

RTCA Paper 329-16/TOC-033

October 27, 2016

## **Meeting Summary, October 27, 2016**

### **Tactical Operations Committee (TOC)**

The fifteenth meeting of the Tactical Operations Committee (TOC), held on October 27, 2016, convened at 10:00 a.m. Eastern Daylight Time. The meeting discussions are summarized below. The following attachments are referenced:

Attachment 1 – List of Attendees

Attachment 2 – Presentations for the Committee (containing detailed content of the meeting)

Attachment 3 – Summary of the June 23, 2016 TOC Meeting

Attachment 4 – MOU Between FAA and Massport

Attachment 5 – FAA Task to Request to RTCA to Review Ligado Networks Proposal

### **Welcome and Introductions**

Committee Co-Chairs, Mr. Bryan Quigley, United Airlines, and Mr. Dale Wright, National Air Traffic Controllers Association (NATCA), called the meeting to order and welcomed the TOC members and others in attendance. All TOC members and attendees from the public were asked to introduce themselves (TOC members and General Public Attendees are identified in Attachment 1).

Mr. Quigley and Mr. Wright then reviewed the agenda and began the proceedings of the meeting. (The briefing charts from the meeting are included as Attachment 2.)

### **Designated Federal Official Statement**

Ms. Elizabeth “Lynn” Ray, Vice President of Mission Support for the Air Traffic Organization (ATO), and the Designated Federal Official of the TOC, read the Federal Advisory Committee Act notice governing the open meeting.

### **Approval of June 23, 2016 Meeting Summary**

The Chairs asked for and received approval of the written summary for the June 23, 2016 meeting (Attachment 3).

## **FAA Report**

Ms. Ray provided an FAA report to the TOC. She spoke at length about the FAA's efforts on community engagement and introduced Ms. Julie Marks, the ATO's new Community Involvement Manager. The FAA Administrator had recently spoken at the ATCA conference about the FAA's intent to identify noise sensitive solutions as flight paths are designed. Simple solutions include moving flights over water, industrial areas or providing for unrestricted climbs. Work groups in multiple cities, including Washington DC, Northern California, Southern California, Boston and Charlotte, were pursuing community engagement efforts, all with heavy involvement from the FAA Regional Administrators. Each activity has a slightly different mission. For example, the DC Community Engagement effort, was examining three specific Departure Procedures while the Charlotte effort was studying vectors off the ground to create a level of departure dispersion. One TOC member inquired about the FAA's plan to harmonize its approach across these different efforts as each city has a different workgroup structure and different roundtable participants. Ms. Ray agreed that the FAA's seeks to bring continuity to the people and expertise involved in the engagement process.

The community engagement discussion lead to extensive conversation about the recently signed Memorandum of Understanding (MOU) between the FAA and the Massachusetts Port Authority (Massport) (included as Attachment 4). Ms. Ray noted that the MOU called for Massport to engage the appropriate subject matter experts (SMEs) to provide recommendations to the FAA on changes to flight paths. Some flight operators on the TOC expressed concern as to whether Massport would involve the appropriate airline and air traffic stakeholders to ensure recommendations were feasible. Operators expressed a desire to be involved in the process from the start. For the Massport example specifically, Ms. Ray reminded the meeting participants that the MOU called for Massport to conduct its own analysis which was not directed by the FAA. Hence, operators interested in participating with Massport were advised to contact Massport directly.

## **FAA Response to Previous Recommendations**

The FAA provided responses to multiple previous recommendations from the TOC:

### Western Regional Task Group (WRTG) Northern California (NorCal) Noise Initiative

Mr. Glen Martin, FAA Western-Pacific Regional Administrator, gave the TOC an update of the FAA's efforts to collaborate with NorCal communities and members of Congress on an evaluation of proposed changes to improve noise in NorCal. Mr. Martin reviewed six feasible areas of change for NorCal as well as the FAA's perspective on other recommendations from the community. The full briefing materials from Mr. Martin's presentation may be found in Attachment 2, pages 9 to 16.

### Class B Airspace

Mr. Gary Norek, FAA Deputy Director Airspace Services, provided the TOC with an update on the FAA's action plan for implementing the September 2015 TOC recommendations "Class B Airspace: Designation, Design and Evaluation". Mr. Norek reviewed the activity plan's work segments and

phases, timeline and stakeholder involvement. Mr. Norek's full presentation may be found in Attachment 2, pages 17-34.

#### Easter Regional Task Group (ERTG) Caribbean Recommendations

Ms. Crystal Toney, FAA, provided an update on the FAA's ongoing consideration and implementation of the ERTG recommendations on the Caribbean. Ms. Toney presented an updated set of evaluation criteria for each recommendation and an overview of the FAA's plan for each of the ERTG's 18 recommendations. Ms. Toney's full presentation may be found in Attachment 2, pages 35-45.

During the briefing, a TOC member inquired about more specifics around the FAA's plan to implement two of the four recommended shout lines. Ms. Toney noted that Venezuela was definitely one of the implementation sites but the second was still under consideration.

Another question arose regarding the FAA's approach for managing the expected increase in traffic to and from Cuba. Ms. Toney noted that the Warning Area close to the Giron Corridor between US and Cuban airspace had been moved in September 2016 and the FAA was not in discussion with its Cuban counterpart to develop RNAV routes through the airspace.

A TOC member inquired about whether the FAA had thought about enhanced surveillance options in context of the ERTG recommendation for new ADS-B ground stations. The member noted that there is a need for improving surveillance robustness in the Grand Turk region as this area is surveilled only by the Grand Turk radar which has regular outages and failures. Ms. Toney noted that the FAA would ensure that enhanced surveillance technology was included in the consideration set for addressing this recommendation.

Finally, a member inquired about the status of Class 1, 2 and 3 data exchange with Nav Canada. Ms. Toney noted that the FAA was currently working on a Final Investment Decision (FID) for Class 3 data exchange with Canada. Assuming the effort with Canada proceeded, the Caribbean would expect a Class 3 FID in 2019 and the experience of working on this with Nav Canada would likely offer efficiencies to a Caribbean implementation.

#### National Procedure Assessment Initiative

Mr. Jose Alfonso, FAA AJV-5, provided an update on the FAA's evaluation of the TOC recommendations around criteria for canceling unnecessary or redundant procedures in the NAS. Mr. Alfonso noted that all of the TOC's recommendations were accepted fully or accepted with comment. He also provided an update on the FAA's ongoing plans for canceling ground-based instrument approach procedures (IAPs) as well as a new effort to cancel Circling Procedures. Mr. Alfonso's briefing may be found in Attachment 2, pages 46-49.

#### **Update on the Drone Advisory Committee (DAC)**

Mr. Al Secen, RTCA, next provided an update on the Drone Advisory Committee (DAC). Mr. Secen's briefing materials are included in Attachment 2, pages 49-50. He informed the TOC members about the results of the first DAC meeting in September 2016 as well as the status of the newly formed DAC

Subcommittee. Mr. Secen noted that the DAC would initially focus on 1) what an operator needs to fly a drone as well as 2) privacy and pre-emption issues. Additionally, the DAC and its Subcommittee would continue to prioritize remaining issues.

A TOC member expressed interest that the DAC consider issues around UAS entry into Class B, C or D airspaces. Additionally, Ms. Ray noted that the FAA was planning for a UAS Aviation Rulemaking Committee (ARC) that would evaluate access to airspace.

### **Update on PBN Route Structure (RS) Task Group**

The Co Chairs of the PBN RS Task Group, Mr. Mark Hopkins, Delta Airlines, and Mr. Dave Surridge, American Airlines, next provided an update on status of the High Altitude PBN RS Task Group. Their briefing materials may be found in Attachment 2 on pages 51 to 59. Messrs. Hopkins and Surridge identified key operator concerns as maintaining flexibility through minimal structure and that structure, when necessary, be utilized at a segment level only. They provided an update on the future desired state of PBN RS operations, criteria for structure, future point-to-point operations and design/implementation plan.

A TOC member offered a comment on one of the criteria for structure – “reduce frequency congestion.” The member noted that with Data Communications, the prevalence of frequency congestion may be minimal in the future.

Another member inquired how guidance would be provided to pilots to ensure that those operating aircraft understand in the future why PBN RS was beneficial.

After the briefing, Ms. Jane Dale, Executive Director of the Alaska Air Carriers Association (AACA), provide an overview briefing on aviation in Alaska. One sub-group of the PBN RS effort is focusing on Low Altitude operations in Alaska, and this briefing was intended to provide an educational primer to TOC members on Alaskan aviation. Ms. Dale’s briefing materials may be found in Attachment 2, pages 59-78.

Finally, Mr. Rune Duke, Aircraft Owners and Pilots Association, and Mr. Dennis Parrish, representing AACA, provide an update on the PBN RS Low Altitude effort. Their briefing provided an overview of Low Altitude route structure concerns that span the Continental US (CONUS) as well as Alaska along with a set of Alaska-specific issues. Their briefing materials may be found on pages 79-85 of Attachment 2.

### **Update on Graphical Temporary Flight Restriction (TFR) Task Group**

The Co Chairs of the Graphical TFR Group, Mr. Rune Duke, AOPA, and Mr. Jon Reisinger, Jeppesen, next provided an update on status of the TFR Task Group. They shared a wide set of categories of TFR recommendations that the Task Group is consolidating, including charting, TFR origination, transmission to industry, FSS/ATC issues, availability of graphics, textual format, FIS-B and education. Additionally, Messrs. Duke and Reisinger indicated the group was ahead of schedule and would likely



deliver recommendations in December 2016. Their briefing materials may be found on pages 86-89 of Attachment 2.

A TOC member noted that current draft language in the FAA Reauthorization bill had potential to ease the process of requesting a permanent TFR. The member suggested that the TFR task group provide a comment in its report on the TFR Issuance policy.

### **Update on the NextGen Advisory Committee (NAC)**

Mr. Andy Cebula, RTCA, briefed the TOC on status of the NextGen Advisory Committee (NAC). These materials may be found on pages 90-97 of Attachment 2. Mr. Cebula provided an overview of the two recommendations approved at the recent October 5<sup>th</sup> NAC meeting – PBN Time, Speed, Spacing and the Joint Analysis Team review of North Texas Metroplex and Established on RNP in Denver.

### **Future TOC Tasks – FAA**

Ms. Ray next discussed status of potential task to the TOC regarding Commercial Space operations. She noted that the FAA was still interested in tasking the TOC to consider access issues in the NAS between traditional and commercial space operators. However, Commercial Space had recently been included in the Administrator’s Board tasked with evaluating emerging technologies. Hence, any task to the TOC first required further internal FAA review and coordination.

Ms. Mark Steinbicker, FAA, briefed the TOC on a new task to review a proposal from Ligado Networks (formerly Lightsquared) to utilize spectrum on the band adjacent to GPS (Tasking Letter included as Attachment 5). The TOC was requested to review the proposal and report back on operator comments and concerns on the proposal.

### **Ideas for Future Tasks – Industry**

Next, TOC members presented a series of ideas for the FAA to consider for future TOC tasking. The ideas include the following and are presented in further detail on pages 98-104 of Attachment 2.

- Local coordination tools and process during disruptive weather
- Evaluate DoD GPS interference events and assess impacts, notification process, guidance material, etc.
- Process for evaluation and approval of off-airport obstacles given impacts on arrival/departure procedures
- NY Metro operations and use of PBN/Datacomm to improve SWAP events in NY
- Adaptive use of Special Activity Airspace
- Operator engagement in procedures / noise
- TBFM implementation

There was interest among TOC members to focus on the New York area by integrating different capabilities that were all coming online, such as PBN and Datacomm. Improvements in New York were described by one member as the litmus test of work the industry does in RTCA and its Committees. The Committee also recognized that multiple groups in the industry, including the NextGen Advisory Committee (NAC) and NextGen Integration Working Groups (NIWG) were also interested in moving in a similar direction.

### **Adjourn**

Chairmen Quigley and Wright ended the meeting of the Committee at 3:30 p.m.

### **Next Meeting**

The next meeting of the TOC is December 13, 2016.

## **Attendees: October 27, 2016 Meeting of the Tactical Operations Committee**

*(Note: Committee member names appear in italics)*

<u>Name</u>	<u>Company</u>
<i>Pennington, Darrell</i>	Air Line Pilots Association
Perrizo, Michael	Air Wisconsin
Duke, Rune	Aircraft Owners and Pilots Association
<i>Rudinger, Melissa</i>	Aircraft Owners and Pilots Association
<i>Oswald, Christopher</i>	Airports Council International North America
Dale, Jane	Alaska Air Carriers Association
Parrish, Dennis	Alaska Air Carriers Association
Surridge, Dave	American Airlines
Townsend, Brian	American Airlines, Inc.
<i>Will, Brian</i>	American Airlines, Inc.
Short, Rico	Beacon Management Group
<i>Hopkins, Mark</i>	Delta Air Lines, Inc.
Fountain, Denise	DoD Policy Board on Federal Aviation
Adams, Mark	Federal Aviation Administration
Alfonso, Jose	Federal Aviation Administration
Chesak, Christine	Federal Aviation Administration
Ford, JoAnn	Federal Aviation Administration
Marks, Julie	Federal Aviation Administration
Martin, Glen	Federal Aviation Administration
Norek, Gary	Federal Aviation Administration
<i>Ray, Lynn</i>	Federal Aviation Administration
<i>Steinbicker, Mark</i>	Federal Aviation Administration
Toney, Crystal	Federal Aviation Administration
Santos, Phil	FedEx Express
<i>Murphy, Bill</i>	International Air Transport Association
Reisinger, Jon	Jeppesen
Bertapelle, Joe	JetBlue Airways
<i>Roberts, Bart</i>	JetBlue Airways
Stearn, Geoff	Ligado
<i>Wright, Dale</i>	National Air Traffic Controllers Associati...
<i>Lamond Jr, Bob</i>	National Business Aviation Association
Kalyanaraman, Sai	Rockwell Collins
Cebula, Andy	RTCA, Inc.
<i>Jenny, Margaret</i>	RTCA, Inc.
Mitra, Trin	RTCA, Inc.
Morrison, Rebecca	RTCA, Inc.
Secen, Al	RTCA, Inc.
<i>Solley, Edwin</i>	Southwest Airlines
Abrahamsen, Thor	The MITRE Corporation
Hegarty, Chris	The MITRE Corporation
<i>Molin, Doug</i>	The MITRE Corporation
Tennille, Greg	The MITRE Corporation

Attachment 1 - Attendees Oct 27 2016 Meeting

Emden, Philip	United Airlines, Inc.
Morse, Glenn	United Airlines, Inc.
<i>Quigley, Bryan</i>	United Airlines, Inc.
<i>Kast, Christian</i>	United Parcel Service (UPS)




## **RTCA Tactical Operations Committee**

Fifteenth Meeting  
October 27, 2016  
RTCA Headquarters



## **Welcome and Introductions**

Co-Chairs:  
Bryan Quigley, United Airlines  
Dale Wright, NATCA



**PUBLIC MEETING ANNOUNCEMENT**  
**Read by: Designated Federal Official Elizabeth Ray**  
**Tactical Operations Committee (TOC)**  
**October 27, 2016**

In accordance with the Federal Advisory Committee Act, this Advisory Committee meeting is OPEN TO THE PUBLIC.

Notice of the meeting was published in the Federal Register on:


**October 4, 2016**

Members of the public may address the committee with PRIOR APPROVAL of the chairman. This should be arranged in advance.

Only appointed members of the Advisory Committee may vote on any matter brought to a vote by the Chairman.

The public may present written material to the Advisory Committee at any time.

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**Topical Agenda**

- FAA Report
- Updates on Previous TOC Recommendations
  - WRTG NorCal Noise Initiative, Caribbean, Airport Construction, Class B, NPA
- Updates on Current Tasks: PBN RS & Graphical TFRs
- Overview of Aviation in Alaska
- FAA and Industry Ideas for Future TOC Effort
- Status of the NAC and the DAC

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## **Review and Approval of:**

**June 23, 2016  
Meeting Summary**

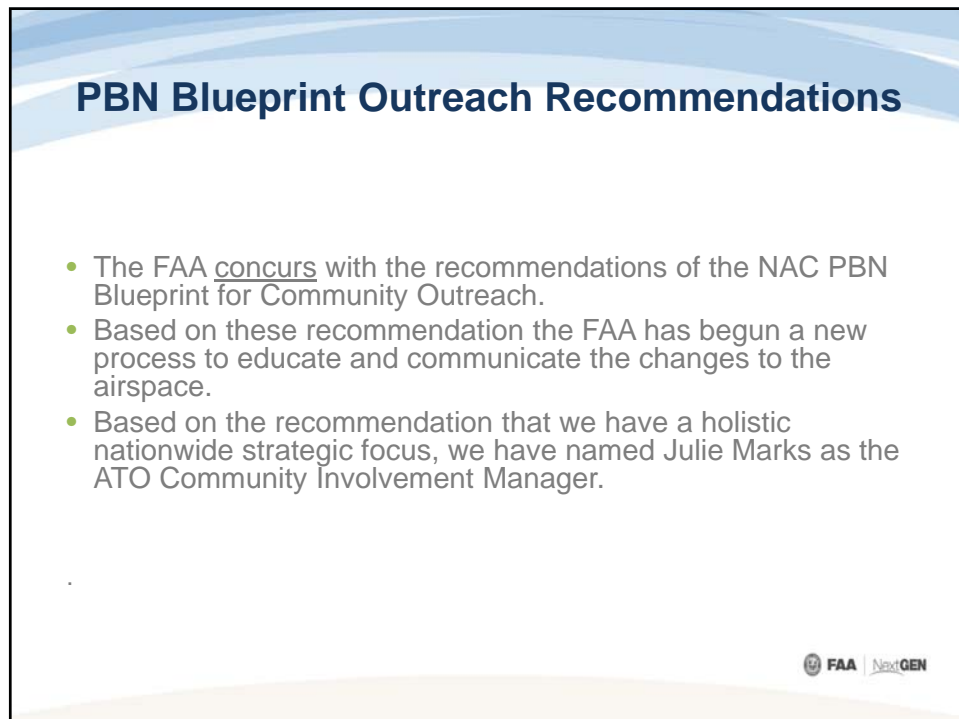
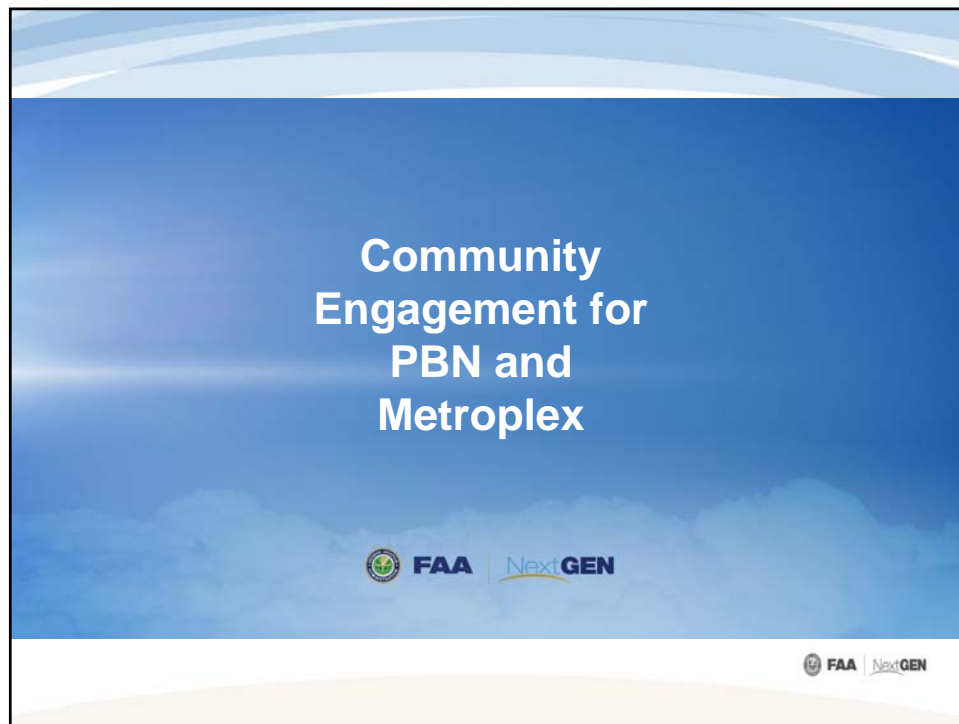
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## **FAA Report**

Elizabeth “Lynn” Ray  
Vice President, Mission Support Services  
Air Traffic Organization

