

May 16, 2014

**Meeting Summary, May 16, 2014**  
**Tactical Operations Committee (TOC)**

The fifth meeting of the Tactical Operations Committee (TOC), held May 16, 2014 at RTCA Headquarters in Washington, DC, and virtually, convened at 9:15 a.m. The meeting discussions are summarized below. The following attachments are referenced:

Attachment 1 – List of Attendees

Attachment 2 – Presentations for the Committee (containing much of the detail about the content of the material covered)

Attachment 3 – Summary of the February 6, 2014 TOC Meeting

Attachment 4 – FAA Response to Recommendations on Visual Area Surface 20:1 Obstacle Clearance  
Attachment 5 – FAA Response to Recommendations on VHF Omni-directional Range (VOR) Minimum Operating Network Prioritization

Attachment 6 – FAA Response to Recommendations on VHF Omni-directional Range (VOR) Minimum Operating Network Criteria Prioritization

Attachment 7 – FAA Response to Recommendations on NOTAM Success Criteria and Metrics

Attachment 8 – NOTAM Search and Filter Options

**Welcome and Introductions**

Committee Co-Chair, Mr. Jim Bowman, Vice President of Flight Operations at FedEx Express 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. Bowman explained that this TOC meeting was planned as a virtual meeting since the agenda was only a half day. He informed the TOC members that generally the plenary meetings will be full day and in person but, where appropriate, shorter virtual meetings may be used as well.

Mr. Bowman reviewed the agenda and began the proceedings of the meeting. Co-Chairman Dale Wright of the National Air Traffic Controllers Association had a conflicting commitment and joined the meeting in progress at 10:30am.

**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 February 6, 2014 Meeting Summary**

The Chairs asked for and received approval of the written Summary for the February 6, 2014 meeting (Attachment 3).

### **FAA Report**

Ms. Ray provided the FAA report. She began by informing the TOC that the President’s budget for FY2015 had been submitted in March and the House mark-up was expected in May. The budget included \$7.39 Billion for the FAA, which was \$85 million, or 1.2%, higher than FY2014. The mark up from the Senate is expected in early June. Ms. Ray also noted that planning for FY2016 was underway, and in June the FAA expected to submit a FY2016 budget to the Department of Transportation.

Ms. Ray next addressed the subject of alternate funding sources for the FAA. She mentioned that as the reauthorization for the FAA is set to expire in FY2015, Congress is exploring all options for funding the FAA. Approaches such as the corporatized model used for Nav Canada are under consideration. Ms. Ray stated that the FAA’s Management Advisory Committee is assessing the options. The FAA, she stated, maintains no position on the issue and is open to looking at new approaches to funding.

Ms. Ray then spoke about plans for hiring air traffic controllers. Sequestration had stopped controller hiring and training late in calendar year 2013, but this restarted in January 2014. The target for 2014 is 1,286 new hires with 720 Terminal and 550 En Route. Tentative offers had been made to approximately 1,200 individuals but litigation associated with changes in the hiring process has created some hiring delays. Ms. Ray stated that the FAA received 28,000 applications and that the applicant pool was strong.

Next, Ms. Ray addressed the subject of Unmanned Aerial Systems (UAS) in the NAS. She informed the TOC that two UAS Test Sites are up and running. North Dakota became active in late April with a Draganflyer focused on agricultural applications of crop and soil inspection. The site will collect underlying operational data. The second active test site is the University of Alaska Fairbanks. This site is operating a miniature helicopter called the Aeryon. The site’s intent is to survey large animals such as caribou, reindeer, muscats and bears. Similar to other test sites, operational data will be collected as the test site utilizes the UAS to conduct its wildlife observations.

Finally, Ms. Ray briefly addressed New York Airspace Redesign and the subject of a potential future Integrated Control Facility (ICF) housing New York TRACON and New York Center. Ms. Ray stated that evaluation on how to proceed on the ICF and airspace redesign was ongoing and required extensive coordination between multiple parties in Federal and Local government. She requested that TOC

members wait for such coordination to be completed and that the FAA would announce plans on these subjects in the near future.

#### **FAA Response to Previous TOC Recommendations – 20:1 Visual Area Surface**

Mr. Bill Davis, Deputy Vice President of Mission Support at the Air Traffic Organization (ATO), provided an FAA response to the TOC's February 2014 recommendation regarding the November 2013 draft policy memo on obstructions in the 20:1 Visual Area Surface (VAS) (the FAA letter is included as Attachment 4). Mr. Davis expressed appreciation to Chris Baum (ALPA) and Chris Oswald (ACI-North America) who Co-Chaired the 20:1 VAS Task Group. Mr. Davis stated the FAA recognized a need to develop a risk-based approach that identified and mitigated obstructions in the 20:1 surface. He said that the FAA was focused on an approach that gave industry time to determine if an obstacle existed and to identify remedies commensurate with the safety risk. The intent was to not be too disruptive to the operation.

Mr. Davis communicated FAA concurrence with all of the findings in the TOC's recommendation. The FAA agreed that industry needed time to determine if obstacles were real and improved guidance to clarify the process. The FAA agreed that no survey should be required in an initial assessment given the logistical limitations. A visual assessment would be acceptable in the verification stage. Mr. Davis continued, saying that the FAA understood the request for a standard format for compliance plans and this would be included in the upcoming Airport Geographic Information System the FAA was developing. He informed the TOC that the system would be ready for release for the CONUS shortly and would help the operational community visualize potential obstacles. One TOC member noted that he received a demonstration of the tool at a recent industry forum and the tool received very positive reviews. The TOC member indicated that the industry looked forward to having public access to the tool to use it.

Mr. Davis spoke next about outreach on the policy. He said the FAA has worked extensively with technical groups regarding the policy but had more work to do on working with the non-technical community. He recognized that compliance with the policy will be dependent upon awareness and further outreach was required.

