

FAA Office of NextGen (ANG)

REDAC / NAS Ops

Review of FY2022 – 2025 Proposed Portfolio

Name of Program: Wake RECAT

BLI Number: 1A04B0

Presenter Name: Jillian Cheng

Date: 31 August 2022

Wake RECAT Overview

What are the benefits to the NAS User:

RECAT's development of enhanced means of separating aircraft from the wakes of other aircraft will enable fewer flight delays/cancellations, while ensuring the safety of the aircraft, crew, passengers & cargo by:

- Increasing flight capacity of the nation's airports when weather or other conditions require ATC's use of Instrument Flight Rule (IFR) operations

What determines program success:

- No increase in the reported wake encounters during landings/takeoffs in the NAS
- Airport Arrival Rates (AARs) set during IFR operations closer to VFR operations AARs

RECAT

Program Support

People:

- Program Manager: Jillian Cheng
- Subject Matter Experts: wake analysis experts; ATC systems and operations experts; GA, and air carrier pilot experts

Laboratories/R&D Centers:

- MIT/Lincoln Laboratory
- Volpe Center
- WJH Technical Center
- National Institute of Aerospace

Current FY22 Accomplishments

Provided wake separation recommendations for ATC's use with new aircraft types

Progressed in developing the Pair-Wise Dynamic Wake (DW) Solution for adding capacity to during IMC:

- Further refined the reductions in ATC wake risk mitigation separations that can be safely applied when winds at the airport are at a certain magnitude (both the transport and decay of aircraft wake turbulence are impacted by wind conditions)
- Continued planning for a September 2022 STARS SIMFAST proof of concept of the DW Solution's use in an ATC operational terminal area environment
- Completed benefit/safety optimization of the DW separations for use with the September 2022 demonstration simulated airport and associated fleet mix
- Continued analysis of capacity benefit from using the DW Solution at capacity constrained airports

Progressed in establishing a NAS wide source of real time aircraft-based weather observation data

- ADS-B Wx (real-time aircraft-based weather observation transmissions) included in Version 3 ADS-B MOPS for both 1090 MHz and 978 MHz equipment. 1090 MHz approved by RTCA in January 2022 and by EUROCAE, 978 MHz approved by RTCA in June 2022.
- Presented ADS-B Wx design working papers to the ICAO Air Navigation Commission's Aeronautical Surveillance Panel, Technical Surveillance Working group and ICAO MET Panel

Anticipated R&D in FY23

Planned R&D Activities:

- Complete the DW Solution for terminal area operations design requirements and associated safety documentation
- Initial Requirements on weather data for use with Dynamic Wake solution in terminal and enroute airspace
- Feasibility study for enhancing the DW Solution terminal area forecast algorithm with real time aircraft observed weather data

Expected Research Products

- DW Solution for the terminal area documentation and associated algorithm design requirements along with detailed benefit and safety assessments for hand off to the ATO Program Management Office
- Identification of an actionable weather source to support a safety case when a Dynamic Wake solution is in use
- Report on potential use of real time aircraft-based observation data to improve the DW Solution availability for ATC's use in terminal area IFR operations

Anticipated Research in FY24

Planned Research Activities

- Current CIP profile lacks funding past FY23

Expected Research Products

- N/A

Emerging FY25 Focal Areas

- N/A

Wake RECAT

R&D Requirements

- Develop safe wake risk mitigation solutions for NAS Users increased operational efficiency – Fulfilling current needs of ATC and providing solutions to fulfill the Dynamic, Pair-Wise Wake Turbulence Separation NSIP Operational Improvement OI-102152. ANG has determined that Dynamic, Pair-Wise Wake Risk Mitigation Solutions are only needed for terminal area operations - whose development will be completed in FY23

Outputs/Outcomes

- None

FY 2025 Planned R&D (if funded in FY24)

- None

Out Year Funding Requirements

F&E	FY22	FY23	FY24	FY25	FY26	FY27
	\$ 2.5M	\$2.5M	\$ 0	\$ 0	\$ 0	\$ 0