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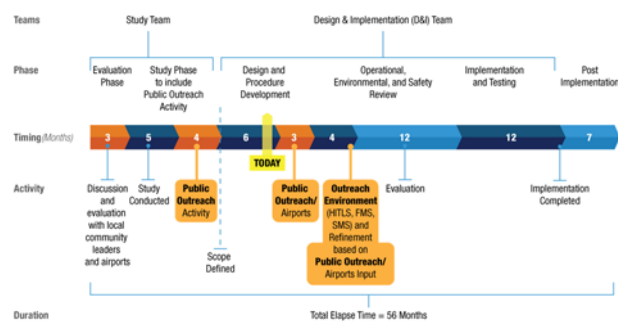
## New Way to Communicate

- Expanding our process to introduce multiple layers of engagement
- Making the collaborative process of Airspace redesign more transparent to:
  - + Airports
  - + Local, state and federal governments
  - + Community organizations
  - + General public



## Integrating Communication into the Process

### PBN and Metroplex Timeline

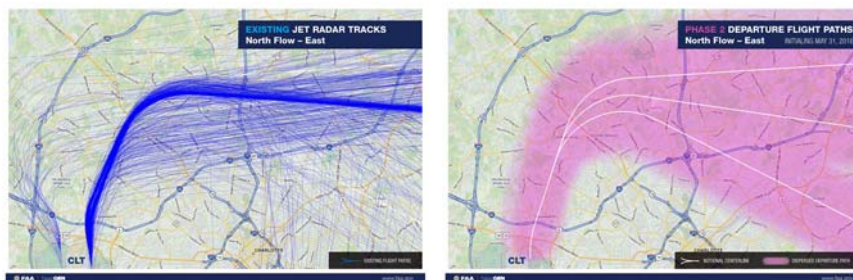


## Workshop Format

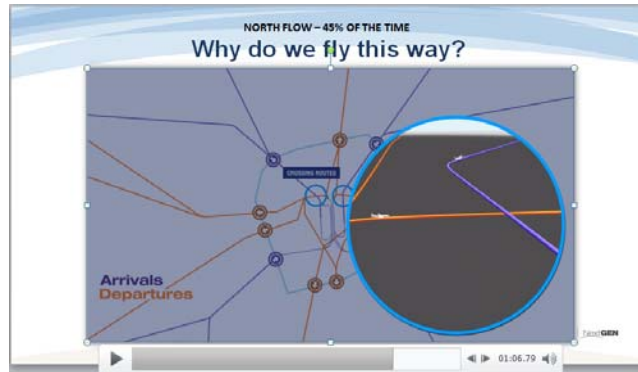
- One on One opportunity to educate and communicate about changes to the airspace
- Communicate how the environmental process works
- Give the community an opportunity to provide feedback



## Use Visuals to Translate Technology



## Explanation of Why We Fly This Way



## Community Engagement Website

Federal Aviation Administration

FAA Home Jobs News About FAA A-Z Index FAA for You

Aircraft Airports Air Traffic Data & Research Licenses & Certificates Regulations & Policies Training & Testing

NextGen

Performance Based Navigation (PBN) Dashboard

NextGen Videos

NextGen Updates 2016

Community Engagement

FAA Home > NextGen > Community Engagement

NextGen

Community Engagement - Southern California

Status of Engagement: Evaluation Phase

The Southern California NextGen is currently in the Evaluation Phase. The agency completed an environmental assessment, which included input received from the public. The FAA issued a Finding of No Significant Impact and decided to move forward with implementing the proposed NextGen project. As the FAA moves forward implementation of these provisions, we will update this page with details from past and upcoming meetings, and provide status information on the NextGen effort in your community.

Supplemental Materials:

Finding of No Significant Impact (FONSI) and Record of Decision (ROD) (PDF)

Update on Southern California Airspace Modernization (VDO) (PDF)

Southern California NextGen

Southern California NextGen Environmental Assessment (EA) (PDF)

Upcoming Public Meetings: TBD

Page last modified: Wednesday, 10/26/2016 11:00:00 AM EDT





## **Update on Previous TOC Recommendations**

- WRTG NorCal – Glen Martin & Steve May
- Class B – Gary Norek
- ERTG Caribbean – Crystal Toney
- Airport Construction – Chris Chesak
- National Procedure Assessment – Jose Alfonso

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# FAA NorCal Noise Initiative Status

Date: October 27, 2016



## Background

- **NorCal Metroplex**
  - FAA Began Phased Implementation in November 2014
- **Community Concerns**
  - Several grass roots organizations formed opposing NextGen
- **Congressional Engagement**
  - Farr, Eshoo, Speier
  - Requested that the FAA Administrator address the communities
- **Congressionally Hosted Community Meetings**
  - FAA attended three meetings during the Summer of 2015
- **NorCal Noise Initiative**
  - FAA published the NorCal Initiative Phase I Feasibility Report in May 2016



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## Select Committee on South Bay Arrivals

- **12 Appointed Officials (12 Alternates)**
  - Established by Congress on April 1
- **Public Meetings with Public Comments**
  - May 25, June 16, June 29
- **Working Meetings Open to the Public**
  - 8 meetings completed July thru October
  - 2 meetings scheduled in November
- **Select Committee Draft Report to Congress**
  - Publically released October 21<sup>st</sup>
  - Public comments during the October 27<sup>th</sup> Working Meeting
- **Select Committee Final Report to Congress**
  - Committee votes during the November 17<sup>th</sup> Working Meeting



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## FAA Feasibility Study Areas

- SFO Class B Amendment \*\*
- Transition the SERFR STAR Back to the BSR Ground Track Prior to EPICK (Still undecided)
- Increasing Percentage of NIITE Flights Which Remain on NIITE until at Least the NIITE Waypoint \*\*
- Create a New South Transition Point for the NIITE SID \*\*
- Increasing Percentage of CNDEL Flights Which Remain on CNDEL Until at Least the CNDEL Waypoint \*\*
- Improve Aircraft Set Up and Sequencing between Facilities \*\*

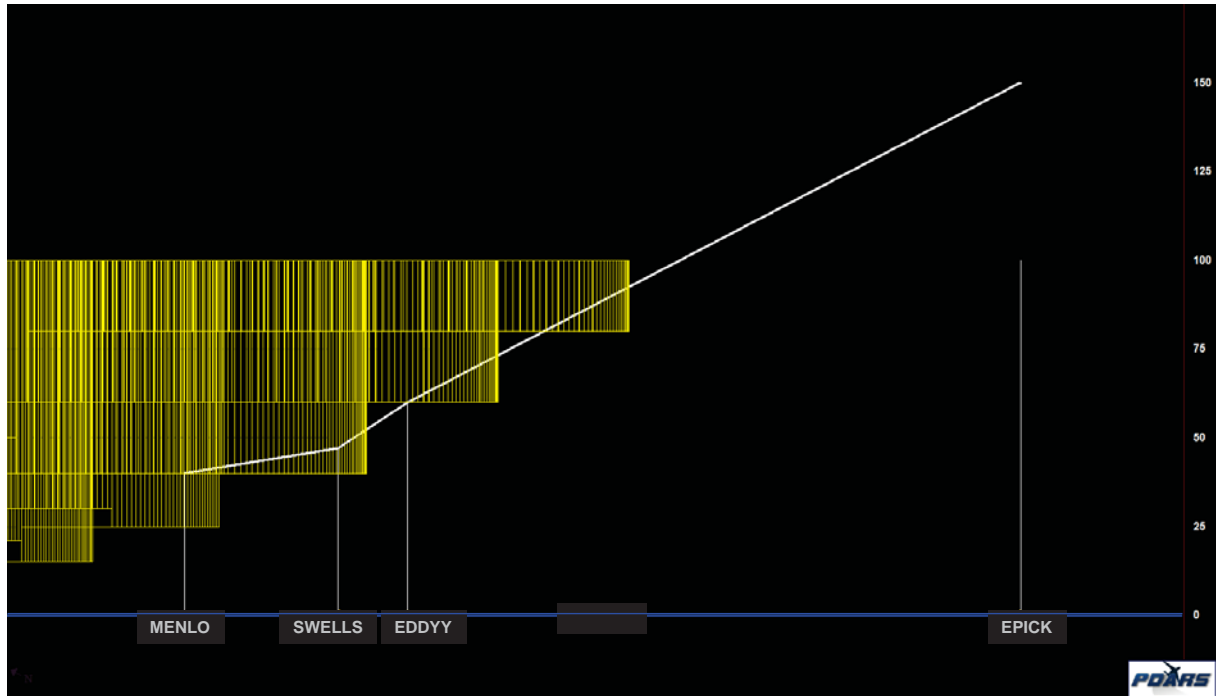
\*\* Recommended in their Draft



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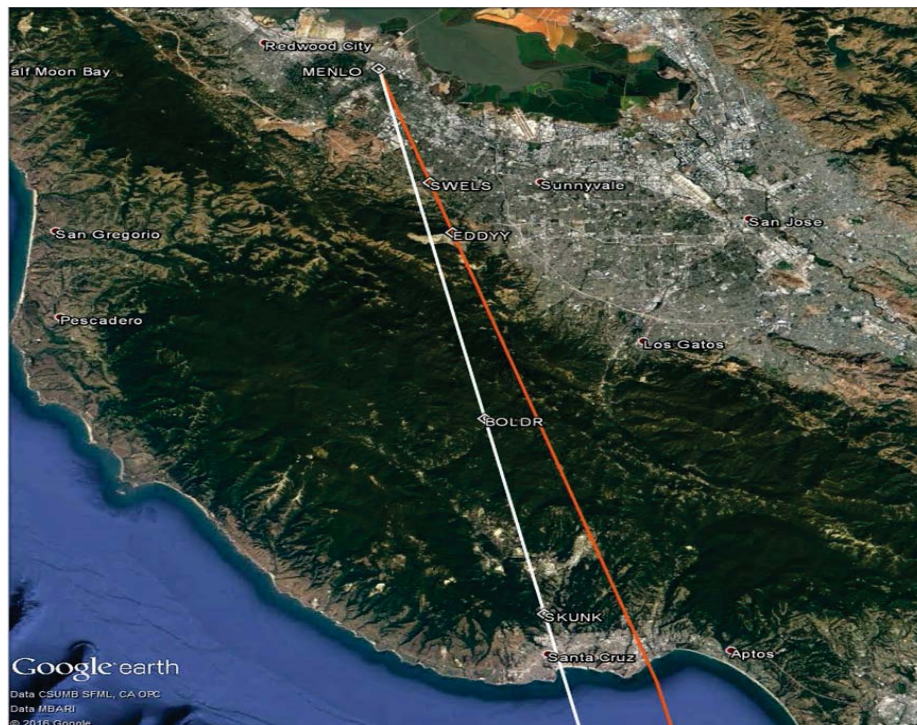


# SERFR Descent Profile



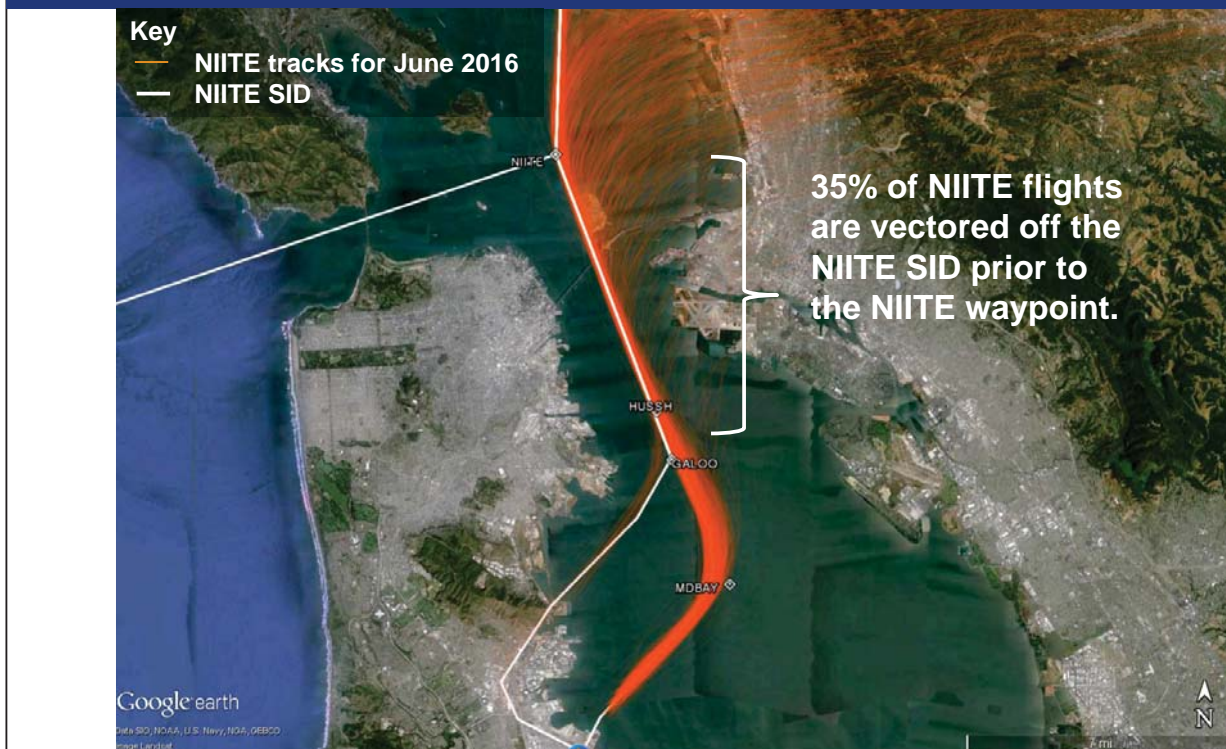
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## BSR and SERFR Ground Tracks



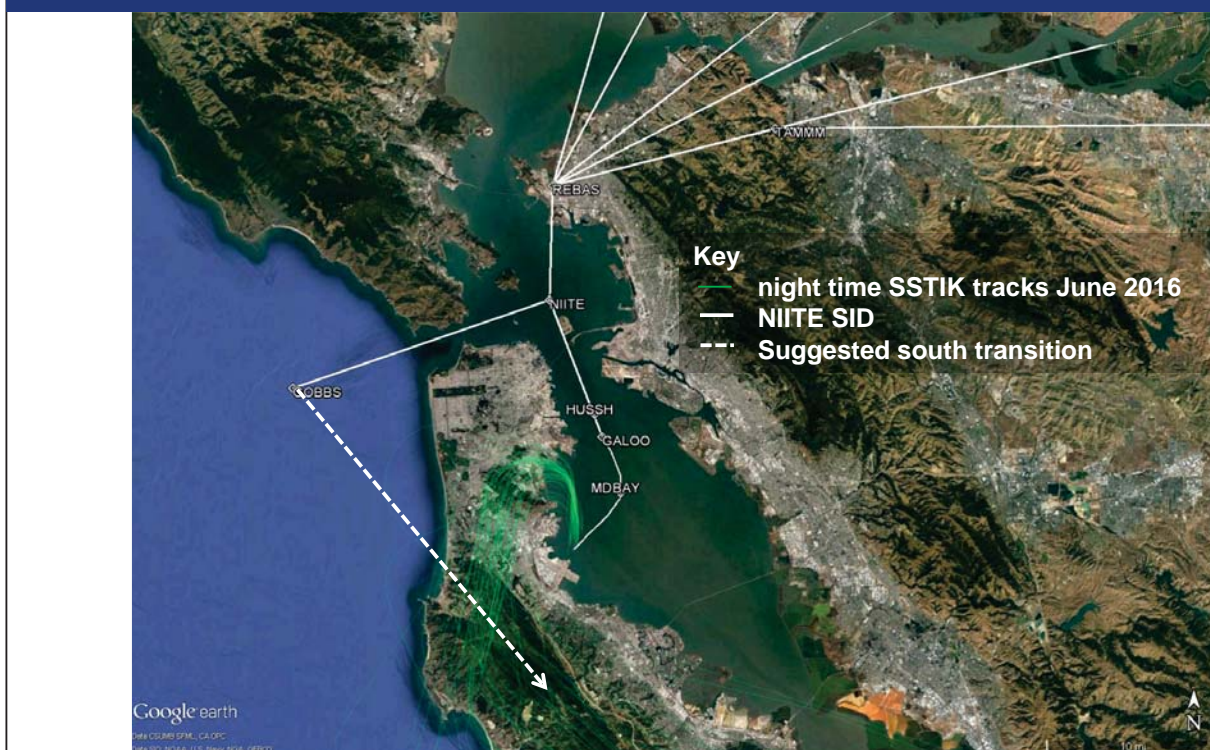
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# NIITE Flight Tracks June 2016



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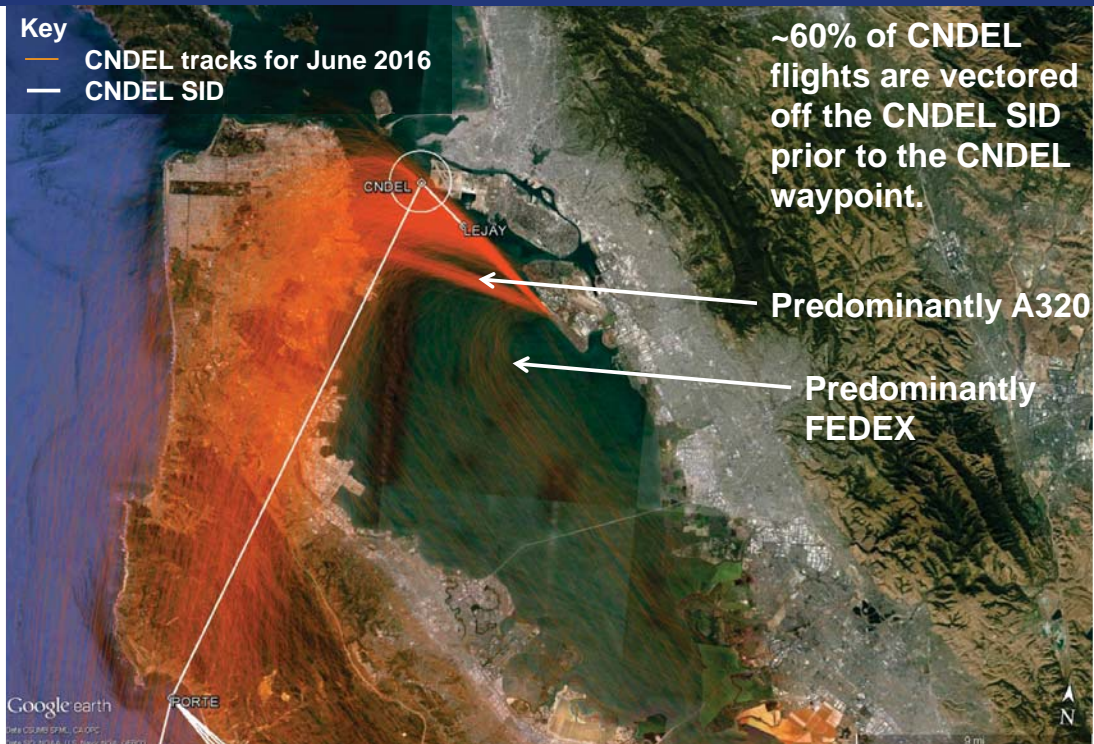
## Proposed South Transition on the NIITE SID



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# CNDEL Flight Tracks June 2016



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## Set Up and Sequencing

- **Terminal Sequencing and Spacing (TSS)**
  - Will reduce the number of course and altitude changes currently required for sequencing.
  - Will provide information to controllers about the speeds to assign for aircraft to achieve an OPD.
  - Will lessen the frequency of communications required between controllers and pilots.



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## Other Solutions Recommended (DRAFT)

- Airbus A320 Aircraft Family Wake Vortex Generators Retrofit
- Northern Arrivals (BDEGA) Use of East Leg over Bay
- Woodside VORTAC (Cross at or above 8000, OTA)
- Review Noise Abatement Procedures (Overnight)
- MENLO Waypoint crossing altitude and location
- Establish Smaller and More Numerous Altitude Control Windows on the New SERFR Arrival
- Increase glideslope on Runways 28R/L
- Increase the Altitude and Profile of Descents into SFO
- Increase All Altitudes
- Aircraft Vectoring (Compatible land use)
- Modify BRIXX Procedure into San Jose International Airport



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## MENLO waypoint



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## Other Solutions Dismissed (DRAFT)

- Modify NRRLI Waypoint on the First Leg of SERFR
- San Jose International Airport Reverse Flow: Aircraft Arrivals
- Redirect Southern Arrivals (SERFR) to an Eastern Approach into SFO
- Fan-in Overseas Arrivals (OCEANIC) into SFO
- Herringbone Approach to SFO Arrivals
- Return to Pre-NextGen Procedures, Altitudes, and Concentration



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## Longer Term Issues (Draft)

- Permanent entity to address noise throughout the region
- Congress review the Special Use Airspace for better balance
- Congress require FAA to adopt supplemental noise metrics
- FAA provide solutions and community/elected officials review
- FAA monitor noise before and after changes
- Ongoing compliance monitoring



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## Next Steps

- Expect Select Committee to vote on November 17, 2016, and forward recommendations to three Members of Congress
- FAA expects to receive recommendations (combined with SFO Roundtable recommendations) by Christmas
- Stakeholder coordination and collaboration
- FAA response within 3-4 months
- Actions will follow all safety and environmental processes



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# **Class B Airspace: Designation, Design and Evaluation**

## **FAA Action Plan for RTCA Recommendations**

Presented to: RTCA TOC

By: Gary Norek

Date: October 27, 2016



## **Background**

- The FAA reviewed the RTCA Tactical Operations Committee (TOC) Report from September 2015 titled, “Class B Airspace: Designation, Design and Evaluation”
- Based on the scope of the recommendations, the FAA recognized that significant time and effort would be required for the agency to research and develop these changes to Order 7400.2 for implementation.
- The RTCA made 18 recommendations.
- The FAA concurred with 17 of the 18 recommendations, non-concurring with Recommendation 12.