Mr. Davis then responded to some additional recommendations from the VAS Task Group. The Task Group recommended the FAA continue to evaluate whether the geometry of the Visual Area Surface should be modified given changes in technology and operations since it originated. Mr. Gary Powell, TOC Member from FAA Flight Standards, told the TOC that studies on this matter were ongoing. He said the FAA had installed visual trackers at New York's Laganrdia Airport (LGA) and Washington DC's Reagan National Airport (DCA) as well as one in Oklahoma City (OKC) to collect data on where aircraft are actually tracking using precision approaches. Such data will eventually assist in measuring whether the current surface remains valid. One TOC member pointed out that it was important to track both visual as well as instrument approaches when considering obstacles. Mr. Powell indicated the FAA was examining both visual and instrument approaches, and they would be evaluating small airport operations as well.

Finally, Mr. Davis stated a plan to publish an updated memo this summer and that he would request the VAS TG to provide a review of the updated memo in the February 2015 timeframe. The FAA's intent is to have the process and policy finalized by January 2016, about 2 years after publishing the initial draft memo.

One TOC member noted that the industry has been interested in getting data on the number of penetrations by risk category. Mr. Davis indicated that this data would be made available on an airport basis through the GIS tool.

### **Eastern Regional Task Groups (RTGs)**

The Committee next addressed the work of the Eastern Regional Task Group (RTG).

The Committee began by approving Joe Bertapelle, Director Strategic Airspace Programs at JetBlue Airways, as a new Co-Chair of the Eastern Regional Task Group (ERTG), along with Glenn Morse of United Airlines.

Mr. Morse then provided an overview of the recent work of the ERTG. The ERTG had a meeting in Miami Center in March 2014 during which the RTG reviewed the following subjects:

- Efforts to further deconflict airports in the New York airspace, especially with next year's planned closure of runway 4L at JFK for construction
- Efforts to develop Optimized Profile Descents (OPDs) to JFK for some international arrivals
- Washington Optimization of Airspace & Procedures in the Metroplex (OAPM)
- Q routes in Cleveland Center
- Runway construction at Fort Lauderdale (FLL) and associated airspace changes

Next, Mr. Bill Cranor of United Airlines spoke about operational challenges in the Caribbean. Mr. Cranor explained that due to airspace structure, equipment limitations, increasing demand and other factors, the number of Airspace Flow Programs (AFPs) in the Caribbean had increased dramatically on peak days in the last 2 years. The increase in AFPs is creating delays and increasing fuel costs for all operators. The ERTG indicated an interest to utilize the RTG and TOC forum to make recommendations to the FAA on how to best address the operational problems in the Caribbean. The next step is for the ERTG to provide a written proposal of a Caribbean operations tasking for consideration to TOC Leadership.

### **Regional Task Groups and Special Activity Airspace (SAA)**

Ms. Ray of the FAA next addressed whether the RTGs could be utilized as the industry forum for responding to Special Activity Airspace proposals. Ms. Ray explained that once any SAA proposal reaches the FAA, the FAA is ex parte. That implies that the FAA must act as an honest broker and cannot request information from specific groups within the public on the proposal. If the TOC retained special rights to provide input on a proposal to the FAA, the FAA would no longer be ex parte.



Before a proposal reaches the FAA, it resides in an informal process operated by the Department of Defense (DoD). During that stage, the DoD holds meetings and conducts outreach with various members of the public. Ms. Ray noted that the optimal window for operator input on proposals was during this informal stage. However, during this stage of the process, the process is owned by the DoD and not the FAA. Hence, Ms. Ray stated that she and the FAA have no place to task an FAA Federal Advisory Committee to participate in a DoD process. She mentioned that the RTGs can and should continue to have guest speakers from the DoD come to RTG meetings and brief the RTGs on SAA proposals for the purpose of information flow.

### **FAA Response to Previous TOC Recommendations – VHF Omnidirectional Range (VOR) Minimum Operating Network (MON)**

Mr. Dale Courtney, National Resource Engineer for Navigation at the ATO, provided an FAA response to the TOC's November 2013 and February 2014 recommendations on the VOR MON (the FAA's letters are included as Attachments 5 and 6). Mr. Courtney expressed agreement with the recommendations the VOR MON Task Group provided in their report of November 2013. Specifically, the FAA agreed with retaining VORs in areas of GPS interference, ensuring adequate navigation services for non-RNAV capable aircraft and retaining VORs in Western mountainous regions and outside the CONUS.

Mr. Courtney told the TOC that the FAA agreed with the set of mitigations required prior to decommissioning any VOR. These mitigations include modifying all procedures (arrival, departure, instrument approach, obstacle departure procedures), holding patterns, routes, fixes, airways, etc. They also involve appropriate adjustments to non-navigation services provided by VORs, including communications, references to intersections and waypoints, charts, etc.

Mr. Courtney raised one request for clarification with regards to the TOC's recommendation for the FAA to mitigate all procedures prior to decommissioning, including Single Engine Inoperative procedures. He indicated the FAA does not have insight into these operator generated procedures and requested the TOC's recommendation on the best approach to coordinate with operators to gather this information.

With regards to the recommendation to permit transfer of Federal VORs to a non-Federal owner, Mr. Courtney said the FAA was open to this on a case-by-case basis. He reminded the TOC that since VORs are aging, the FAA's intent has been that as VORs turn off, parts from those decommissioned assets will be utilized to keep the remainder of the MON running.

Mr. Courtney expressed appreciation for the TOC's recommendation to expand the service volume of the VORs in the MON below 5,000 feet. He said that the FAA had not considered this idea previously and considered this recommendation as a new additional idea from the TOC. This summer, the FAA will be examining the possibility of expanding the service volume at 4,000 and 3,000 feet.

Finally, Mr. Courtney reminded the TOC that the FAA was still assessing Alternative Position Navigation and Timing (APNT) services as a full scale backup to GPS. The FAA has not reached a conclusion on this yet.

