

FAA Office of NextGen (ANG)

REDAC / NAS Ops

Review of FY2022 – 2024 Proposed Portfolio

Runway Incursion Reduction Program (RIRP) S09.02-00 Giovanni Dipierro, AJI-14 Robert Higginbotham, ANG-C52 March 16, 2022

Runway Incursion Reduction Program (RIRP) Overview

- The objective of the Runway Incursion Reduction Program (RIRP) is to reduce the risk to people and property caused by collisions in the runway environment. The RIRP is focused on providing SAFETY benefits for the FAA.
- The program will research technologies, develop and evaluate prototype systems that can be used to detect the presence of hazards in the Runway Safety Area, and provide alerts to the individual(s) who can take corrective action.
- RIRP success is measured by the completion of the goals identified in the Research Management Plan (RMP) for each prototype activity. Initiatives that successfully complete all the RMP Goals identified are then presented as candidates for acquisition, or presented for AIP-funding eligibility.

Runway Incursion Reduction Program (RIRP) Program Support

Staff

- Sponsor: Giovanni Dipierro, AJI-14 (A)
- Program Manager: Robert Higginbotham, ANG-C52
- Subject Matter Experts: GEMS Inc., Level Strategy, RWSL Informatics, DOT Volpe Center

Laboratories

- MIT/LL:
 - Technology Transfer
- MITRE:
 - Benefit Estimation Methodology
 - Research / Data Mining
 - Human Factors

Current FY22 Accomplishments

- Small Airport Surveillance Sensor (SASS)
 - Participated in the Surface Situational Awareness Operational Need Assessment (ONA) meetings with AJT, AJI, AJM and other LOBs to support the case for additional surface surveillance in the NAS
 - Completed development of the final SASS Technical Transfer Package (TTP) 5 including all development software and associated documentation; SASS testbed at Hanscom AFB was dismantled
 - SASS technology was transferred from ANG to ATO and has been identified by AJV-S as a potential alternative to the Surface Situational Awareness ONA. RIRP is actively engaged in discussions with AJV-S and AJM about SASS for future surveillance solution development
- Runway Incursion Prevention through Situational Awareness (RIPSA)
 - RIPSA proposal evaluations were completed; Source Selection Package was finalized and approved
 - Engaged in finalizing negotiations with vendors to award contract(s) for technology acquisition in Q2/FY22
- Surface Taxi Conformance Monitoring (STCM)
 - Conducted remote ATC workshops #8 and #9 with NATCA to further refine STCM tower prototype
 - Conducted remote ATC HITL with MITRE ATC personnel to evaluate simultaneous use of STCM tower and flight deck prototypes
 - Coordinating with AJT and NATCA to support in-person ATC HITL at MITRE CAASD to evaluate simultaneous use of STCM tower and flight deck prototypes. Long Beach International Airport (LGB) will be used as the candidate test airport for the simulation

Anticipated Research in FY23

- Runway Incursion Prevention through Situational Awareness (RIPSA)
 - Activities: Initiate installation of procured RIPSA technologies at test site(s); prepare for system operational test & evaluation (OT&E)
 - Products: First Article System(s) delivery
- Surface Taxi Conformance Monitoring (STCM)
 - Activities: Assess test results of the combined flight deck and tower prototypes; Technology transfer of STCM prototypes
 - Products: Technology transfer of documentation and prototype software



Emerging FY24 Focal Areas

- Incorporation of Speech Recognition capability and cooperative surveillance into RIPSA technologies for surface safety.
- Wrong Surface Landing Prevention: Using air traffic and cockpit technologies to allow ATC and pilots to detect alignment problems that could result in Wrong Surface Landing (WSL) incidents

Runway Incursion Reduction Program (RIRP)

Outputs/Outcomes

\$ 3.1M

\$ 3.0M

\$ 3.5M

\$ 3.5M

Research Requirements

Develop Program Requirements, prototype, test and Products: • evaluate potential technologies at candidate airports Localized surveillance and annunciation technology as identified in the RIPSA report. test systems at RIPSA candidate airports Develop low-cost surface surveillance sensor STCM technology prototype for cockpit and tower • RIPSA operational evaluation reports and system Refine concept and develop tools for tower-based and • ٠ cockpit-based taxi conformance monitoring requirements Sponsor: Runway Safety Group (AJI-14) POC: Giovanni Dipierro, Manager(A), AJI-14 **Out Year Funding Requirements** FY 2024 Planned Research Technology Feasibility Assessment for Wrong Surface Landing Prevention FY27 & Market Survey of Speech Recognition capability and **FY22 FY23 FY24 FY25 FY26** F&E **Beyond** cooperative surveillance for integration with RIPSA technologies for surface safety (CIP)

\$ 5M

\$ 20M