# Current Activity

- **Draft a Project Plan for Class B Designation, Design and Evaluation.**
  - Will provide accountability.
  - Needs community buy-in.
- **A draft revision is in progress to FAA Order JO 7400.2 Chapters**
  - 14 – Terminal and En Route Airspace.
  - 15 – Class B Airspace.
  - 16 – Class C Airspace.
  - These revisions to JO 7400.2 addresses, at least in part act on RTCA Recommendations 2, 5, 6, 7, 8, 9, 10, 11, 13, & 14.
- **Next steps for the draft revision**
  1. Format into a Document Change Proposal (DCP).
  2. Process by Mission Support Services, Air Traffic Procedures.
  3. Comments on the DCP must be collected and adjudicated.
  4. Finally publish in the 7400.2 document.
- **A request has been drafted for FAA participants to be on a Class B Work Group.**



# Activity Plans

- **Work will be in three segments**
  - FAA Headquarters will develop policy and publish it.
  - The FAA will gather data and analyze it.
  - FAA Service Center Operational Support Groups (OSGs) will strategically implement the policy.
- **Work plans will use the following phases**
  - Phase 1 – Pre-planning or study phase (we are here)
  - Phase 2 – Initiation, identify who needs to be involved
  - Phase 3 – Planning (initial meetings and beyond)
  - Phase 4 – Implementation
  - Phase 5 – Close-out



# Phase 1: Pre-Planning

- **Publish a DCP to JO 7400.2 with the revised policy (AJV-11).**
- **Selected site visits to Class B Airport Traffic Control Towers (Class B Work Group).**
- **Review Class B excursions through historic data and analyze 5, 10, and 20 year trends.**
- **Define classification criteria (Class B Work Group).**
- **Generate policy options and recommendations.**



# Phase 2: Initiation

- **Identify internal stakeholders.**
- **Identify external stakeholders.**



## Phase 3: Planning

- **Evaluate classification criteria (Class C Airspace) and design guidance.**
- **Public communication of findings and intent (Federal Register Notice).**
- **Public communication through organizations for GA and airlines (AJV-113).**
- **Evaluate Class B locations for potential changes (OSGs).**



## Phase 4: Implementation

- **Pilot training (AFS).**
- **ATC training (AJI).**
- **Charting (AJV-5).**
- **Analyze Safety Risk Management of proposed changes.**
- **Implement changes sequentially, after the Class B Work Group tasking is done (OSGs).**





## Phase 5: Close-Out

- Analyze impact of change & monitor any safety mitigations (OSG).



## External Stakeholders

RTCA TOC Recommendation #18 - *The FAA should utilize **one centralized and consistent package of information** across all public engagements.*

- Airlines for America (A4A)
- Air Line Pilots Association (ALPA)
- Aircraft Owners and Pilots Association (AOPA)
- National Business Aviation Association (NBAA)
- National Association of State Aviation Officials (NASAO)
- Regional Airline Association (RAA)
- Airlines with hub operations (United, Delta, American, Southwest)
- Principle airline (user) for an airport



# Timeline\*

- **Spring 2017 – Phase 1: Pre-Planning**
- **Spring 2017 – Phase 2: Initiation**
- **Winter 2018 – Phase 3: Planning**
- **Fall 2018 – Phase 4: Implementation**
- **Winter 2019 – Phase 5: Close-Out**

**\*Note: Timeline is tentative**



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## Backup Slides



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# Class B Work Group

AJV-113 – Mission Support, Airspace Services, Office of Policy & Rulemaking (Group Leadership)	AFS 800 – Flight Standards General Aviation and Commercial Division
AJV Operational Support Group (OSG) Airspace Specialists (3)	AFS 400 – Flight Standards Flight Technologies and Procedures Division
AJV-8 Mission Support, Air Traffic Procedures	AFS 200 – Flight Standards Air Transportation Division
NATCA Representative	AJV-7 Mission Support, Requirements
A current Class B SME	AJT-2 – Air Traffic Operations
ARP - Airports	AJI – ATO Safety & Technical Training
AJG – ATO Management Services	AGC – FAA Counsel
MITRE	

## *Resources to the Class B Work Group (as needed)*

<b>Members of the TOC</b>	AJV-5 Aeronautical Information Services
Phil Santos (FedEx)	AJR-13 SysOps, System Efficiency Group
Melissa McCaffrey (AOPA)	FAA Labor Management Relations



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# Community Involvement Plan

- ***FAA Community Involvement Manual list of “FAA Actions That Could Generate Community Interest” has Airspace changes as the first item***
- ***Elements of a Community Involvement Process are***
  - Awareness
  - Transparency
  - Inclusivity
  - Consistency
- ***Community Involvement Project Life Cycle***
  - Phase 1 – Pre-planning or study phase (we are here)
  - Phase 2 – Initiation, identify who needs to be involved
  - Phase 3 – Planning (initial meetings and beyond)
  - Phase 4 – Implementation
  - Phase 5 – Close-out



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## RTCA Recommendations 1-6 of 18

1. The FAA should remove the enplanement and air carrier/air taxi quantitative criteria.
2. Total Airport Operations counts should also include traffic from secondary airports and overflights.
3. An airspace complexity index should be developed to address airspace considerations beyond that of Total Airport Operations.
4. Criteria should be developed for airports with strong seasonal or time of day demand surges.
5. Use available safety data to more directly assess airspace complexity issues and mitigations.
6. Provide more guidance on how operational issues can be addressed without the Class B designation.



## RTCA Recommendations 7-12 of 18

7. The FAA should periodically review Class B designation criteria to determine whether they should be adjusted.
8. Remove existing guidance indicating design should be centered on a NAVAID and amend guidance to ensure designers leverage the flexibility to configure airspace that maintains Class B safety standards.
9. Require a review of Class B airspace and instrument procedures whenever new runways are built, existing runway changes occur (e.g. decommissioned, lengthened, or shortened) or when procedures are developed or old ones canceled.
10. Encourage designers to make maximum use of existing tools to accommodate visual flight rules (VFR) flights through or around Class B airspace.
11. Evaluate lateral and vertical gaps between adjacent airspace where VFR flight has the potential to increase hazards for Class B or Class C operations.
12. **Recommend introduction of an altitude buffer between protected instrument flight rules (IFR) airplanes and VFR aircraft.** (note: ATO does not concur with this recommendation)



# RTCA Recommendations 13-18 of 18

13. Ensure all Class B Terminal Area Charts include information on IFR arrival/departure routes to/from the primary airport and explore possibility of extending to include secondary airports.
14. Update FAA Order 7400.2 with additional guidance on data sources relevant for the biennial review.
15. Develop criteria for identifying when Class B airspace should be revoked.
16. Outline a process for revoking Class B airspace.
17. Conduct further public engagement before implementation of any design, designation and evaluation changes to Class B guidance.
18. Whether communicating draft language or a Final Rule of changes to the Class B guidance, the group recommends the FAA utilize one centralized and consistent package of information across all public engagements.



## Background

- The FAA reviewed the RTCA Tactical Operations Committee (TOC) Report from September 2015 titled, “Class B Airspace: Designation, Design and Evaluation”
- The report is comprehensive and a number of recommendations will require the FAA examine existing practices
- Based on the scope of the recommendations, the FAA recognizes that significant time and effort will be required for the agency to research and develop these changes to Order 7400.2 for implementation
  - These changes will not be made quickly and will require an adequate program management plan to handle a project of this magnitude
- The FAA concurs with all recommendations except one



# Recommendation 1

- ***The FAA should remove the enplanement and air carrier/air taxi quantitative criteria.***
  - The FAA concurs but has the following comments
  - The FAA does not see a correlation between enplanements and the stated purpose of *reducing the potential for midair collisions in the airspace surrounding airports with high density air traffic ops*
  - The FAA also recognizes the potential for a more complex operation when considering secondary airports (as Class C does) versus just the primary airport with at least 240K air carrier/taxi ops of a min 300K.
    - Would a smaller percent to the primary coupled with secondary mixed ops lead to a higher complexity index?
  - The FAA must further study options for what a complexity index looks like and analyze why enplanements have been used as a criteria for Class B. Was it simply harmonizing with ICAO? Until we develop what the new criteria is we cannot act on this.
    - We need to analyze the rationale to determine if it still applies today.



# Recommendation 2

- ***Total Airport Operations counts should also include traffic from secondary airports and overflights.***
  - The FAA concurs
  - Analyzing why Class C considers secondary airports and Class B doesn't needs to be discussed? If the stated outcome for a Class B is
    - reducing the potential for midair collisions in the airspace surrounding airports with high density air traffic ops
  - And the stated outcome for a Class C is
    - designed to improve aviation safety by reducing the risk of midair collisions in the terminal area and enhance the management of air traffic ops therein
  - Why does one consider secondary airports and the other doesn't
  - We need to define why and when a secondary airport will be considered and type or volume of traffic in and out or by distance from the primary airport and other considerations



## Recommendation 3

- ***An airspace complexity index should be developed to address airspace considerations beyond that of Total Airport Operations.***
  - The FAA concurs
  - The development of a Complexity Index will require a study. Our research has found 4 “complexity” and “index” related products from Civil Aerospace Medical Institute
  - Leveraging a study which identifies all factors taken from controllers and pilots who operate within Class B airspace, would assist in developing policy for future design
  - RTCA provided considerations
    - SAA
    - Traffic Counts
    - Secondary Airport ops
    - Terrain
  - Factoring complexity could provide for a sliding scale of total ops due to the complexity considered



## Recommendation 4

- ***Criteria should be developed for airports with strong seasonal or time of day demand surges.***
  - The FAA concurs
  - RTCA supports full time Class B ops for airports that annualize the Class B threshold but only for part of the year
  - The FAA needs to further study whether part-time Class B airspace is feasible
  - We have part-time airspace for other classes of airspace, why not Class B
  - Other considerations would be charting, outreach, facility staffing



## Recommendation 5

- ***Use available safety data to more directly assess airspace complexity issues and mitigations.***
  - The FAA concurs
  - The FAA will continue development of the recommendation further to address the availability of relevant databases and determine how to use the data in Class B analysis
    - These reports will be a component of the complexity index
  - The limited ability of the OSG's to access robust safety databases was identified by the TOC
  - When the Complexity Index is studied different safety databases need to be identified and included into the Index



## Recommendation 6

- ***Provide more guidance on how operational issues can be addressed without the Class B designation.***
  - The FAA concurs
  - Allowing more flexibility for Class C expansion provides the opportunity to capture the stated goal reducing midair collisions on a smaller scale
    - Class B airspace is considerably smaller than Class C airspace
  - There is a need for more substantial guidance from HQ to the OSGs
    - This guidance needs to be developed
    - Current language of safety seminars and improved radar services needs to be expanded upon
  - “Sticking to the design” is inflexible. i.e. Memphis





## Recommendation 7

- ***The FAA should periodically review Class B designation criteria to determine whether they should be adjusted.***
  - The FAA concurs
  - The TOC suggestion is to mandate a HQ policy review of policy for Class B airspace criteria on a recurring basis
  - Whether we write it into the 7400.2 or internally mandate a review, the FAA agrees
    - Arguably, a review of all classes of airspace should be done at the policy level
  - Manning and competing priorities are always a consideration



## Recommendation 8

- ***Remove existing guidance indicating design should be centered on a NAVAID [Navigational Aid] and amend guidance to ensure designers leverage the flexibility to configure airspace that maintains Class B safety standards. (Being addressed in 7400.2 rewrite)***
  - The FAA concurs
    - We are amending the guidance to deemphasize both centering the Class B on a NAVAID and using the circular, upside down wedding cake configuration
  - Instead, other methods, such as latitude/longitude coordinates, waypoints, etc., may be considered for defining the airspace
  - There will be no “standard” design
    - Design will vary depending on location-specific ATC operational requirements, runway alignment and containment of instrument procedures
  - The option will be retained to center the airspace on a NAVAID where that makes sense for the local situation



## Recommendation 9

- ***Require a review of Class B airspace and instrument procedures whenever new runways are built, existing runway changes occur (e.g. decommissioned, lengthened, or shortened) or when procedures are developed or old ones canceled. (Being addressed in 7400.2 rewrite)***
  - The FAA concurs
    - These factors are being added to an expanded list to be considered during the Service Center's required periodic evaluation of Class B airspace areas
  - The TOC relayed concerns with the development of PBN approaches.
    - Our policy is to contain new approaches in existing Class B airspace
    - If a new approach is developed that does not remain in Class B airspace the new approach will be delayed until the Class B has been modified



## Recommendation 10

- ***Encourage designers to make maximum use of existing tools to accommodate VFR flights through or around Class B airspace. (Being addressed in 7400.2 rewrite)***
  - The FAA concurs
  - We are developing guidance for enhancing the VFR Terminal Area Chart (TAC) and the VFR Flyway Planning Chart by adding VFR waypoints, VFR checkpoints, GPS waypoints, prominent landmarks and geographical features easily visible from the air
  - Additionally, there are 8 Class B areas that do not have a VFR Flying Planning chart on the reverse side of the TAC chart
    - All locations will be encouraged to create such a chart



# Recommendation 11

- ***Evaluate lateral and vertical gaps between adjacent airspace where VFR flight has the potential to increase hazards for Class B or Class C operations.***
  - The FAA concurs
  - Congested airspace areas with overlapping B/C/D airspace occasionally have gaps and lead VFR aircraft very little room to operate
    - At times only hundreds of feet are available to “shoot the gap”
  - When developing airspace these tunnels or gaps of airspace need to be considered and evaluated to determine if there is enough room to safely operate and if not then join the different types of airspace to avoid these gaps



# Recommendation 12

- ***Recommend introduction of an altitude buffer between protected IFR airplanes and VFR aircraft.***
  - The FAA **Non-Concurs**
  - Most TCAS incidents happen just outside of Class B or Class C airspace due to the presence of VFR aircraft and IFR aircraft in close legal proximity
  - Building a buffer would push VFR aircraft further away and compress their potential flying area even more



## Recommendation 13

- ***Ensure all Class B Terminal Area Charts include information on IFR arrival/departure routes to/from the primary airport and explore possibility of extending to include secondary airports.***
  - The FAA concurs
  - The FAA intends on adding this to the 7400.2 which suggests charting will be coordinated with AIS
  - In concert with recommendation 10 to enhance terminal charts for all Class B airspace and have a VFR Flying planning chart



## Recommendation 14

- ***Update FAA Order 7400.2 with additional guidance on data sources relevant for the biennial review. (Being addressed in 7400.2 rewrite)***
  - The FAA concurs
  - We have created a list of suggested data sources that will be added to the biennial review paragraph
    - Airspace modeling results (PDARS, Targets)
    - TCAS RAs
    - Safety reports (ATSAP, ASRS)



## Recommendation 15

- ***Develop criteria for identifying when Class B airspace should be revoked.***
  - The FAA concurs
  - Consideration of a baseline below the percentage for a period of time needs to be studied
    - Below 80% for 3 years
  - Development of a complexity index would need to be considered as well
  - What are the ramifications of downgrade of airspace and union participation



## Recommendation 16

- ***Outline a process for revoking Class B airspace.***
  - The FAA concurs
  - In addition to recommendation #15 upon developing criteria we will need to define the process to revoke



## Recommendation 17

- ***Conduct further public engagement before implementation of any design, designation and evaluation changes to Class B guidance.***
  - The FAA concurs
  - The workgroup deciding the changes for Class B design will decide the level of informal outreach capable, depending on resources
  - Community meetings and at what level?
    - NAS, regional, local to the Class B airspace
  - Additionally on-line options could be held as well



## Recommendation 18

- ***Whether communicating draft language or a Final Rule of changes to the Class B guidance, the group recommends the FAA utilize one centralized and consistent package of information across all public engagements.***
  - The FAA concurs
  - A Notice of Proposed Policy change will be posted to the Federal Register for comment



## Strategy for Enhancing Air Traffic in the Caribbean

ATO Status Update presented to  
the RTCA Tactical Operations  
Committee

Presented to: Tactical Operations Committee  
By: Crystal Toney, PMO Caribbean  
Project Lead  
Date: October 27, 2016



## Agenda

- Background
- Evaluation Criteria
- Strategic Approach
- Initiative Updates
- Next Steps

## Background (*since last TOC meeting*)

- On July 6<sup>th</sup>, 2016, the FAA's RTCA Caribbean response team conducted a steering committee meeting. The meeting agenda focused on identifying and committing short term goals, and understanding long term goals.
- On September 1<sup>st</sup>, 2016, the FAA presented preliminary airspace study findings to the RTCA TOC.
- On October 11<sup>th</sup>, 2016, a second Steering Committee Meeting was held to further define tactical and strategic goals, along with initiative updates.



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## Initiative Evaluation Criteria

As research progressed, and with input from the steering committee, the initiatives have been re-categorized to more accurately reflect the projections.

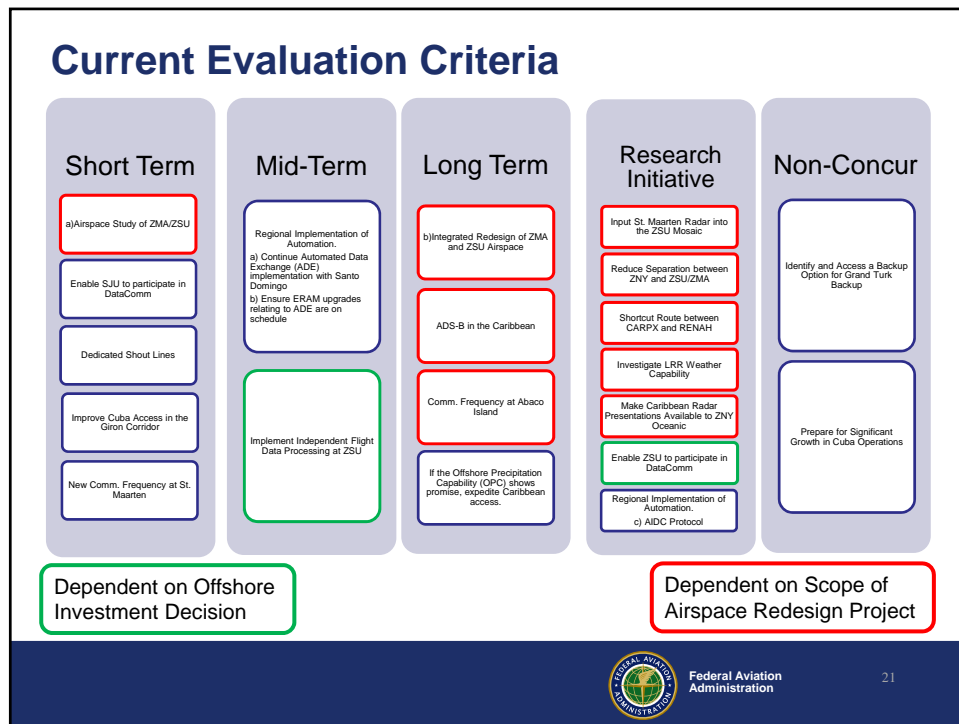
Previous		Current	
	Description		Description
1	FAA concurs with initiative. No additional research is required. International agreement and interdependencies are required	Short Term	Identified as an Agency FY17 goal OR expected to be funded by FY18
2	FAA concurs with initiative. Additional research regarding operations and/or technical interdependencies are required	Mid-Term	Initiative falls under existing FAA Program/Project requirements for validation and funding decision, if approved. (Requires Joint Resource Counsel (JRC) approval)
3	FAA concurs with initiative. Additional research regarding operations and/or technical interdependencies are required. Investment decision not yet made (requires JRC-level approval or disapproval)	Long Term	Initiative to be bundled with other Caribbean initiatives, investment decision not yet made. (JRC process not yet started)
4	FAA does not concur with moving forward with this initiative, not pursuing at this time	Research Initiative	Additional research regarding operations and/or technical interdependencies are required.
		Non-Concur	FAA does not concur with moving forward with this initiative, not pursuing at this time