Mr. Courtney then responded to the second recommendation from the TOC, delivered in February 2014. The February 2014 report provided TOC input on the relative weights of different criteria used to evaluate the MON. He communicated agreement with the recommendations in this report, stating that weighted criteria will make head-to-head evaluation of VORs more straightforward. Additionally, as the FAA plans for public comment on the VOR MON, the TOC's weighted criteria will be useful in evaluating whether to swap VORs in and out of the MON.

### **FAA Response to Previous TOC Recommendations – NOTAM Success Criteria and Metrics**

Mr. Glenn Sigley, Acting Deputy Director for the AIM Directorate at the ATO, provided an FAA response to the TOC's February 2014 recommendations on NOTAM Success Criteria and Metrics (the FAA's letter is included as Attachment 7). Mr. Sigley informed the TOC that he was moving into a new role in the FAA and he introduced Mr. Scott Jerdan as his successor as the FAA point of contact for the NOTAM Improvement Panel.

Mr. Sigley first provided the FAA's response on the high level metrics recommended by the TOC. The first metric covered was percent of NOTAMs that are digital, and Mr. Sigley communicated this was a metric the FAA was already tracking closely. He said the FAA currently had about 60% NOTAMs digital. As the DoD was in process of coming online to originate NOTAMs digitally, the FAA expected this number to increase in 2014. He agreed that this was a critical metric to measure process on NOTAMs.

Next, Mr. Sigley addressed the TOC's recommendation to provide the functionality required in the Pilot's Bill of Rights within the FAA's NOTAM Search site. He mentioned that the ability to access archived NOTAMs for the last three years was available in NOTAM search. He said NOTAM search currently had some ability to do filter, prioritize and search. However, the next step was to enhance NOTAM Search's capabilities on filter, prioritization and search and that integrating the route of flight as an option was an important priority.

Finally, Mr. Sigley addressed the functionality of third parties being able to access and use NOTAM data for 3<sup>rd</sup> party tools and applications. He said that in late May 2014, the Federal NOTAM System would allow request/response of NOTAM data via SWIM. By September or October 2014, the FAA will enable publish/subscribe access for NOTAM data via SWIM. Mr. Sigley indicated that the AIM office expects between 18 and 20 customers for the pub/sub service with some large commercial airlines already indicating intent to sign up.

Mr. Sigley next addressed the second part of the TOC's recommendation which suggested a synthetic measure of user satisfaction with NOTAM Search. He indicated that NOTAM Search already included a capability for gathering feedback but the TOC's recommendation went beyond what is currently in

NOTAM Search. The FAA communicated an interest to have the NOTAM Task Group create a survey tool that gathers the data that would provide these measures of satisfaction.

Mr. Jerdan spoke next to the TOC. He indicated that feedback from the NOTAM Task Group and TOC has proven very helpful to the AIM office, providing clear direction on priorities for NOTAM Search.

### **NextGen Advisory Committee (NAC)**

Mr. Andy Cebula of RTCA spoke next, providing the TOC with an overview of activities on the NAC. Mr. Cebula indicated that the NAC had two primary areas of focus currently: the NextGen Integration Working Groups (NIWG) and the PBN Blueprint Task Group (TG). The PBN Blueprint TG has been meeting recently and learning about implementation experiences in various locations and from various stakeholder perspectives – airports, ATC, operators, etc. The goal of the Task Group is to identify answers to questions such as:

- Who should be involved in successful PBN implementations (technical and non-technical)?
- What strategies work to engage all stakeholders?
- What is the definition of success?
- What are the lessons learned from previous attempts and how to structure implementations in the future?

Mr. Cebula explained that the NextGen Integration Working Groups grew out of the NAC's prioritization recommendations delivered to the FAA in September 2013. In the NAC's February meeting, they approved a deep dive on a subset of the Tier 1 Recommendations from last September. The specific capabilities approved for the deep dive were: Performance Based Navigation (PBN), Multiple Runway Operations, Data Communications and Surface. Integrated teams between the FAA and industry have been created to make plans and commitments to move forward on these four Tier 1 options.

Mr. Cebula then went through the schedule for the NIWGs. During the June 3<sup>rd</sup> NAC meeting, the Working Groups will provide interim reports. In July, the FAA will report progress on the Working Groups to Congress. The NAC will hear final reports from the groups on October 8<sup>th</sup> and Congress will receive final reports on October 18<sup>th</sup>.

### **VHF Omni-directional Range (VOR) Minimum Operating Network (MON) Update**

Mr. Don Dillman, Airlines for America, and Mr. Bob Lamond, National Business Aviation Association, Co-Chairs of the VOR MON Task Group, provided a brief update to the TOC on the work of the VOR MON Task Group. They explained that the group had completed Tasks 1 and 2 previously. The next task, Task 3, was on hold because it required access to a PBN Route Strategy document from the FAA, which was currently not available. Mr. Dillman and Mr. Lamond explained the Task Group and TOC Leadership had coordinated with the FAA and RTCA to adjust the schedule of the VOR MON Task Group. The TG will begin work on Task 4, which focuses on outreach and education on the VOR MON,

and postpone Task 3 until a later time. The VOR MON Task Group expects to report on Task 4 during the September 3<sup>rd</sup> TOC Meeting.

### **NOTAM Search and Filter Options**

Mr. Mark Cardwell, FedEx Express, Co-Chair of the Notice to Airman (NOTAM) Task Group, briefed the Committee on its recommendations on prioritization of search and filter criteria for NOTAM Search. This Task Group serves as the NOTAM Working Group of the TOC, which serves as the NOTAM Improvement Panel, an industry advisory panel required by the language in the Pilot's Bill of Rights (PBoR) legislation.

Mr. Cardwell explained that his Co-Chair for the NOTAM Task Group, Mr. Tom Kramer (AOPA), had a previous commitment and was unable to participate in this TOC meeting.

