NAS Enterprise Architecture

Infrastructure Roadmaps v19.2

BASELINE

July 2025

Infrastructure Roadmap Overview

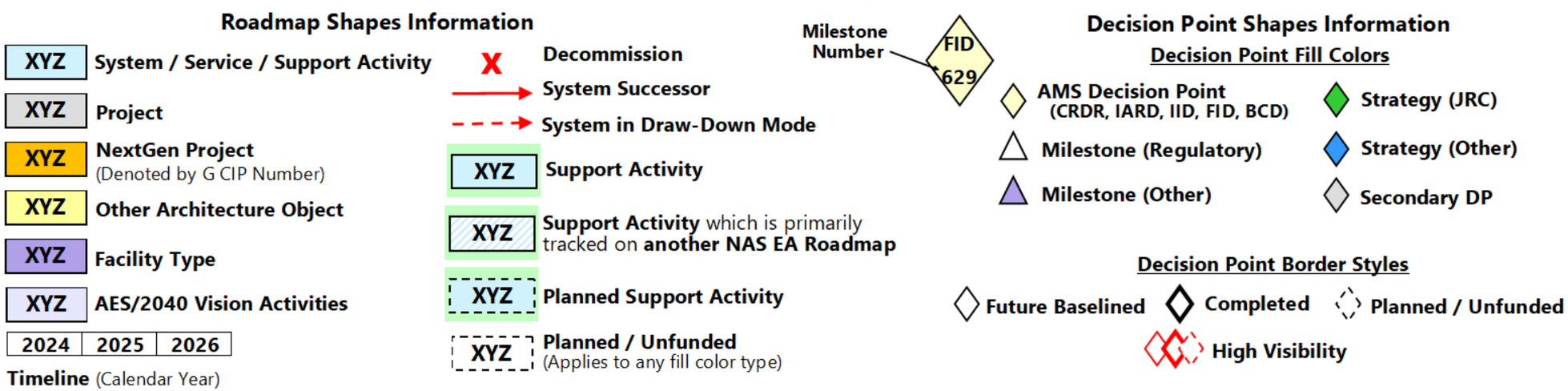
What are the Infrastructure Roadmaps?

- The FAA Infrastructure Roadmaps show the progression of system deployments, investments, and key decision points for major NAS acquisitions. They depict the acquisition strategy to evolve the NAS from the As-Is to the To-Be environment.
- The Infrastructure Roadmaps show all Capital Investment Plan (CIP) investment projects and systems identified in the NSIP that will deliver the necessary functionality to enable OIs and BTIs.

Guidelines for Understanding the Roadmaps

- The Infrastructure Roadmaps are organized by Domain (Automation, Communication, etc.) and depict projects, systems, services, decision points, and support activities.
- The timeline is in calendar years and shows a 17-year outlook.
- The roadmaps have swim lanes for Infrastructure (white), Support Activities (green), and Platform/Compute (purple).
- The DP diamonds represent the quarter in which a decision will occur.
- The Support Activity bars represent the dates that work is being performed on the activity.
- The Project bars represent the dates that CIP funding is allocated to a project.
- The System and Service bars represent the dates that a system or service is operational, with red lines indicating sustainment, drawdown, or convergence

