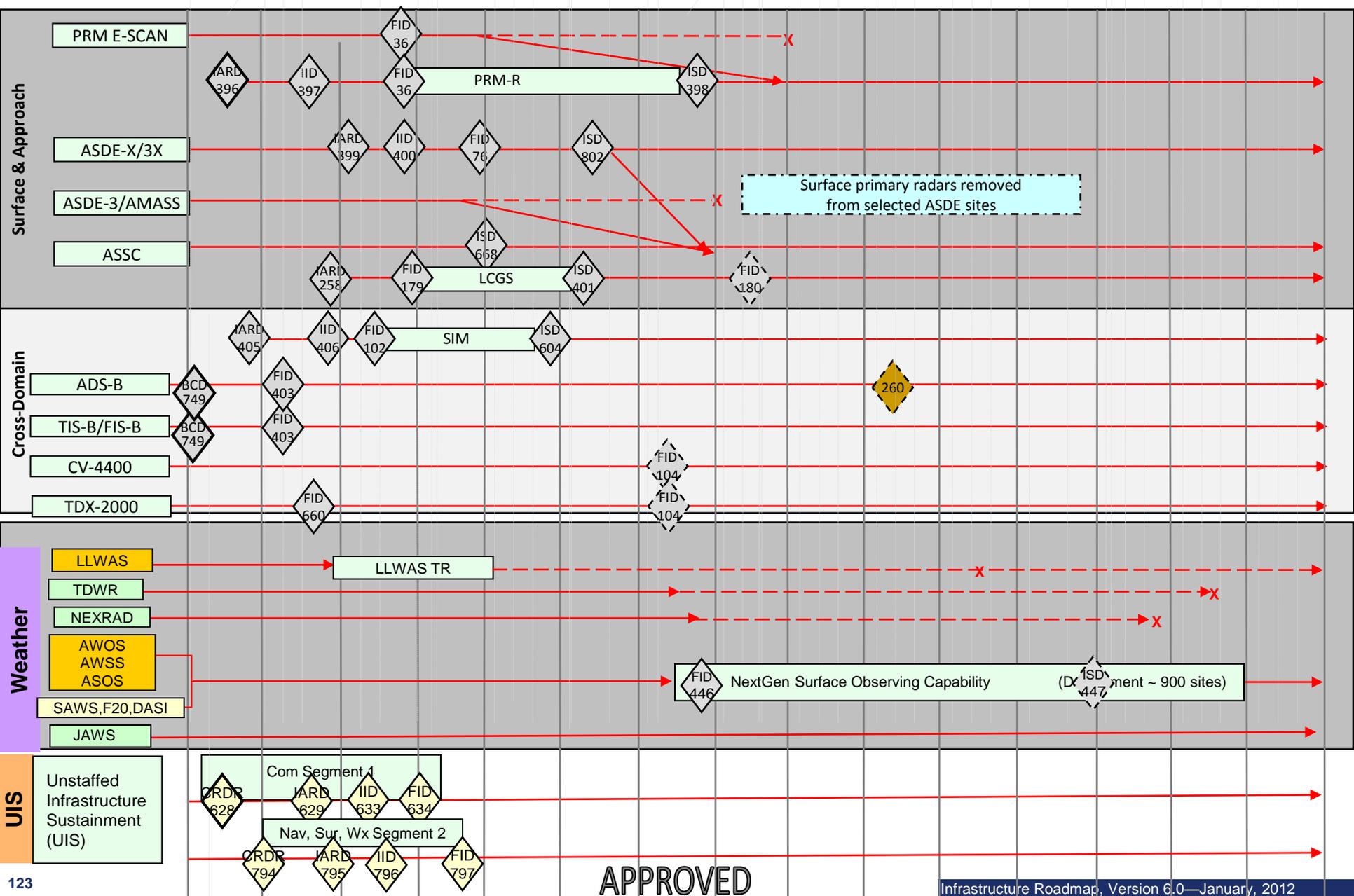
Facilities Roadmap (4 of 5)



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Facilities Roadmap (5 of 5)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



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Facilities Roadmap: Assumptions

Identifier	Description
FAC-01	Business Continuity will be integrated into the design of the NextGen Facilities
FAC-02	Facilities will be built to mandated security and safety guidelines
FAC-03	The airspace will be restructured to accommodate transitional and NextGen airspace concepts (e.g. Big Airspace, flexible airspace, classic en route airspace, mixed equipage airspace, special use airspace, super-density flexible airspace, etc.)
FAC-04	NextGen Facilities will use a new geo-independent model, where service delivery is best aligned to manage costs and increase efficiencies
FAC-05	Airspace planning projects and NextGen Facilities projects should be inter-dependently scheduled in accordance with national priorities
FAC-06	ATC tasks will evolve consistent with changes in the management of airspace
FAC-07	NextGen Facilities will accommodate NextGen automation and enterprise services enhancements
FAC-08	Site locations will be determined according to a number of factors that consider safety, security, and human resources
FAC-09	Facilities Unstaffed (UIS) Roadmap depicts only significant AMS (FID and ISD) and policy/strategy decisions from other Infrastructure Roadmaps that affect UIS Facilities

Facilities Roadmap: Decision Points (1 of 6)

DP #	Target Date CY	High Priority	Domain	Name
36	2013 Q4	N	Surveillance	Final Investment Decision (FID) for migration of PRM to PRM-R (based on multilateration)
76	2014 Q4	N	Surveillance	Final Investment Decision (FID) for removal or SLEP/replace ASDE surface primary radars (evolving requirements for safety and security may impact decision)
77	2016 Q1	N	Surveillance	Initial Investment Decision (IID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
78	2016 Q1	N	Surveillance	Initial Investment Decision (IID) to implement a NextGen beacon/backup radar system for ATC
94	2020	N	Navigation	Policy decision on complete Instrument Landing System (ILS) CAT I drawdown
95	2024	N	Surveillance	Final Investment Decision (FID) for replacement of terminal primary radars (ASR-11 PSR) and removal of terminal beacons (ASR-11 MSSR)
96	2024	N	Surveillance	Final Investment Decision (FID) for replacement of en route beacons (ATCBI-6)
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems
103	2015 Q2	N	Surveillance	Final Investment Decision (FID) for technology refresh of beacons (ATCBI-6)
104	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
105	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen beacon/backup radar system for ATC
179	2013 Q4	N	Surveillance	Combined Initial Investment Decision (IID) and Final Investment Decision (FID) for LCGS
179	2013 Q4	N	Surveillance	Combined Initial Investment Decision (IID) and Final Investment Decision (FID) for LCGS
180	2018	N	Surveillance	Final Investment Decision (FID) for ADS-B to assume LCGS function, or approve a Technology Refresh for LCGS
198	2015	Y	Automation	Final Investment Decision (FID) for TFDI Work Package 2
220	2018	N	Navigation	Strategy Decision to cut over to Dual Frequency Operations based on completion of Dual Frequency (GPS L1 and L5) development & testing.
228	2014	Y	Navigation	Strategy Decision to proceed with WAAS dual frequency avionics activities to validate standards and lower risk for avionics development.
235	2014	N	Navigation	Strategy Decision on active drawdown of CAT I ILSs operating in the NAS
239	2015	N	Navigation	Strategy Decision to proceed with ALS (I) Production LED Lamps for MALSR systems based on results of Benefit Cost Analysis
245	2011 Q1	N	Navigation	Strategy Decision on near-term minimum operational VOR ground network (Complete)
256	2013 Q4	N	Surveillance	Final Investment Decision (FID) for ASR-11 Technology Refresh Segment 2 (through 2025)
259	2018	N	Navigation	Final Investment Decision (FID) for RWSL Technology Refresh

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Facilities Roadmap: Decision Points (2 of 6)

DP #	Target Date CY	High Priority	Domain	Name
345	2013 Q4	N	Enterprise Services	Strategy Decision for the implementation of a GPS timing backup
390	2012 Q2	N	Surveillance	Final Investment Decision (FID) for legacy beacon (Mode S) SLEP through 2028
392	2012 Q2	N	Surveillance	Final Investment Decision (FID) for legacy radar (ASR-9) SLEP through 2027
398	2017 Q3	N	Surveillance	In-Service Decision (ISD) for PRM-R (based on multilateration)
401	2016 Q2	N	Surveillance	In-Service Decision (ISD) for Low Cost Ground Surveillance system
403	2012 Q2	N	Surveillance	Final Investment Decision (FID) for SBS
408	2023	N	Surveillance	In-Service Decision (ISD) for NextGen Surveillance and Weather Radar Capability
410	2023	N	Surveillance	In-Service Decision (ISD) for New Beacon/Backup System
446	2017 Q2	N	Weather	Final Investment Decision (FID) to consolidate and replace ASWON automated surface observing capability (replacement for all ASWON sensors plus NextGen requirements)
447	2023	N	Weather	In-Service Decision (ISD) to consolidate and replace all automated surface observing systems with NextGen Surface Observing Capability plus NextGen requirements
507	2013	N	Navigation	Baseline Change Decision (BCD) to move WAAS from Phase III to Phase IV
511	2015 Q3	Y	Navigation	Alternate Position, Navigation, and Timing (APNT) solution determined
607	2011 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for Airborne Labs: Regional Commuter Capabilities (Convair 580 Replacement) (Completed)
608	2012 Q4	N	Facilities	Initial Investment Decision (IID) for Airborne Labs: Regional Commuter Capabilities (Convair 580 Replacement)
609	2013 Q3	N	Facilities	Final Investment Decision (FID) for the Airborne Labs: Regional Commuter Capabilities (Convair 580 Replacement)
614	2014	N	Facilities	Concept and Requirements Definition Decision (CRDR) for Airborne Labs: Rotorcraft Capabilities (Sikorski S76 Replacement)
615	2015	N	Facilities	Investment Analysis Readiness Decision (IARD) for Airborne Labs: Rotorcraft Capabilities (Sikorski S76 Replacement)
616	2015	N	Facilities	Initial Investment Decision (IID) for Airborne Labs: Rotorcraft Capabilities (Sikorski S76 Replacement)
617	2016	N	Facilities	Final Investment Decision (FID) for Airborne Labs: Rotorcraft Capabilities (Sikorski S76 Replacement)

Facilities Roadmap: Decision Points (3 of 6)

DP #	Target Date CY	High Priority	Domain	Name
618	2016	N	Facilities	Strategy Decision - Airborne Labs: Very Light Jet
618	2016	N	Facilities	Strategy Decision - Airborne Labs: Very Light Jet
619	2019	N	Facilities	Concept and Requirements Definition Decision (CRDR) for Airborne Labs: Air Taxi Capability (King Air Replacement)
619	2019	N	Facilities	Concept and Requirements Definition Decision (CRDR) for Airborne Labs: Air Taxi Capability (King Air Replacement)
620	2020	N	Facilities	Investment Analysis Readiness Decision (IARD) for Airborne Labs: Air Taxi Capability (King Air Replacement)
620	2020	N	Facilities	Investment Analysis Readiness Decision (IARD) for Airborne Labs: Air Taxi Capability (King Air Replacement)
621	2020	N	Facilities	Initial Investment Decision (IID) for Airborne Labs: Air Taxi Capability (King Air Replacement)
622	2021	N	Facilities	Final Investment Decision (FID) for Airborne Labs: Air Taxi Capability (King Air Replacement)
624	2011 Q4	N	Facilities	Investment Analysis Readiness Decision (IARD) for Building Information Modeling (BIM) (Complete)
625	2013 Q2	N	Facilities	Initial Investment Decision (IID) for Building Information Modeling (BIM)
626	2013 Q4	N	Facilities	Final Investment Decision (FID) for Building Information Modeling (BIM)
627	2011 Q2	N	Facilities	Final Investment Decision (FID) for Facility Security Risk Management (FSRM) Phase II (Complete)
628	2011 Q1	N	Facilities	Concept and Requirements Definition Readiness Decision (CRDR) for Communications Segment 1 Unstaffed Infrastructure Sustainment (UIS) (Complete)
629	2012 Q3	N	Facilities	Investment Analysis Readiness Decision (IARD) for Communications Segment 1 Unstaffed Infrastructure Sustainment (UIS)
633	2013 Q2	N	Facilities	Initial Investment Decision (IID) for Communications Segment 1 Unstaffed Infrastructure Sustainment (UIS)
634	2014 Q1	N	Facilities	Final Investment Decision (FID) for Communications Segment 1 Unstaffed Infrastructure Sustainment (UIS)
642	2012 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - En Route Distance Measuring Equipment (DME)
643	2013 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - En Route Distance Measuring Equipment (DME)

Facilities Roadmap: Decision Points (4 of 6)

DP #	Target Date CY	High Priority	Domain	Name
644	2011 Q1	N	Navigation	Concept & Requirements Definition Readiness (CRDR) Decision for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME) (Complete)
645	2013 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)
646	2014 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)
668	2014 Q4	N	Surveillance	In Service Decision (ISD) for Airport Surface Surveillance Capability
688	2011 Q4	Y	Facilities	Initial Investment Decision (IID) for NextGen Facilities Program, Segment 1 (Completed)
689	2012 Q4	Y	Facilities	Final Investment Decision (FID) for NextGen Facilities Program Segment 1, Project 1
690	2013 Q3	N	Facilities	Final Investment Decision (FID) for NextGen Facilities Program Segment 1, Project 2
691	2014 Q1	N	Facilities	Strategy Decision for Developing Integrated Business Continuity Services Concepts & Infrastructure
692	2016	N	Facilities	Strategy Decision for Integration of Certain ATCT Functions into NextGen Facilities
715	2011 Q2	N	Facilities	Concept and Requirements Definition Decision (CRDR) for National Test Equipment (Complete)
715	2011 Q2	N	Facilities	Concept and Requirements Definition Decision (CRDR) for National Test Equipment (Complete)
716	2012 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for National Test Equipment
717	2013 Q2	N	Facilities	Initial Investment Decision (IID) for Facility National Equipment
718	2014 Q2	N	Facilities	Final Investment Decision (FID) for Facility National Equipment
719	2012 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for ASR-11 Technology Refresh Segment 2 (through 2025)
723	2014 Q1	N	Navigation	Initial Investment Decision (IID) for the acquisition of NextGen RNAV-Terminal Distance Measuring Equipment (DME)
724	2011 Q2	N	Navigation	Concept & Requirements Definition Readiness (CRDR) Decision for Alternate Positioning, Navigation and Timing (APNT) (Complete)
725	2014 Q3	N	Navigation	Investment Analysis Readiness Decision (IARD) for Alternate Positioning, Navigation and Timing (APNT)
726	2015 Q3	Y	Navigation	Initial Investment Decision (IID) for Alternate Positioning, Navigation and Timing (APNT)
727	2016 Q3	Y	Navigation	Final Investment Decision (FID) for Alternate Positioning, Navigation and Timing (APNT)

Facilities Roadmap: Decision Points (5 of 6)

DP #	Target Date CY	High Priority	Domain	Name
732	2011 Q2	N	Facilities	Concept and Requirements Definition (CRDR) Decision for EMC (Complete)
733	2012 Q3	N	Facilities	Investment Analysis Readiness Decision (IARD) for EMC
734	2013 Q2	N	Facilities	Initial Investment Decision (IID) for EMC
741	2014 Q2	N	Facilities	Final Investment Decision (FID) for Power Cable Replacement Program
742	2011 Q2	N	Facilities	Concept and Requirements Definition Readiness Decision (CRDR) for MAMP (Complete)
743	2012 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for MAMP
744	2013 Q2	N	Facilities	Initial Investment Decision (IID) for MAMP
745	2014 Q1	N	Facilities	Final Investment Decision (FID) for MAMP
762	2020	Y	Automation	Strategy decision on the content and allocation of functions to Program Office For NextGen Far-Term Work Package
780	2012 Q3	Y	Communication	Final Investment Decision (FID) for NVS Segment 1
789	2011 Q4	N	Facilities	Concept and Requirements Definition Decision (CRDR) for Fuel Storage Tank (Complete)
790	2012 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for Fuel Storage Tank
791	2013 Q3	N	Facilities	Initial Investment Decision (IID) for Fuel Storage Tank
792	2014 Q2	N	Facilities	Final Investment Decision (FID) for Fuel Storage Tank
793	2014 Q1	N	Facilities	Final Investment Decision (FID) for Energy Management Compliance Program (EMCP)
794	2012 Q1	N	Facilities	Concept and Requirements Definition Readiness Decision (CRDR) for NAV, SUR and WX Segment 2 Unstaffed Infrastructure Sustainment (UIS)
795	2012 Q4	N	Facilities	Investment Analysis Readiness Decision (IARD) for NAV, SUR and WX Segment 2 Unstaffed Infrastructure Sustainment (UIS)
796	2013 Q3	N	Facilities	Initial Investment Decision (IID) for NAV, SUR and WX Segment 2 Unstaffed Infrastructure Sustainment (UIS)
797	2014 Q3	N	Facilities	Final Investment Decision (FID) for NAV, SUR and WX Segment 2 Unstaffed Infrastructure Sustainment (UIS)
798	2012 Q4	N	Navigation	Determine Strategy for VOR Discontinuance and Sustainment
800	2013 Q2	N	Surveillance	Concept and Requirements Definition Readiness (CRDR) Decision for technology refresh of beacons (ATCBI-6)