Mr. Cardwell then went through the recommendations. He explained that this recommendation was provided in direct response to a letter from the FAA regarding the initial NOTAM Task Group recommendation submitted in November 2013. In the letter, the FAA stated: "The FAA AIM office requests a working meeting involving the members of the task group and the Federal NOTAM System (FNS) engineering and development teams to define stakeholder requirements for some of the specific requests (e.g., the flight path search tool)." As a result of this request, NOTAM Task Group Leadership, RTCA and the FAA AIM office met to clarify what questions the FAA wanted addressed by the Task Group. Once this was clarified, the Task Group met, addressed the questions and prepared this recommendation report.

Mr. Cardwell then explained that the request from the FAA included three areas of work:

- Clarification of search and filter terms
- Prioritization of search and filter options
- Specific questions from the FAA response letter

Mr. Cardwell first addressed the clarification of search and filter terms. The FNS engineering and development teams requested clarification on the NOTAM Task Group's intent for each of the following recommended filter or search options for NOTAM search:

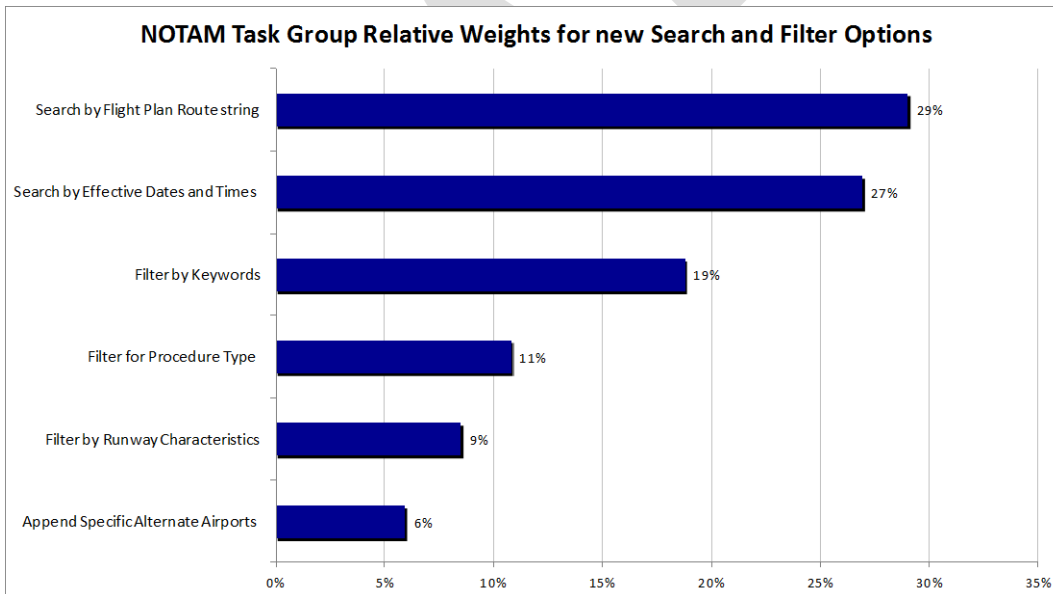
- Runways
- Regions
- FIRs
- Procedures
- Effective Dates and Times
- Altitude/Flight Level
- Keywords
- Flight Plan Route
- Desired Route Width
- Specific Airport along airman's route

The NOTAM Task Group provided clarification on each of these terms and Mr. Cardwell explained that the details of these clarifications are available in the final written recommendations from the Task Group.<sup>1</sup>

Next, Mr. Cardwell addressed the Task Group’s recommendation on prioritization of search and filter options. He explained that the underlying question for the Task Group was in what sequence should FAA implement the following options not currently in NOTAM Search?

1. Filter by Runway Characteristics (length, width, surface types)
2. Filter for Procedure Type to include or exclude a procedure type
3. Filter by Keywords (RWY, TWY, APRON, AD, OBST, NAV, COM, SVC, AIRSPACE, ODP, SID, STAR, CHART, DATA, IAP, VFP, ROUTE, SPECIAL, SECURITY)
4. Search by Effective Dates and Times with a time buffer
5. Search by Flight Plan Route string with a route and altitude width around it
6. Append Specific Alternate Airports outside of route of flight and route width to the search

Mr. Cardwell informed the TOC that the Task Group went through a prioritization exercise using a software tool called Decision Lens to identify relative importance of each of these six options. The results of the exercise are depicted in the chart below:



Mr. Cardwell explained that searching and filtering by route of flight and effective dates and times were clearly the first priorities of the Task Group. A second tier priority was the ability to filter by keywords. Finally, the lowest tier of priority included filtering by procedure type, runway characteristics and appending a specific alternate airport to a search.

Next, Mr. Cardwell reviewed a series of additional recommendations the Task Group had to offer:

<sup>1</sup> This report is available as Attachment 8 and on the Tactical Operations Committee page of RTCA’s website: [www.rtca.org](http://www.rtca.org)

1. The general approach users will take for searching and filtering NOTAMs is by searching broadly to begin. From there, users expect to drill down to specifics using filtering capabilities.
2. NOTAM Search should allow users to search for multiple keywords at the same time.
3. NOTAM Search should allow users to filter keywords to both include and exclude the filter term.
4. NOTAM Search should allow users to create personalized accounts. Accounts could include saved information specific to the individual's operation. This may include items such as saved profiles for specific aircraft types, certain city pairs, specific routes, previous trips, preferred alternates and preferred flight levels. The Task Group recognizes there would be more work required to define the requirements of a user profile.
5. The "end state" for NOTAMs is a single Federal NOTAM Service web site combining the best features of the current DoD NOTAM and Pilot Web sites into the NOTAM Search web site. The TG realizes DoD may desire to keep its own site for DoD specific purposes.

Finally, Mr. Cardwell explained that the Task Group addressed three additional questions the FAA had posed in their response letter. The questions and Task Group responses are below:

1. **What is intended or implied by "Integration of Artificial Intelligence technology to facilitate ease of use (e.g. pattern recognition)"?**

Artificial Intelligence (AI) is an emerging discipline that offers great promise for human/machine interface. At present, in its most sophisticated form, it is probably not a practical addition to FNS, but less sophisticated aspects, like user profiles, may be a reasonable goal. The Task Group recognizes AI has much long term promise but suggests user profiles as a starting point for this item.