Infrastructure Roadmap Legend



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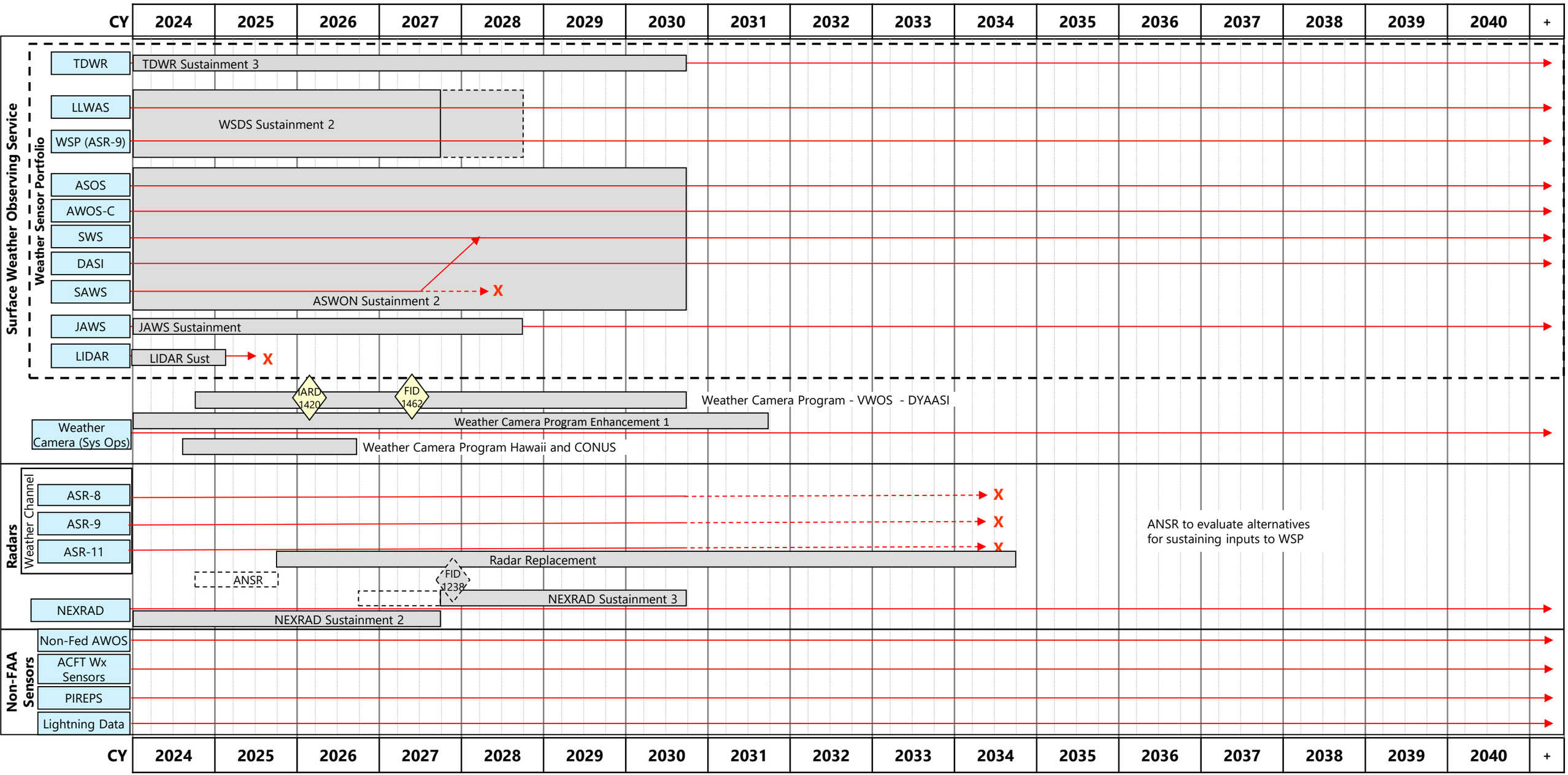
Weather

The Weather Roadmap presents an Executive View (EV) of weather-related acquisition activities and the changes to these activities that exist within the Weather enterprise architecture (EA) domain (projects and programs) of the Federal Aviation Administration (FAA). The Weather Roadmap provides the evolution of the weather architecture via AMS milestones and related activities (e.g., aviation weather research, demonstrations, and other agency activities) necessary to achieve the performance objectives and capabilities to support NextGen. As a perspective of the changes in the NAS operational environment, the Weather Roadmap reflects major Weather interdependencies to support (or be supported by) other domains in the NAS enterprise architecture as depicted in NAS Roadmaps.