Facilities Roadmap: Decision Points (6 of 6)

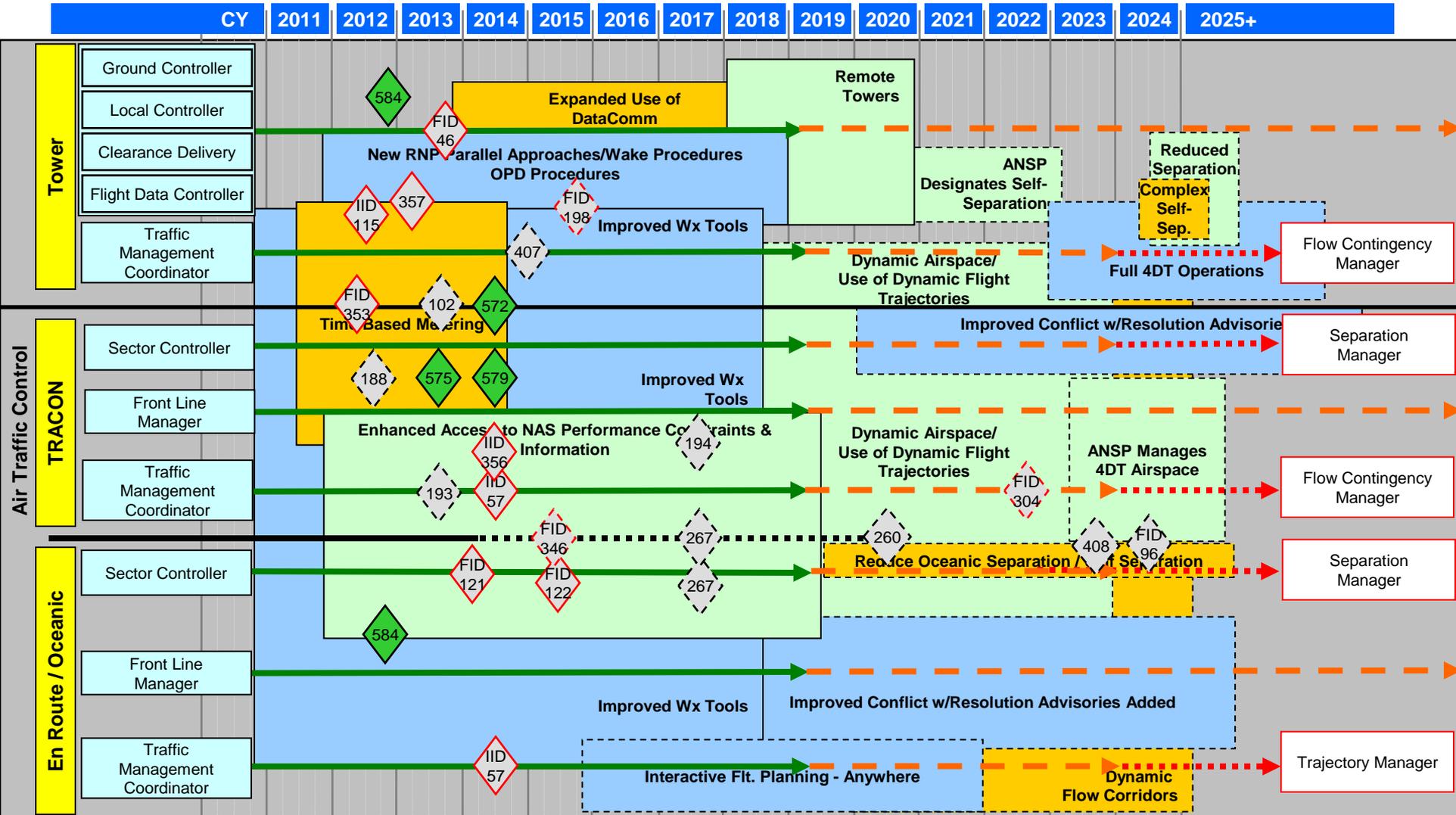
DP #	Target Date CY	High Priority	Domain	Name
808	2014 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Phase 3 legacy beacon (Mode S) SLEP through 2028
809	2015 Q3	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Phase 3 legacy beacon (Mode S) SLEP through 2028
801	2014 Q2	N	Surveillance	Investment Analysis Readiness Decision (IARD) for technology refresh of beacons (ATCBI-6)
802	2016 Q2	N	Surveillance	In Service Decision (ISD) for removal or SLEP/replace ASDE surface primary radars
803	2014 Q1	N	Surveillance	Investment Analysis Readiness Decision for ASR-9 SLEP Phase 3
804	2015 Q3	N	Surveillance	Final Investment Decision (FID) for ASR-9 SLEP Phase 3
805	2017	N	Surveillance	Investment Analysis Readiness Decision (IARD) for ASR-11 Technology Refresh Segment 3
806	2018	N	Surveillance	Final Investment Decision (FID) for ASR-11 Technology Refresh Segment 3

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Human Systems Integration Roadmaps

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Human Systems Integration Roadmap (1 of 6)



Notes:

- (1) The shaded boxes above are intended to reflect changes to the NAS workforce and work environment.
- (2) The shaded boxes above are intended to represent an earliest potential "implementation" of a capability.
- (3) Far Term representations on the HSI Roadmap (2018 – 2025) depicted in dotted-line boxes are included for planning purposes.
- (4) The actors represented in this roadmap are selected from NAS EA "actors".

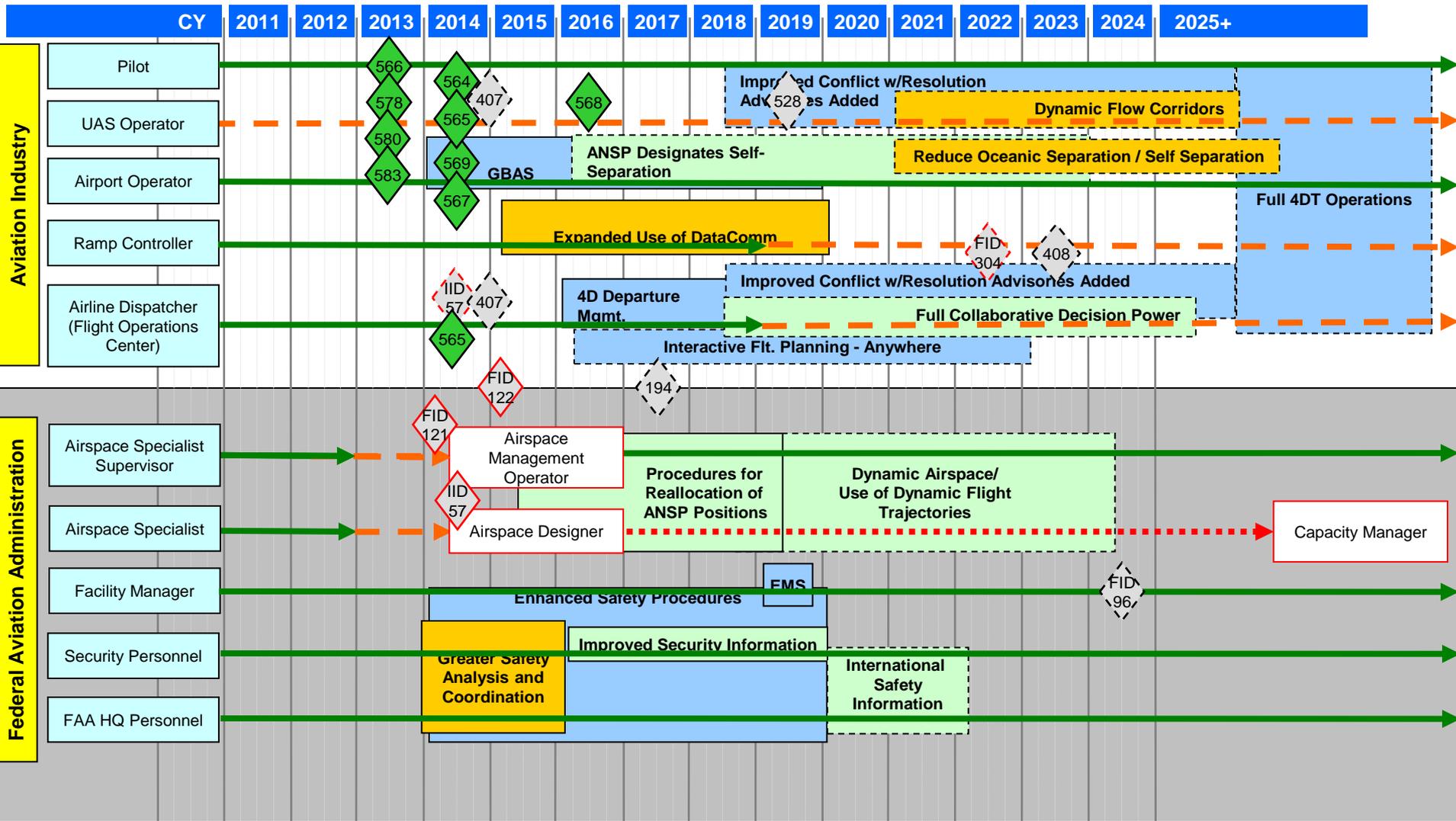
Change in Actor Role or Job:

- Major: ⋯⋯⋯
- Moderate: - - - - -
- Minor: — — — — —

■ Work Environment Change in Automation
 ■ Mixed Workforce/Work Environment Change
 ■ Workforce Change in Role/Responsibility

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Human Systems Integration Roadmap (2 of 6)



Notes:

- The shaded boxes above are intended to reflect changes to the NAS workforce and work environment.
- The shaded boxes above are intended to represent an earliest potential "implementation" of a capability.
- Far Term representations on the HSI Roadmap (2018 – 2025) depicted in dotted-line boxes are included for planning purposes.
- The actors represented in this roadmap are selected from NAS EA "actors".

Change in Actor Role or Job:

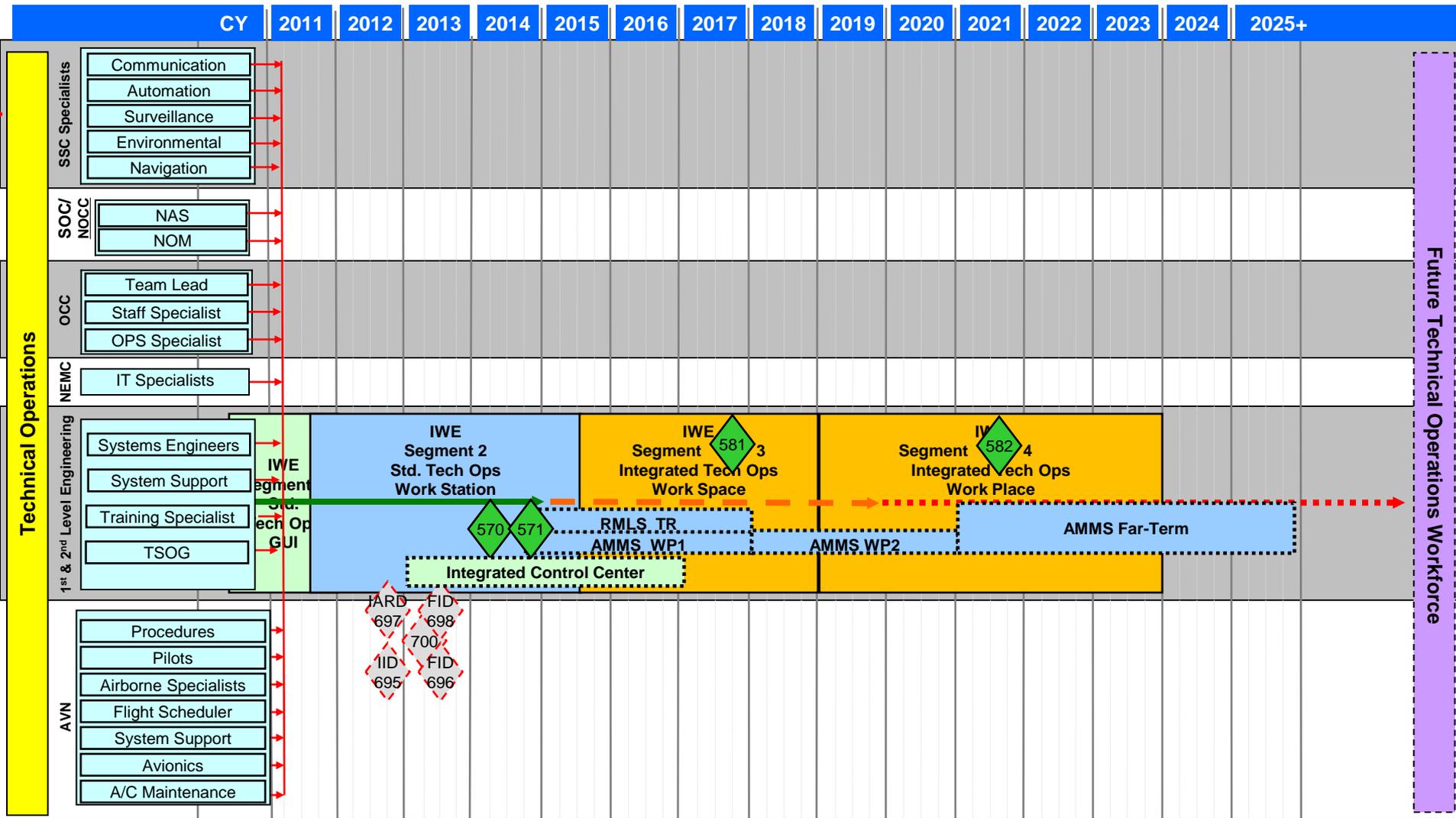
- Major:>
- Moderate: - - - - ->
- Minor: —————>

Legend:

- Work Environment Change in Automation
- Mixed Workforce/Work Environment Change
- Workforce Change in Role/Responsibility

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Human Systems Integration Roadmap (3 of 6)



- Notes:
- (1) The shaded boxes above are intended to reflect changes to the NAS workforce and work environment.
 - (2) The shaded boxes above are intended to represent an earliest potential "implementation" of a capability.
 - (3) Far Term representations on the HSI Roadmap (2018 – 2025) depicted in dotted-line boxes are included for planning purposes.
 - (4) The actors represented in this roadmap are selected from NAS EA "actors".