2. **On the recommendation for Flight Service Specialists: is the recommendation to allow FSS's to create NOTAMs (which they do today with ENII) or for FSS's to use NOTAM Manager in the future?**

The Task Group recommends Flight Service Specialists utilize NOTAM Manager in the future. The Group is aware there may be other factors that make this recommendation difficult. However, the Task Group leaves this recommendation as is for the time being with the request to hear further detail from the FAA on the ramifications of the recommendation. While the Task Group envisions full use of NOTAM Manager from all NOTAM originators, the Group is also interested in understanding the challenges it creates for the FAA.

3. **The FAA has stated that the NOTAM Improvement Panel will be an important participant in helping digitize the last 20% of NOTAMs. What ideas do different stakeholders particularly those representing airports general and business aviation stakeholders and airports have to partner with the FAA to motivate digitization towards 100%?**

The Task Group suggested the FAA consider whether it should define a date in the future to require digital entry for all NOTAMs. Additionally, some Task Group members indicated an

interest to examine data on which NOTAM generators are not originating NOTAMs digitally. Some Task Group members are membership based organizations and may be able to leverage local members to support outreach to airports that are not transitioning to digital. The members suggested that the message may have more weight if delivered from a local entity, and the local members of some organizations may be able to support this in the future. Finally, the Task Group suggested the FAA consider including a link to the primary FNS site in the “One Stop Shop” AIM Modernization Portal.

**Committee Action:** The Committee agreed by consensus to approve the NOTAM Search and Filter Options recommendation (Attachment 8).

#### **Anticipated issues for TOC consideration and action at the next meeting**

At the next meeting, the Committee will receive recommendations for consideration from the VOR MON Task Group and reports from the RTGs.

#### **Other business**

No other business was raised.

#### **Adjourn**

Chairman Wright ended the meeting of the Committee at 1:00 p.m.

#### **Next Meeting**

The next meeting of the TOC is September 3, 2014 in Washington, DC.

**Attendees:**  
**February 6, 2014 Meeting of the Tactical Operations Committee**  
**Washington, DC**

<b>Name<sup>1</sup></b>	<b>Company</b>
Bala, Kalyan	RTCA, Inc.
Bertapelle, Joe	JetBlue Airways
<i>Bowman, Jim</i>	FedEx Express
<i>Cato, Mark</i>	Air Line Pilots Association (Alternate)
Cebula, Andy	RTCA, Inc.
Courtney, Dale	Federal Aviation Administration
Cranor, Bill	United Air Lines, Inc.
Davis, Bill	Federal Aviation Administration
Dillman, Don	Airlines for America
Gerhardt, Adam	TASC, Inc.
Habicht, Steve	Federal Aviation Administration
<i>Hopkins, Mark</i>	Delta Air Lines, Inc.
Jerdan, Scott	Federal Aviation Administration
<i>Kast, Christian</i>	United Parcel Service
<i>Lamond, Bob</i>	National Business Aviation Association
Lawrence, Deborah	Federal Aviation Administration
Mitra, Trin	RTCA, Inc.
<i>Molin, Doug</i>	The MITRE Corporation
Morse, Glenn	United Airlines, Inc.
<i>Narvid, Colonel Juan</i>	DoD Policy Board on Federal Aviation
<i>Oswald, Chris</i>	Airports Council International - North America
<i>Powell, Gary</i>	Federal Aviation Administration (Alternate)
<i>Ray, Lynn</i>	Federal Aviation Administration
Sigley, Glenn	Federal Aviation Administration
<i>Solley, Edwin</i>	Southwest Airlines (Alternate)
<i>Wright, Dale</i>	National Air Traffic Controllers Association

<sup>1</sup>Committee member names appear in italics.






## **RTCA Tactical Operations Committee**

Fifth Meeting  
May 16, 2014  
RTCA Headquarters



## **Welcome and Introduction**


Co-Chairs:  
Jim Bowman, FedEx Express  
Dale Wright, NATCA



## Topical Agenda

- Approval of February 6, 2014 Meeting Summary
- FAA Report
- FAA Response to Previous TOC Recommendations
- Regional Task Groups
- VHF Omni-directional Range (VOR) Minimum Operating Network
- Report from the NAC
- Notice to Airman (NOTAM) Search and Filter Options

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### PUBLIC MEETING ANNOUNCEMENT

**Read by: Designated Federal Official Elizabeth Ray  
Tactical Operations Committee (TOC)  
May 16, 2014**

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:

**April 30, 2014**

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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**Review and Approval of:**  
**February 6, 2014 Meeting Summary**



**FAA Report**

Elizabeth L. Ray  
Vice President, Mission Support Services  
Air Traffic Organization



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**FAA Response to  
Recommendations on Visual Area  
Surface 20:1 Obstacle Clearance**

Bill Davis  
Deputy Vice President, Mission Support Services  
Air Traffic Organization



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**FAA Response to  
Recommendations on VHF Omni-  
directional Range (VOR) Minimum  
Operating Network**

Dale Courtney  
National Resource Engineer for Navigation  
Air Traffic Organization



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## **FAA Response to Recommendations on NOTAM Success Criteria & Metrics**

Glenn Sigley  
Deputy Director (A), AIM Directorate  
Air Traffic Organization



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## **Regional Task Groups**



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## **Request Approval for New Eastern RTG Co-Chair**




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## **TOC Eastern Regional Task Group**