Weather Roadmap (1 of 4)



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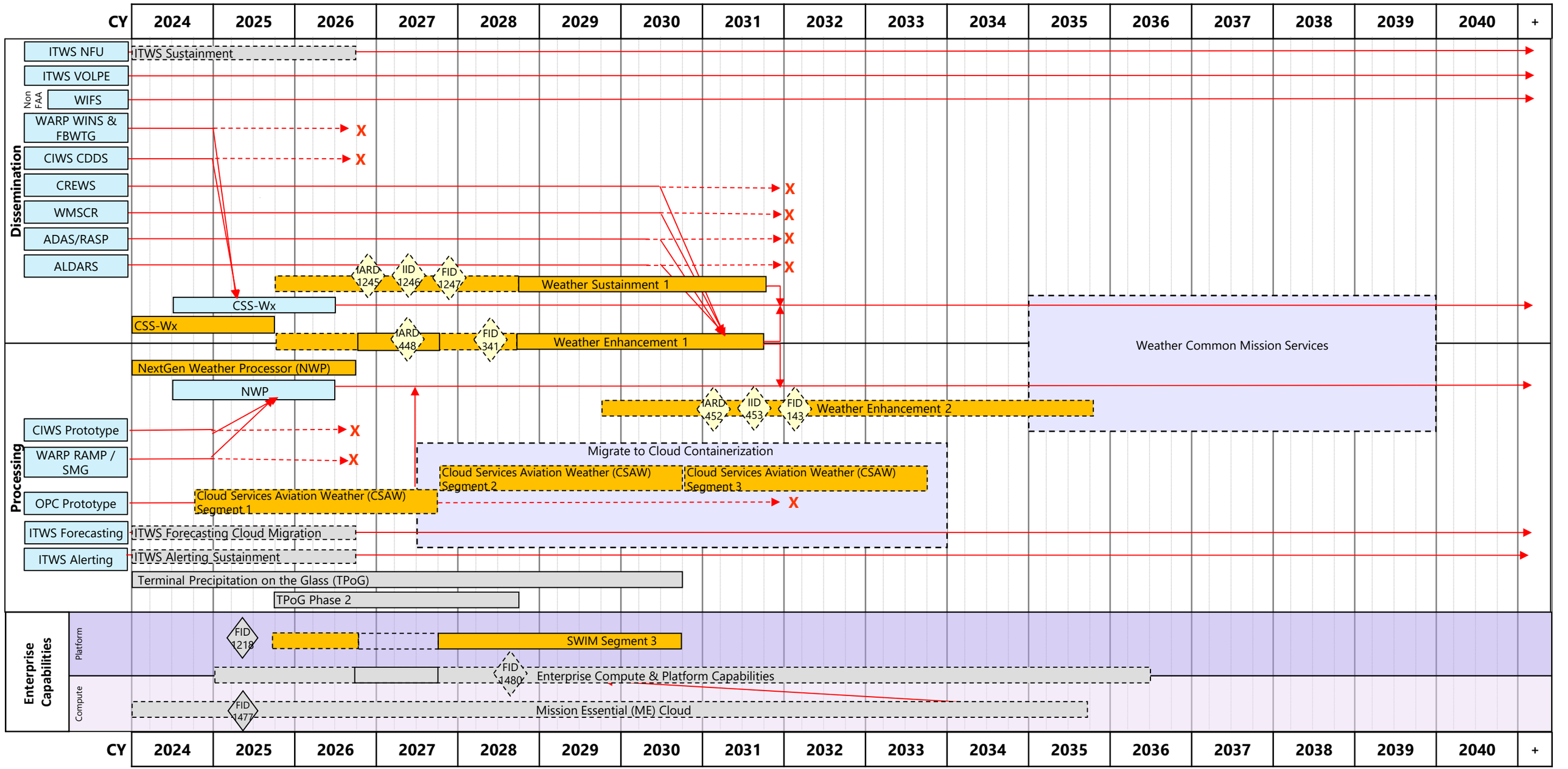
Weather Roadmap (2 of 4)