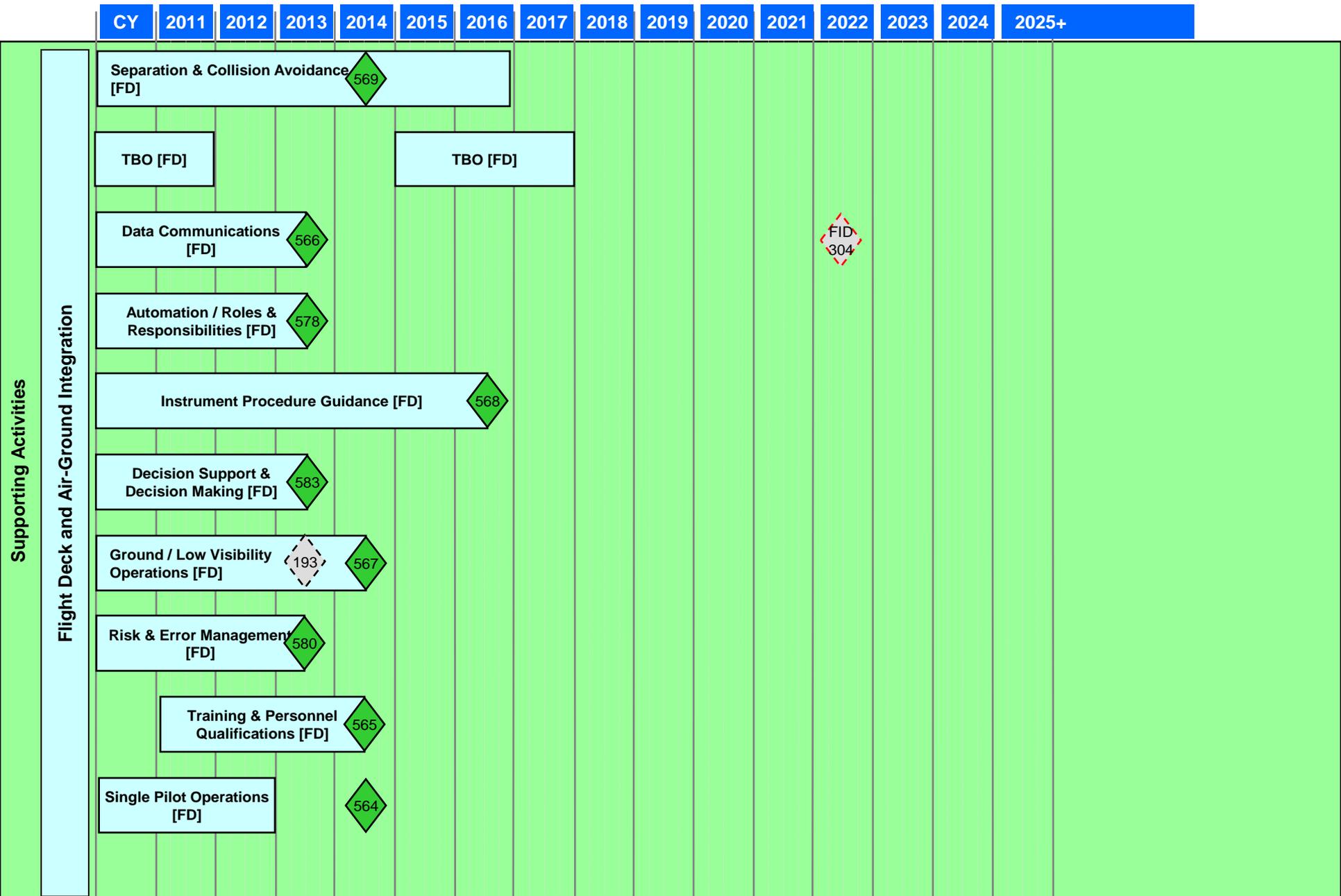
Change in Actor Role or Job:

- Major: ----->
- Moderate: ----->
- Minor: ----->

■ Work Environment Change in Automation
 ■ Mixed Workforce/Work Environment Change
 ■ Workforce Change in Role/Responsibility

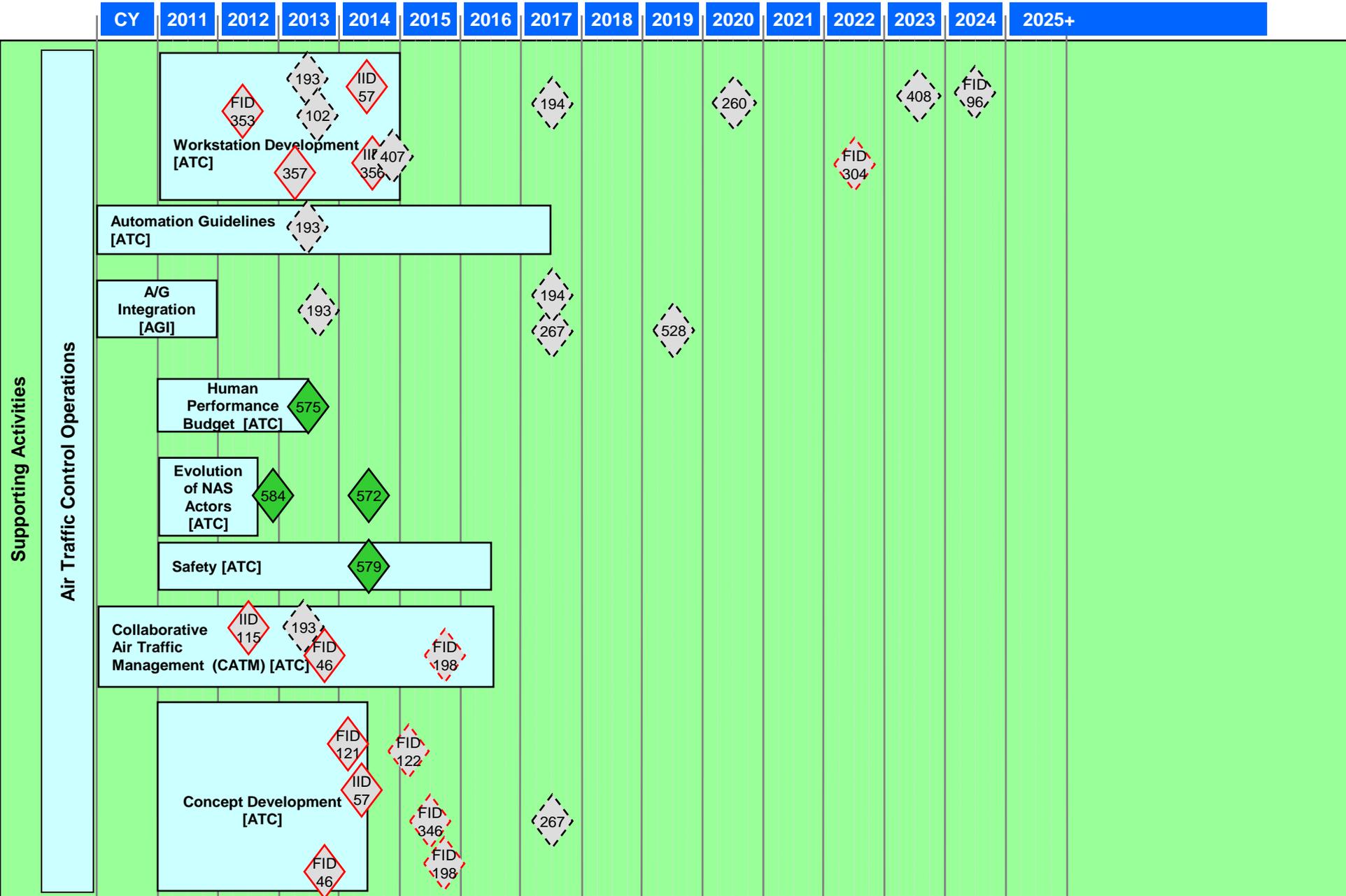
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Human Systems Integration Roadmap (4 of 6)



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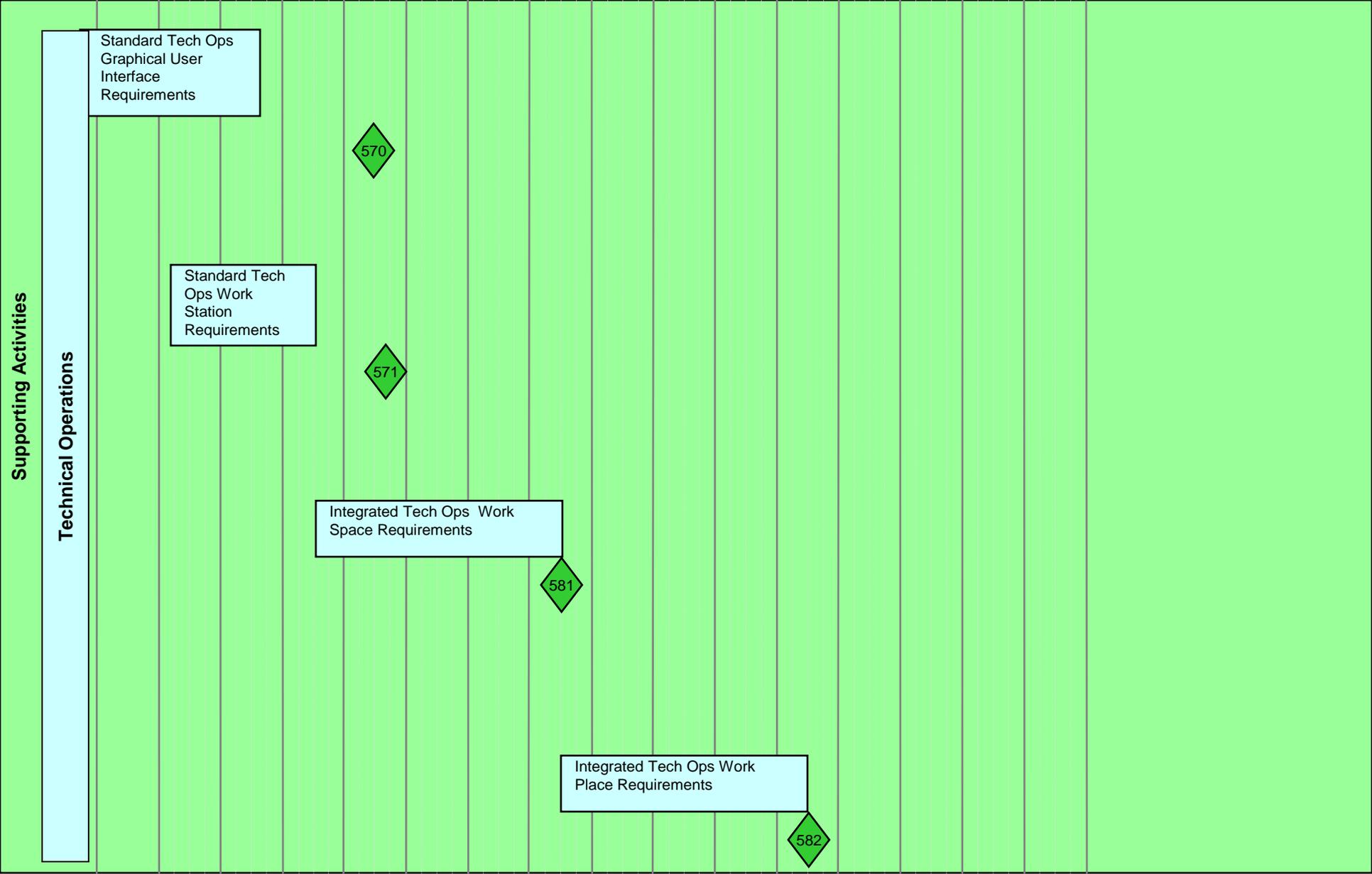
Human Systems Integration Roadmap (5 of 6)



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Human Systems Integration Roadmap (6 of 6)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025+



Supporting Activities

Technical Operations

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Human Systems Integration Roadmap: Assumptions (Potential Ofc. of Resp.)

Identifier	Description
HSI-01	The definition and descriptions of NAS Actors will continue to mature. (AJP-1)
HSI-02	The HSI Roadmap relates to the NextGen job changes (e.g., roles and responsibilities) and work environment changes, and therefore includes procedures and training, safety (human reliability), human-system performance and productivity, information and display requirements, personnel selection, and staffing impacts. (AJP-61)
HSI-03	Human Factors analysis, design, development, and testing are to be accomplished within program/project detailed system engineering activities and not necessarily represented in the HSI Roadmap. (AJN, AJA)
HSI-04	Additional HSI impacts and dependencies are to be continually and fully analyzed as needed in terms of: a) Convergent or divergent roles (e.g., new actors, obsolete roles) b) Implied role/function changes not apparent in the OI description c) More comprehensive assessment of Far-term OI impacts on the workforce and work environments (AJP-61)
HSI-05	“Gaps” in concepts of operations (such as off-nominal scenarios) will be filled to identify and resolve other potential changes in roles and responsibilities. (AJP-66)
HSI-06	NextGen HSI Roadmap products represent information systems, information requirements, guidelines, standards, design requirements, specifications, methods, and tools for incorporating human factors in the NextGen NAS Enterprise Architecture. (Core human factors program requirements may not be fully represented.) (AJP-61)
HSI-07	Notional “Operational Improvements” devised for the purposes of constructing the Tech Ops HSI Roadmap will be validated as future Tech Ops concepts of operations develop. (AJW)
HSI-08	NAS infrastructure and capabilities are not constrained by limitations in personnel staffing, selection, and training unless otherwise identified. (AHR)

Human Systems Integration Roadmap: Decision Points (1 of 2)

DP #	Target Date CY	High Priority	Domain	Name
46	2013 Q3	Y	Automation	Final Investment Decision (FID) for Tower Flight Data Manager (TFDM)
57	2014 Q2	Y	Automation	Final Investment Decision (FID) for TBFM/WP3
96	2024	N	Surveillance	Final Investment Decision (FID) for replacement of en route beacons (ATCBI-6)
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems
115	2012 Q3	Y	Automation	Initial Investment Decision (IID) for Tower Flight Data Manager
121	2014 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 2
122	2015 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 3
193	2013 Q3	N	Air-Ground	Define Human/Automation design principles to support NextGen infrastructure
194	2017	N	Air-Ground	Incorporate results into future Requirement for NextGen Technology and Human/Automation intensive operations
198	2015	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 2
260	2020	N	Surveillance	Decision on ADS-B Rule Compliance
267	2017	N	Airspace & Procedures	Decision to proceed with High Altitude Trajectory Based Airspace Concept Phase 1
304	2022	Y	Communication	Final Investment Decision (FID) for Data Comm Segment 2
346	2015	Y	Automation	Final Investment Decision (FID) for CATMT Work Package 4
353	2012 Q2	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Phase 1: Tower Services, DCIS Contract and ERAM PGW and Logon
356	2014	Y	Automation	Initial Investment Decision (IID) for CATMT Work Package 4
357	2013 Q1	Y	Automation	Investment Analysis Readiness Decision (IARD) for TBFM/WP3
407	2014 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for NextGen Surveillance and Weather Radar Capability
408	2023	N	Surveillance	In-Service Decision (ISD) for NextGen Surveillance and Weather Radar Capability
528	2019	N	Aircraft	Develop Initial Guidance for NextGen FMS
564	2014	N	Human Systems Integration	Decision to use Safety Requirements for NextGen Single Pilot Operations
565	2014	N	Human Systems Integration	Decision to use Requirements for New and Recurrent Pilot/AOC Training and Certification
566	2013	N	Human Systems Integration	Decision to use Air Crew DataComm Requirements for Displays & Procedures
567	2014	N	Human Systems Integration	Decision to use Procedures and Training Requirements for Low Visibility Ground Operations

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Human Systems Integration Roadmap: Decision Points (2 of 2)

DP #	Target Date CY	High Priority	Domain	Name
568	2016	N	Human Systems Integration	Decision to use Human Factors Guidelines for NextGen Instrument Procedures
569	2014	N	Human Systems Integration	Decision to use Requirements for Enhanced Flight Deck Displays for Separation and Collision Avoidance
570	2014	N	Human Systems Integration	Decision to use HF Tech Ops Segment 1 Integrated Work Environment requirements
571	2014	N	Human Systems Integration	Decision to use HF Tech Ops Segment 2 Integrated Work Environment requirements
572	2014	N	Human Systems Integration	Decision to use Requirements and Standards for Personnel Selection, Training, and Staffing
575	2013	N	Human Systems Integration	Decision to use HSI Requirements to Support ATC Efficiency and Effectiveness Objectives
578	2013	N	Human Systems Integration	Decision to use Guidelines for Flight Deck Functional Allocation and Roles for New Automated Systems
579	2014	N	Human Systems Integration	Decision to use Guidelines for Human Reliability and Safety Enhancements
580	2013	N	Human Systems Integration	Decision to use Recommended Methods and Training for Managing Error with Flight Deck User Interfaces
581	2017	N	Human Systems Integration	Decision to use HF Tech Ops Segment 3 Integrated Work Environment requirements
582	2021	N	Human Systems Integration	Decision to use HF Tech Ops Segment 4 Integrated Work Environment requirements
583	2013	N	Human Systems Integration	Decision to use Flight Deck Operational Guidelines for NextGen Applications
584	2012 Q4	N	Human Systems Integration	Decision to use NextGen Strategic Job Selection Requirements
695	2013 Q1	Y	Automation	Initial Investment Decision (IID) for AMMS Work Package 1 and Work Package 2
696	2013 Q4	Y	Automation	Final Investment Decision (FID) for AMMS Work Package 1 and Work Package 2
697	2012 Q4	Y	Automation	Investment Analysis Readiness Decision (IARD) for RMLS Technology Refresh
698	2013 Q4	Y	Automation	Final Investment Decision (FID) for RMLS Technology Refresh