Co-Chairs

Joe Bertapelle, JetBlue


Glenn Morse, United Airlines



## Eastern RTG: Current Issues

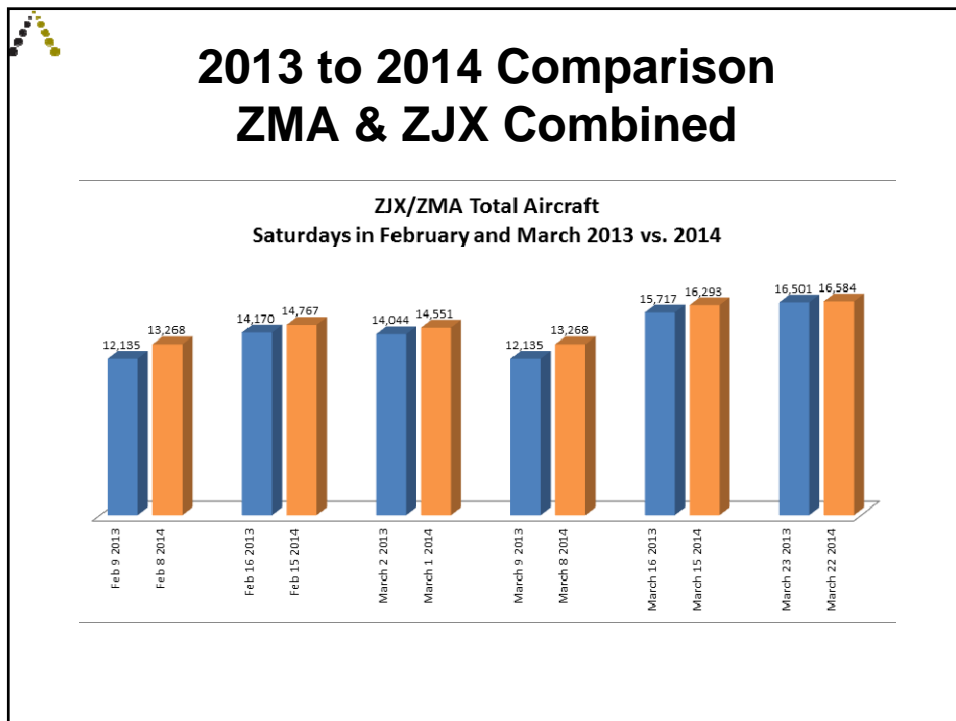
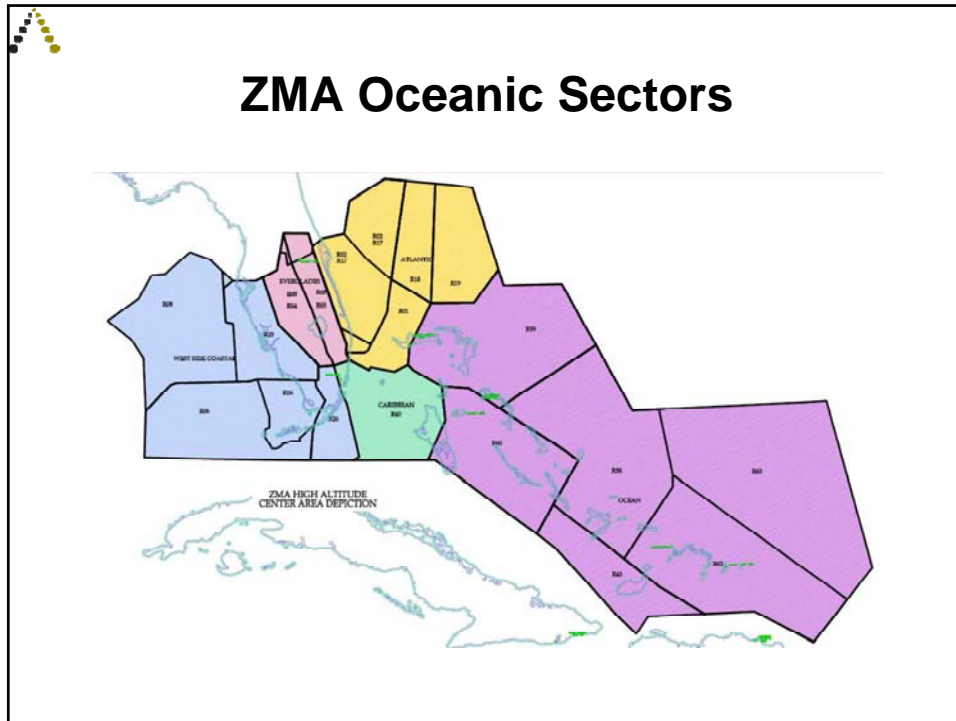
- Status of legacy NY/NJ/PHL Airspace Redesign Project and NYICF
- Washington OAPM/ZOB Q Routes
- Other NY Initiatives
- FLL airspace and procedures (PBN) to support new runway commissioning in September
- ADS-B Facility Installation and Route Implementation – GOMEX – ZMA/ZJX
- National Route Plan Project

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## Eastern RTG: Open Issues

- Heavy Caribbean volume with MIT restrictions to TJST/TIST/TNCM/TQPF/ZSU
- Structured routes in place for traffic on inland routes.
- Volume in oceanic sectors managed by multiple MIT restrictions and South Florida departure stops
- Average 72 flights a day captured by AFP on peak volume days (Saturdays – Feb to Apr)







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## **TOC Central Regional Task Group**

Co-Chairs

Mike O'Brien, American Airlines

Edwin Solley, Southwest Airlines



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## **TOC Western Regional Task Group**

Co-Chairs

Dan Allen, FedEx Express

Bob Lamond, NBAA



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## **Update on Special Activity Airspace and Regional Task Groups**

Elizabeth L. Ray

Vice President, Mission Support Services

Air Traffic Organization



# **DISCUSSION**



**Break**



**VHF Omni-directional Range (VOR)  
Minimum Operating Network**

Co-Chairs:  
Don Dillman, Airlines for America  
Bob Lamond, NBAA

### VOR MON Tasking


Task	Description	Timeline
Task 1 – Review and validate the VOR MON selection criteria and assumptions and make additional recommendations as needed	Provide a report documenting the following actions: 1. Review and validate the basic program assumptions made to date concerning the selection criteria. FAA will ensure the TOC has complete information on studies and analysis done to date as well as access to subject matter experts within the FAA. 2. If amendments are recommended, please provide specific details with the recommendations to include the range of options and/or alternatives discussed.	Interim Report <b>October 2013</b> Final Report <b>January 2014</b> <b>COMPLETE</b> <b>November 2013</b>
Task 2 – Review and validate the draft candidate VOR MON list, based on the criteria from Task 1.	Provide a report documenting the following actions: 1. Review and validate the candidate VOR MON list based on the criteria and, if the TOC recommends amending the criteria, update the candidate list based on the amendments as appropriate. If specific options were considered but not adopted via consensus, please provide the range of options and/or alternatives considered. 2. Advise FAA from a stakeholder perspective on why, how, and whether exceptions should be made to valid criteria. Again, please provide specific details to include the range of options and/or alternatives discussed.	Interim Report <b>January 2014</b> Final Report <b>April 2014</b> <b>COMPLETE</b> <b>February 2014</b>

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### VOR MON Tasking (cont.)