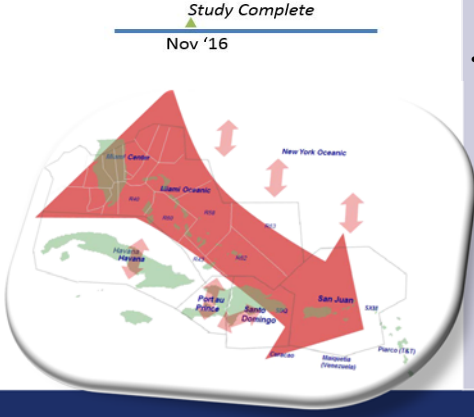
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## Short Term Initiatives

Description	ROM Cost	Update	Targets
<b>Complete an Airspace Study of ZMA and ZSU</b> 	\$300K (AJV)	<ul style="list-style-type: none"> <li>Purpose is to identify, characterize and quantify operational issues that may benefit from airspace and procedure changes.</li> <li>The study will inform FAA actions to address RTCA recommendations on Airspace Priorities</li> </ul>	<ul style="list-style-type: none"> <li>Draft study complete targeted Fall, 2016.</li> <li>Final study complete targeted February, 2017.</li> <li>Multiple development and coordination meetings scheduled with ZMA and ZSU through final report delivery.</li> <li>This is an FY17 goal.</li> </ul>

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## Short Term Initiatives

Description	Update	Targets
<b>Implement DataComm at San Juan ATCT (SJU)</b> 	<ul style="list-style-type: none"> <li>The TOC recommended implementing DataComm at ZSU CERAP.</li> <li>Current Offshore Study will determine the best national solution for services at CERAPs. This analysis will consider improvements provided by future services including those in DataComm Phase 2</li> <li>San Juan Tower has been added to the DataComm waterfall schedule for FY17 implementation.</li> <li>This will allow SJU to take advantage of digital departure clearance services which improve efficiency.</li> </ul> <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> <b>FLIGHT NGA101</b>  PILOT:  WILCO </div> <div style="font-size: 2em; margin: 0 10px;">←</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> <b>DATA COMM</b>  FLIGHT NGA101  INSTRUCTION:  WEATHER RE-ROUTE </div> <div style="font-size: 2em; margin: 0 10px;">→</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> <b>ROM Cost</b>  Funding fell under existing  DataComm program </div> <div style="font-size: 2em; margin: 0 10px;">←</div>  </div>	<ul style="list-style-type: none"> <li>IOC capability, FY17.</li> <li>No International agreement needed.</li> </ul>


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## Short Term Initiatives

Description	Update	Targets	ROM Cost
<b>Install Dedicated Shout Lines with International Facilities</b> 	<ul style="list-style-type: none"> <li>A direct line between facilities for a Controller to 'shout' to another facility without dialing and/or waiting for the other end to answer.</li> <li>The TOC recommended 4 locations:               <ul style="list-style-type: none"> <li>Beef Island, USVI (TUPJ)</li> <li>Piarco, Trinidad and Tobago (TTZP)</li> <li>Maiquetia, Venezuela (SVMJ)</li> <li>Curacao (TNCC)</li> </ul> </li> <li>The FAA is considering alternatives to open shout lines for quicker implementation.</li> <li>Letters of Agreement are in place, but may need updating for shout line procedures.</li> </ul>	<ul style="list-style-type: none"> <li>Improved voice communications will be implemented at 2 out of 4 sites within FY17.</li> <li>This is an FY17 goal.</li> </ul>	\$130K

Validate Open voice communication at 2 Caribbean Sites  
Sept '17

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## Short Term Initiatives


Description	Update	Targets	ROM Cost
<b>Improve Short Term Cuba Access in the Giron Corridor</b> 	<ul style="list-style-type: none"> <li>US airspace warning area changes published September 15, 2016, expanded the Giron corridor which would allow 2 new routes to be implemented.</li> <li>Two Area Navigation (RNAV) routes currently being developed by ZMA.</li> <li>FAA delegation visited Cuba September, 2016 and presented two new coordination points for point-to-point navigation through the Giron Corridor.</li> </ul>	<ul style="list-style-type: none"> <li>FAA plans on publishing these way points this fall.</li> <li>Havana was amenable to the FAA proposal, but requires additional coordination with the Cuban government before any LOA can be signed.</li> </ul> 	\$400K (LOE)

**Current Challenges**

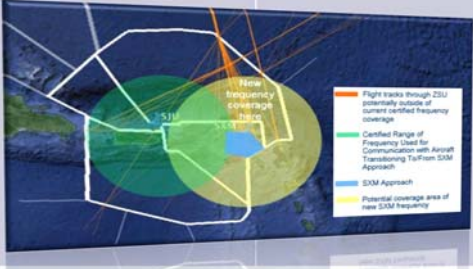
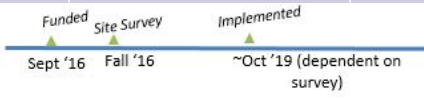
- Single Airway
  - Opposite direction Flow
  - Climbing and Descending Traffic
  - Overflight Traffic
- Increased Complexity
  - Warning Areas Activation
  - Weather Deviations
- Improved US/Cuba Relations
  - Arrivals/Departures to/from Cuba anticipated to more than double in the near future

**Notional Future Design**

- North-South Uni-directional RNAV Routes
- Waypoints to be published this Fall
- Point to Point navigation until routes published

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## Short Term Initiatives

Description	Update	Targets	ROM Cost
<b>Install new communications frequency at St. Maarten</b>  <p>The map displays the island of St. Maarten with various flight tracks (orange lines) passing through the ZSU (Zuid-Atlantische Zuidoost) area. A green circle indicates the 'Certified Range of Frequency Used for Communication with Aircraft Transpondering Traffic From SSM Approach'. A yellow circle indicates the 'Potential coverage area of new ZSU frequency'. A legend on the right explains these symbols.</p>	<ul style="list-style-type: none"> <li>A new frequency that extends ZSU's communication reach in the Northeast Oceanic quadrant of ZSU CERAP Airspace.</li> <li>New FAA/PJIA Air Navigation Service (ANS) agreement under review.</li> </ul>	<ul style="list-style-type: none"> <li>New frequency site has been added to the Communications Facility Enhancement (CFE) program, which is funded in FY17.</li> <li>Draft annex to be updated and finalized.</li> <li>Site visit completed October, 2016 regarding infrastructure and equipment location.</li> <li>Draft implementation schedule is being developed based on site visit.</li> </ul>	\$350K (est)
 <p>The timeline shows the progression of the initiative: 'Funded' in Sept '16, 'Site Survey' in Fall '16, and 'Implemented' in ~Oct '19 (dependent on survey).</p>			



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## Mid-Term Initiatives

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Mid-Term Initiatives			
Initiative Description	Updates	Category, Risks, Approach	ROM Cost
Regional Implementation of Automation. a) Continue Automated Data Exchange (ADE) implementation with Santo Domingo	<ul style="list-style-type: none"> <li>Santo Domingo ADE developed through Class 3, FAA ADE is developed through Class 2.</li> <li>Class 1 – Transfer of current flight plan information and time over given fix. Flight plan changes and transfer of control is completed manually via voice communication.</li> <li>Class 2 – Includes all of Class 1 and any flight plan changes are transmitted via ADE.</li> </ul>	<ul style="list-style-type: none"> <li>Preliminary testing found interface issues with the Dominican software:               <ul style="list-style-type: none"> <li>Design of the Software would not allow testing, implementation, and training in phases (based on the data classes).</li> </ul> </li> <li>They are re-engineering their software solution to correct this issue.</li> <li>Current procedural LOA's will need to be updated for Automated Data Exchange.</li> </ul>	\$400K Class 1 & 2
Regional Implementation of Automation. b) Ensure ERAM upgrades relating to ADE are on schedule	<ul style="list-style-type: none"> <li>This refers to Class 3 data – Automated Handoff's and Point out's.</li> <li>Part of the ERAM Sector Enhancement Program Segment 2, which is in the investment analysis phase for a funding decision.</li> </ul>	<ul style="list-style-type: none"> <li>Dependent on Final Investment Decision – targeted between 2019 and 2021.</li> </ul> 	\$30M*  <i>*Based on no efficiencies with NavCan implementation</i>
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Mid-Term Initiatives			
Initiative Description	Updates	Category, Risks, Approach	ROM Cost
Implement Independent Flight Data Processing for ZSU	<ul style="list-style-type: none"> <li>The Offshore Replacement program is considering multiple solutions for ZSU infrastructure improvements.</li> <li>Program Investment Analysis Readiness Decision (IARD) tentatively scheduled for December, 2016. (To evaluate alternatives)</li> </ul> 	<b>Mid Term</b> <ul style="list-style-type: none"> <li>Potential for IARD delay until 1Q of CY17</li> <li>Implementation is funding and investment decision dependent. Implementation would be 2019 and beyond.</li> <li>Final Investment Decision expected December, 2017.</li> </ul>	TBD
<div style="border: 1px solid green; padding: 5px; display: inline-block;">Dependent on Offshore Investment Decision</div>  Federal Aviation Administration <span style="float: right;">30</span>			

## Long Term Initiatives

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## Long Term Initiatives

Initiative Description	Updates	Category, Risks, Approach	ROM Cost
Conduct an Integrated Redesign of ZMA and ZSU Airspace	<ul style="list-style-type: none"> <li>Work can begin on a redesign once the airspace study is complete and results are analyzed.</li> </ul>	<b>Long Term</b> <ul style="list-style-type: none"> <li>Study will be complete in FY17 which will start the design, then subsequent implementation phase.</li> </ul>	\$1.5M
Implement ADS-B in the Caribbean	<ul style="list-style-type: none"> <li>Requires Cost/Benefit analysis and JRC approval.</li> </ul>	<b>Long Term</b> <ul style="list-style-type: none"> <li>International agreement required.</li> </ul>	\$9M
Implement a New Communications Frequency at Abaco Island	<ul style="list-style-type: none"> <li>There are no existing agreements in place for the installation of new FAA-owned equipment in the Bahamas. Previous agreement negotiations with the Bahamas have been protracted.</li> </ul>	<b>Long Term</b> <ul style="list-style-type: none"> <li>Implementation will take 18-36 months from project start date.</li> <li>International agreement required.</li> </ul>	\$750K
If the Offshore Precipitation Capability (OPC) shows promise, expedite Caribbean access.	<ul style="list-style-type: none"> <li>Found to provide more coverage as compared to NEXRAD.</li> <li>Tested at ZMA and ZHU with positive controller feedback this past summer.</li> <li>Investment decision options are being explored.</li> </ul>	<b>Long Term</b> <ul style="list-style-type: none"> <li>Being evaluated for inclusion in NextGen Weather Processor (NWP).</li> </ul>	\$807K for algorithm evaluation.  \$8.7M for inclusion in NWP.

Dependent on Scope of Airspace Redesign Project

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## Research Initiatives

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## Research Initiatives

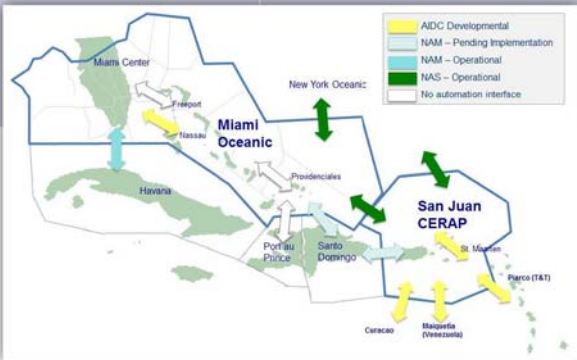

Initiative Description	Updates	Category, Risks, Approach	ROM Cost
Input St. Maarten Radar into the ZSU Mosaic	<ul style="list-style-type: none"> <li>Data sharing agreement needed – including what data will be shared and how it will be used.</li> <li>MEVA system is being used across the Caribbean region. <ul style="list-style-type: none"> <li>The FAA has never used MEVA for Radar data sharing due to unknown reliability and data accuracy.</li> </ul> </li> </ul>	<b>Research Initiative</b> <ul style="list-style-type: none"> <li>FAA policy prohibits certain data sharing, need to research what is allowed and what is prohibited.</li> <li>International agreements will be required.</li> </ul>	\$650K
Explore Options to Reduce Separation between ZNY and ZSU/ZMA	<ul style="list-style-type: none"> <li>ZMA-ZNY: Procedures between ZNY and ZMA have been developed and are in final coordination for publication in FAA JO 7110.65.</li> <li>ZSU-ZNY: VHF Communications gap between ZNY and ZSU limits procedural options.</li> </ul>	<b>Research Initiative</b> <ul style="list-style-type: none"> <li>ZMA-ZNY <ul style="list-style-type: none"> <li>Procedures expected to be published in FY17 to take advantage of Reduced Oceanic Separation Standards.</li> </ul> </li> <li>ZSU-ZNY <ul style="list-style-type: none"> <li>Exploring spectrum analysis for communications gap.</li> </ul> </li> </ul>	\$400K (LOE)
Implement a Shortcut Route between CARPX and RENAH	<ul style="list-style-type: none"> <li>ZNY and ZMA are open to an LOA defining the shortcut and procedures.</li> <li>Potentially requires a boundary change and ICAO coordination.</li> </ul>	<b>Research Initiative</b> <ul style="list-style-type: none"> <li>Spectrum analysis needed.</li> </ul>	\$400K (LOE)
<div>Dependent on Scope of Airspace Redesign Project</div> <div>  Federal Aviation Administration </div>			

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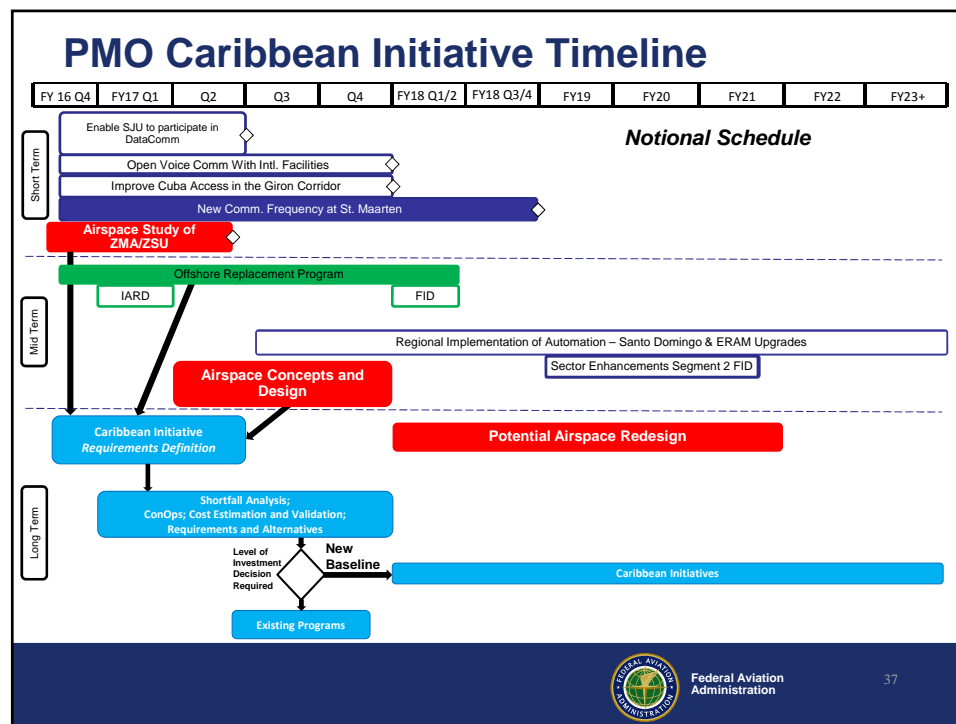


Research Initiatives			
Initiative Description	Updates	Category, Risks, Approach	ROM Cost
Investigate LRR Weather Capability from DoD/DHS	<ul style="list-style-type: none"> <li>The DOD/DHS radars have not been maintained or funded by the FAA.</li> <li>The radars have been upgraded with no investment from the FAA.</li> <li>The radars are currently not certified to provide weather information.</li> <li>The FAA is investigating short term opportunities to use the weather from these radars.</li> </ul>	<b>Research Initiative</b> <ul style="list-style-type: none"> <li>Short term research ongoing.</li> <li>There is a potential longer term opportunity where the Multiagency Spectrum Efficient National Surveillance Radar (SENSR) program is evaluating replacing L-band radars (LRR) with S-band radars (which can potentially include weather).</li> </ul>	N/A
Make Caribbean Radar Presentations Available to ZNY Oceanic	<ul style="list-style-type: none"> <li>Benefit for ZNY Oceanic controllers to have 'heads up' about aircraft coming into the center via manual coordination.</li> <li>Data Storage to ingest Radar data is limited within ATOP at ZNY.</li> <li>ZNY's first choice Grand Turk, Freeport, St. Maarten.</li> </ul>	<b>Research Initiative</b> <ul style="list-style-type: none"> <li>Evaluating a phased approach due to data storage issues in ATOP.</li> <li>St. Maarten will require an international agreement.</li> <li>Assessing benefits and needed ATOP work.</li> </ul>	TBD
Enable ZSU to participate in DataComm	<ul style="list-style-type: none"> <li>No current development plan for CERAP facilities. (See Slide 8)</li> <li>Offshore replacement could explore this initiative with upgrade of CERAP automation platform.</li> </ul>	<b>Research Initiative</b>	TBD
<div> <div>Dependent on Scope of Airspace Redesign Project</div> <div>Dependent on Offshore Investment Decision</div> <div>  Federal Aviation Administration </div> </div>			

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Research Initiatives			
Initiative Description	Updates	Category, Risks, Approach	ROM Cost
Regional Implementation of Automation.  c) Develop software translation with AIDC protocol	<ul style="list-style-type: none"> <li>There is no software translator to allow protocol interoperability between NAM ICD (FAA) and AIDC (adjacent Caribbean FIRs).</li> </ul>	<ul style="list-style-type: none"> <li>The FAA has not explored translator software for use between the FAA and adjacent Caribbean FIR's.</li> <li>This is estimated to be a significant software endeavor.</li> </ul>	TBD
			
<div> <div></div> <div>  Federal Aviation Administration </div> </div>			

36



## Next Steps

- **Receive information on the Airspace & Offshore Studies**
  - The studies will identify issues, not solutions
  - Identified issues will be compared against current and ideal infrastructure
  - It will drive the Caribbean Initiative into the next phase of improvements focusing on these main questions:
    - What is the validity of the improvement considering the larger Caribbean strategy?
    - Does the improvement benefit outweigh the cost?
    - Weighing alternatives for proposed solutions?
- **Continue cross organizational coordination and research of agency-wide Caribbean efforts and international priorities**
- **Draft program-level strategy and documents for JRC process once initiative validation is complete**



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## Cancellation of Instrument Flight Procedures Recommendations

Presented to: Tactical Operations Committee

By: Elizabeth Ray

Date: October 27, 2016



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## Fully Accepted Recommendations

1. **Procedures not evaluated for cancellation at this time**
  - Accept recommendations a, b, c, d, e, and f without comment
  - The VOR / DME RNAV Procedures are scheduled for cancellation
4. **Remove Microwave Landing System (MLS) and Transponder Landing System (TLS) Procedure categories**
  - Accept recommendation without comment
5. **Consider remaining Simplified Directional Facility (SDF) procedures for cancellation**
  - Accept recommendation without comment

## Fully Accepted Recommendations (cont.)

### 6. PAR and ASR Procedures

- a) Accept with no comment
  - b) Accept with no comment
  - c) Accept with no comment
- Facility should be following this process

### 7. PBN Instrument Approach Procedures

- a) Accept with no comment
- b) Accept with no comment

### 9. PAR and ASR Procedures

- a) Accept with no comment



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## Recommendations with Comment

### 2. Circling Procedures

- a) Would require vetting through Federal Register
- b) Would require a network of training centers and simulator operator points of contact for coordination

### 3. Ground-Based Instrument Approach Procedures

- a) "Extensive" would require further definition to delineate criteria.  
Accept adding word civil to criteria
- b) Requires further evaluation due to potential conflict with future cancellation initiatives
- c) Accept with no comment

### 8. Identify candidate SIDs/STARs for cancellation according to the criteria in the figure below

Change to "Review candidate SIDs/STARs for cancellation and consider criteria in the figure below during the review process"



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## Recommendations with Comment (cont.)

### 10. Recommendation on the Outreach for Procedure Cancellations

- a) Accept with no comment
- b) We should accept recommendation but place the guidance in 8260.19 instead of the RAPT Order
- c) Accept as best practice resources permitting

### 11. Additional recommendations

- a) Accept with no comment
- b) Current national policy "Performance Based Navigation (PBN) National Airspace System (NAS) Navigation Strategy already exists. Change to develop additional strategies to motivate procedure cancellation
- c) FAAs capacity for procedure maintenance and development is being addressed through automation tools and process improvements
- d) Accept with no comment



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## Status Update

- Final Rule published Oct 17, 2016, in the Federal Register addressing 125 SIAPs that received comments
- 59 SIAPs received comments considered non-substantive and will be cancelled on the 11/10/2016 chart date
- Link to that FR:  
<https://www.regulations.gov/document?D=FAA-2015-0783-0331>
- An additional 75 SIAPs received substantive comment(s) that will be addressed in a subsequent FR Final Rule



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## Status Update (cont.)