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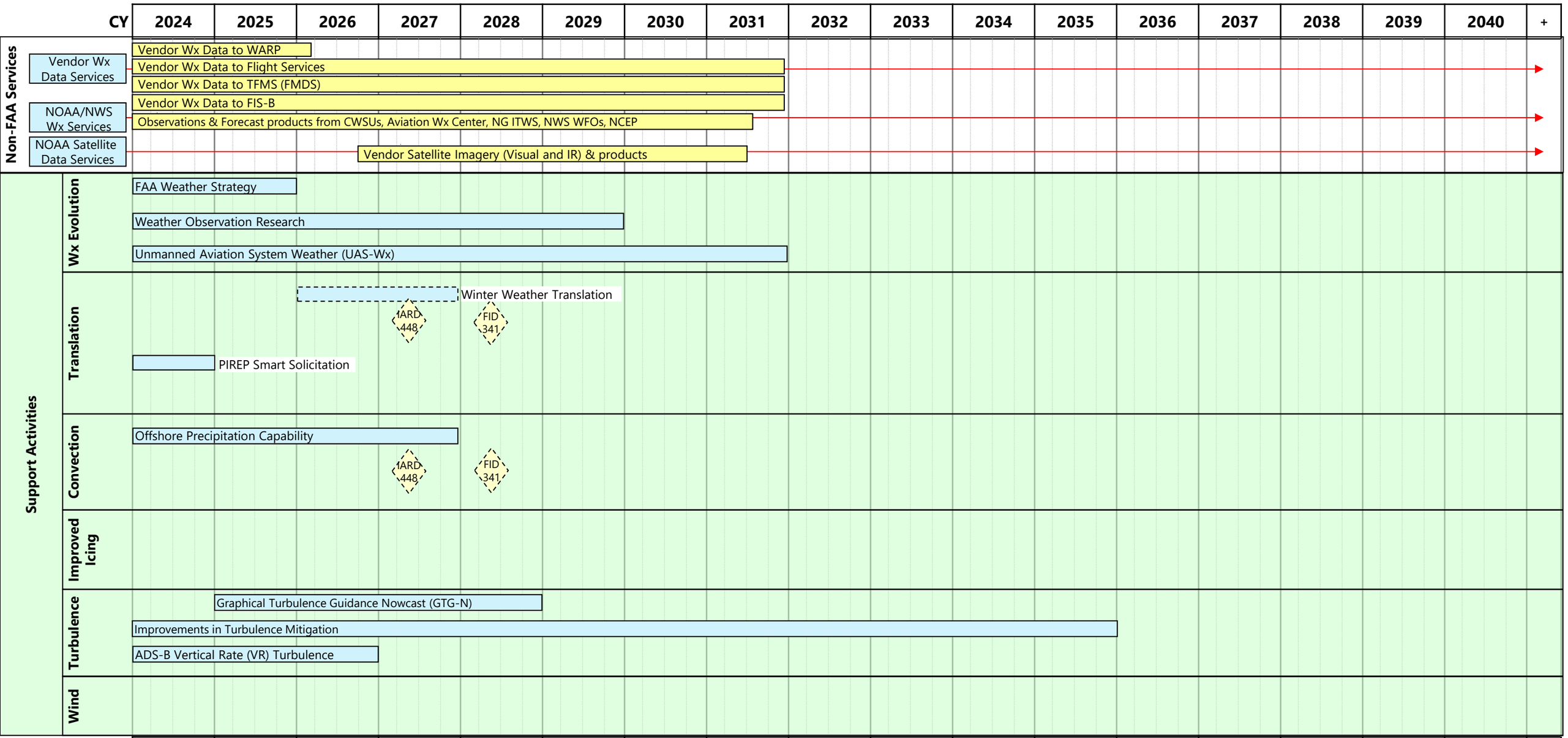
Weather Roadmap (3 of 4)



