

Research, Engineering and Development Advisory Committee (REDAC)

NAS Operations Subcommittee | MINUTES

Meeting date & time: *March 10-12, 2015*

Meeting location: *Booz Allen Hamilton (Portals III), Washington DC*

Purpose: *Review of FY 2017 Proposed Portfolio and Provide Recommendations; Program Deep Dives*

Chairman: *Steve Bussolari*

DFO: *Maureen Molz*

Next Meeting: *August 11-13, 2015, Washington, DC*

Day 1 – March 10, 2015

Presentation Concept Steering Group Processes / Research Plan / Industry Engagement / 1A11: NextGen – Ops Concept Validation Modeling

Presenter *John Marksteiner*

Discussion – This briefing discussed budget challenges for FAA concept validation activities and the shift of funding sources to the PBN and Separation Management portfolios. Recent accomplishments for this budget line include delivery of an Integrated NAS / Space Vehicle Operation simulation model, Leesburg Remote Towers procedure development, and continued research into UAS integration in the NAS. FY17 funding may support further development of Optimized Route Capabilities and Vertical Conformance Verification products.

Presentation Trajectory Based Operations ConOps Discussion

Presenter *Marc Buntin*

Discussion – The Four Dimensional Trajectory-Based Operations (4D TBO) concept is a fundamental shift within Air Traffic Management. Benefits associated with 4D TBO may include improvements in overall predictability of traffic and enhanced collaboration among stakeholders. Key points of this briefing included a review of terms and definitions as they relate to 4D TBO, the evolving use of ground and airborne automation, as well as consideration of pre-departure, surface, arrival / departure and enroute operations in a 4D TBO environment. The discussion included video depicting Optimized Profile Descent activities and a briefing on 4D TBO technology enablers.

Presentation Space Vehicle Operations (SVO) Concept Validation Process

Presenter *Kevin Hatton*

Discussion – The SVO briefing covered the gaps in capabilities to accurately model the impact of space vehicle operations on the NAS, as the FAA presently employs airspace management approaches that include closing large volumes of airspace for significant lengths of time during launch and re-entry operations. The discussion included a review of debris hazards to aircraft and the lack of a real-time debris threat response capability, as well as information on the SVO ConOps released in August 2014. The SVO ConOps offers solutions to minimize large closures of airspace for launch and re-entry operations.

Presentation Mixed Equipage / 1A11: NextGen – Operational Assessments – Capacity / 1A10D: NextGen – New Air Traffic Management Requirements

Presenter *Steve Bradford (via phone), Diana Liang*

Discussion – Recent accomplishments of the Operational Assessment Performance budget line include publishing the NextGen Business case and evaluation of the operational performance

impacts of NextGen technologies and procedures. In FY17, budget funding will support evaluation of the benefits and costs of targeted NextGen capabilities and updating the NextGen Segment Implementation Plan. The NextGen New ATM Requirements budget supports cross-cutting research to develop system for capacity enhancements. Expected FY17 outputs include new radar requirements and development of future collision avoidance requirements to support new classes of users.

Presentation *Operational Weather Need Analysis (OWNA) / Weather Research, Operational Needs for NSIP 5.0 / A11.k: Weather Program / A12.e: NextGen – Weather Technology in the Cockpit (WTIC)*

Presenter *Steve Abelman, Gary Pokodner*

Discussion – This presentation included planned FY17 weather program research efforts, including hazardous weather mitigation, weather modeling and sensing, and the evolution of current capabilities. The OWNA program identifies weather attributes based on operational decision making associated with weather-constrained operations. The WTIC program comprises research projects to develop, verify, and validate requirements for incorporation into minimum weather service standards, and recent accomplishments include the completion of Eddy Dissipation Rate / Graphical Turbulence Guidance Uplink flight demonstration and reports.

Presentation *Budget Briefing*

Presenter *Mike Gallivan*

Discussion – The budget briefing covered requests, appropriation and enacted programs for the research, engineering & development, and facilities & engineering budgets. Specific budget conference language was discussed in reference to UAS research and NextGen environmental research (aircraft technologies, fuels and metrics). Highlighted Congressional issues included the effects of sequestration in FY16 and policy riders. The FY16 FAA budget request was presented to Congress on 2/2/2015, and the FY17 budget request is expected to be delivered to OST by June 2015. The current FAA budget authorization is in effect through FY15.