- **Cancellation of redundant circling procedures/lines of minima**
  - Publish Federal Register Notice of Proposed Policy and Request for Comments containing the proposed criteria for Identifying redundant circling procedures and/or lines of minima. Due March 31, 2017
  - Adjudicate all comments received from Federal Register Notice of Proposed Policy and Request for Comment. Due June 30, 2017
  - Establish criteria to begin framework for cancellation of redundant circling procedures/lines of minima. Due September 30, 2017



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THE GOLD STANDARD FOR AVIATION SINCE 1935

## Update on the Drone Advisory Committee (DAC)


Al Secen, RTCA

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## DAC Update

- Inaugural meeting held September 16<sup>th</sup>, 2016
- In Attendance:
  - 30 of 35 Members, including FAA DFO (Deputy Administrator, Wassmer)
  - FAA Administrator, FAA Executives
  - 200 Members of Public
- FAA Presentations on UAS Landscape, Reauthorization Rqmts
- RTCA Presentation: Survey Results
- DAC Prioritization Exercise → Consensus on Top Priorities
  - "What Do I Need To Do to Fly Drone in Airspace?"
  - Privacy and Pre-emption, Issues, Jurisdiction"



## DAC Actions

- Establish DAC Subcommittee
  - First meeting of DACSC November 2, 2016
  - Likely will establish Task Group for "Certification" request from the DAC
  - May answer the Pre-emption without task group, or may form a task group to research and report
  - Two meetings before the next DAC are planned
- Task DACSC to Set Priorities Among Remaining Issues
- Next Meeting Tentatively of DAC Jan 4<sup>th</sup>, Reno Nevada, Hosted by Reno Stead Airport





## Update from PBN Route Structure Task Group

Mark Hopkins, Delta  
Dave Surridge, American  
Co-Chairs PBN RS Task Group

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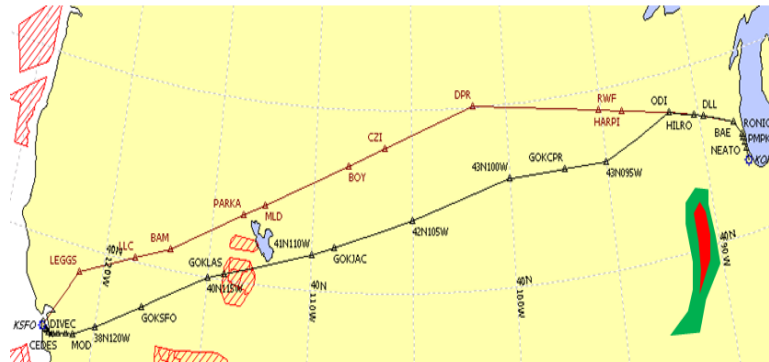
## Status of PBN RS Effort

- Split into high altitude, low altitude CONUS and low altitude Alaska groups
- HA group met seven times in person with additional calls
- First draft of recommendation report compiled and undergoing its first review
- Fully expect completion of report by next TOC meeting: March 2, 2017

50

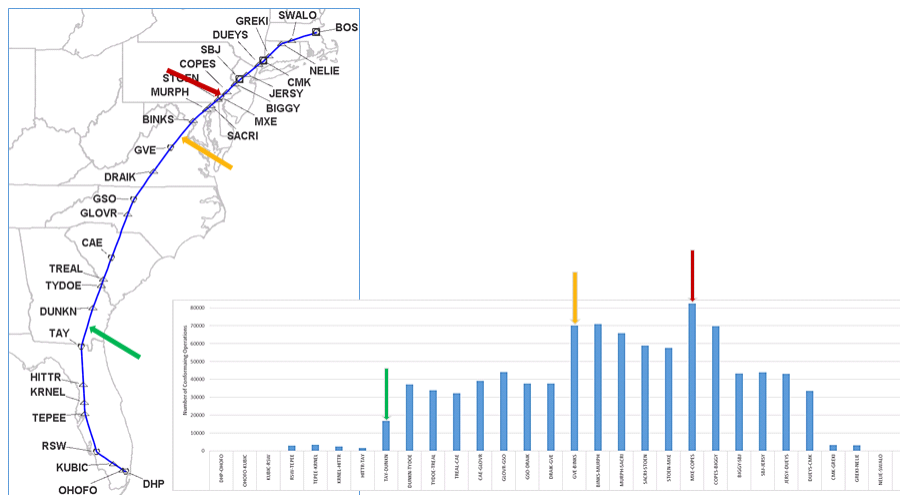
## Key Fact #1: Flexibility in Routing has Value to Operators

The unconstrained (black) route from ORD to SFO saved 12 minutes over the constrained (red) route



51

## Key Fact #2: Structure is Utilized at a Segment Level



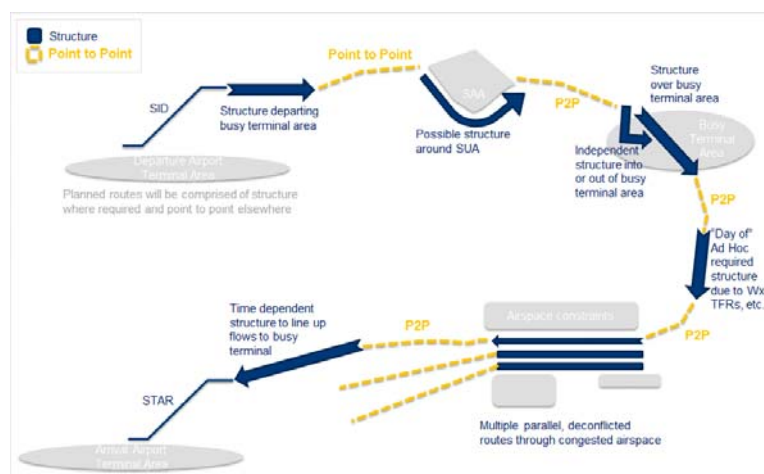
52

## PBN Route Structure: Four Key Areas of Focus

- Definition of future desired state
- Criteria for establishing structure
- Future point-to-point operations
- Design and Implementation of PBN RS


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## Future Desired State of PBN RS Operations



- Operators need to understand what segments of structure are required (routes, LOAs, SOPs, SUAs, etc.) and can build their optimal flight plan given these constraints
- This would link point-to-point operations with structure as required


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## Use the Right Structure for the Job

- Q routes should be used when required
  - Such as high demand, congested, complex airspace
- Pref routes should be reconstituted to provide structure in airspace where structure is needed infrequently or where the required structure may change (i.e, due to ongoing or future Metroplex activity)
- Required routes for day-of constraints should be defined at a segment level

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## Draft Criteria for Establishing Structure

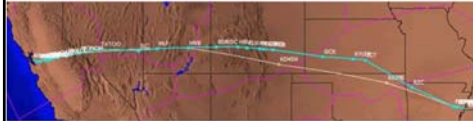
- Limit Sector Conflicts
- Reduce Frequency Congestion
- Organize and Deconflict Separate Flows
- Reduce Required Coordination
- Increase Capacity in Constrained Airspace
- Available Structure for Offloading
- Access from Satellite Airports to En Route
- Efficiently Avoid Active SAAs
- Link Neighboring Airspaces
- Structure to Use for Rerouting
- Structure to Use for Surge Capacity

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## Value in Use of the NRS grid for Point-to-Point Operations

- #2. MEM-OAK; MD10-30 Aircraft
- Fuel burn via jet route: 48037 lbs
  - FOXOM RZC ICT J28 GCK J28 MLF J80 ILC TATOO MONOH
  - 3+42min 1578 NM
  - Fuel burn via NRS waypoints: 47717 lbs
  - FOXOM KK39E KD45W HVE MONOH
  - 3+41min, 1568

NRS route is better by 1 minute, 320 lbs and 10 NM.

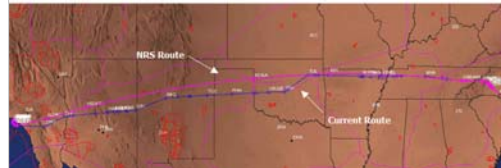


### Case Study: LAX-CLT

Utilization of NRS waypoints on American routes

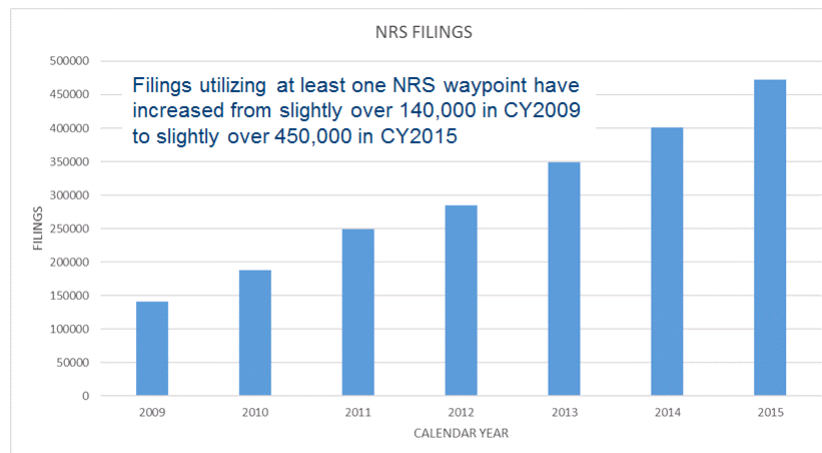
	Route	NM
Current Route	KLAX HOLTZ9 TRM PKE J74 SJN J18 ABQ J78 TUL J46 VXV JOHNS2 KCLT	1945
NRS Route	KLAX HOLTZ9 HOLTZ KL24K HIDAT KK36A RZC VXV JOHNS2 KCLT	1925

Savings of 20 nm



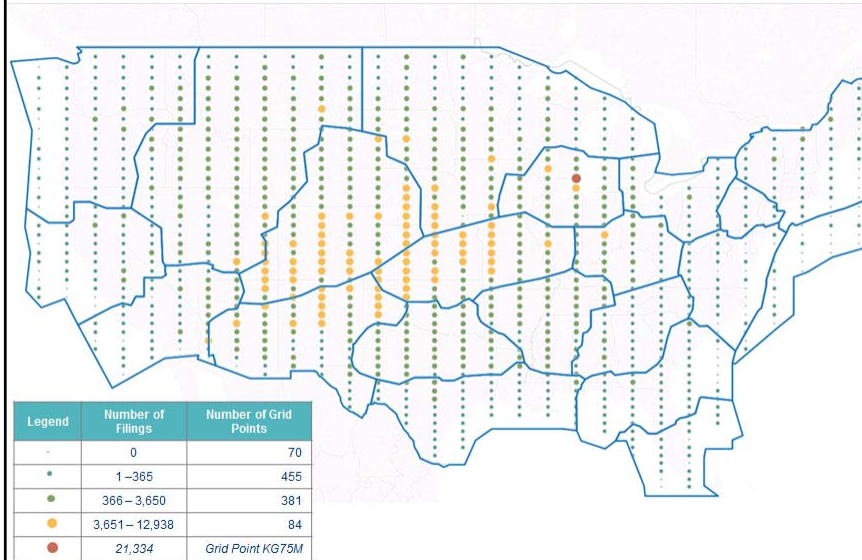
57

## Use of the NRS Grid is Increasing



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## NRS Grid Used in Middle of CONUS



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## Relevant Questions for NRS Grid

- Can the naming be improved?
- Can it be displayed for controllers?
- Can coastal grid points be removed? Can density in the middle of the country be increased?

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## ACRP Implementation Lessons

Lessons Learned from Atlantic Coast Route Project:

- Involve individuals directly involved with the operation
- Utilize the .41 process
- Leverage SMEs and historical data to understand routes filed and flown
- A well attended initial workshop can make significant progress in the design
- Use analysis tools like TARGETs or simulation to evaluate designs early on

61



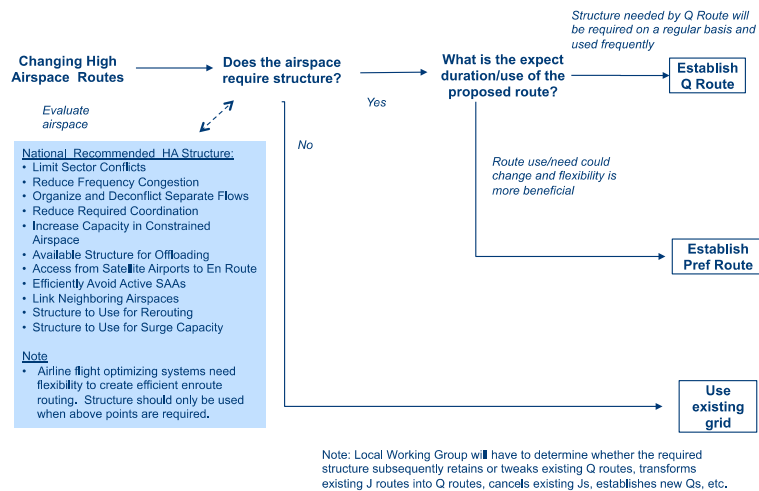
## Implementation: A National Effort

- PBN RS needs to be implemented as a top-down funded program with national priority
- Following .41 process is appropriate
- Criteria for structure needs to be provided in the form of national guidance and all proposed PBN RS should be vetted against this criteria
- A Full Working Group (FWG) including operator representatives should be established to oversee the national effort
- Determine sequence and timing for initiating activity of regional work groups that will conduct local design activity

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## Decision Tree to Vette Proposed RS




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## A Myriad of External Impacts to Consider

- Controller staffing
- Impact on facility boundaries
- Impact on FMS databases
- Impact on chart clutter
- Interactions with Other FAA Programs
  - VOR MON
  - Datacomm
  - CTOP
  - TBFM
  - Etc...

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## Next Steps

- Continue to review and improve draft recommendation report
- Integrate report with those of Low Altitude groups
- Deliver final recommendations in March 2017

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## Overview of Aviation in Alaska

*Please request permission from Alaska Air Carriers Association before using following briefing materials*

Jane Dale  
Executive Director  
Alaska Air Carriers Association

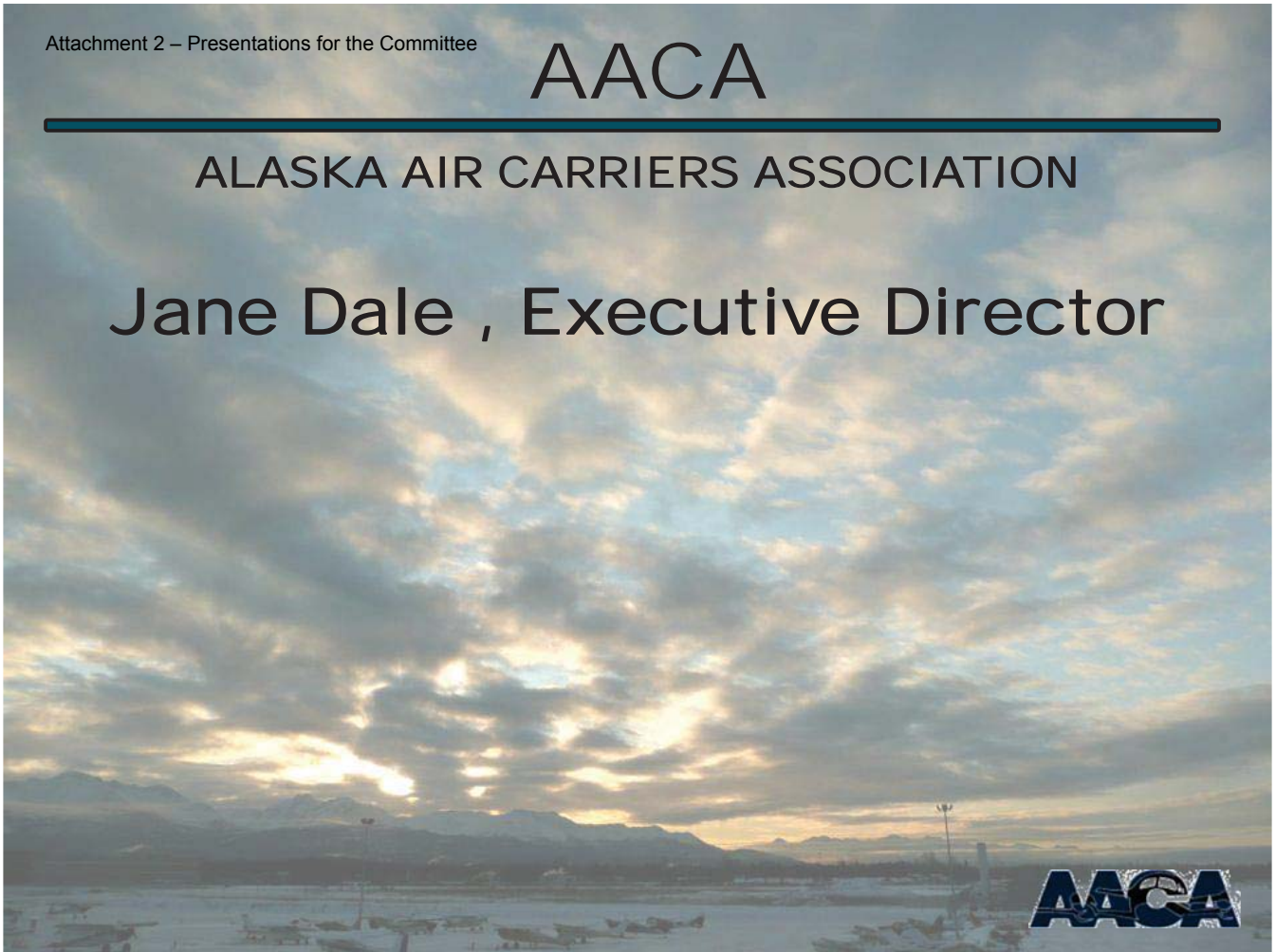
66

# AACA

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ALASKA AIR CARRIERS ASSOCIATION

Jane Dale , Executive Director



AACA

Supports and advocates for the  
Alaskan commercial aviation  
community.

## Part 135 Commuter

## MEMBERS

On-Demand/ Scheduled

Part 121 Schedule Air Carriers

Part 145 Certified Repair Stations

Part 91 Guides / Lodge Owners

Aviation support agencies,  
association, & industries—  
insurance, parts, training,  
auditors, NIOSH, etc.

Students pursuing careers  
in aviation

## ALASKAN AVIATION

306 Certificated Commercial Operators  
In Alaska providing scheduled and on-  
demand services.





# ALASKA'S FLEET

Alaska has a fleet of 9,346 aircraft



# ALASKA'S FLEET

Approximately 85% are single engine





# ALASKA'S FLEET



0.46% weigh over 12,500 MTOW

99.54% weight less than 12,500 MTOW

# AVIATION USERS



Alaska has 1.2 persons per square mile

The US average is 104 per square mile

Alaska has 2.27% of the US population  
(737,625 million in AK and 323.7 million  
in continental US)



# PILOTS



Alaska has 7,865 pilots  
The US has 542,184 pilots



## PROFESSIONAL PILOTS

Over 1,587  
commercial  
pilots

Alaska ATP  
2,254

## WORKING TO IMPROVE AVIATION VIA

Legislative Awareness

Community Involvement

Program and Public Speaking Events

Safety Council of Alaska

Annual Safety Convention

Joint Safety Council

(NTSB, FAA, DOT&PF, operators, etc.)