Information System Security Roadmaps

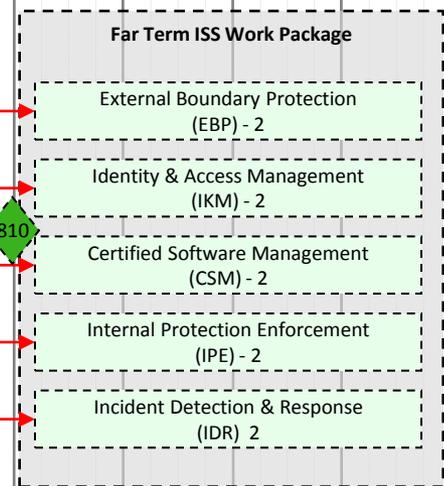
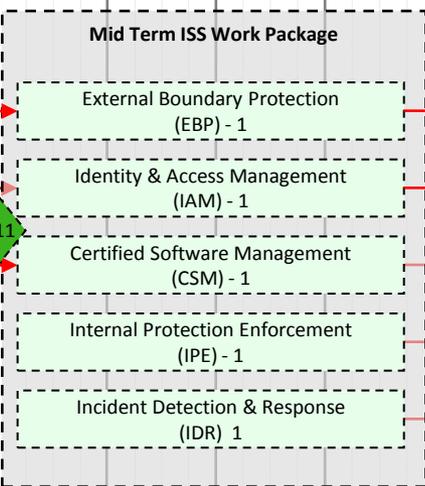
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Information System Security Roadmap 1 of 1

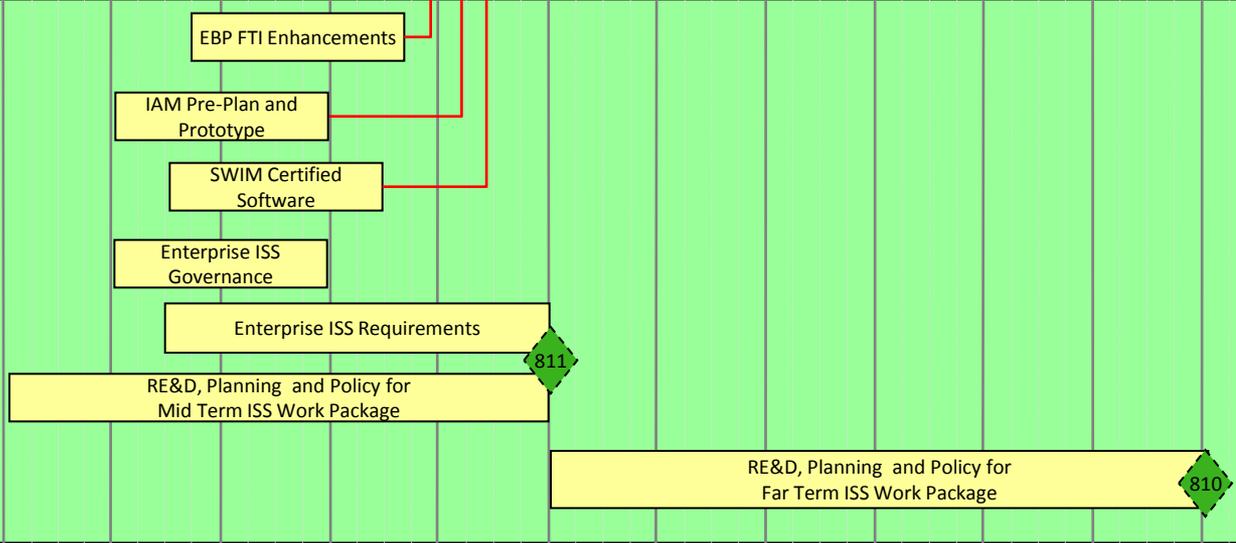
CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

SWIM Seg. 1 FID 708 SWIM Seg. 2 SWIM Seg. 3

ISS Capabilities



RE&D and Other Supporting Activities



811

810

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Information System Security Roadmap: Assumptions (1 of 2)

Identifier	Description
	General Assumptions
ISS-01	The responsibility for providing information security to the NAS will be extended from individual NAS programs/systems to the NAS Enterprise which will offer five enterprise level information security capabilities: (1) External Boundary Protection (EBP), (2) Incident Detection & Response (IDR) (3) Certified Software Management (CSM), (4) Internal Protection Enforcement (IPE), and (5) Identity and Key Management (IKM). Individual NAS programs/systems will implement these five capabilities according to their C&A Plan of Actions and Milestones and in coordination with the capability providers. Other NAS security capabilities, e.g. local system security management, will remain the sole responsibility of individual systems.
ISS-02	The NAS Enterprise Information System Security Architecture (NEISSA) project will plan and coordinate the implementation of the enterprise level ISS capabilities within the framework of the FAA acquisition management process (AMS).
	Incident Detection and Response (IDR) Capability Assumptions
ISS-03	Enterprise security policy and governance structure will exist for incident detection and response such that the NAS is monitored for malware and other ISS events.
ISS-04	Information regarding all security incidents and security events will be transmitted to a central cyber security incident analysis center, such as the Cyber Security Management Center (CSMC), for analysis.
ISS-05	Coordination of NAS ISS incident detection and response is through the NAS Security Information Group (SIG).
ISS-06	A standard NAS incident Detection architecture and system design will be developed cooperatively between AIS and ATO.
ISS-07	NAS programs, the SIG, and CSMC will cooperatively plan and engineer the NAS incident detection system monitoring, analysis, and response capability.

Information System Security Roadmap: Assumptions (2 of 2)

Identifier	Description
Assumptions for an External Boundary Protection (EBP) Capability	
ISS-08	Data flows into the NAS from non-NAS entities (external) are potential vectors of information security attack to the NAS and must be protected by the External Boundary Protection (EBP) capability .
ISS-09	For each external data flow requiring boundary protection, FTI will provide the communications transport between the NAS system and the EBP gateway.
Assumptions for an Internal Protection Enforcement (IPE) Capability	
IPE-01	The Internal Protection Enforcement (IPE) capability is needed to mitigate information security risk arising from (1) the External Boundary Protection (EBP) residual risk, (2) the insider threat, and (3) the accidental introduction of malicious software (malware) into the NAS.
Assumptions for the Identity and Access Management (IAM) Capability	
ISS-10	Identity and Access Management services for NAS users (humans and IT devices) will be provided over the next 5 years.
ISS-11	The FAA is planning to initiate NAS prototype activities examining Identity and access management services for non-NAS systems and non-NAS users.
ISS-12	AIO/AIS and ATO will collaborate on the planning and engineering of the identify and access management services for the NAS.
ISS-13	NAS requirements for Identity and Access Management services include authentication (including non-repudiation), integrity, and confidentiality.
Assumptions for a Software Supply Chain (SSC) Capability	
ISS-14	The Software Supply Chain capability will enhance the current acquisition and delivery of COTS software, enable access control from any part of the NAS, providing secure retrieval and transfer, and integrity guarantee utilizing the SSC capability. This capability will also include software vulnerability testing.
ISS-15	For the midterm, enterprise security policy will examine existing SOA COTS software distribution CM for the NAS to determine the feasibility of enhancing it with the an SSC capability.
ISS-16	Far Term Enterprise security policy will require that official NAS COTS software, configuration, and adaptation data utilizes the SSC capability.

Information System Security Roadmap: Decision Points

DP #	Target Date CY	High Priority	Domain	Name
708	2012 Q2	Y	Enterprise Services	Final Investment Decision (FID) for SWIM Segment 2
810	2022	N	Information System Security	Strategy Decision to adjudicate and allocate Far-term Enterprise ISS requirements for executing programs.
811	2016	N	Information System Security	Strategy Decision to adjudicate and allocate Mid-term Enterprise ISS requirements for executing programs.

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Information System Security Roadmap: Additional Information

FOR OFFICIAL USE ONLY

Public availability to be determined under 5 USC 552

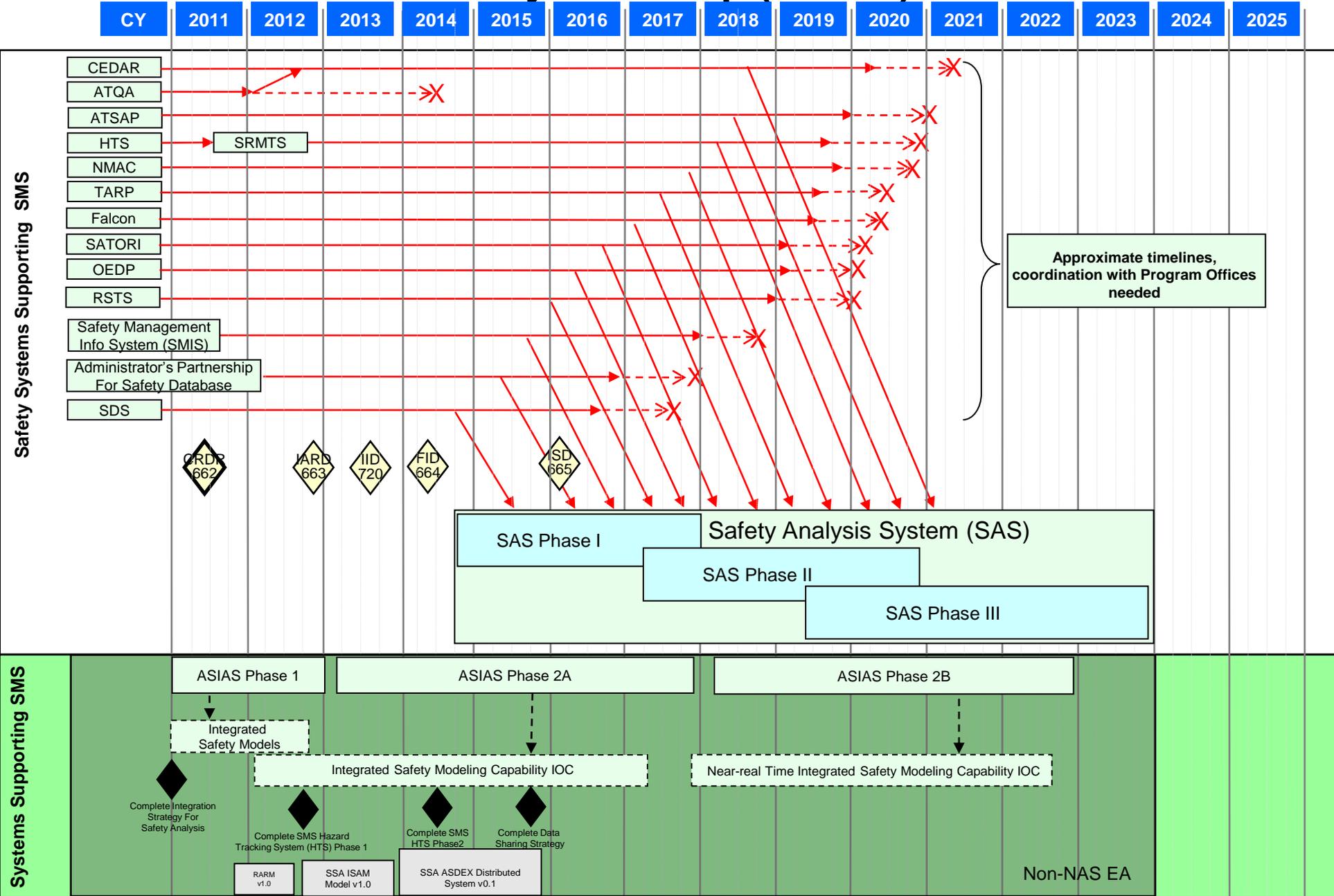
**Detail copies of the Information Systems Security Roadmap
may be obtained by request to John Chung, AJP-1910,
Manager, Information Security Team at
john.chung@faa.gov or (609) 485-7896.**

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Safety Roadmaps

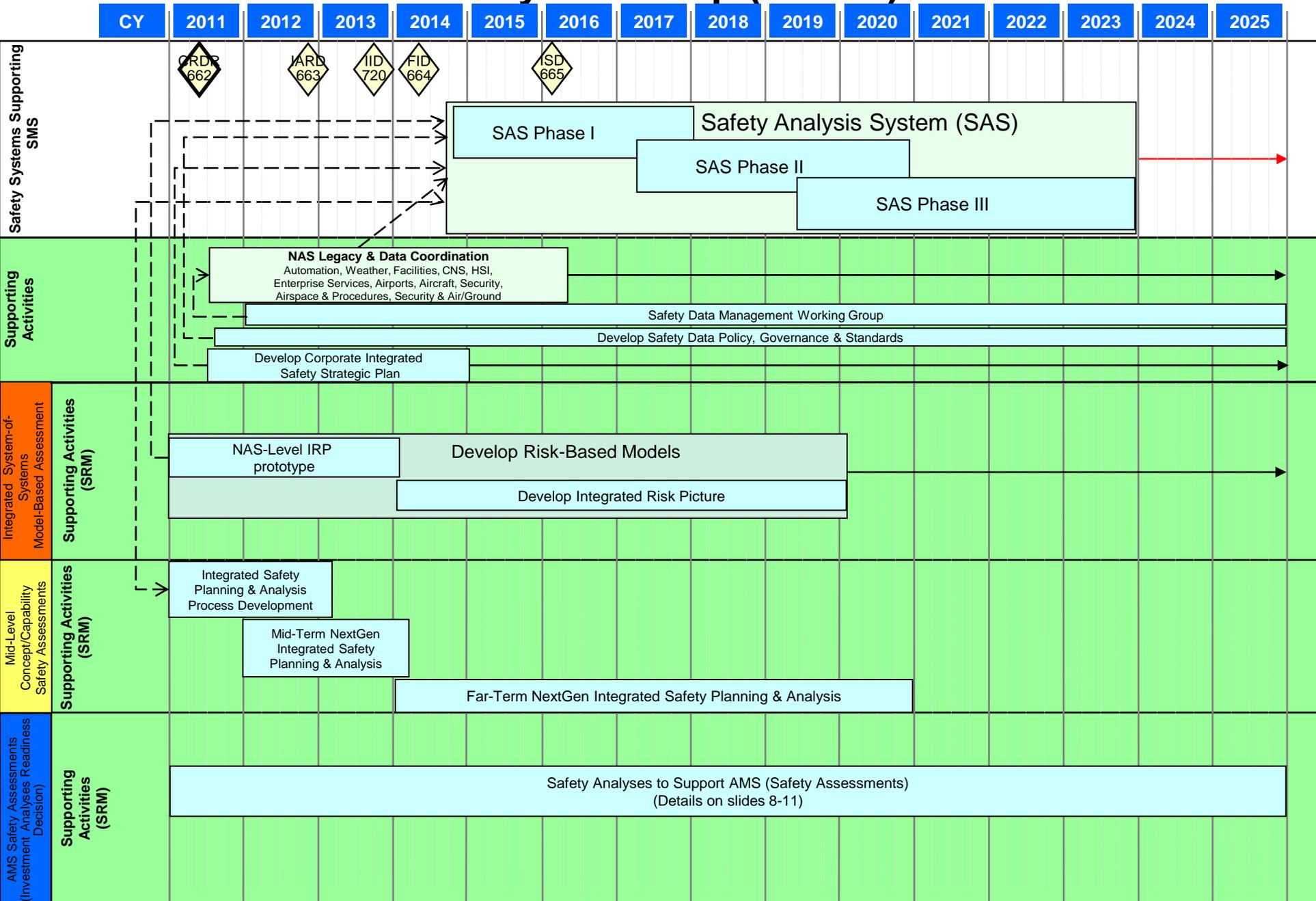
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Safety Roadmap (1 of 11)