Task 3 – Review implementation planning to date and make recommendations to the preliminary waterfall schedule developed by FAA.	Provide a report documenting the following actions: 1. Examine and analyze the PBN Route Strategy in light of the VOR MON Program and recommend up to three possible implementation/waterfall scenarios. Advise the FAA of the pros and cons of each. If incremental actions are needed in any of the scenarios, please identify those with specificity. Please include the range of options and/or alternatives discussed in the documentation. FAA will provide the TOC with a draft copy of the PBN Route Strategy. 2. Provide recommendations on which victor and jet routes should be retained in the 2013-2020 timeframe and why. Please include the range of options and/or alternatives discussed in the documentation. 3. Provide high level industry perspective on the feasibility and actions needed to completely retire the legacy route structure after 2020.	Interim Report <b>April 2014</b> Final Report <b>July 2014</b> <b>September 2014</b>
Task 4 – Provide recommendations to the FAA on outreach and education that should be accomplished to prepare stakeholders for the VOR MON reduction.	Provide a report documenting the following actions: 1. Advise FAA, from an external stakeholder perspective, of what existing policies, processes, procedures or training will need to be modified to successfully implement the VOR MON. 2. Advise the FAA on an outreach strategy to include modes of outreach, timelines, etc. and provide recommendations on how industry can assist FAA in outreach efforts.	Interim Report <b>April 2014</b> Final Report <b>July 2014</b> <b>September 2014</b>

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## Current Tasking

- **Task 4 – Provide recommendations to the FAA on outreach and education that should be accomplished to prepare stakeholders for the VOR MON reduction.**

Provide a report documenting the following actions:

1. Advise FAA, from an external stakeholder perspective, of what existing policies, processes, procedures or training will need to be modified to successfully implement the VOR MON.
2. Advise the FAA on an outreach strategy to include modes of outreach, timelines, etc. and provide recommendations on how industry can assist FAA in outreach efforts.


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## Approach to Task 4

- May 12 – Introduction of Tasking and Initial Brainstorming
- Reconvene for in person meeting (June 10)
  - Briefings from FAA
    - Current process and approach to decommissioning VOR
    - Detail on near term VOR decommissioning
  - Continue to build upon impact on policies, processes, procedures or training
  - Gather input from Communications Directors of participating organizations willing to present outreach strategy ideas to TG
  - Continue building upon ideas for outreach strategy
- Follow up phone calls as necessary to complete


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## Future Schedule

- May 16 – TOC Plenary Meeting
- June 10 – In person meeting to work on Task 4
- Early July – Complete Task 4
- July – August – Return to Task 3

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## NextGen Advisory Committee (NAC)



## Key NAC June 2014 Agenda Topics

- Pre-NAC Brief SESAR/Eurocontrol
- NextGen Integration Working Group
- PBN Blueprint Task Group
- PBN Implementation Experiences
  - Houston Metroplex – Dennis Roberts, FAA & Ron Renk, United
  - Denver – Mike McKee

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## FAA Prioritization Task

*Approved by NAC September 2013*

- Response to FAA Request to understand industry priorities
- Review current FAA NextGen plans and activities
- Develop prioritized list of:
  - Tier 1 - what should continue no matter what (11)
  - Tier 2 - what should continue, resources permitting (8)
  - All Other (17 capabilities not ranked as priority)

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## NAC February Meeting



- Agreement - Follow-on NextGen Capabilities Prioritization
- Subset Tier 1 – Deep Dive to Implement by dates certain
- NextGen Integration Working Group
  - PBN, Surface, Multiple Runway, DataComm (CPDLC & Revised pre-departure clearance)
  - Develop integrated program plan, to include:
    - All related components (elements)
    - Interdependencies, deliverable, dates, locations
    - Commitments from all relevant stakeholders
  - Track Progress

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## NIWG Leaders

- FAA-Industry Leaders
  - Ed Bolton (ANG)/Teri Bristol (ATO)/Peggy Gilligan (AVS)
  - Steve Dickson/Melissa Rudinger
- PBN
  - Industry Leads: Gary Beck (Alaska), Steve Fulton (GE Aviation)
  - FAA SMEs: Josh Gustin (ATO), Donna Creasap (NG)
- Multiple Runway Ops
  - Industry Leads: Glenn Morse (United Airlines), Jon Tree (Boeing/Jeppesen)
  - FAA SMEs: Tom Skiles (ATO), Paul Strande (NG)
- Surface
  - Industry Leads: Rob Goldman (Delta Air Lines), Steve Vail (Mosaic ATM)
  - FAA SMEs: Lorne Cass (ATO), Nick Lento (NG)
- DataComm
  - Industry Leads: Dan Allen (FedEx Express), John O'Sullivan (Harris Corporation)
  - FAA SMEs: Jessie Wijntjes (ATO), Paul Fontaine (NG)