Cooperative Aviation Alliances

## AACA History

Established in 1966 to provide a unified voice for commercial aviation at the State level

Evolved to current focus on:

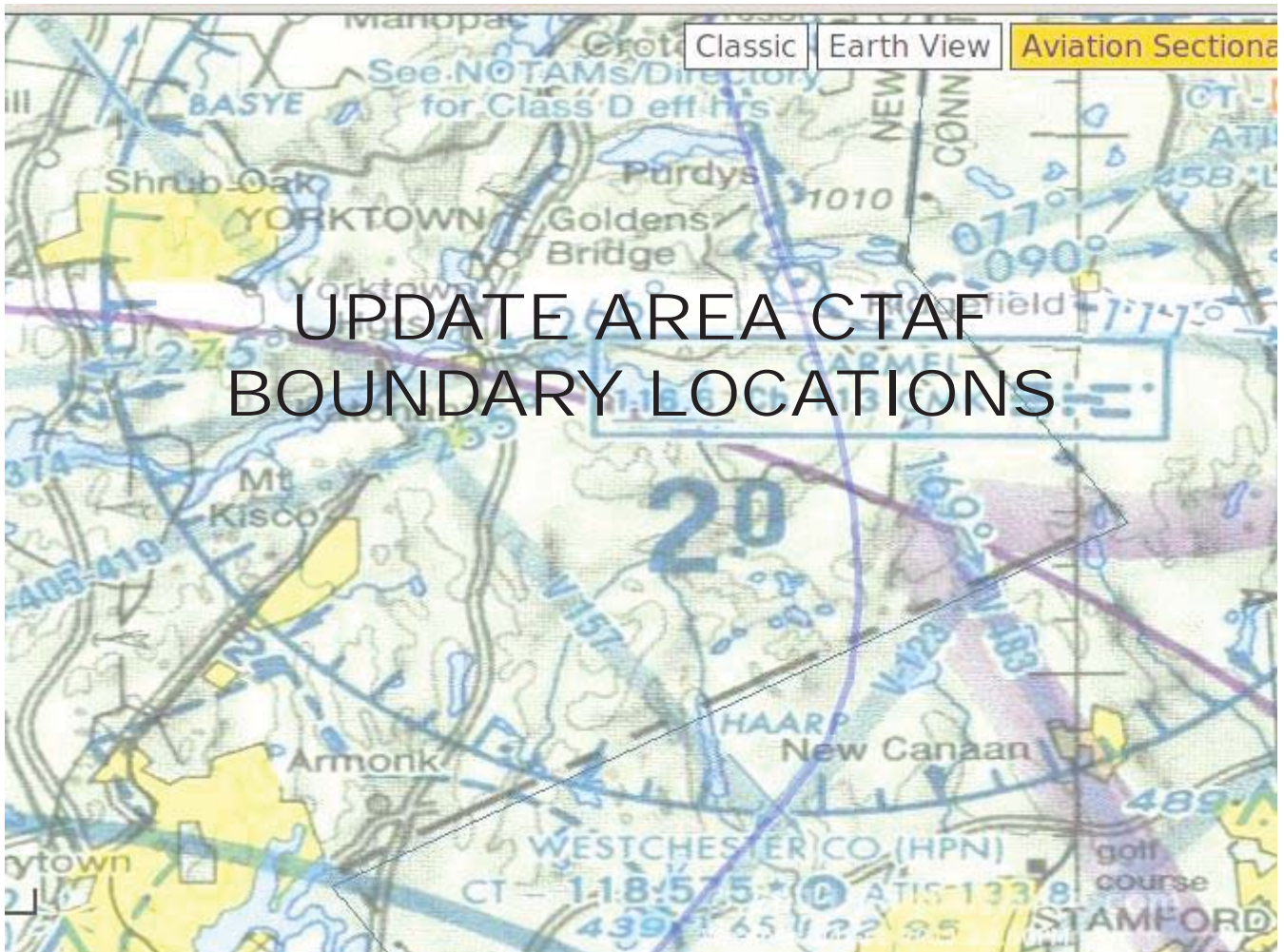
- Safety Improvements
- Safety Education
- Advocacy at the State & Federal levels
- Youth development programs



# MINIMUM SURVIVAL EQUIPMENT



# UPDATE AREA CTAF BOUNDARY LOCATIONS



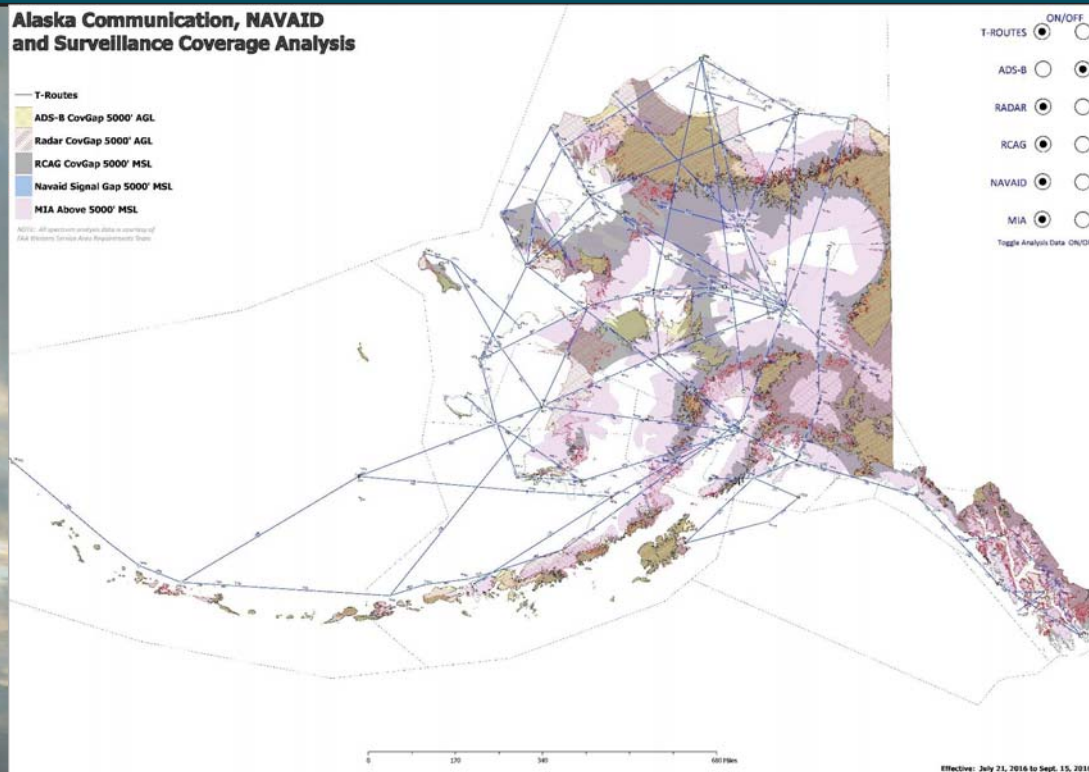
# LIGHTING OF TOWERS

**St. Paul**





# Coverages



## AIRPORTS: Terminal IMPROVEMENTS



**LP/LPV APPROACHES  
WEATHER  
20:1 APPROACHES SURFACES**



# Alaska Approaches as of May 26, 2016

**Total Alaska LPVs: 74**

**Total Alaska LPs: 29**

**Combined LPV and LP Totals: 103**

**According to FAA Fact Sheet:**

- 400 public use airports
- 282 land based airports
- 4 heliports
- 114 seaplane bases
- Unlimited landing areas

Enterprise Services Updates

June 8, 2016



Federal Aviation  
Administration



## Airports with WAAS LPV/LP



**As of May 26, 2016**

- 4,287 LP/LPVs combined
- 3,678 LPVs serving 1,790 Airports
- 940 LPV-200's
- 2,530 LPVs to Non-ILS Runways
- 1,148 LPVs to ILS runways
- 1,739 LPVs to Non-ILS Airports
- 609 LPs serving 452 Airports
- 606 LPs to Non-ILS Runway
- 3 LPs to ILS Runways

Enterprise Services Updates

June 8, 2016



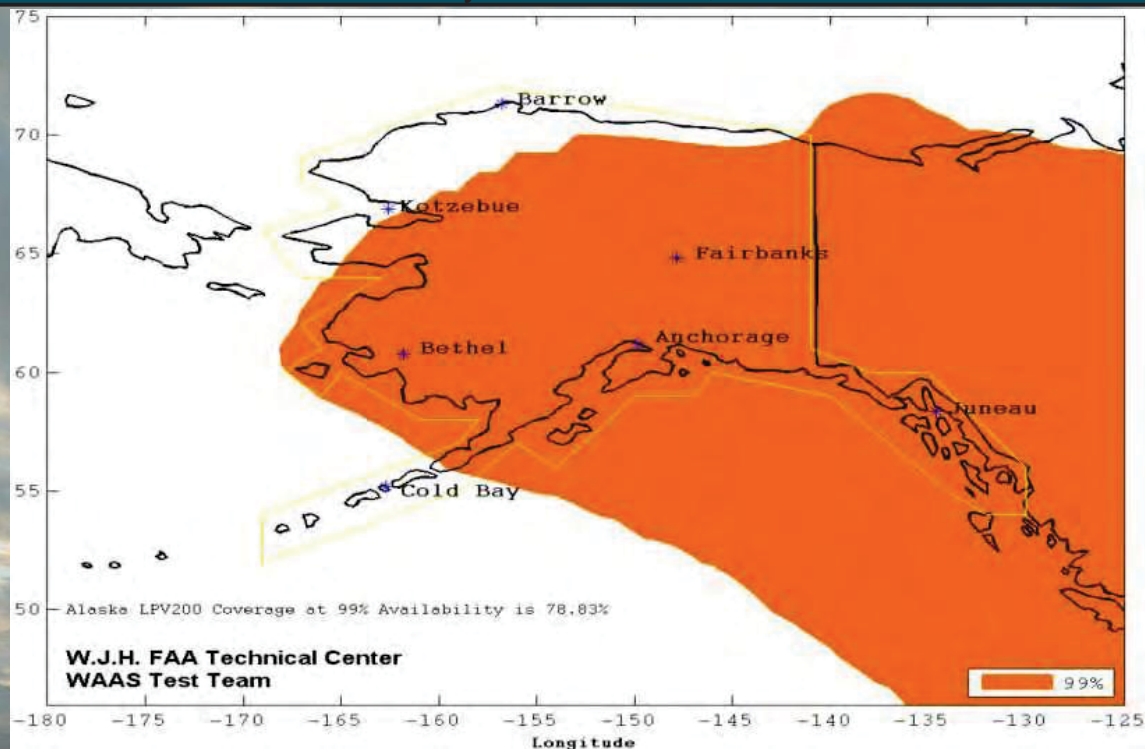
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# WAAS 99% LPV200 Coverage Contours

January 1 – March 31, 2016



Enterprise Services Updates

June 8, 2016



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## AVAILABILITY OF ADEQUATE WEATHER INFORMATION

146 full time weather  
reporting stations  
230 aviation weather camera  
sites





# AIRPORT CONDITION REPORTING SYSTEM



# ADVOCATE FOR AIRPORT CONDITION IMPROVEMENTS



# NON COMPATIBLE USES



## NON-COMPATIBLE USES





# ALASKA FLYING COMMERCIAL AND GENERAL AVIATION



## USPS BY-PASS MAIL





# CARGO



# PASSENGER SERVICE

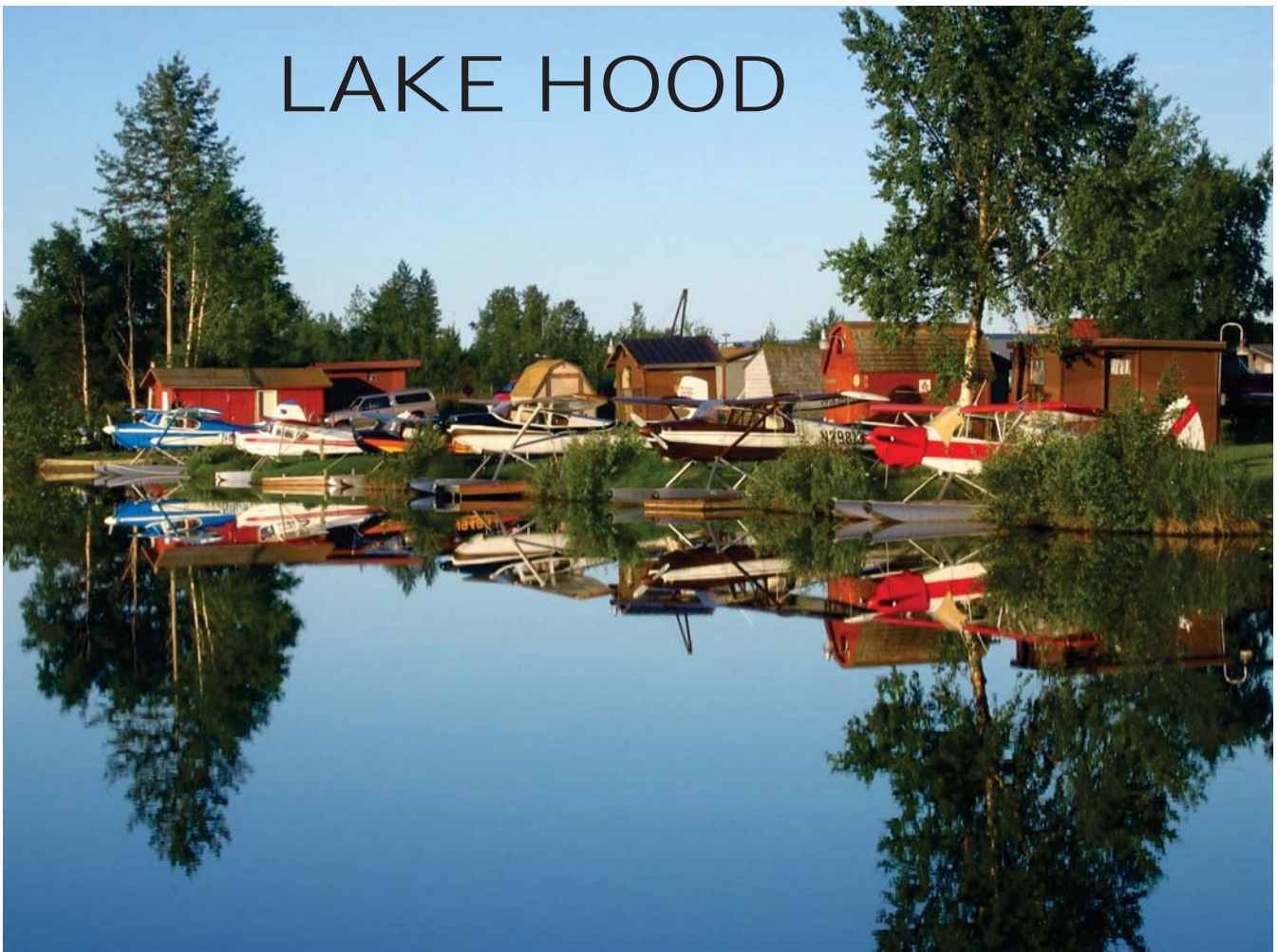




# PART 135 SCHEDULE



## LAKE HOOD





# Part 135 and 91



## BACKCOUNTRY AIRPORTS





# WILDLIFE MANAGEMENT



**Support Emergency Services, economic development, and support transportation.**





# AACA Creates Registered Apprenticeships

Create a future work force for Alaskan carriers.



ALASKA AIR CARRIERS ASSOCIATION

2301 Merrill Field Drive A-3

Anchorage AK 99501

(907) 277-0071

[www.alaskaaircarriers.org](http://www.alaskaaircarriers.org)





## Update from PBN Route Structure Low Altitude Task Groups

Rune Duke, AOPA  
*Chair, CONUS Group*

Dennis Parrish, AACAA  
Rune Duke, AOPA  
*Co-Chairs, Alaska Group*

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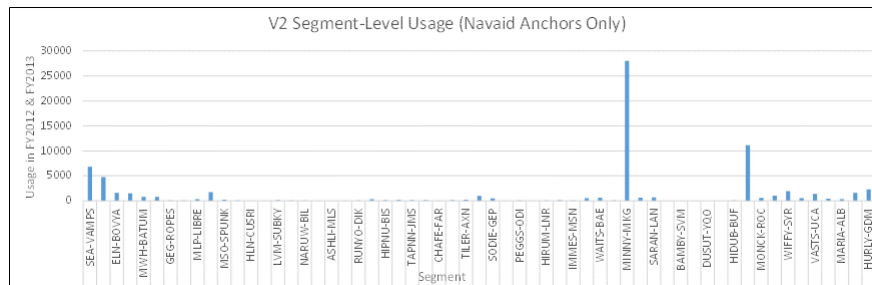
## Status of PBN RS Low Altitude Effort

- CONUS group has identified series of LA RS issues
  - Clarified which have applicability in Alaska as well
  - Compiling initial draft recommendation report for CONUS
- Alaska group met in SEA in late August and meeting mid-November in ANC
  - August meeting and subsequent telecons have identified additional Alaska-specific issues
  - ANC meeting will also consider applicability of CONUS-focused recommendations
  - Build out draft recommendations for Alaska in November
- Both groups on target to deliver at March 2<sup>nd</sup> meeting

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## General LA Considerations Point-to-Point LA Flying

- Most utilized Victor route in NAS flown 61 times per day
  - 100<sup>th</sup> most used V route (of 700 in NAS) flown <4 /day
- Even when V routes used, only used at segment level:



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## General LA Considerations RNAV and EFB Penetration

- Based on filed IFR flight plans, 79% of active IFR GA fleet is capable RNAV 2 (able to fly T-Routes)
- >80% of CONUS GA pilots and >70% of Alaska pilots using EFB in the cockpit

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## General LA Considerations

# Unique Needs for Structure

- Low Altitude operations have needs for structure distinct from the high altitude:
  - Non-radar
  - Icing
  - Terrain
  - Etc...

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## General LA Considerations

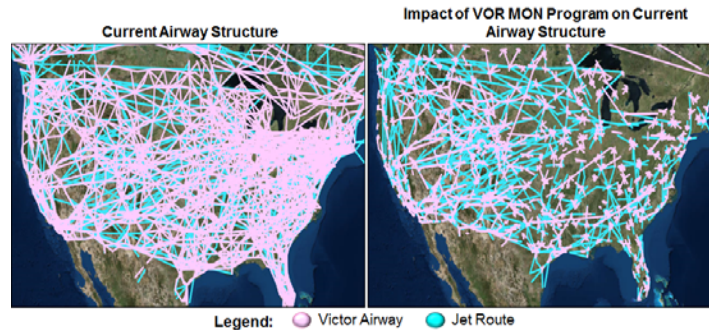
# Multiple Subcases to Consider

**Alaska****Caribbean****Helicopters****Hawaii**

72



## General LA Considerations Waypoints for Point-to-Point

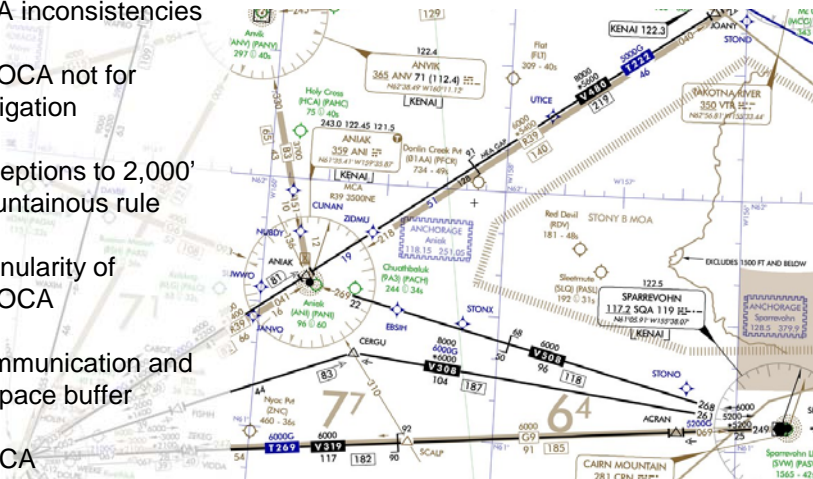


- Draft recommendation to retain all waypoints, intersections, NAVAIDs currently in place by amending the definition to be an RNAV fix
- Remove redundant waypoints at local level

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## General LA Considerations Lowest Altitude for IFR Navigation

- MEA inconsistencies
- OROCA not for navigation
- Exceptions to 2,000' mountainous rule
- Granularity of OROCA
- Communication and airspace buffer
- MOCA



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## General LA Considerations

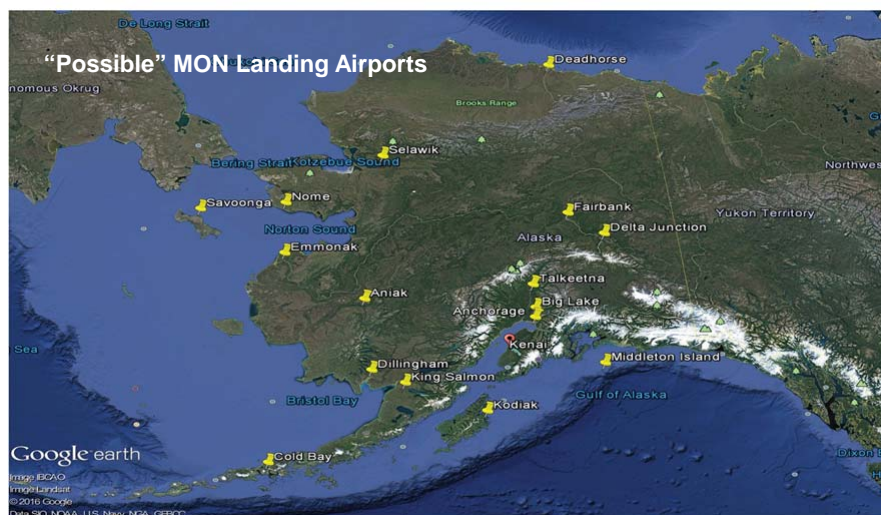
# Understanding SUA, LOA, SOP

- Significant High Altitude interest in real-time status information on SUA as well as digital LOA/SOP info
- Also of concern to Low Altitude operators
  - ATC LOAs/SOPs need to be publicly available in a manner ingestible by industry
  - The FAA should provide ATC LOAs/SOPs via the NOTAM Search website