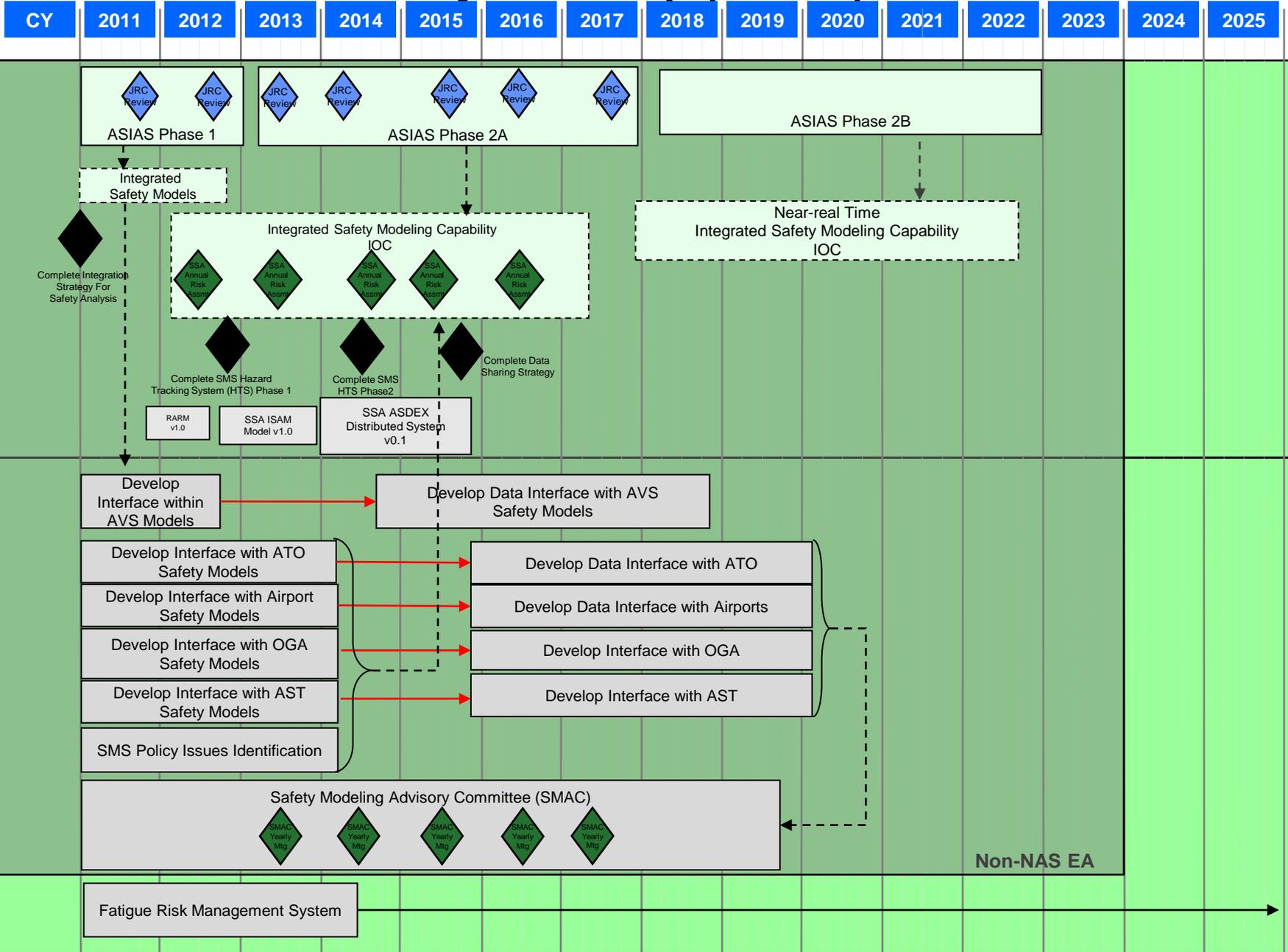
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Safety Roadmap (2 of 11)



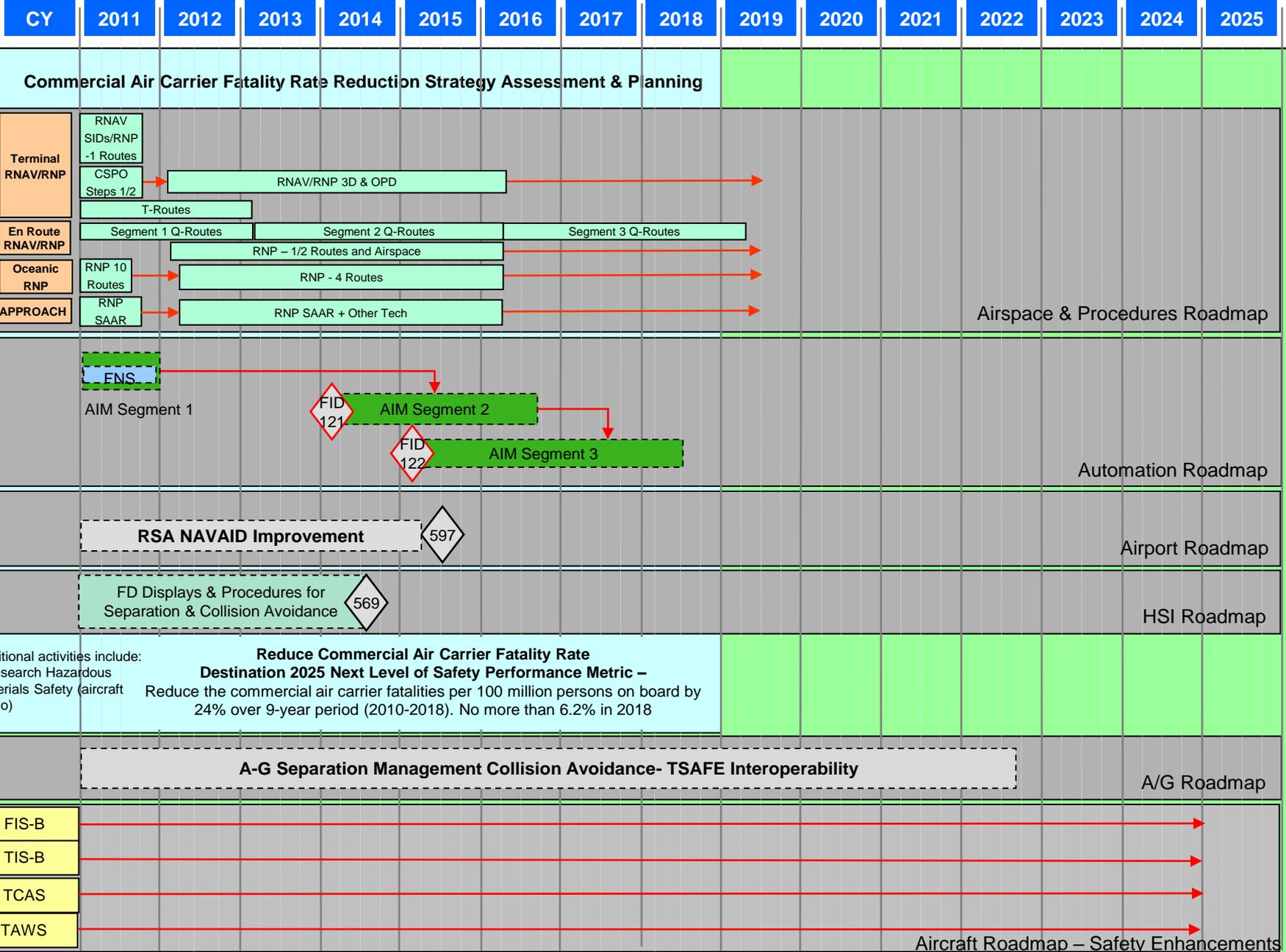
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Safety Roadmap (3 of 11)



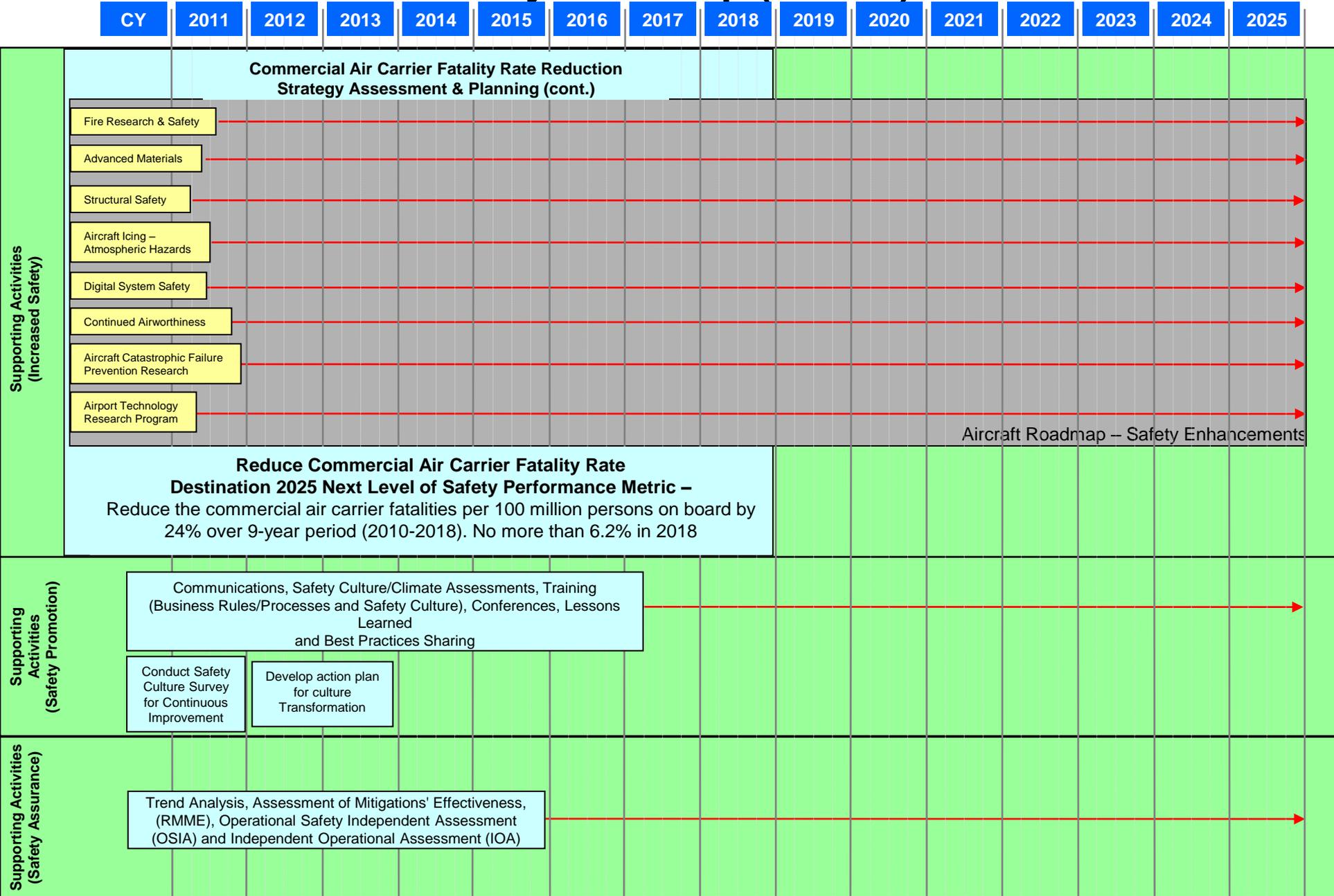
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Safety Roadmap (4 of 11)



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Safety Roadmap (5 of 11)



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Safety Roadmap (6 of 11)

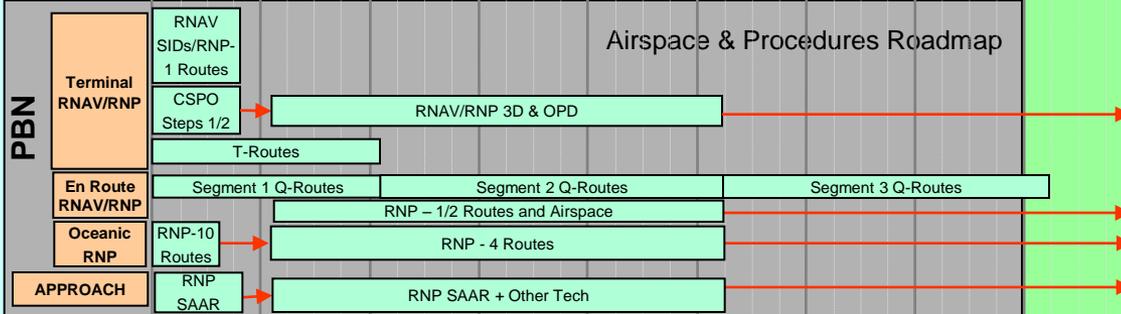
CY	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
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GA Fatality Rate Reduction Strategy Assessment & Planning

Add MLAT to ASDE-3 sites



Surveillance Roadmap



FD Displays & Procedures for Separation & Collision Avoidance



HSI Roadmap

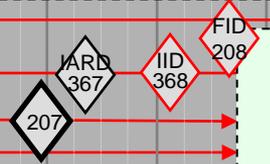
Alaskan Wx Cameras

Weather Roadmap

AFSM



- Unmanned Aircraft Systems Research
- Digital System Safety
- DUAT(S)
- AFSS CONUS
- Propulsion & Fuel Systems



Future Flight Services Program (FPSP)

Automation/Communications/Facilities/Aircraft Roadmaps

SBAS/LPV

Phase III

Phase IV

SBAS Sustain

Navigation Roadmap

Additional activities include:

- Various ADS-B Improved Pilot Situational Awareness Demonstrations
- Develop 3 NM Separation Standards (further coordination required to add/link to A&P Roadmap)

Reduce General Aviation Fatality Rate
Destination 2025 Next Level of Safety Performance Metric –
 Reduce the GA fatality rate to less than 1 fatality per 100,000 flight hours by 2018

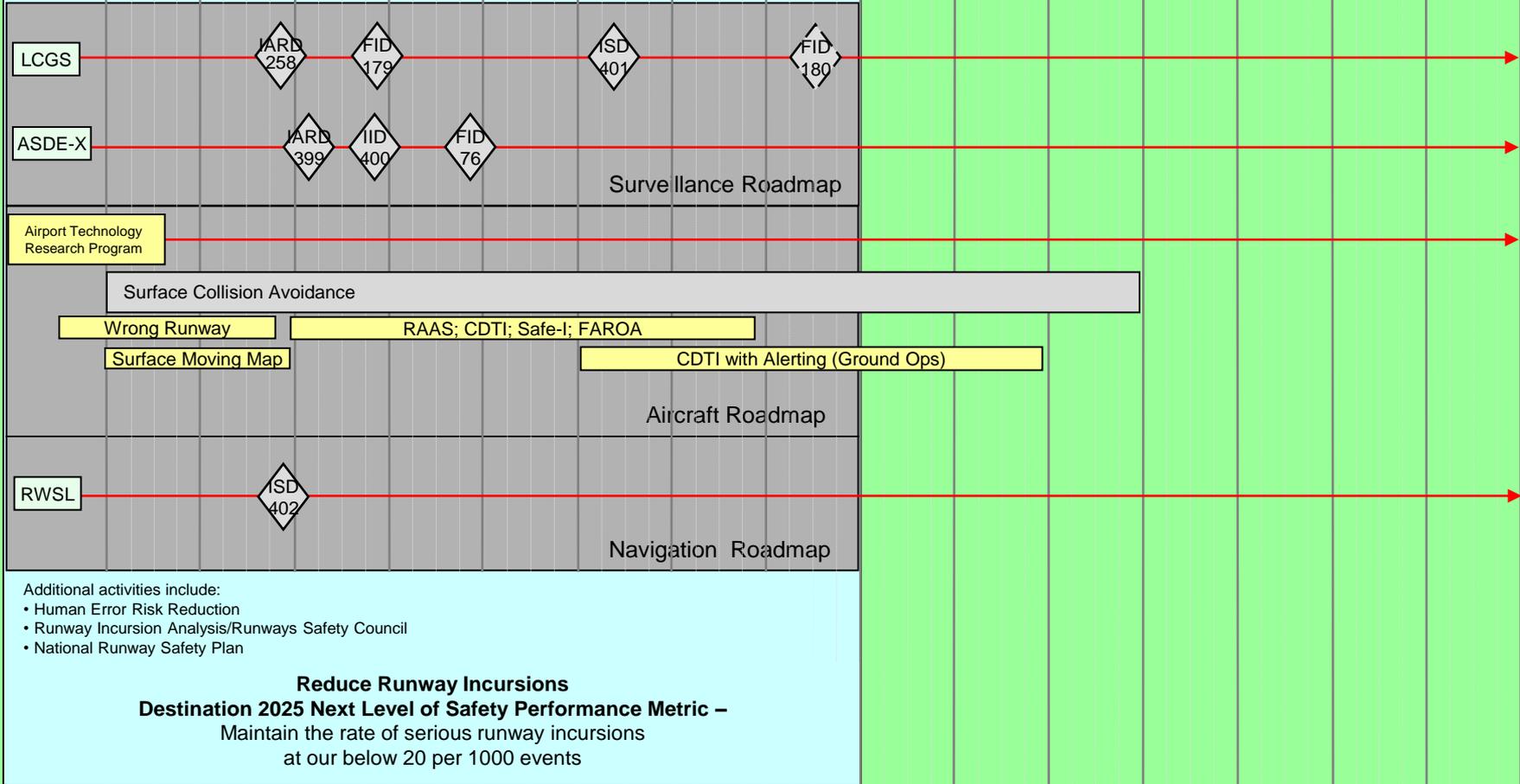
Supporting Activities (Increased Safety)