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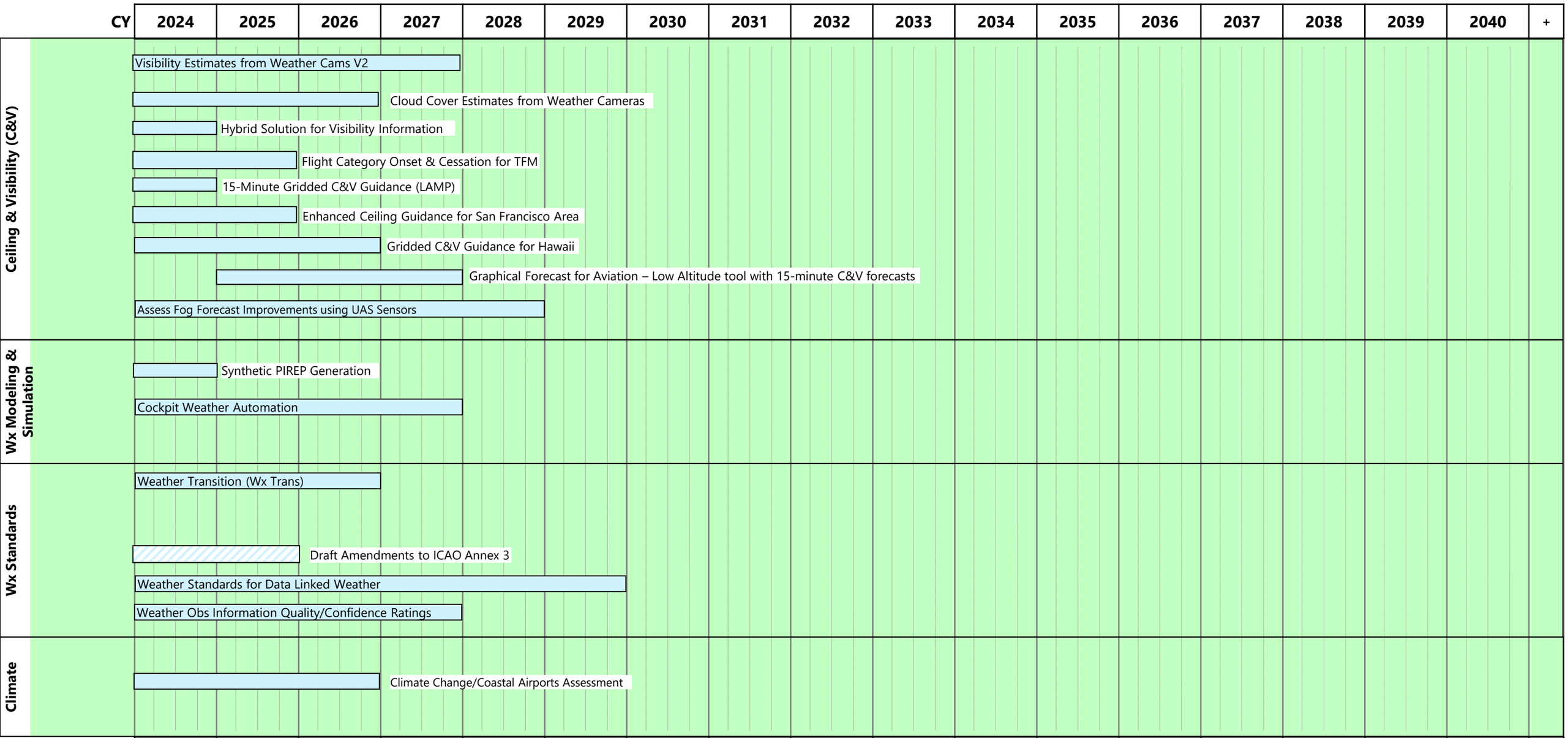
Weather Roadmap (4 of 4)



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Weather Roadmap: Assumptions (1 of 2)