Presentation Portfolio Overview - Research Project Mapping

Presenter *John Maffei*

Discussion – This briefing provided an overview of the NextGen investment portfolio and the budget challenges for NextGen pre-implementation activities, as targeted to provide operational improvements within the NAS. NextGen funding history was discussed in reference to programmatic support for Congressional earmarks, solution set and portfolio activities, and research, engineering and development programs. The discussion also included consideration of the adjusted budget structure and transition from solution sets to NextGen portfolios.

Presentation Use of Subcommittee Inputs on Strategic Research

Presenter *Dennis Filler*

Discussion – Dennis addressed NAS Ops subcommittee inputs on emerging issues and opportunities, as submitted to the FAA Administrator on 11/10/2014. Areas of discussion included data integrity and big data/measuring the NAS, cyber test research efforts at WJHTC, research associated with new entrants (UAS and space vehicles), and budgetary challenges surrounding OMB guidance. NAS Ops subcommittee inputs in these areas will be used to guide prioritization of future research efforts.

Presentation 1A01C Operations Concept Validation / Elaboration on one-page summary from Aug 2014 (integration analysis)

Presenter *Rob Hunt*

Discussion – The Operations Concept Development & Infrastructure program develops, matures, and validates near / mid-term emerging operational concepts. Benefits of this program include the development of automation that can increase capacity and efficiency, while supporting FAA efforts to reduce costs. This program contributed to recent advancements in UAS concept maturation, operational integration analysis, and research efforts in special activity airspace. Plans for FY17 include operational integration analysis, PBN optimization, interval management and trajectory-based operations.

Presentation 1A11: NextGen – ATC / Tech Ops Human Factors

Presenter *Jerome Lard*

Discussion – This briefing covered human factors (HF) research activities such as AMS HF tools and guidance, human error and safety analyses assessments, Tech Ops Strategic Job Analysis, and remote towers operations. Future plans will document procedures which increase reliance on automation for routing tasking and focus on the interaction between the air / ground domains to validate PBN procedures. Expected benefits include effective systems integration to support PBN operations and maintain separation.

Presentation A11.i: Air Traffic Control/Technical Operations Human Factors**Presenter** *Dino Piccione*

Discussion – FY17 funding requests for this program will cover support of the Research and Development Human Factors (HF) Lab and the CAMI NAS Human Factors Safety Research Lab. Future research efforts will include validation of TRACON training standards, facility placement, and predicting training success. The briefing also included discussion of plans to request a new budget line focused on ATC training and safety, with AJI as the sponsor.

Presentation 1A01A: Runway Incursion Reduction**Presenter** *Matt Royston*

Discussion – This presentation consisted of an update on the Runway Incursion Reduction Program (RIRP), including Enhanced Final Approach Runway Occupancy Signal (eFAROS), Runway Safety Assessment (RSA), and Small Airport Surveillance System (SASS). Discussion focused on SASS as a low-cost secondary surveillance solution with benefits of improved controller situational awareness and efficiency. The briefing also covered key design features and target airports for SASS.

Presentation 1A01B: System Capacity, Planning and Improvement**Presenter** *David Chin, Allison Talarek*

Discussion – This program identifies, evaluates, measures and formulates system capacity improvements for the NAS. Work efforts include the Performance Data Analysis Reporting System (PDARS), airport capacity studies and international performance benchmarking. The presentation provided an overview of plans for replacement of the PDARS legacy system and integration of SWIM data products into the new system. The briefing included a high-level discussion of the system architecture and a consideration of the budget challenges for the replacement program.

Presentation A12.a: NextGen – Wake Turbulence; 1A05D: NextGen – Wake Turbulence – Re-categorization

Presenter *Paul Strande*

Discussion – Wake turbulence programs support research that matures operational concepts to the point that they can be developed and implemented through F&E. Products delivered from wake research provide airport throughput capacity benefits to NAS users without requiring major investments by NAS stakeholders. Both time-based separation and interval management require wake considerations. The discussion also included model data sources, wake standards for new aircraft, dynamic wake separation and paired procedures.