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Safety Roadmap (7 of 11)

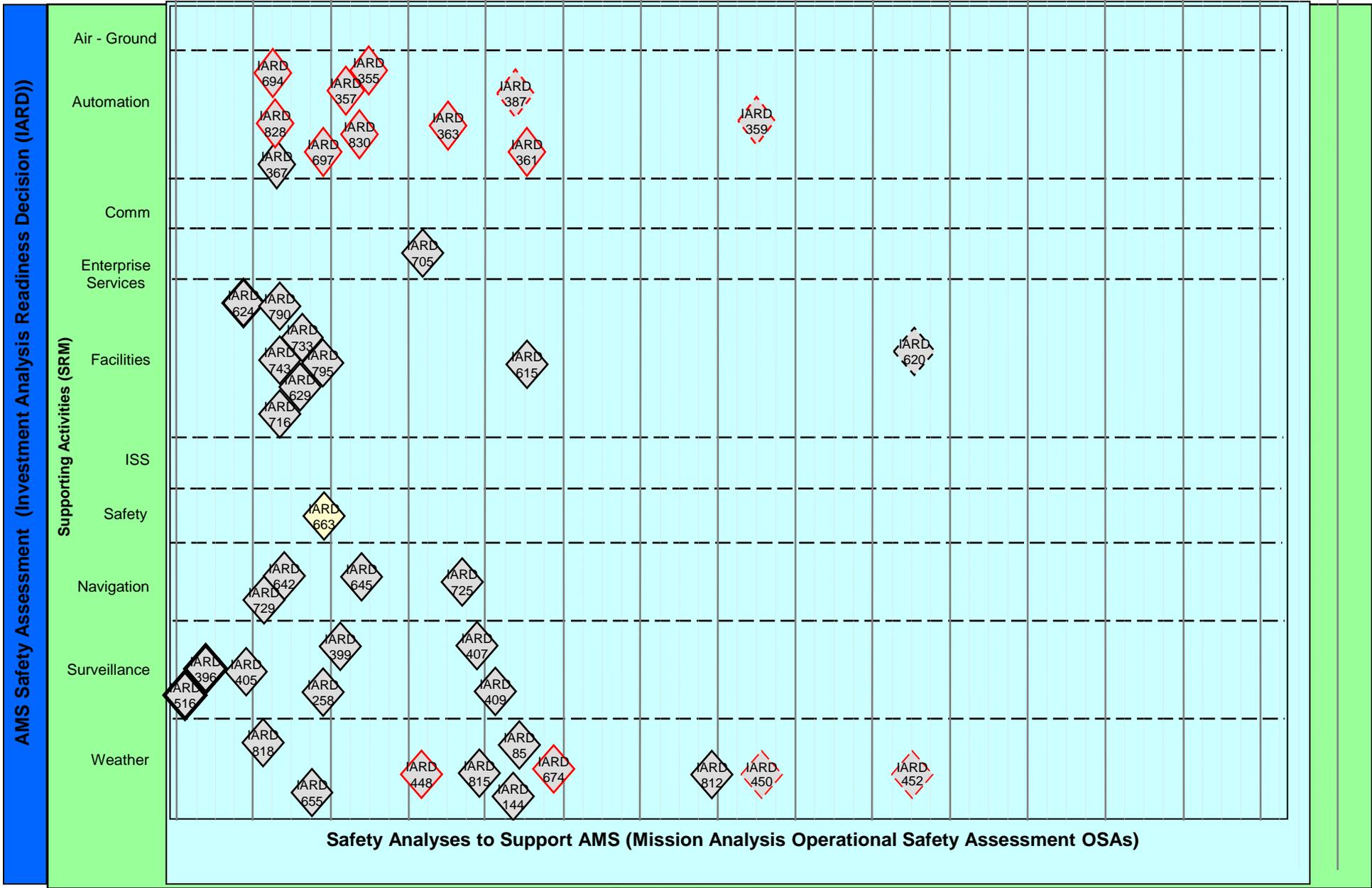
CY	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
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Reduce Runway Incursion Strategy Assessment & Planning



Safety Roadmap (8 of 11)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



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Safety Roadmap (9 of 11)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

AMS Safety Assessments (Initial Investment Decision (IID))

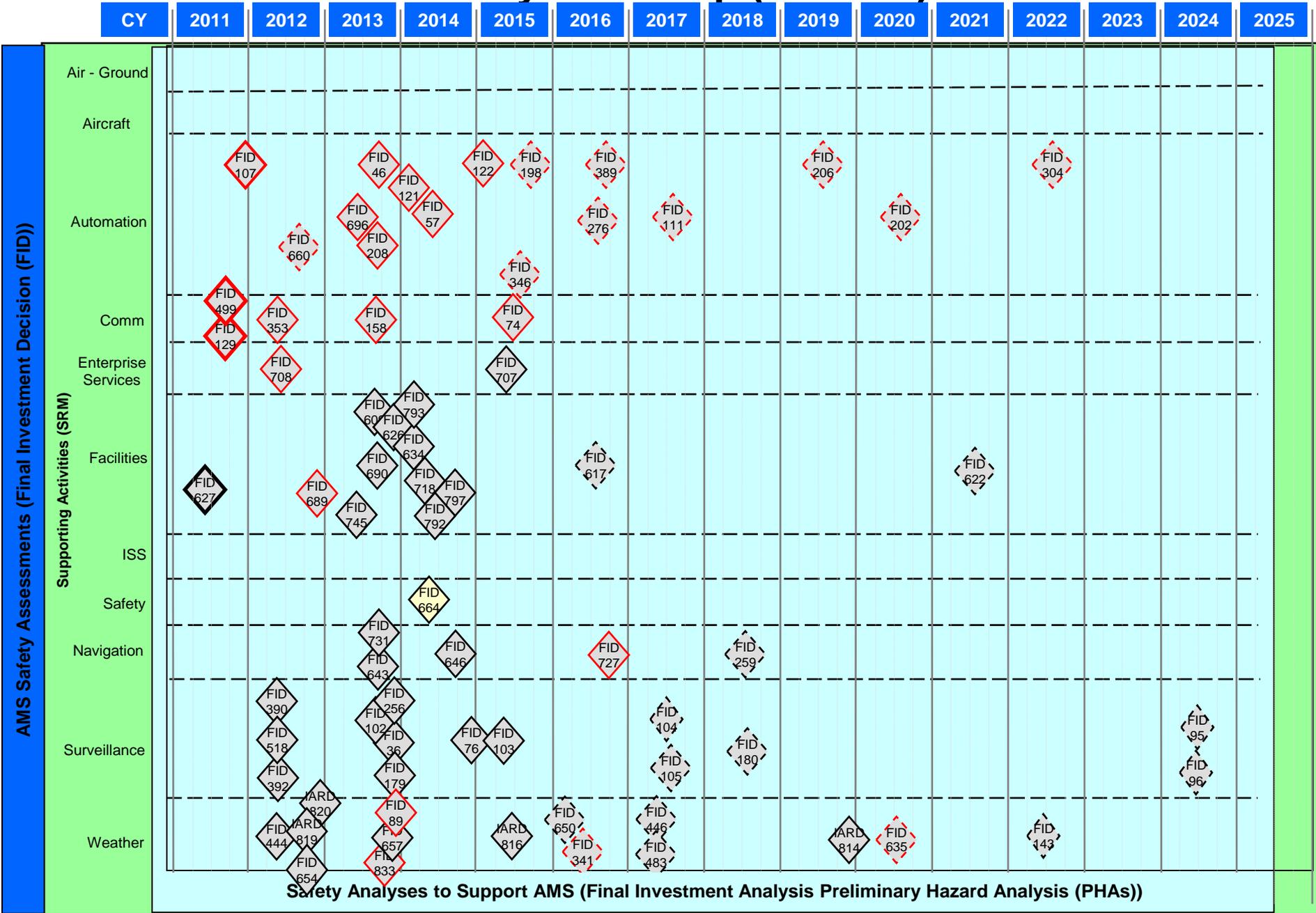
Air - Ground
Aircraft
Automation
Comm
Enterprise Services
Facilities
ISS
Safety
Navigation
Surveillance
Weather



Safety Analyses to Support AMS (Initial Investment Analysis Comparative Safety Assessments (CSAs))

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Safety Roadmap (10 of 11)

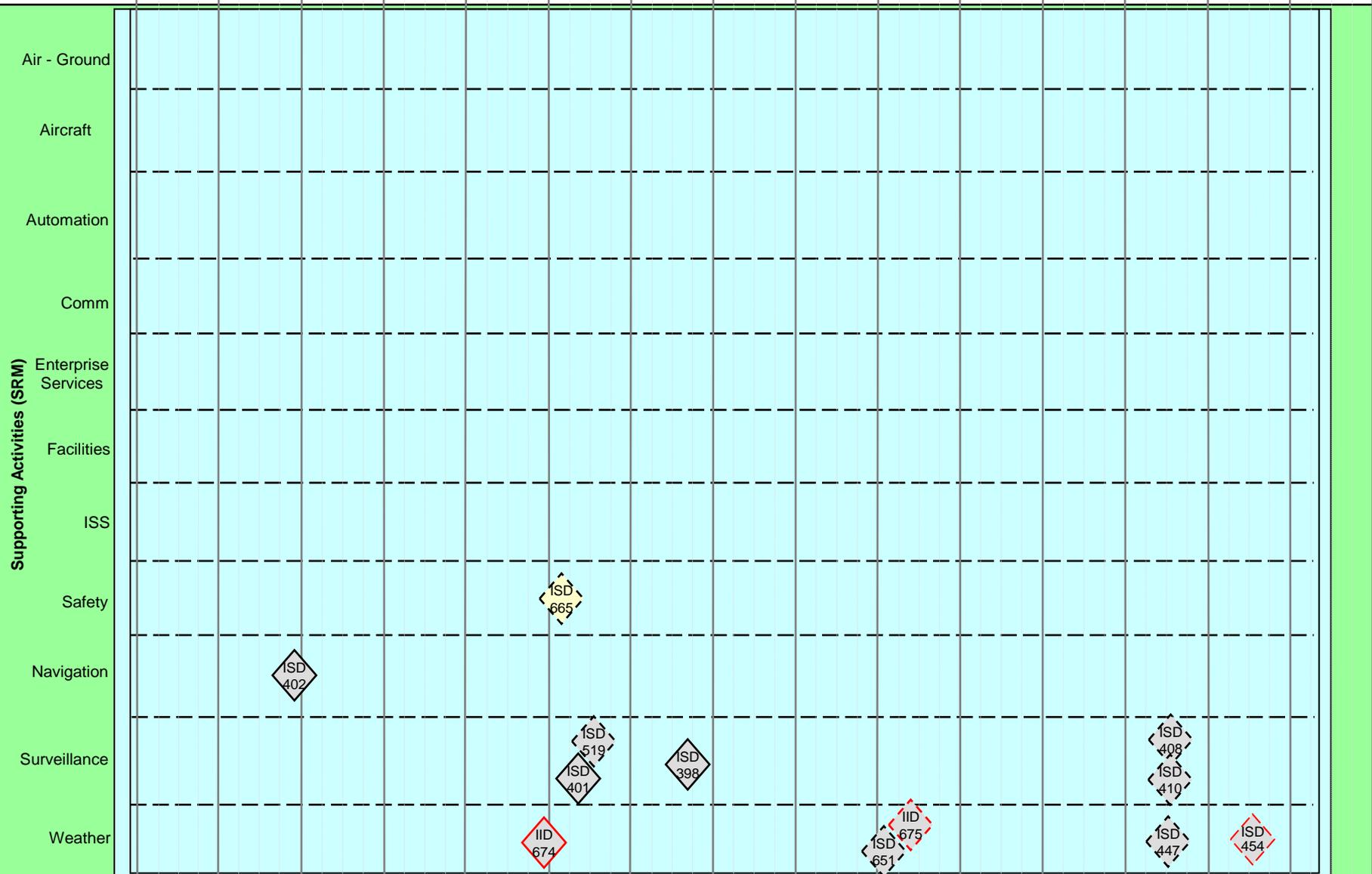


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Safety Roadmap (11 of 11)

CY 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

AMS Safety Assessments (In-Service Decision (ISD))



Safety Analyses to Support AMS (Solution Implementation Subsystem Hazard Analysis/System Hazard Analysis/Operating and Support Hazard Analysis (SHA/SSHA/O&SHAs), System Safety Assessment Report (SSAR) & Safety Risk Management Documents (SRMDs)

Safety Roadmap: Assumptions

Identifier	Description
SAFE-01	ASIAS is part of the non-NAS EA. It is depicted on the Safety Infrastructure Roadmap for coordination purposes since: a) It will require NAS data. b) It will provide safety data and tools for the NAS
SAFE-02	SMS Implementations for other LOBs are part of the non-NAS EAs. These activities are depicted on the Safety Infrastructure Roadmap for coordination purposes.
SAFE-03	Safety Modeling Advisory Committee (SMAC). SSMT (ASIAS, SSA, SRM & SMS) representatives of FAA LOBs and other integrated system safety assessment stakeholders will meet annually (at least) to coordinate requirements and resources where appropriate. SMAC business requirements and process will be dependent and potentially represented in the NAS EA.

Safety Roadmap: Decision Points (1 of 9)

DP #	Target Date CY	High Priority	Domain	Name
36	2013 Q4	N	Surveillance	Final Investment Decision (FID) for migration of PRM to PRM-R (based on multilateration)
46	2013 Q3	Y	Automation	Final Investment Decision (FID) for Tower Flight Data Manager (TFDM)
57	2014 Q2	Y	Automation	Final Investment Decision (FID) for TBFM/WP3
74	2015 Q2	Y	Communication	Final Investment Decision (FID) for FTI 2
75	2016	Y	Automation	Initial Investment Decision (IID) for En Route Automation NextGen Mid-Term WP
76	2014 Q4	N	Surveillance	Final Investment Decision (FID) for removal or SLEP/replace ASDE surface primary radars (evolving requirements for safety and security may impact decision)
77	2016 Q1	N	Surveillance	Initial Investment Decision (IID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
78	2016 Q1	N	Surveillance	Initial Investment Decision (IID) to implement a NextGen beacon/backup radar system for ATC
85	2015 Q2	N	Weather	Investment Analysis Readiness Decision (IARD) to Consolidate & Replace ASWON automated surface observing systems (replacement for all ASWON sensors plus NextGen requirements)
832	2012 Q3	Y	Weather	Initial Investment Decision (IID) for NNEW WP1 (includes WARP WINS & FBWTG functionality, may also include WMSCR Wx Communications functionality)
86	2012 Q4	Y	Weather	Initial Investment Decision (IID) for NextGen Wx Processor WP1 (includes CIWS functionality & RAMP WARP functionality)
833	2013 Q3	Y	Weather	Final Investment Decision (FID) for NNEW WP1 (includes WARP WINS & FBWTG, may also include WMSCR Wx Communications functionality)
89	2013 Q4	Y	Weather	Final Investment Decision (FID) for NextGen Wx Processor WP1 (includes CIWS functionality, NG WARP functionality)
95	2024	N	Surveillance	Final Investment Decision (FID) for replacement of terminal primary radars (ASR-11 PSR) and removal of terminal beacons (ASR-11 MSSR)
96	2024	N	Surveillance	Final Investment Decision (FID) for replacement of en route beacons (ATCBI-6)
102	2013 Q4	N	Surveillance	Final Investment Decision (FID) to implement SIM in terminal and en route legacy radar systems

Safety Roadmap: Decision Points (2 of 9)