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## Alaska-Specific

# Resiliency a Key Concern



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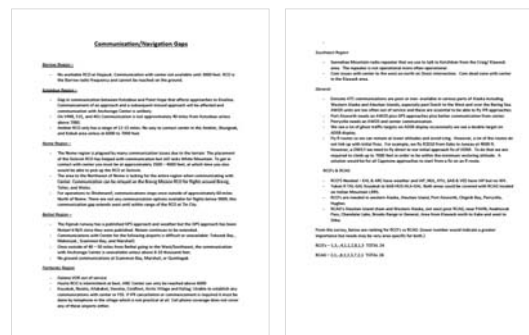
## Alaska-Specific Inconsistency GPS Requirements

- Impacts of Special Federal Aviation Regular (SFAR) No 97:
  - Alaska pilots restricted to using TSO-C145 or TSO-C146 equipment on certain routes
  - Alaska pilots must be under radar surveillance when using TSO-C129 or TSO-C196 equipment in certain circumstances
- Policies are different from aircraft operating in CONUS

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## Alaska-Specific Communication Gaps

- FAA has known coverage gaps
- Industry providing user-identified comm gaps



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## Alaska-Specific Class G Airspace

- Allowing point-to-point operation means possibility of pilot entering Class G
- IFR in uncontrolled airspace
- Much of Class G above 1,200' AGL has already been removed – ZAN largest area remaining



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## PBN RS LA Next Steps

- Continue refining issues into formal recommendations
- Integrate across CONUS and Alaska sub groups
- Integrate with HA group
- Submit recommendations on March 2, 2017

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## Update from the Graphical TFR Task Group

Rune Duke, AOPA

Jon Reisinger, Jeppesen

Co Chairs, Graphical TFR Task  
Group

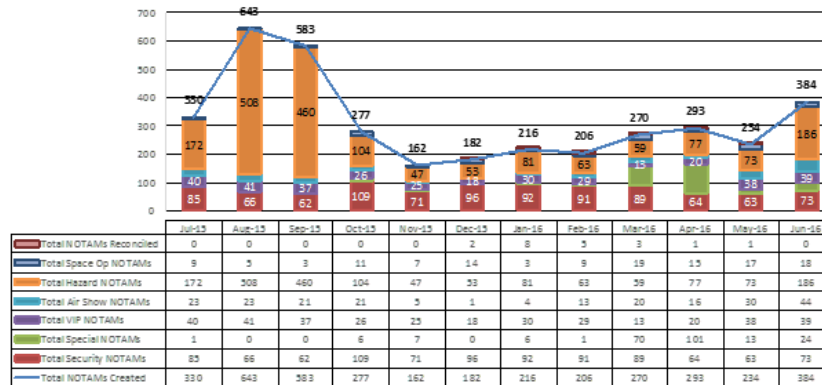
81



## Key Facts about TFRs

- 2016 survey of active AOPA pilots suggests 82% use an Electronic Flight Bag frequently or always in the cockpit
- Given increased use of graphics, TFR violators deemed "Targets of Interest" decreased from 231 per month in 2003 to average 218 CY2013-2015
- Despite this, a regular cadence of errors, missing graphics or confusion remains about TFRs

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TFR NOTAMs Created  
Jul 2015 – Jun 2016

83

## FDC 6/6697 – DC Nuclear Summit


- NOTAM text is similar to SFRA/FRZ NOTAM – dimensions and language match
- Language is nuanced and no graphic increases chance it is overlooked
- Human factors issue: over 1,400 words – 8 parts

NOTAM : 6/6697 Location : WASHINGTON, DC, Thursday, March 31, 2016 through Saturday, April 02, 2016 UTC

[illegible]

[illegible][illegible]






## TFR Recommendations Categories

- **FAA Charting (VFR Sectional/TAC)**
  - Long Term TFRs
  - Sporting Event TFRs
  - Charting Specifications
- **Transmission to Industry**
  - Digital with AIXM/GML
  - Standard and Authoritative Method of Machine-to-Machine TFR Transmission
  - Format of GML Portrayal Script
  - Notification Process for Changes
- **Graphics Availability and Electronic Presentation**
  - FAA TFR graphical website – Human to machine
  - Multiple NOTAM Websites
  - Disclaimer for FAA Produced Online Graphic
  - Graphic Legality
  - Sporting Event Blanket TFR
  - Accuracy of FAA TFR Depictions Provided Online
  - Industry Standard for Electronic Depiction
- **TFR Origination**
  - Standardized Entry Method
  - TFR NOTAM Oversight (text and graphic)
  - Authorized FAA Office to Cancel/Reissue Published TFR
- **FSS and ATC**
  - Availability for FSS and ATC
  - Briefing NOTAM Order Changes
  - Standard Manner of Providing Graphic to Specialists
- **Textual Format**
- **FIS-B Uplink**
  - Range of Transmission
  - FIS-B Text
  - Graphic Legality
- **Education**
  - Written Questions for Airmen
  - Pilot Guidance
  - Unmanned Aircraft Guidance
  - Controller Guidance
  - TFR Outreach and Communications

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## Status of Task Group

- Draft recommendation report currently under review with Task Group
- Anticipate completion of report in December 2016
- May request additional virtual TOC meeting prior to March 2, 2017 to submit recommendations for consideration and approval

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## Update on the NextGen Advisory Committee (NAC)

Andy Cebula, RTCA

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### NextGen Advisory Committee Oct 5, 2016 Orlando, FL Hosted by: JetBlue



- Final meeting: Richard Anderson, Chair
- New DFO: Victoria Wassmer, FAA Deputy & Chief NextGen Officer
- Attended by: Administrator, Michael Huerta

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## OEM & Operator C/N/S Equipage



American Airlines' CNS Equipage Plan  
NextGen Advisory Committee Briefing  
10/05/2016 - MCO



SkyWest, Inc. Equipage Strategy  
NextGen Advisory Committee  
Chip Childs  
President & CEO  
SKYWEST



Supporting NextGen  
Communications, Navigation and Surveillance  
Programs Strategy  
October 5, 2016  
UNITED



Airbus perspectives in  
ATM modernisation  
AIRBUS

- Future:
- Bombardier, Embraer
- Primary avionics – Supply Chain
- Added focus on Regional Equipage



THE GOLD STANDARD FOR AVIATION SINCE 1935

## PBN Time, Speed, Spacing Task Group

# Approved!

Co-chairs:  
Dan Allen, FedEx  
Steve Fulton, Sandel Avionics



## Key Policy Statements

- A transition to a time based system is necessary to enable higher percentages of PBN operations with the goal of keeping aircraft on an optimal path.
- VMC in IMC conditions
- Large cultural change for controllers, pilots, dispatchers and others involved in the operation of aircraft
- Decision support tools are critical
- Implementation must be integrated

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## Recommendations

- **The NAC recommends that the FAA:**
- Create an agency-wide vision for **changing to a time-based system** and develop and implement a plan to communicate the vision.
- **Incorporate the roadmap** outlined throughout this document for 2016-2020; 2021-2025; and 2026-2030 for decision support tools and aircraft capabilities.
- **Adopt change management principles** as part of their implementation process to gain the acceptance and culture change to realize the benefits of time-based enhancements.

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## Time Frames

- Near Term (2020)
  - Policy, procedures and training to enable initial PBN capabilities and using existing tools and systems for a better integrated system
  - Infusing time based metering into the culture
- Mid Term (2021-2025)
  - Focuses on continued deployment of available NextGen capabilities consistent with meeting the goal of PBN TSS in an integrated manner
  - Begins the process of integrating aircraft trajectory data with ground systems
- Far Term (2026-2030)
  - Further enhances, increasing resilience of ground based tools
  - Integrates the stand alone capabilities described in the mid-term
  - Leverages FIM demonstration for potential full NAS implementation
  - Based on experiences from Near and Mid-Term, begins implementing advanced Data Comm capabilities defined by SC-214 Standards for Air Traffic Data Communication Services

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## Operator Operational Briefings



### RNP EOR Benefits– NextGen Advisory Committee

Ron Renk  
Chief Technical Pilot – Navigation  
United Flight Operations

5 OCT 2016





Joint Analysis Team  
PBN: North Texas Metroplex, Denver  
Established on RNP  
**Approved!**

Ilhan Ince, American Airlines, Inc.  
Dave Knorr, FAA



### JAT Findings – Established on RNP

- EoR increased utilization of RNP AR approaches from 5.8% of arrivals to 6.6% of arrivals to Denver, an increase of 12%
  - Time saved from efficient approaches increased from 211 to 282 hours annually
- If an additional waiver is granted, EoR is expected to enable an increase up to 7.1% of arrivals executing RNP AR approaches
  - Time saved expected to increase to 360 hours annually
- EoR is an important enabler to further future growth of utilization of efficient PBN approaches

## JAT Findings – NT Metroplex (1 of 2)

- Many external factors challenged pre vs. post metroplex analysis
  - DFW/AAL re-banking, CRO, over-the-top elimination, Wright amendment at DAL, use of flow metering, change in wind patterns, and WN Cost Index change (speed increase)
- Changes in city pair block times driven by winds, not Metroplex
- Team recognized importance of system impacts of the Metroplex and, after analysis, determined to focus on flight trajectory changes within 300 nm as it best approximates effects of NT Metroplex and allows for better isolating external factors pre/post implementation

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## JAT Findings – NT Metroplex (2 of 2)

- Metroplex has...
  - Segregated arrival routes between DFW and DAL
  - Added route structure where flights previously vectored off-route
    - Enabler for increased TBFM forecasting accuracy, infrastructure for new tools and improved safety per SMEs
  - Slightly increased flight distance within 300nm but slightly reduced time
  - Clearly reduced level segments and increased continuous descents, particularly for DFW

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## Joint Analysis Team Future Work

- Fuel Analysis for North Texas
- PBN -EOR DEN IMC, OPD
  - BOS
  - Gary, IN
- Wake ReCat 2.0
  - LAX
  - IND
- DataComm Benefits Review

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## Equipage

- ADS-B
- OEM - Airbus
- Operator C/N/S
  - American, SkyWest/RAA, United
- Future
  - Alaska, UPS
  - Bombardier, Embraer
  - Primary avionics OEM – Supply Chain
  - Added focus on Regional Equipage

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## Future Meetings

- 2017 NAC Meetings:
  - February 24<sup>th</sup> TBD – ?Dallas/Ft Worth
  - June 30, Washington, DC
  - October 6, Chicago, IL - United

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## Discuss Potential Future TOC Tasks – FAA Perspective

- Commercial Space
- Comments on Ligado Proposal

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## New Task: Comments on Ligado Proposal

- FAA requesting TOC perspective on operational impact from Ligado proposal
- Key aspects of proposal include:
  - New proposal exclusion zone is 250 feet around and 30 feet above transmitter
  - Consideration of certified GPS receivers only, which focuses on IFR navigation, TAWS compatibility, and ADS-B effectivity; excludes drones
  - New proposal has an exception to the part 77 imaginary surface, so approach and departure paths are assured to runways.
- Timing TBD – intend to synchronize with SC 159

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## Discuss Industry Ideas for Future TOC Effort

Bill Murphy, IATA  
Melissa Rudinger, AOPA  
Bart Roberts, JetBlue  
Christian Kast, UPS  
Edwin Solley, Southwest  
Glenn Morse, United  
Mark Hopkins, Delta

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## IATA Task Input

“In fact, flight delays cost airlines and passengers an estimated \$16.5 billion a year and the U.S. economy another \$2.4 billion a year indirectly” <sup>(1)</sup> Anthony Fox, US DOT post fast lane Mar. 4, 2016

Weather was the cause of 32.8 percent of delays in 2015<sup>(2)</sup> Bureau of Transportation Statistics

Following is from the A4A website:

**Cost of Aircraft Delay to U.S. Passenger Carriers**

**About the Table**


**Direct Operational Cost**

In 2015, the cost of aircraft block (taxi plus airborne) time for U.S. passenger airlines was \$65.43 per minute, 16 percent less than in 2014. Fuel costs, the largest line item, declined 39 percent to \$22.62 per minute. Crew costs are estimated to have grown nearly 12 percent to \$19.54 per minute, followed by maintenance and aircraft ownership (\$11.63 and \$8.80, respectively) and all other costs (\$2.85).

Note: Costs based on DOT Form 41 data for U.S. scheduled passenger airlines


**Additional Costs**

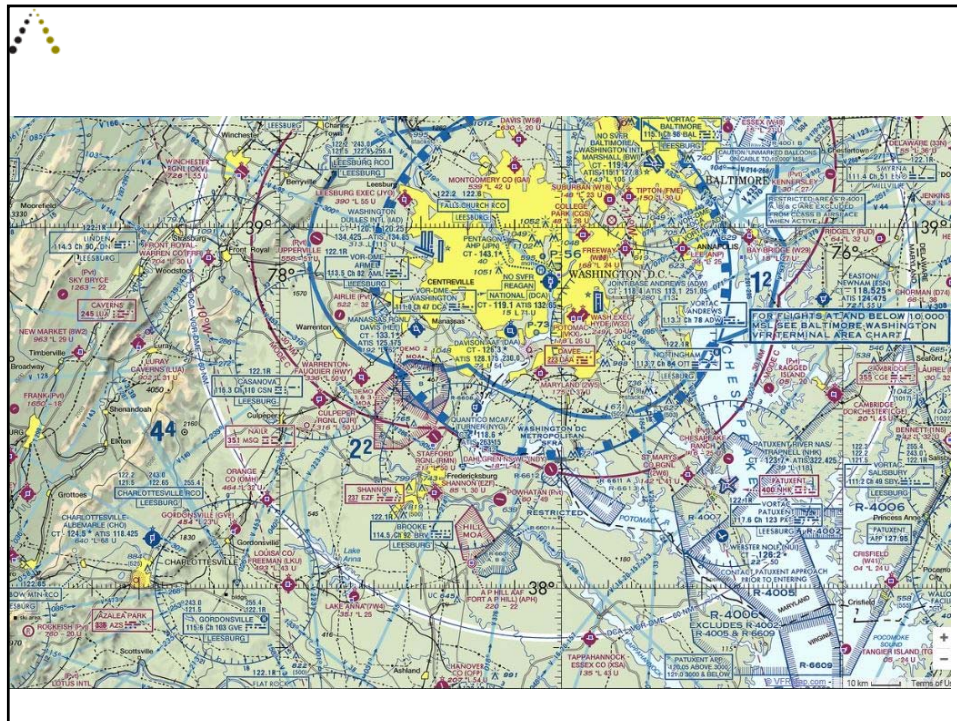
Delayed aircraft are estimated to have cost the airlines several billion dollars in additional expense. Delays also drive the need for extra gates and ground personnel and impose costs on airline customers (including shippers) in the form of lost productivity, wages and goodwill. Assuming \$46.53 per hour\* as the average value of a passenger's time, 2014 delays are estimated to have cost air travelers billions of dollars. In 2010, FAA/Nextor completed a comprehensive study on the costs and impacts of flight delays in the U.S. and estimated the annual costs of delays in 2007 to be \$31 billion.



The single biggest problem in communication is the illusion that it has taken place.

George Bernard Shaw







## IATA Task Input

### Proposed Tasking:


- Review current process used during disruptive weather to communicate and coordinate tactical routing and restrictions over a fix/area. Identify and list any missed opportunities that could reduce system delay minutes.
- Identify resources that could reduce missed opportunities resulting in delay reduction.
- Consolidate list of inefficiencies and recommended mitigations into a recommendation that include potential minutes of delay reduction and or safety improvements along with resources identified to accomplish.



## AOPA: Concerns on GPS Testing

- DoD's GPS testing critical to meeting national security requirements; however, improvements to process needed to accommodate civil aircraft operations safely and efficiently.
- The FAA's timeline for realization of ADS-B and GPS benefits could be threatened if a comprehensive approach to this issue is not taken, particularly when it comes to the issues of real-time awareness and full understanding of impact.

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## AOPA: Input on GPS Testing

- AOPA recommends the following actions be taken:
  - Comprehensive evaluation of interference events that have impact
  - Establish effective tracking and metrics for the evaluation of interference events that have impact on air traffic
  - Evaluate ATC procedures for alerting pilots of interference events
  - Establish and advertise standard minimum weather requirement for GPS-only airfields within interference areas
  - Assess the effectiveness of the notification process for pilots
  - Publish guidance materials to increase pilots' understanding and awareness of mitigations such as "stop buzzer" and Wx criteria
  - Define flight advisory impact contours based on likelihood of interference that industry helps determine is appropriate.
- The FAA should formally task the TOC to evaluate issues above so unified solution can be implemented.

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## JetBlue Inputs

1. NY Metro redesign: current arrivals specifically add significant time and cost to many arrivals especially when you are arriving from the north and east and they are in a 22L/R flow
2. Concern about future building growth encroaching into departure and arrival procedures as it has at DCA and LGA. An improved process may be required for vetting these impacts at the major commercial airports

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## UPS Input on Use of PBN/Datacomm to Improve SWAP

- How can NextGen's PBN & DataComm improve NY SWAP?
  - NY area delays have a disproportionate impact on NAS-wide delays.
  - Traveling public will not appreciate NextGen through "normal ops", but rather when quick responses to abnormal ops shows the flexibility & nimbleness of a technologically modernized system -Severe weather is always disruptive and well forecasted & should not come as a surprise. Technology & processes can improve responses and processes formerly encumbered by old technologies.
  - DataComm facilitates tactical re-routes in congested areas
  - Aircraft equipped with DataComm capabilities can be much more nimble to help relieve congestion built up caused by disruptive weather events, and therefore should be given priority (this would be another incentive to equip)
  - PBN can be constructed in such a way as to quickly overcome the operational denial of certain airspace sectors

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## Southwest Inputs

1. Adaptive Use of SAA - explore early opportunities for more effectively coordinating the dynamic status of SAA. Even if at first we could only benefit the DOD, it seems important to continue to explore this opportunity and prepare for early wins with AIMM S2 capabilities.
2. Look for opportunities to target enhanced ERAM functions such as enabling automated downline coordination of altitudes. Today this limit manifests itself in complex airspace such as ZDC and forces controllers to call downline sectors to coordinate altitudes when ERAM AIT function is used.
3. Explore how to overcome the automation limits of FAA systems that make it necessary for FAA Controllers to call NAV CANADA ACC's to hand off traffic.

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## United Input on Operator Engagement with Noise

- Address the changes contemplated by the Massport MOU
- Some precedent with WRTG NorCal Metroplex work

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## Delta Input on TBFM Implementation

- The implementation of TBFM capabilities such as TSAS, GIM-S, and others will allow the NAS to transition to some level of a time based system over the next 10 years
- Outside of Work and Task Group type recommendations that are worked in the context on NextGen, there is no defined process for industry engagement and collaboration on how these deployments are managed and reconciled with operator requirements around efficiency, throughput, and capacity
- Recommend tasking to develop recommendations on how best to engage appropriate stakeholders in planning, deploying, and measuring current and future TBFM related capabilities across the NAS

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## Delta Input on Obstructions

- Obstructions and related airport capacity and performance issues
- Ongoing challenges related to the Part 77 process where engagement of air traffic to determine effects on aviation can be inconsistent
  - LGA Flushing crane approved outside of Air Traffic input and caused a scramble to address procedural and safety issues
- Also continuing issue of one engine inoperative performance
- Recommend tasking to determine how best to engage stakeholders in better planning and execution in scenarios where temporary or permanent obstacles are being considered

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## Plan for Future TOC Meetings

Trin Mitra, RTCA


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## Next TOC Meeting: March 2, 2017

- Location:  
Mike Monroney Aeronautical Center  
Oklahoma City, OK
- Tour/visits with personnel for TOC members and observers  
on Wednesday, March 1, 2017
- Visits may include engagement with Procedure design and  
maintenance, NOTAM Office, Flight inspection, Training,  
etc.

