FAA REDAC Subcommittee on NAS Operations

Findings and Recommendations

May 2017

ID #: Spring_2017_1
Subcommittee: NAS Operations
DFO Name: Maureen Molz
Recommendation Assignee Name: John Maffei/Steve Bradford

Finding:

Operations Concept Validation

The subcommittee received briefings on Operations Concept Validation Modeling (BLI 1A11) and Operations Concept Development & Infrastructure (BLI: 1A01C). The subcommittee found the briefings to reflect the high quality of the briefers and the excellent research and development work carried out in both areas. The subcommittee notes that operations concept validation activity represents one of the most valuable programmatic risk mitigation investment tools available to the FAA for advancing the state of the art in airspace operations. Early identification and resolution of operational and integration issues yields tremendous cost avoidance during implementation.

The strategic context motivating FAA and NAS users' investment in ops concept validation includes both near and far term considerations. These considerations include the accelerating pace of change affecting all aspects of the Agency's NextGen portfolio. Examples include the pace of advancement in connected aircraft capabilities, increased confidence in investment decisions on the part of NAS users to complement FAA investments, community sensitivity to terminal airspace noise resulting from improved arrival and departure management schemes, as well as advancements in aircraft and airspace automation systems and concepts, among others.

The committee observes that the priority given to ops concept validation projects has been in decline over recent years. In particular, the work that was performed under BLI 1A11 was moved from a cross-cutting, enterprise-level F&E activity to within the NextGen portfolios. There, this activity competes directly for funding with the day-to-day pressures of NextGen implementation. Portfolio managers are very much focused on program implementation and thus it is very difficult for them to properly prioritize this work, particularly since the work should be done well in advance of implementation. The subcommittee notes that the result has been a significant decline in the level of effort devoted to operational concept validation across the FAA.

Recommendation:

The Subcommittee recommends that the FAA increase the priority given to ops concept validation investments, particularly those that are closer to implementation, as the most effective and affordable means of strategic risk mitigation in a time of rapid technological and business concept advancements affecting the NAS. The savings in time and implementation cost more than offset the relatively low cost of increased concept validation.

ID #: Spring_2017_2
Subcommittee: NAS Operations
DFO Name: Maureen Molz
Recommendation Assignee Name: Ben Marple

Runway Incursion Reduction Program

General Observation:

The Runway Incursion Reduction Program (RIRP) has been developed to address the NTSB recommendation A-00-66 (July 6, 2000), which states:

"[The FAA should] require, at all airports with scheduled passenger service, a ground movement safety system that will prevent runway incursions; the system should provide a direct warning capability to flight crews. In addition, demonstrate through computer simulations or other means that the system will, in fact, prevent incursions."

In 2015, the Subcommittee found that this NTSB recommendation failed to address the cost/benefit assessment that is required as part of an investment decision and recommended that the FAA should estimate the potential benefits of the Runway Safety Assessment (RSA) and Small Airport Surveillance Sensor (SASS) projects under RIRP.

In response to this recommendation, the FAA conducted a causal factor analysis and technology evaluation study under the Runway Incursion Prevention Shortfall Analysis (RIPSA).

Finding:

The RIPSA project was intended to (1) identify the causal factors associated with runway incursions at small and medium airports and (2) identify feasible runway incursion prevention technologies to address those factors. The subcommittee has previously noted that feasibility includes technical performance and cost/benefit. While the RIPSA analysis has examined the estimated cost and general technical performance of candidate technologies, the project did not estimate the benefits pool available to runway incursion prevention technologies as recommended by the REDAC in the Fall of 2015. The subcommittee finds that the FAA cannot perform cost-effective research and development of runway incursion prevention technologies in the absence of any knowledge of the potential benefits pool that such technologies target.

Recommendation:

The FAA should not invest any more funds in runway incursion prevention technologies until they have estimated the benefits pool as previously recommended by the REDAC. Further technology development in these projects should be contingent upon an initial positive cost/ benefit estimate. REDAC looks forward to reviewing this benefits estimate in its Fall 2017 meeting.