DP #	Target Date CY	High Priority	Domain	Name
103	2015 Q2	N	Surveillance	Final Investment Decision (FID) for technology refresh of beacons (ATCBI-6)
104	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen Surveillance and Weather Radar Capability for ATC
105	2017	N	Surveillance	Final Investment Decision (FID) to implement a NextGen beacon/backup radar system for ATC
107	2011 Q4	Y	Automation	Final Investment Decision (FID) for TAMR Phase 3 Segment 1 (Complete)
111	2017	Y	Automation	Final Investment Decision (FID) for En Route Automation NextGen Mid-Term WP
115	2012 Q3	Y	Automation	Initial Investment Decision (IID) for Tower Flight Data Manager
121	2014 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 2
122	2015 Q1	Y	Automation	Final Investment Decision (FID) for AIM Segment 3
129	2011 Q3	Y	Communication	Final Investment Decision (FID) for Alaska Satellite Telecommunications Infrastructure (ASTI)
143	2022	N	Weather	Final Investment Decision (FID) to Provide 12-Hour Convective Forecast Capability in NextGen Weather Processor WP3
144	2015 Q2	N	Weather	IARD to transfer ITWS functionality to NWP WP2 (includes improved data quality, TWIP, upgraded TWINDS & path-based wind shear from TR; Microburst Predict (safety) may remain local or transfer to Automation DP83; transfer ALDARS from ADAS to NWP WP2)
158	2013 Q3	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Network Service
177	2018	Y	Automation	Initial Investment Decision (IID) for Security Integrated Tool Suite (SITS)
179	2013 Q4	N	Surveillance	Combined Initial Investment Decision (IID) and Final Investment Decision (FID) for LCGS
180	2018	N	Surveillance	Final Investment Decision (FID) for ADS-B to assume LCGS function, or approve a Technology Refresh for LCGS
198	2015	Y	Automation	Final Investment Decision (FID) for TFDM Work Package 2
201	2019	Y	Automation	Initial Investment Decision (IID) for En Route & Oceanic Automation NextGen Far-Term WP
202	2020	Y	Automation	Final Investment Decision (FID) for En Route & Oceanic Automation NextGen Far-Term WP
206	2019	Y	Automation	Final Investment Decision (FID) for Security Integrated Tool Suite (SITS)

Safety Roadmap: Decision Points (3 of 9)

DP #	Target Date CY	High Priority	Domain	Name
207	2011 Q4	N	Automation	Strategy decision for the continuation of DUAT (Complete)
208	2013 Q3	Y	Automation	Final Investment Decision (FID) for Future Flight Services Program (FFSP)
256	2013 Q4	N	Surveillance	Final Investment Decision (FID) for ASR-11 Technology Refresh Segment 2 (through 2025)
258	2012 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Low Cost Ground Surveillance (LCGS)
259	2018	N	Navigation	Final Investment Decision (FID) for RWSL Technology Refresh
275	2015	Y	Automation	Initial Investment Decision (IID) for TRACON Automation NextGen Mid-Term WP
276	2016	Y	Automation	Final Investment Decision (FID) for TRACON Automation NextGen Mid-Term WP
304	2022	Y	Communication	Final Investment Decision (FID) for Data Comm Segment 2
341	2016 Q2	Y	Weather	Final Investment Decision (FID) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2
346	2015	Y	Automation	Final Investment Decision (FID) for CATMT Work Package 4
353	2012 Q2	Y	Communication	Final Investment Decision (FID) for Data Communications Segment 1 Phase 1: Tower Services, DCIS Contract and ERAM PGW and Logon
355	2013	Y	Automation	Investment Analysis Readiness Decision (IARD) for CATMT Work Package 4
356	2014	Y	Automation	Initial Investment Decision (IID) for CATMT Work Package 4
357	2013 Q1	Y	Automation	Investment Analysis Readiness Decision (IARD) for TBFM/WP3
359	2018	Y	Automation	Investment Analysis Readiness Decision (IARD) for En Route & Oceanic Automation NextGen Far-Term WP
361	2015	Y	Automation	Investment Analysis Readiness Decision (IARD) for En Route Automation NextGen Mid-Term WP.
363	2014	Y	Automation	Investment Analysis Readiness Decision (IARD) for TRACON Automation NextGen Mid-Term WP.
367	2012 Q2	N	Automation	Investment Analysis Readiness Decision (IARD) for Future Flight Services Program (FFSP)
368	2013 Q1	Y	Automation	Initial Investment Decision (IID) for Future Flight Services Program (FFSP)
387	2015 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for Offshore Automation Systems Consolidation
388	2016 Q1	Y	Automation	Initial Investment Decision (IID) for Offshore Automation Systems Consolidation
389	2016 Q3	Y	Automation	Final Investment Decision (FID) for Offshore Automation Systems Consolidation
390	2012 Q2	N	Surveillance	Final Investment Decision (FID) for legacy beacon (Mode S) SLEP through 2028

Safety Roadmap: Decision Points (4 of 9)

DP #	Target Date CY	High Priority	Domain	Name
392	2012 Q2	N	Surveillance	Final Investment Decision (FID) for legacy radar (ASR-9) SLEP through 2027
396	2011 Q2	N	Surveillance	Investment Analysis Readiness Decision (IARD) for Precision Runway Monitor-Replacement (Complete)
397	2012 Q3	N	Surveillance	Initial Investment Decision (IID) for migration of PRM to PRM-R (based on multilateration)
398	2017 Q3	N	Surveillance	In-Service Decision (ISD) for PRM-R (based on multilateration)
399	2013 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for removal or SLEP/replace ASDE surface primary radars
400	2013 Q4	N	Surveillance	Initial Investment Decision (IID) for removal or SLEP/replace ASDE surface primary radars
401	2016 Q2	N	Surveillance	In-Service Decision (ISD) for Low Cost Ground Surveillance system
402	2012 Q4	N	Navigation	In-Service decision for Runway Status Light System
405	2011 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for SIM in terminal and en route legacy radar systems
406	2012 Q4	N	Surveillance	Initial Investment Decision (IID) for SIM in terminal and en route legacy radar systems
407	2014 Q4	N	Surveillance	Investment Analysis Readiness Decision (IARD) for NextGen Surveillance and Weather Radar Capability
408	2023	N	Surveillance	In-Service Decision (ISD) for NextGen Surveillance and Weather Radar Capability
409	2015 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for New Beacon/Backup System
410	2023	N	Surveillance	In-Service Decision (ISD) for New Beacon/Backup System
444	2012 Q2	N	Weather	Investment Decision (FID) to Tech Refresh/SLEP wind shear detection services legacy systems to sustain capability (to include level 1 activity/funding for New York TDWR relocation)
445	2016 Q2	N	Weather	Initial Investment Decision (IID) to consolidate and replace ASWON automated surface observing capability (replacement for all ASWON sensors plus NextGen requirements)
446	2017 Q2	N	Weather	Final Investment Decision (FID) to consolidate and replace ASWON automated surface observing capability (replacement for all ASWON sensors plus NextGen requirements)
447	2023	N	Weather	In-Service Decision (ISD) to consolidate and replace all automated surface observing systems with NextGen Surface Observing Capability plus NextGen requirements
448	2014 Q1	Y	Weather	Investment Analysis Readiness Decision (IARD) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2

Safety Roadmap: Decision Points (5 of 9)

DP #	Target Date CY	High Priority	Domain	Name
449	2015 Q2	Y	Weather	Initial Investment Decision (IID) for NNEW WP2 and transition of ADAS communications (and WMSCR Comms if not completed in NNEW WP1) to NNEW WP2
450	2018	Y	Weather	Investment Decision (IARD) for NNEW Tech Refresh
451	2019	Y	Weather	Investment Decision (IID) for NNEW Tech Refresh
452	2020	Y	Weather	Investment Analysis Readiness Decision (IARD) to provide 12-hour Convective Forecast capability to NWP WP3 and in-flight Icing Observation from airborne aircraft to NWP WP3
453	2021	Y	Weather	Initial Investment Decision (IID) to provide 12-hour Convective Forecast capability to NWP WP3 and provide in-flight Icing Observation from airborne aircraft to NWP WP3
454	2024	Y	Weather	In-Service Decision (ISD) to document final configuration of the NextGen Wx Processor Work Pkg 3 (NWP WP3)
482	2016 Q2	N	Weather	IID to transfer ITWS functionality to NWP WP2 (includes improved data quality, TWIP, upgraded TWINDS & path-based wind shear from TR; Microburst Predict (safety) may remain local or transfer to Automation DP83; transfer ALDARS from ADAS to NWP WP2)
483	2017 Q2	N	Weather	FID to transfer ITWS functionality to NWP WP2 (includes improved data quality, TWIP, upgraded TWINDS & path-based wind shear from TR; Microburst Predict (safety) may remain local or transfer to Automation DP83; transfer ALDARS from ADAS to NWP WP2)
499	2011 Q3	Y	Communication	Final Investment Decision (FID) for NEXCOM Segment 2
516	2011 Q1	N	Surveillance	Investment Analysis Readiness Decision (IARD) for a Mobile/Transportable Airport Surveillance Radar (MASR) (Complete)
518	2012 Q2	N	Surveillance	Final Investment Decision (FID) for a Mobile/Transportable Airport Surveillance Radar (MASR)
519	2016	N	Surveillance	In-Service Decision (ISD) for a Mobile/Transportable Airport Surveillance Radar (MASR)
569	2014	N	Human Systems Integration	Decision to use Requirements for Enhanced Flight Deck Displays for Separation and Collision Avoidance
597	2015	N	Airport	Runway Safety Area (RSA) NAVAID Improvements
608	2012 Q4	N	Facilities	Initial Investment Decision (IID) for Airborne Labs: Regional Commuter Capabilities (Convair 580 Replacement)

Safety Roadmap: Decision Points (6 of 9)

DP #	Target Date CY	High Priority	Domain	Name
609	2013 Q3	N	Facilities	Final Investment Decision (FID) for the Airborne Labs: Regional Commuter Capabilities (Convair 580 Replacement)
615	2015	N	Facilities	Investment Analysis Readiness Decision (IARD) for Airborne Labs: Rotorcraft Capabilities (Sikorski S76 Replacement)
616	2015	N	Facilities	Initial Investment Decision (IID) for Airborne Labs: Rotorcraft Capabilities (Sikorski S76 Replacement)
617	2016	N	Facilities	Final Investment Decision (FID) for Airborne Labs: Rotorcraft Capabilities (Sikorski S76 Replacement)
620	2020	N	Facilities	Investment Analysis Readiness Decision (IARD) for Airborne Labs: Air Taxi Capability (King Air Replacement)
621	2020	N	Facilities	Initial Investment Decision (IID) for Airborne Labs: Air Taxi Capability (King Air Replacement)
622	2021	N	Facilities	Final Investment Decision (FID) for Airborne Labs: Air Taxi Capability (King Air Replacement)
624	2011 Q4	N	Facilities	Investment Analysis Readiness Decision (IARD) for Building Information Modeling (BIM) (Complete)
625	2013 Q2	N	Facilities	Initial Investment Decision (IID) for Building Information Modeling (BIM)
626	2013 Q4	N	Facilities	Final Investment Decision (FID) for Building Information Modeling (BIM)
627	2011 Q2	N	Facilities	Final Investment Decision (FID) for Facility Security Risk Management (FSRM) Phase II (Complete)
629	2012 Q3	N	Facilities	Investment Analysis Readiness Decision (IARD) for Communications Segment 1 Unstaffed Infrastructure Sustainment (UIS)
633	2013 Q2	N	Facilities	Initial Investment Decision (IID) for Communications Segment 1 Unstaffed Infrastructure Sustainment (UIS)
634	2014 Q1	N	Facilities	Final Investment Decision (FID) for Communications Segment 1 Unstaffed Infrastructure Sustainment (UIS)
635	2020	Y	Weather	Final Investment Decision (FID) for NNEW Tech Refresh
642	2012 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - En Route Distance Measuring Equipment (DME)
643	2013 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - En Route Distance Measuring Equipment (DME)
645	2013 Q2	N	Navigation	Investment Analysis Readiness Decision (IARD) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)

Safety Roadmap: Decision Points (7 of 9)

DP #	Target Date CY	High Priority	Domain	Name
646	2014 Q3	N	Navigation	Final Investment Decision (FID) for the acquisition of NextGen RNAV - Terminal Distance Measuring Equipment (DME)
650	2016 Q1	N	Weather	Final Investment Decision (FID) for WSDS Work Pkg 2 using rightsizing study to examine new technology, NEXRAD improvements & additional LIDAR to extend WSDS coverage expansion to un-/under-protected sites
651	2020 Q1	N	Weather	In-Service Decision (ISD) for WSDS Work Pkg 2 using rightsizing study to examine new technology, NEXRAD improvements & additional LIDAR to extend WSDS coverage expansion to un-/under-protected sites
654	2012 Q3	N	Weather	Investment Decision (FID) for ASWON Tech Refresh of ASOS/AWOS/AWSS processors & S/W until NextGen Surface Observing Capability FOC circa 2027
655	2012 Q3	N	Weather	Investment Analysis Readiness Decision (IARD) to Tech Refresh all 34 ITWS systems
657	2013 Q4	N	Weather	Final Investment Decision (FID) to Tech Refresh all 34 ITWS systems
660	2012 Q3	Y	Automation	Final Investment Decision (FID) for TAMR P3S2 (Phase 3 Segment 2)
662	2011 Q2	N	Safety	Concept and Requirements Definition Readiness (CRDR) Decision for Safety Analysis System (SAS) Phase 1 (Complete)
663	2012 Q4	N	Safety	Investment Analysis Readiness Decision for Safety Analysis System (SAS) Phase 1
664	2014 Q2	N	Safety	Final Investment Decision (FID) for Safety Analysis System (SAS) Phase 1
665	2016 Q1	N	Safety	In-Service Decision for Safety Analysis System (SAS) Phase 1
674	2015 Q4	Y	Weather	In Service Decision (ISD) for both NNEW WP 1 & NWP WP1
675	2020 Q2	Y	Weather	In Service Decision (ISD) for both NNEW WP 2 & NWP WP2
688	2011 Q4	Y	Facilities	Initial Investment Decision (IID) for NextGen Facilities Program, Segment 1 (Completed)
689	2012 Q4	Y	Facilities	Final Investment Decision (FID) for NextGen Facilities Program Segment 1, Project 1
690	2013 Q3	N	Facilities	Final Investment Decision (FID) for NextGen Facilities Program Segment 1, Project 2
694	2012 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for AMMS Work Package 1 and Work Package 2
695	2013 Q1	Y	Automation	Initial Investment Decision (IID) for AMMS Work Package 1 and Work Package 2
696	2013 Q4	Y	Automation	Final Investment Decision (FID) for AMMS Work Package 1 and Work Package 2
697	2012 Q4	Y	Automation	Investment Analysis Readiness Decision (IARD) for RMLS Technology Refresh
698	2013 Q4	Y	Automation	Final Investment Decision (FID) for RMLS Technology Refresh

Safety Roadmap: Decision Points (8 of 9)

DP #	Target Date CY	High Priority	Domain	Name
705	2015	N	Enterprise Services	Investment Analysis Readiness Decision (IARD) for the Enterprise Level Time and Frequency Solution
706	2016	N	Enterprise Services	Initial Investment Decision (IID) for the Enterprise Level Time and Frequency Solution
707	2016	N	Enterprise Services	Final Investment Decision (FID) for the Enterprise Level Time and Frequency Solution
708	2012 Q2	Y	Enterprise Services	Final Investment Decision (FID) for SWIM Segment 2
716	2012 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for National Test Equipment
717	2013 Q2	N	Facilities	Initial Investment Decision (IID) for Facility National Equipment
718	2014 Q2	N	Facilities	Final Investment Decision (FID) for Facility National Equipment
720	2013 Q3	N	Safety	Initial Investment Decision (IID) for Safety Analysis System (SAS) Phase 1
723	2014 Q1	N	Navigation	Initial Investment Decision (IID) for the acquisition of NextGen RNAV-Terminal Distance Measuring Equipment (DME)
725	2014 Q3	N	Navigation	Investment Analysis Readiness Decision (IARD) for Alternate Positioning, Navigation and Timing (APNT)
726	2015 Q3	Y	Navigation	Initial Investment Decision (IID) for Alternate Positioning, Navigation and Timing (APNT)
727	2016 Q3	Y	Navigation	Final Investment Decision (FID) for Alternate Positioning, Navigation and Timing (APNT)
729	2012 Q1	N	Navigation	Investment Analysis Readiness Decision (IARD) for Enhanced Low Visibility Operations (ELVO)
730	2012 Q4	N	Navigation	Initial Investment Decision (IID) for Enhanced Low Visibility Operations (ELVO)
731	2013 Q3	N	Navigation	Final Investment Decision (FID) for Enhanced Low Visibility Operations (ELVO)
733	2012 Q3	N	Facilities	Investment Analysis Readiness Decision (IARD) for EMC
734	2013 Q2	N	Facilities	Initial Investment Decision (IID) for EMC
743	2012 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for MAMP
744	2013 Q2	N	Facilities	Initial Investment Decision (IID) for MAMP
745	2014 Q1	N	Facilities	Final Investment Decision (FID) for MAMP
778	2013 Q2	Y	Communication	Initial Investment Decision (IID) for FTI-2 program

Safety Roadmap: Decision Points (9 of 9)