Identifier	Description
WX-01	Ongoing NextGen Weather functional & performance requirements validation may result in new/emerging requirements in NextGen Weather Architecture.
WX-02	The Weather Sensor Technology Portfolio (WSTRP) was created to more effectively manage ASWON S2, TDWR S3, WSDS S2, and JAWS projects, and to allow for a systematic replacement and sustainment of Weather Sensor systems. WSTRP is currently comprised of TDWR, LLWAS, WSP(ASR-9), ASOS, AWOS-C, SWS, DASI, SAWS, and JAWS systems. The Light Detection and Ranging (LIDAR) will be added to the WSTRP at LIDAR IARD.
WX-05	The NAS Weather Infrastructure Portfolio incorporates R&D Research to Ops (RTO) with new weather products/information with increased forecast accuracy/frequency to NAS Users with minimal architectural/infrastructure change. Moreover, RTO Support Activities will further augment support to NAS operational decision-making by including weather “translation” as well as “uncertainty” capabilities.
WX-06	Weather processing functions converge into NextGen Weather Processor (NWP) that will be implemented in several phases. Initial NWP implementation (formerly called NWP WP1) provides NWP-Central services replacing prototype separate CIWS and CoSPA convective weather forecast capabilities with a 0-8 hour merged forecast capability. The Weather and Radar Processor (WARP) Radar Acquisition and Mosaic Processor (RAMP) function is subsumed in initial NWP implementation. Once funded, Weather Enhancement 1 will host Wx R&D algorithms matured since initial implementation baseline freeze including improved Convective and Translation algorithms. Weather Enhancement 2 will implement NextGen weather Far-term capabilities. ITWS (including ITWS VOLPE and ITWS NFU) will continue providing terminal weather information for pacing airports. ITWS forecasting functionality is planned to be transitioned to the cloud in a future timeframe.
WX-08	NAS Infrastructure Portfolio will supply weather information at user-specified resolution, both spatially and temporally. NWP will host the first NextGen mid-term "weather translation" product, e.g., Weather Avoidance Fields (WAF) to TFM of convective weather constraints to aircraft movement in NAS airspace (delivered by CSS-Wx). Weather Enhancement 1 will add additional weather Translation products e.g. Turbulence, Wind, Ceiling, Visibility and Precipitation. Weather Enhancement 1 continues necessary system components updates out to 2032.
WX-09	Products developed from requirements allocated to NWS, will likely be delivered to FAA via NWS’ NextGen IT Web Services (NGITWS). Many, but not all, of these products will be accessible via CSS-Wx initial implementation.

Weather Roadmap: Assumptions (2 of 2)

Identifier	Description
WX-10	To address emerging anti-icing regulations and to mitigate automated surface observing shortfalls at Level A/B airports, FAA will continue to evaluate R&D opportunities in sensor and algorithm development to improve precipitation discrimination (freezing/frozen/liquid including ice pellets and drizzle). Once mature and tested to meet all FAA automated sensor requirements, in conjunction with NWS this capability will be integrated into ASOS/AWOS-C to support aircraft and airport ground anti/de-icing operations.
WX-11	Weather observation/forecast R&D will continue to be periodically evaluated for maturity to determine whether new/improved functionality should be implemented.
WX-12	The FAA will continue to transmit validated Weather Performance requirements as they are identified to the NWS. These requirements will be associated with validated operational needs together with supported weather modeling and simulation. They will be consistent with the overall Enterprise Weather Strategy in meeting the needs of a future NAS. If the requirements cannot be met by the NWS, funding will be provided to develop algorithms to fulfill those requirements for subsequent NWS implementation.
WX-14	Satellite Data Services Requirements need to be identified, and research needs to be conducted on integrating new weather satellite sensor data into FAA systems.
WX-17	FAA installed twenty-one (21) new Weather Camera (WCAM) sites in Hawaii in 2020-2024 to improve aviation safety and efficiency by providing pilots and other aviation stakeholders with near-real time images of weather conditions along their flight routes and at their destinations. WCAM Enhancement E1 will add an additional 160 new camera systems within Alaska and CONUS. Two new functionalities using current weather camera images, Visibility Estimation through Image Analytics (VEIA) and Cloud Estimation through Image Analytics (CEIA), are currently being developed and are projected to be available on the website in FY25.