Recommendations

- The following recommendations were closed:
 - Spring_2013_22 – Closed based on agency response to portfolio view of FAA research.
 - Fall_2013_10 – Closed based on mixed equipage discussion by Steve Bradford.
 - Fall_2013_13 – Closed based on Dennis Filler’s briefing of integrated agency-wide view of R&D.
 - July_2014_02 – Closed based on response by Wake & CSPO R&D Integration Lead.
- A new recommendation was addressed on the topic of:
 - 4D Trajectory Based Operations

Pending Actions

- For August 2015 NAS Ops meeting:
 - Deep dive on Trajectory Based Operations to include high-level research objectives and samples of current FAA and NASA research efforts (**Maureen Molz**)
 - Deep dive on UAS to include technical elements and multiple areas of expertise (**Maureen Molz**)
 - Engage with ANG-5 (Joe Post) to provide response on how mixed equipage was considered in estimates of NAS performance (**Maureen Molz**)
 - Request briefing from Commercial Space Transportation (AST) on research areas relevant to the subcommittee (**Jaime Figueroa / Maureen Molz**)
 - Recommend to 1A01A: Runway Incursion Reduction that they engage with REDAC / Safety Subcommittee (**John Cavolowsky**)

Completed Actions

- Distribute National Aviation Research Plan (NARP) to subcommittee membership / **Completed 3/11/15**
- Distribute EDR Uplink Quantitative Benefits Analysis (follow up from weather briefing) to subcommittee membership / **Completed 3/12/15**

Subcommittee Members in Attendance:

Steve Bussolari (Chairman)
Joseph Bertapelle
John Cavolowsky
Bruce Holmes
Deborah Kirkman
James Kuchar
William Leber
Mark Weber
Andres Zellweger
Maureen Molz (FAA, DFO)

Others in Attendance:

See attendance list

| REDAC / NAS Operations Subcommittee | | |
|--|---------------------------------|-------------|
| Date: March 10-12, 2015 | | |
| Location: 1201 Maryland Ave, SW, Suite 500 (Portals III building) Washington, DC 20024 | | |
| Meeting Purpose: Review of FY 2017 Proposed Portfolio and Provide Recommendations | | |
| Tuesday, March 10 | | |
| <u>Topic</u> | | <u>Time</u> |
| Welcome/Overview | Steve Bussolari | 0830-0900 |
| Review of REDAC Recommendations, Responses and Open Actions | Steve Bussolari | 0900-0945 |
| Action item - Concept Steering Group Processes / Research Plan / Industry Engagement / 1A11: NextGen – Ops Concept Validation Modeling | John Marksteiner | 0945-1045 |
| Action item - Trajectory Based Operations ConOps Discussion | Marc Buntin | 1045-1145 |
| Lunch | | 1145-1230 |
| Deep Dive - Space Vehicle Operations Concept Validation Process | Kevin Hatton | 1230-1330 |
| Deep Dive - Mixed Equipage / 1A11: NextGen – Operational Assessments – Capacity / 1A10D: NextGen – New Air Traffic Management Requirements | Steve Bradford, Diana Liang | 1330-1430 |
| Action item: Operational Weather Need Analysis / Weather Research, Operational Needs for NSIP 5.0 / A11.k: Weather Program / A12.e: NextGen – Weather Technology in the Cockpit | Steve Abelman, Gary Pokodner | 1430-1600 |
| Budget Briefing | Mike Gallivan | 1600-1630 |
| Dinner – location TBD | | 1800 |
| Wednesday, March 11 | | |
| <u>Topic</u> | | <u>Time</u> |
| Review Findings and Recommendations / New Actions | Steve Bussolari | 0830-0900 |
| Portfolio Overview - Research Project Mapping | John Maffei | 0900-0930 |
| Action item - Use of Subcommittee inputs on strategic research | Dennis Filler | 0930-1030 |
| Action item - 1A01C Operations Concept Validation / Elaboration on one-page summary from Aug 2014 (integration analysis) | Rob Hunt | 1030-1130 |
| Lunch | | 1130-1230 |
| 1A11: NextGen – ATC/Tech Ops HF | Jerome Lard | 1300-1345 |
| A11.i: Air Traffic Control/Technical Operations Human Factors | Dino Piccione | 1345-1430 |
| 1A01A: Runway Incursion Reduction | Matt Royston | 1430-1515 |
| 1A01B: System Capacity, Planning and Improvement | David Chin | 1515-1600 |
| Thursday, March 12 | | |
| <u>Topic</u> | | <u>Time</u> |
| Review Findings and Recommendations / New Actions | Steve Bussolari | 0830-0930 |
| A12.a: NextGen – Wake Turbulence | Paul Strande | 0930-1015 |
| 1A05D: NextGen – Wake Turbulence – Re-categorization | Paul Strande | 1015-1045 |
| Discussion and wrap up | Subcommittee members | 1045-1215 |