DP #	Target Date CY	High Priority	Domain	Name
797	2014 Q3	N	Facilities	Final Investment Decision (FID) for NAV, SUR and WX Segment 2 Unstaffed Infrastructure Sustainment (UIS)
790	2012 Q2	N	Facilities	Investment Analysis Readiness Decision (IARD) for Fuel Storage Tank
791	2013 Q3	N	Facilities	Initial Investment Decision (IID) for Fuel Storage Tank
792	2014 Q2	N	Facilities	Final Investment Decision (FID) for Fuel Storage Tank
793	2014 Q1	N	Facilities	Final Investment Decision (FID) for Energy Management Compliance Program (EMCP)
795	2012 Q4	N	Facilities	Investment Analysis Readiness Decision (IARD) for NAV, SUR and WX Segment 2 Unstaffed Infrastructure Sustainment (UIS)
796	2013 Q3	N	Facilities	Initial Investment Decision (IID) for NAV, SUR and WX Segment 2 Unstaffed Infrastructure Sustainment (UIS)
812	2017 Q4	N	Weather	Investment Decision (IARD) for TDWR SLEP 3 and re-site of NY TDWR
813	2018 Q4	N	Weather	Investment Decision (IID) for TDWR SLEP 3 and re-site of NY TDWR
814	2019 Q4	N	Weather	Final Investment Decision (FID) for TDWR SLEP 3 and re-site of NY TDWR
815	2014 Q4	N	Weather	Investment Analysis Readiness Decision (IARD) for JAWS SLEP
816	2015 Q2	N	Weather	Final Investment Decision (FID) for JAWS SLEP
818	2012 Q1	N	Weather	Investment Analysis Readiness Decision (IARD) for NEXRAD (12 FAA Radars) SLEP
819	2012 Q3	N	Weather	Final Investment Decision (FID) for NEXRAD (12 FAA Radars) SLEP
820	2014 Q4	N	Weather	Final Investment Decision (FID) for TDWR SLEP 2
828	2012 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for AIM Segment 2
829	2013 Q1	Y	Automation	Initial Investment Decision (IID) for AIM Segment 2
830	2013 Q2	Y	Automation	Investment Analysis Readiness Decision (IARD) for AIM Segment 3
831	2014 Q1	Y	Automation	Initial Investment Decision (IID) for AIM Segment 3

Appendix A

Acronym List

Appendix A, Acronym List (1 of 6)

Acronym	Definition	Acronym	Definition
3D	Three dimensional (x, y, z)	ARTS 1E	Automated Radar Terminal System Model 1E
4D	Four dimensional (x, y, z, t)	ARTS IIE	Automated Radar Terminal System Model IIE
4DT	4D Trajectory	ARTS IIIE	Automated Radar Terminal System Model IIIE
AC	Advisory Circular or Aircraft	ASDE	Airport Surface Detection Equipment
ACAS	Airborne Collision Avoidance System	ASDE-3	Airport Surface Detection Equipment - Model 3
ACE IDS	ASOS Controller Equipment-Information Display System	ASDE-3/X	Airport Surface Detection Equipment - Model 3 and ASDE-Model X
ACL	Airport Cable Loop	ASOS	Automated Surface Observing System
ADAM	Advanced Dynamic Airspace Management	ASPIRE	Asia and South Pacific Initiative to Reduce Emissions
ADAS	AWOS Data Acquisition System	ASR	Airport Surveillance Radar
ADS-B	Automatic Dependent Surveillance-Broadcast	ASTI	Alaska Satellite Telecommunications Infrastructure
ADS-C	Automatic Dependent Surveillance-Contract	ATC	Air Traffic Control
AEFS	Advanced Electronic Flight Strip	ATCBI	Air Traffic Control Beacon Interrogator
AFSM	Alaska Flight Service Modernization	ATCSCC	David J. Hurley Air Traffic Control System Command Center
AFSS	Automated Flight Service Station	ATCT	Airport Traffic Control Tower
A/G	Air-to-Ground	ATIS	Automated Terminal Information System
AGIS	Airports Geographic Information System	ATM	Air Traffic Management
AIM	Aeronautical Information Management	ATO	Air Traffic Organization (FAA)
AIRE	Atlantic Interoperability Initiative to Reduce Emissions	ATOP	Advanced Technologies and Oceanic Procedures
AISR	Aeronautical Information System Replacement	ATRP	Airport Technology Research Program
ALDARS	Automated Lightning Detection and Reporting System	AWCS	Airport Wireless Communications Systems
ALS	Automatic Landing System	AWOS	Automated Weather Observing System
AMASS	Airport Movement Area Safety System	AWSS	Automated Weather Sensor System
AMMS	Automated Maintenance Management System	AVS	Office of Aviation Safety
ANICS	Alaska National Airspace System Interfacility Communication System	BCD	Baseline Change Decision
ANSP	Air Navigation Service Provider	BUEC	Backup Emergency Communications (VSCS)
APNT	Alternate Position, Navigation, and Timing	BWM	Bandwidth Manager
ARFF	Aircraft Rescue and Fire Fighting	C&V	Ceiling & Visibility
ARMS	Airspace Resource Management System	CAEG	Computer-Aided Engineering Graphics
ARMT	Airport Resource Management Tool	CAP	Chicago Airspace Project
ARSR	Air Route Surveillance Radar	CARF	Central Altitude Reservation Function

Appendix A, Acronym List (2 of 6)

Acronym	Definition	Acronym	Definition
CAT III	Category III (precision landing)	DSR	Display System Replacement
CATM	Collaborative Air Traffic Management	DST	Decision Support Tool
CATMT	Collaborative Air Traffic Management Technologies	DUATS	Direct User Access Terminal Service
CCS	Conference Control System	DVRS	Digital Voice Recorder System
CCS-W	Conference Control System – Warrenton	EA	Enterprise Architecture
CDTI	Cockpit Display of Traffic Information	EARTS	En Route Automated Radar Tracking System
CERAP	Combined Center and Radar Approach Control	EBP	External Boundary Protection
CIP	Current Icing Product	EC	ATO Executive Council
CIWS	Corridor Integrated Weather System	ECG	En Route Communications Gateway
CHI	computer-human interface	ED	EUROCAE document
CSM	Certified Software Management	ED-X	Enhanced Data Services (ED-X)
ConOps	Concept of Operations	E M C	Emergency Management Compliance
CONUS	Conterminous United States	EFSTS	Electronic Flight Strip Transfer System
CRDR	Concepts and Requirements Definition Readiness	EFVS	Enhanced Flight Vision System
CSPO	closely spaced parallel operations	ELVO	Enhanced Low Visibility Operations
CSPR	Closely Spaced Parallel Runways	EMAS	Engineered Material Arresting System
CTS	Coded Time Source	ERAM	En Route Automation Modernization
CY	Calendar Year	ERIDS	En Route Information Display System
DAB	Daytona Beach International Airport	ETR	Emergency Transceiver
DALR	Digital Audio Legal Recorder	ETVS	Enhanced Terminal Voice Switch
DASI	Digital Altimeter Setting Indicator	FAA	Federal Aviation Administration
DBRITE	Digital Bright Radar Indicator Tower Equipment	FANS	Future Air Navigation System
DC	Data Communications or DataComm	FAROS	Final Approach Runway Occupancy Signal
DCS	Data Communication System	FBWTG	FAA Bulk Weather Telecommunications Gateway
DF	Direction Finder	FCST	Forecast
DME	Distance Measuring Equipment	FDIO	Flight Data Input/Output
DMN	Data Multiplexing Network	FDP2K	Flight Data Processing 2000
DOTS+	Dynamic Ocean Track System Plus	FFS	Future Flight Services
DP	Decision Point	FID	Final Investment Decision
DSP	Departure Spacing Program	FIP	Forecast Icing Product

Appendix A, Acronym List (3 of 6)

Acronym	Definition	Acronym	Definition
FIS-B	Flight Information Service-Broadcast	IES	Integrated Enterprise Solution
FMS	Flight Management System	IFIA	International Flight Inspection Aircraft
FNS	Federal NOTAM System	IFPA	Instrument Flight Procedure Automation
FOC	Full Operational Capability	IID	Initial Investment Decision
FOD	Foreign Object Debris Detection	IKM	Identity & Key Management
FSRM	Facility Security Risk Management	ILS	Instrument Landing System
FSS	Flight Service Station	IPE	Internal Protection Enforcement
FST	Fuel Storage Tank	IOC	Initial Operational Capability
FT	Far Term	IRU	Inertial reference unit
FTI	FAA Telecommunications Infrastructure	ISD	In-Service Decision
FY	Fiscal Year	ITWS	Integrated Terminal Weather System
GA	General Aviation	IVSR	Interim Voice Switch Replacement
GBAS	Ground-Based Augmentation System	JAWS	Juneau Airport Wind System
GIS	Geographic Information System	JPDO	Joint Planning and Development Office
GNSS	Global Navigation Satellite System	JRC	Joint Resources Council
GPS	Global Positioning System	L5	A third civil signal on Navstar GPS (1176.45 MHz)
GPS RAIM	Global Positioning System Receiver Autonomous Integrity Monitor	LCGS	Low Cost Ground Surveillance
GS	Glide Slope Indicator	LDIN	Lead In Light System
GTG	Graphical Turbulence Guidance	LDRCL	Low-Density Radio Communications Link
HADDS	Host ATM Data Distribution System	LED	Light-emitting diode
HOST	Host Computer System	LIDAR	Laser Identification Detection and Ranging
HRRR	High Resolution Rapid Refresh (weather model)	LLWAS	Low-Level Windshear Alert System
H/W	Hardware	LOC	Localizer
IAPA	Instrument Approach Procedures Automation	LRR	long range radar
IARD	Investment Analysis Readiness Decision	M/LAT	Multilateration
ICAO	International Civil Aviation Organization	MALSR	Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights
ICMS	Integrated Control and Monitoring System	MAMP	Mobile Asset Management Program
ICSS	Integrated Communications Switching System	MASPS	Minimum Aviation System Performance Standards (RTCA)
IDR	Incident Detection & Response	MB	Microburst
IDS	Information Display System	MB	Marker Beacon

Appendix A, Acronym List (4 of 6)

Acronym	Definition	Acronym	Definition
MDR	Multi-Mode Digital Radios	NOTAM	Notice to Airmen
MMAC	Mike Monroney Aeronautical Center	NRCS	National Radio Communications Systems
MDCRS	Meteorological Data Collection and Reporting System	NSIP	NextGen Segment Implementation Plan
MEARTS	Micro EARTS	NSRR	NAS Service Registry/Repository
MLS	Microwave Landing System	NTE	National Test Equipment
MODE S	Mode Select	NVS	National Airspace System Voice Switch
MOPS	Minimum Operational Performance Standards (RTCA)	NWP	NextGen Wx Processor
MPAR	Multifunction Phased-Array Radar	NWS	National Weather Service
MSSR	Monopulse Secondary Surveillance Radar	OASIS	Operational and Supportability Implementation System
NADIN PSN	National Airspace Data Interchange Network Packet Switched Network	Obs	Observation
NAS	National Airspace System	OCC	Operations Control Center
NASA	National Aeronautics and Space Administration	ODALS	Omnidirectional Approach Lighting System
NASE	NAS Adaptation Services Environment	OEAAA	Obstruction Evaluation/Airport Airspace Analysis
NASR	National Airspace System Resource	OEP	Operational Evolution Plan
NAVAID	Navigational Aid	OFDPS	Offshore Flight Data Processing System
NCIME	NAVAID Control, Interlock, and Monitoring Equipment	OI	Operational Improvement
NCV	National Ceiling & Visibility	Ops	Operations
NDB	Non-directional Beacon	OWS	OGC Web Services
NDS	NOTAM Distribution Service	PAM	Path Arrival Management
NEO	Network Enabled Operations	PAPI	Precision Approach Path Indicator
NEXCOM	Next-Generation VHF A/G Communication System	PDARS	Performance Data Analysis and Reporting System
NextGen	Next Generation Air Transportation System	PIREPS	Pilot Reports
NEXRAD	Next Generation Weather Radar	POET	Post-Operation Evaluation Tool
NG	NextGen	PRM-R	Precision Runway Monitor Replacement
nm	Nautical Mile		
NMR	NADIN MSN Rehost	PRM-E-Scan	Precision Runway Monitor Electronic Scan
NNCC	National Network Control Center	Qn	Calendar Quarter n (n = 1-4)
NNEW	NextGen Network-Enabled Weather	R&D	Research & Development
NOCC	National Operations Control Center	RAPT	Route Availability Planning Tool
NOP	National Offload Program	RCAG	Remote Communications Air/Ground

Appendix A, Acronym List (5 of 6)

Acronym	Definition	Acronym	Definition
RCE	Radio Control Equipment	SBS	Surveillance and Broadcast Services
RCL	Radio Communications Link	SDAT	Sector Design and Analysis Tool
RCLR	RCL Repeater	SDS	Safety Data System
RCLT	RCL Terminal	SE	System Engineering
RCO	Remote Communications Outlet	Segmt.	Segment
RCOM	NAS Recovery Communications	SITS	Security Integrated Tool Set
RDVS	Rapid Deployment Voice Switch	SL	STARS LITE
REIL	Runway End Identifier Lights	SLEP	Service Life Extension Program
RFI	Radio Frequency Interference	SMA	Surface Movement Advisor
RFI ELIM	Radio Frequency Interference (RFI) Elimination Program	SMGCS	Surface Movement Guidance and Control System
RID	Runway Incursion Device	SNT	Staffed NextGen Tower
RMLS	Remote Maintenance and Logging System	SOA	Service Oriented Architecture
RMMS	Remote Maintenance and Monitoring System	SSO	Self-Sustained Outlet
Rn	Release n (n = 1, 2,...N)	STARS	Standard Terminal Automation Replacement System
RNAV	Area Navigation	STVS	Small Tower Voice Switch
RNP	Required Navigation Performance	SVS	Synthetic Vision System
ROWS	Runway Obstruction Warning System	S/W	software
RSA	Runway Safety Area	SWIM	System-Wide Information Management
RTA	Required Time of Arrival	TACAN	Tactical Air Navigation
RTCA	Previously known as Radio Technical Committee for Aeronautics	TAMR	Terminal Automation Modernization and Replacement
RTR	Remote Transmitter/Receiver	TAWS	Terrain Awareness and Warning System
RVR	Runway Visual Range	TBFM	Time-Based Flow Management
RWI	Reduced Weather Impact	TBM	Time-Based Management
RWSL	Runway Status Lights	TBO	Trajectory-Based Operations
SACOM	Satellite Communication Network	TCAS	Traffic Alert and Collision Avoidance System
SAIDS	Systems Atlanta Information Display System	TDDS	Terminal Data Distribution System
SAMS	Special Use Airspace Management System	TDLS	Tower Data Link Services
SAS	Single Authoritative Source or Safety Analysis System	TDWR	Terminal Doppler Weather Radar
SAWS	Standalone Weather Sensor	TFDM	Tower Flight Data Manager
SBAS	Satellite-Based Augmentation System	TFM	Traffic Flow Management

Appendix A, Acronym List (6 of 6)

Acronym	Definition	Acronym	Definition
TFMS	Traffic Flow Management System	VSBP	Voice Switch Bypass
TFR Bldr	Temporary Flight Restriction Builder	VSCS	Voice Switching and Control System (ARTCC)
TIS-B	Traffic Information Service-Broadcast	VTABS	Voice Switching and Control System : Training and Backup System
TMA	Traffic Management Advisor	WAAS	Wide-Area Augmentation System
TR	Technology Refresh	WAM	Wide Area Multilateration
TRACON	Terminal Radar Approach Control	WARP	Weather and Radar Processor
TSAFE	Tactical Separation-Assisted Flight Environment (NASA)	WINS	Weather Information Network Server
TWINDS	Terminal Winds	WJHTC	William J. Hughes Technical Center (FAA)
TWIP	Terminal Weather Information for Pilots	WME	Wind Measurement Equipment
UAS	Unmanned Aircraft System	WMSCR	Weather Message Switching Center Replacement
UIS	Unstaffed Infrastructure Sustainment	WP	Work Package
URET	User Request Evaluation Tool	WPn	Work Package n (n = 1, 2, ...N)
USNS	United States NOTAM Service	WSP	Weather System Processor
VASI	Visual Approach Slope Indicator	WT	Wake Turbulence
VHF/UHF/HF	Very High Frequency/Ultra High Frequency/High Frequency	WTMA	Wake Turbulence Mitigation for Arrival
VNAV	Vertical Navigation	WTMD	Wake Turbulence Mitigation for Departure
VOR	VHF Omnidirectional Range	Wx	Weather
VOT	VHF Omnidirectional range Test		