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## Closing Comments

**Designated Federal Official:**  
Lynn Ray, Federal Aviation Administration

**Co-Chairs:**  
Bryan Quigley, United Airlines  
Dale Wright, NATCA

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**Next Meetings:**  
*March 2, 2017 (OKC)*  
*June 22, 2017 (DC)*  
*October 26, 2017 (DC)*


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SAVE THE DATE  
JUNE 13 & 14, 2017

RTCA 2017 GLOBAL  
AVIATION SYMPOSIUM  
HYATT REGENCY // CRYSTAL CITY

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**Adjournment**

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RTCA Paper No. 177-16/TOC-030

June 23, 2016

## **Meeting Summary, June 23, 2016**

### **Tactical Operations Committee (TOC)**

The fourteenth meeting of the Tactical Operations Committee (TOC), held on June 23, 2016, convened at 9:00 a.m Eastern Daylight Time. The meeting discussions are summarized below. The following attachments are referenced:

Attachment 1 – List of Attendees

Attachment 2 – Presentations for the Committee (containing detailed content of the meeting)

Attachment 3 – Summary of the April 4, 2016 TOC Meeting

Attachment 4 – FAA Response to Class B Recommendations

### **Welcome and Introductions**

Committee Co-Chairs, Mr. Bryan Quigley, United Airlines, and Mr. Dale Wright, National Air Traffic Controllers Association (NATCA), called the meeting to order and welcomed the TOC members and others in attendance. All TOC members and attendees from the public were asked to introduce themselves (TOC members and General Public Attendees are identified in Attachment 1).

Mr. Quigley and Mr. Wright then reviewed the agenda and began the proceedings of the meeting. (The briefing charts from the meeting are included as Attachment 2.)

### **Designated Federal Official Statement**

Ms. Elizabeth “Lynn” Ray, Vice President of Mission Support for the Air Traffic Organization (ATO), and the Designated Federal Official of the TOC, read the Federal Advisory Committee Act notice governing the open meeting.

### **Approval of April 4, 2016 Meeting Summary**

The Chairs asked for and received approval of the written summary for the April 4, 2016 meeting (Attachment 3).

## **FAA Report**

Ms. Ray provided an FAA report to the TOC. She began by addressing hiring of new air traffic controllers. The goal is to hire 1,619 new controllers in Fiscal Year 2016. Currently the FAA remains on track to meet its hiring goals. The FAA continues to pursue two hiring tracks – one for new hires and another for individuals with air traffic control experience. Ms. Ray also noted that the FAA had reached an agreement with NATCA for a new contract with air traffic controllers which the air traffic controllers recently ratified.

Ms. Ray next commented on the FAA's efforts to improve community outreach engagement as new air traffic procedures are implemented. The FAA is working on roles and responsibilities for organizations involved in outreach. She noted that much of this planning is based on the recommendations of the PBN Blueprint report provided to the FAA through the NextGen Advisory Committee (NAC).

A Committee member inquired about what impact increased outreach will have on the timelines associated with implementation of new procedures. Ms. Ray noted that project timelines would indeed become longer at the beginning of a project due to outreach. However, such projects often deal with negative community backlash once a project is implemented. Community outreach should reduce the extent of negative community backlash, so the overall time for a project may not necessarily change.

Another Committee member expressed concern from operators about bandwidth for staff to participate in community outreach. Ms. Ray said that the FAA will likely have similar challenges on the bandwidth of key staff. Whether driven by FAA or industry, all acknowledged there may risk of delay for projects due to bandwidth challenges.

## **Briefing on Commercial Space Operations**

Ron Schneider, Deputy Director ATO Commercial Space Integration Office, next briefed the TOC on Commercial Space operations in the NAS. (Mr. Schneider's briefing materials are included in Attachment 2.) Mr. Schneider explained to the TOC that the term commercial space describes a highly variable set of interests that have a many different impacts on airspace. For example, one commercial space operation may be a balloon that climbs to 100,000 feet, is the size of a football field and is released into the winds aloft. Some operators conduct horizontal takeoff and landing while others conduct circular climbs. Still others do vertical takeoffs with glider returns. Each of these approaches has different impacts on airspace though all are considered commercial space operations. Mr. Schneider also informed the TOC that current counts of commercial space operations remain relatively small though projections suggest they will grow in the future.

Mr. Schneider explained additional areas of variability with commercial space operations. There are different missions for such operations, from resupplying the space station to space tourism. While there are no formal definitions of priorities, different missions likely have different national priority. Additionally, there is variability in the operational parameters for different missions. Some missions may have a very finite window to launch to get into orbit, as low as a window of 10 seconds or less.

Other missions have greater operational flexibility. Responding to a Committee member question, Mr. Schneider clarified that most commercial space missions are dependent upon operating during daylight.

Mr. Schneider discussed the FAA's Office of Commercial Space Transportation (AST) as well as his office in the Air Traffic Organization (ATO) that is working with AST. AST is focused on only commercial space and does not get involved in military space operations. Licensing and permitting falls under AST while operations is the focus of the ATO. Licensing and permitting includes two different licenses: one to operate a spaceport and one to launch and operate a space vehicle.

A Committee member inquired about how sites are selected for spaceports and whether there is a process for evaluating proposed sites, also known as Launch and Reentry sites. Industry participants expressed particular concern about a new spaceport that is being built in Tuscon, Arizon, near both commercial and military airfields. The FAA clarified that this site is not in a formal process for a license but the entity is building anyway. The builder continues to build at risk.

Mr. Schneider informed the TOC about activity underway in the Commercial Space office in the ATO. A Commercial Space Integration Team (CSIT) in the ATO is working to identify all of the key issues that impact operations and targeting to identify how to address each of these issues by November 2016.

Mr. Schneider also spoke to the TOC about some of the challenges with integrating this new entrant. Commercial space operators are governed by the Learning Period Act that gives the industry greater flexibility since it is a new industry. Another challenge is that while the industry has a trade association, there is high competitiveness within this industry. Some operators are more mature and less willing to collaborate with other industry players and either be held back or share critical information. As a result, it is challenging to have a reliable flow of good information about intentions of industry participants.

A Committee member raised a concern that no NATCA representative was present in the Office of Commercial space and this should be rectified.

Finally, Mr. Schneider and Mr. Bill Davis discussed the potential of a new tasking to the TOC related to Commercial Space. The focus of a task may be around access and prioritization of airspace as it relates to commercial space launches in the NAS. The underlying question would include how to balance prioritization of airspace between aviation and commercial space operators. Alternatively, a task might focus on evaluating the Concept of Operations for commercial space operations.

### **Update on the Drone Advisory Committee (DAC)**

Mr. Al Secen, RTCA, next provided an update on the Drone Advisory Committee (DAC). (Mr. Secen's briefing materials are included in Attachment 2.) He noted that RTCA provided recommendations to the FAA Administrator on DAC membership across approximately twelve different domains. The Administrator would be making the final decision on DAC membership.

Mr. Secen also explained that RTCA was awaiting the Terms of Reference (TORs) for the Committee. RTCA is anticipating the DAC will provide guidance on tasking and establish ad hoc and some standing working groups to conduct the work. He did mention that the DAC was likely to be tasked to prioritize what issues industry believes are most important to integrate drones into the NAS.

### **Update on Graphical TFR Task**

Mr. Rune Duke, Aircraft Owners and Pilots Association (AOPA), and Mr. Jon Reisinger, Jeppesen, Co-Chairs of the Graphical TFR Task Group, next provided an update on the efforts of this task group. (This update is included in Attachment 2.) Messrs. Duke and Reisinger explained that the Task Group had its kickoff meeting the prior week and had broad participation from operators, vendors and multiple units in the FAA. They presented the TOC with a series of examples of Graphical TFR issues, including incorrect graphics, confusing graphics, permanent restrictions being presented as TFRs and others. Mr. Duke and Mr. Reisinger also told the TOC that the Task Group would meet monthly for the rest of this year and planned to offer recommendations to the TOC in first quarter of 2017.

### **FAA Response to Previous Recommendations**

The FAA provided responses to multiple previous recommendations from the TOC:

#### National Procedure Assessment (NPA) Initiative

Ms. Ray informed the TOC that the FAA was in process of evaluating the NPA recommendations and that most were accepted with no comment. (Ms. Ray's briefing materials are included in Attachment 2.) However, dialogue was warranted for a few and she stated that the FAA would reach out through RTCA to engage with the Task Group Co-Chairs as required. She also noted that the recommendations had raised follow-on questions and conversation about the inter-relationships between the NPA effort, the VOR MON Program and the NAS Navigation Strategy.

#### VOR Minimum Operating Network (MON)

Ms. Leonixa Salcedo, VOR MON Program Manager, next briefed the TOC on the VOR MON program. (Ms. Salcedo's briefing materials are included in Attachment 2.) She stated that a final policy Federal Register Notice (FRN) was being prepared for publication in July 2016. Responding to a question from a Committee member, Ms. Salcedo clarified that the FRN would include the full list of VORs intended for decommissioning between 2016 and 2025. This was based directly on recommendations from the TOC's VOR MON tasking. Finally, she noted that beyond the initial FRN publication, each individual VOR would go through its own circularization process.

#### Airport Construction

Ms. Ray noted that the airport construction tasking was a large body of work and fairly complicated. The FAA is in process of identifying a "portfolio manager" for the more complex taskings because they are so widespread. A cross lines of business (LOB) group had begun to evaluate the recommendations and work was underway but the FAA did not yet have a response to the recommendations. She also

noted that some recommendations may be more appropriately lead by industry and that such conversation between FAA and industry would begin later in the summer.

#### NorCal Noise Initiative

Ms. Ray informed the TOC that the FAA's feasibility study had been made public, and the TOC's response was included as an Appendix to the feasibility report. Mr. Glen Martin, Regional Administrator for the region, was in the lead role to work with the community on the feasibility study. A community Select Committee of leaders in the NorCal region was now in process of having public meetings on the subject. The Select Committee was established locally and is not an FAA structure, and this Committee is expected to come back to the FAA with a response to the feasibility study.

#### Eastern Regional Task Group Caribbean Recommendations

Mr. Jim Linney, Director Air Traffic Systems, briefed the TOC on status of the ERTG Caribbean recommendations. (Mr. Linney's briefing materials are included in Attachment 2.) Mr. Linney reiterated the FAA's intent to identify ways to utilize existing Programs and budgets to implement the recommendations. Additionally, he stated that the FAA was seeking partnerships across the US government to invest in implementation of the Caribbean recommendations given the importance of the region to the US in general. Responding to a question from a Committee member, Mr. Linney explained there are safety-oriented precedents for a cross government investment and collaboration, including working with US AID in Africa and China. He also noted that some recommendations are moving forward, including establishing shout lines between SJU CERAP and neighboring foreign facilities as well as adding SJU Tower to the Datacomm waterfall.

#### Recommendations on Class B Airspace

Mr. Gary Norek, Mr. Leslie Swann and Mr. Ken Ready, next briefed the TOC on an update of its effort to rework guidance around establishing and removing Class B airspace. (Mr. Norek's response document on Class B recommendations is included as Attachment 4.) Mr. Norek commented that one of the greatest challenges is to identify and understand complexity criteria and they were working closely with MITRE on this. The effort was intended to identify specific factors that could be considered for a complexity index. Mr. Ready also informed the TOC that AJV-113 was in process of a Document Change Proposal (DCP) rewrite of 7400.2, *Procedures for Handling Airspace Matters*. He noted that this DCP is a large effort as the FAA is working on adjusting 15 chapters of this document.

#### **Update on the NextGen Advisory Committee (NAC)**

Mr. Andy Cebula, RTCA, briefed the TOC on status of the NextGen Advisory Committee (NAC). (Mr. Cebula's briefing materials are included in Attachment 2.) He discussed recommendations the NAC provided to the FAA on NIWG integrated plans, the Joint Analysis Team (JAT) review of Wake Recategorization and Community Outreach to support PBN implementations.

Mr. Cebula advised the TOC that the FAA confirmed it made a final investment decision (FID) on Terminal Flight Data Manager (TFDM) and would be awarding a contract winner within a month. One



Committee member commented that the FID for TFDm was important as many elements of TFDm were designed to connect the surface to the entire system.

Mr. Cebula also informed the TOC that a new ad hoc task group had been established in the NAC to evaluate enhanced surveillance, i.e., space based ADS-B. Finally, he also noted that the NAC identified a need to improve broader communication of all of the work and recommendations offered by the Committee. An ad hoc was formed to develop unified communications messages on what the NAC has produced.

### **Performance Based Navigation (PBN) Route Structure Concept of Operations Task**

Mr. Mark Hopkins, Delta Airlines, and Mr. David Surridge, American Airlines, briefed the TOC on the status of the PBN Route Structure Task Group. Mr. Hopkins and Mr. Surridge are the Co-Chairs of this Task Group. They reviewed the tasking elements, the members and the schedule for the task. (Their briefing materials are available in Attachment 2.)

Messrs. Hopkins and Surridge reviewed data on the use of Jet and Victor routes in the NAS today. Both types of routes indicated a minimal amount of route usage beyond the initial 20-30% of routes. For example, the 100<sup>th</sup> most utilized Victor route (out of 700 V routes in the NAS) is only used four times each day. TOC members suspected that General Aviation pilots are generally well equipped and flying more point-to-point.

Mr. Rune Duke, AOPA, was introduced as the Chair for two sub groups of this task – one focused on Low Altitude route structure in the Continental United States (CONUS) and one focused on Low Altitude route structure in Alaska. Mr. Duke informed the TOC that these two groups had been formed and would be working on a similar timeframe to the high altitude group that Mr. Hopkins and Mr. Surridge were leading.

Finally, Mr. Hopkins and Mr. Surridge informed the TOC that in its October meeting, the Task Group would provide initial draft recommendations for feedback and discussion.

### **Adjourn**

Chairmen Quigley and Wright ended the meeting of the Committee at 3:00 p.m.

### **Next Meeting**

The next meeting of the TOC is October 27, 2016.

**MEMORANDUM OF UNDERSTANDING**  
**BETWEEN THE**  
**FEDERAL AVIATION ADMINISTRATION**  
**AND THE**  
**MASSACHUSETTS PORT AUTHORITY**

**1. Parties**

The parties to this Memorandum of Understanding ("MOU") are the Federal Aviation Administration ("FAA") and the Massachusetts Port Authority (the "Authority").

**2. Purpose**

This MOU outlines the actions the Authority and the FAA intend to undertake in seeking reductions to overflight noise impacts of aircraft operations at Boston Logan International Airport (BOS) that result from the FAA's implementation of NexGen precision-based navigation (PBN) procedures including RNAV. The Authority and the FAA will cooperate in analyzing opportunities for noise reduction through changes or amendments to PBN procedures. Such cooperation could include analyzing the feasibility, the benefits and impacts, testing (as deemed necessary by the FAA), developing an implementation plan (including environmental analysis), and coordinating on community outreach.

**3. Objectives**

This MOU establishes a framework for cooperation by the FAA and the Authority in exploring, evaluating and advancing changes or amendments to PBN procedures that reduce impacts from aircraft overflight noise, while at the same time maintaining the safety and efficiency benefits of PBN procedures at BOS. To that end, a specific goal of the Parties is to determine the degree to which procedural changes or amendments will result in improvements to the noise environment that results from RNAV flight path concentration, including:

- (a) Identification of procedural changes or amendments to reduce overflight noise from RNAV concentration;
- (b) Feasibility assessment of specific noise abatement procedures;
- (c) Design and modeling of proposed changes or amendments to procedures to assess safety, level of benefits and potential impacts, further refinement, and consideration for testing (as deemed necessary by the FAA) and/or implementation (if deemed feasible by the FAA); and
- (d) Incorporation of community outreach and feedback and consideration of further potential refinement of procedural changes or amendments based on such feedback.

#### **4. Responsibilities of the Parties**

**(a) The Authority will:**

- (1) Select and convene a technical team, at its own cost, of subject matter experts including experts in procedure design and modeling, aviation acoustical analysis, air traffic/airspace management, design, optimization, aircraft FMS capabilities, and community engagement /communication
- (2) Develop a detailed scope of work to investigate the feasibility of the following procedural changes or amendments:
  - (i) Creating additional RNAV departure procedures for Runway 33L to reduce track concentration.
  - (ii) Moving Runway 22R RNAV SID departure track further north of Hull peninsula, while maintaining separation with Runway 27 arrivals, to reduce impact over Hull, Massachusetts.
  - (iii) Designing a special RNAV procedure for Runway 4R arrivals that includes an off-set approach and follows compatible land use to reduce the impact of Runway 4R arrivals on the standard ILS approach.
  - (iv) Maximize the use of late-night over-the-water arrival procedures to Runway 33L. This work is already underway with the FAA and the Authority working to increase airline participation in the Jet Blue RNAV visual procedure, which keeps Runway 33L arrivals over water.
- (3) Propose supplemental noise metrics for disclosure purposes. The Authority understands that supplemental noise metrics will not be considered by the FAA in making decisions regarding the significance of noise impacts and will be presented for information only.
- (4) Conduct initial analyses and modeling to determine the feasibility of proposed changes or amendments to PBN procedures and identify benefits and impacts of such proposed changes or amendments, including assessing impacts of the proposed changes or amendments to PBN procedures to other communities.
- (5) Provide outreach to communities to incorporate community feedback and input regarding the proposed changes or amendments to PBN procedures.
- (6) Propose changes or amendments to PBN procedures to FAA for implementation.

**(b) The FAA will:**

- (1) Receive proposed changes or amendments to PBN procedures from the Authority.

- (2) Evaluate each change or amendment to the PBN procedures proposed by the Authority for safety and its impact on the efficiency of BOS and the NAS. Prior to making a decision as to whether to implement any of the Authority's proposed changes or amendments to the PBN procedures, FAA will comply with the National Environmental Policy Act and any other legal requirements. Participate in public outreach in a supportive role to Massport.

## **5. POINTS OF CONTACT**

For the Federal Aviation Administration:

For the Massachusetts Port Authority:

Flavio Leo  
Director of Aviation Planning  
Massachusetts Port Authority  
One Harborside Drive  
East Boston MA 02128  
(617) 568-3528

## **6. Funding**

No funds are obligated under this MOU. Each party shall bear the full cost it incurs in performing, managing, and administering its responsibilities under this MOU.

## **7. Warranties**

Neither the FAA nor the Authority makes any express or implied warranty as to any matter arising under this MOU.

## **8. Protection of Confidential/Privileged Information**

Each party shall take appropriate measures to protect proprietary, privileged or otherwise confidential information obtained as a result of its activities under this MOU.

## **9. Amendments**

The Parties may amend this MOU by mutual agreement. The Parties shall document the details of any such amendment in a writing signed by both Parties.

## **10. Construction**

The parties understand and agree that this MOU does not confer any legal rights, duties or obligations on either party and is not subject to dispute in any forum. Neither party is authorized or empowered to act on behalf of the other with regard to any matter, and neither party shall be bound by the acts or conduct of the other in connection with any activity under this MOU. This provision shall survive termination of this MOU.


### 11. Effective Date/Term/Termination

This MOU shall be effective on the date of the last signature of the parties and shall remain in force until terminated by mutual agreement or unilaterally by either party upon 30 days notice to the other party.

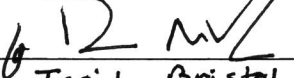
### 12. Authority

The authority for this MOU is 49 U.S.C. 106(f)(2)(A) and 106(l) and (m).

#### Massachusetts Port Authority

By:   
Title: Michael A. Grieco  
Assistant Secretary-Treasurer  
Date: 9/21/16

#### Federal Aviation Administration

By:   
Title: Teri L. Bristol  
Chief Operating Officer  
Date: 9/27/16





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

October 19, 2016

Margaret Jenny  
President  
RTCA Inc  
1150 18th St. NW, Suite 910  
Washington, DC 20036

Dear Ms. Jenny,

The FAA continues to support the Department of Transportation's (DOT) activities to develop Global Positioning System (GPS) spectrum interference protection criteria to guide future proposals for non-space, commercial uses in the bands adjacent to the GPS signals. Ligado Networks has provided an analysis of the compatibility between their proposed handsets and certified GPS receivers (enclosed). We have also received a proposal from Ligado Networks concerning the compatibility of their downlink with certified GPS receivers (enclosed). Their proposal is based, in large part, on the FAA assessment of the original LightSquared proposal, and proposes to determine a site-by-site peak power output that will ensure GPS reception for aircraft using certified avionics when they are operating 250 feet or more laterally, or 30 feet or more above a Ligado transmitter antenna.

The FAA requests that RTCA review these documents and provide comments. Should the committees have any questions, please contact Ken Alexander, Chief Scientific and Technical Advisor for Satellite Navigation Systems, (202) 236-9794, [ken.alexander@faa.gov](mailto:ken.alexander@faa.gov).

The FAA activities are part of the ongoing DOT-led activity to understand power levels that can be tolerated in the adjacent radiofrequency bands for all civil global navigation satellite system receivers, including non-certified aviation receivers which are of interest to the FAA, but are outside the scope of the enclosed analyses and this request for comment. The FAA will continue to review for potential impacts to noncertified equipment and their effect on aviation, in the context of other noncertified receivers across many other civil applications. We appreciate your consideration of this matter and look forward to your response.

Sincerely,

A handwritten signature in black ink, appearing to read "Margaret Gilligan".

Margaret Gilligan  
Associate Administrator for Aviation Safety

Enclosures