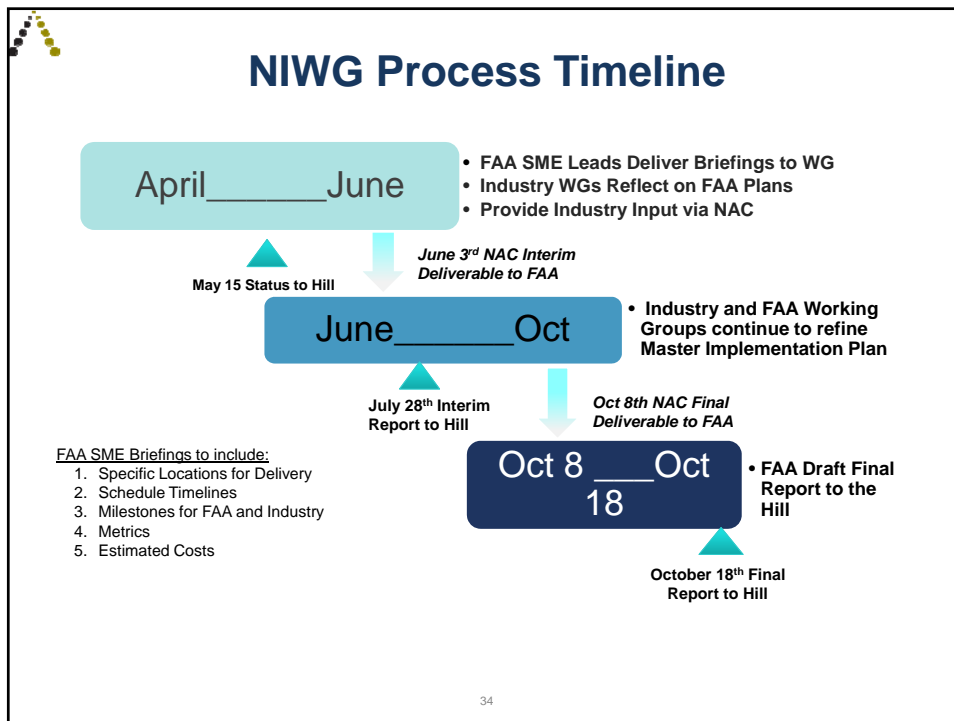
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## NIWG Schedule

- Team Launch April 22<sup>nd</sup>
- Team Meetings Underway – April through September
- May 21 Plenary
- June 3 NAC Meeting – interim report
- Congressional Report July
- October 8 NAC Meeting – final report
- Future/Post September Implementation
  - Monitoring progress and presenting deliverables
  - Identifying and resolving issues
  - Defining the scope and purpose of any future action
  - DCIT Model – CPDLC

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## Blue Print Tasking Background

- NAC has identified the need for building on successful implementation
- Emphasized the importance of community outreach
- Builds on work of OCWG/BCPWG, Cat Ex 2 Task Group
- Co-Chairs: Jim Crites, DFW & Brian Townsend, American Airlines/US Airways
- NAC Working Session on Outcomes & Metrics for Success February 20th
- First Meeting late February
- Interim Report to NAC June 3
- Final Report to NAC October 8


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## Blueprint for Success to Implementing PBN

- Task:
  - Identify key stakeholders for successful PBN implementation & define roles
  - Describe needed outreach strategies
  - Describe outcomes and metrics for success
  - Incorporate lessons learned from previous and current processes
  - Develop methodology for capturing lessons learned in future efforts


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## Major Briefings

- PBN Playbook – Jeff Woods, NATCA
- Lessons Learned – Knowledge Repository – Jeff Davis, MITRE
- PBN Implementation Experiences
  - MSP – Jeff Hamiel, MAC
  - DCA – Brian Townsend, AA/US Airways
  - DEN – Mike McKee, DEN
  - SEA – Stan Shepherd, SEA & Lynae Craig, Alaska Airlines
- Metrics – Debby Kirkman, MITRE (BCPMWG Co-Chair)

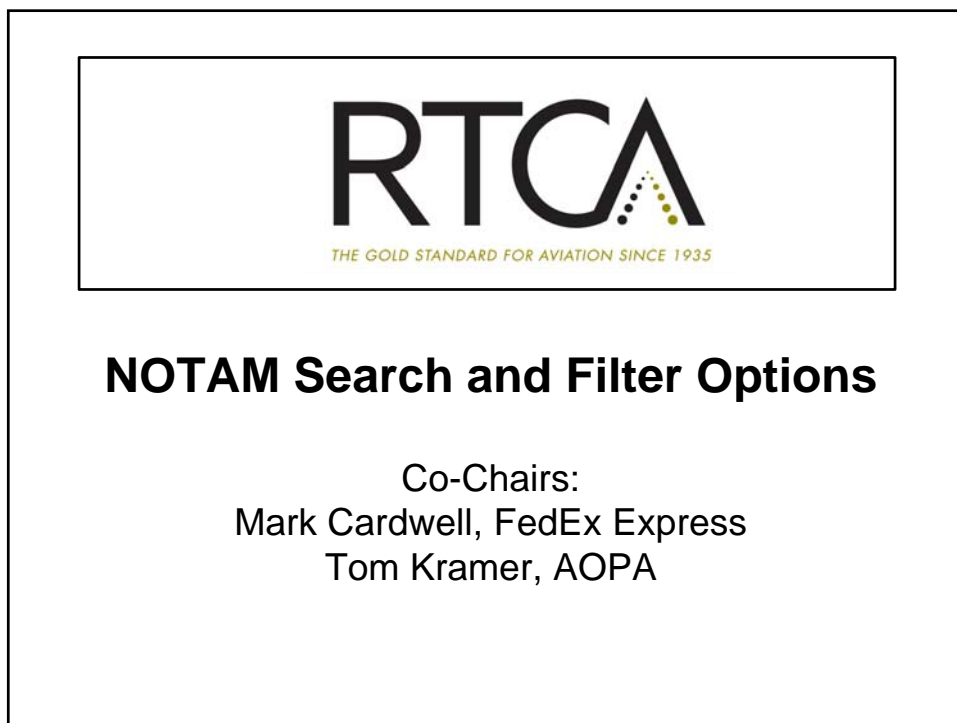
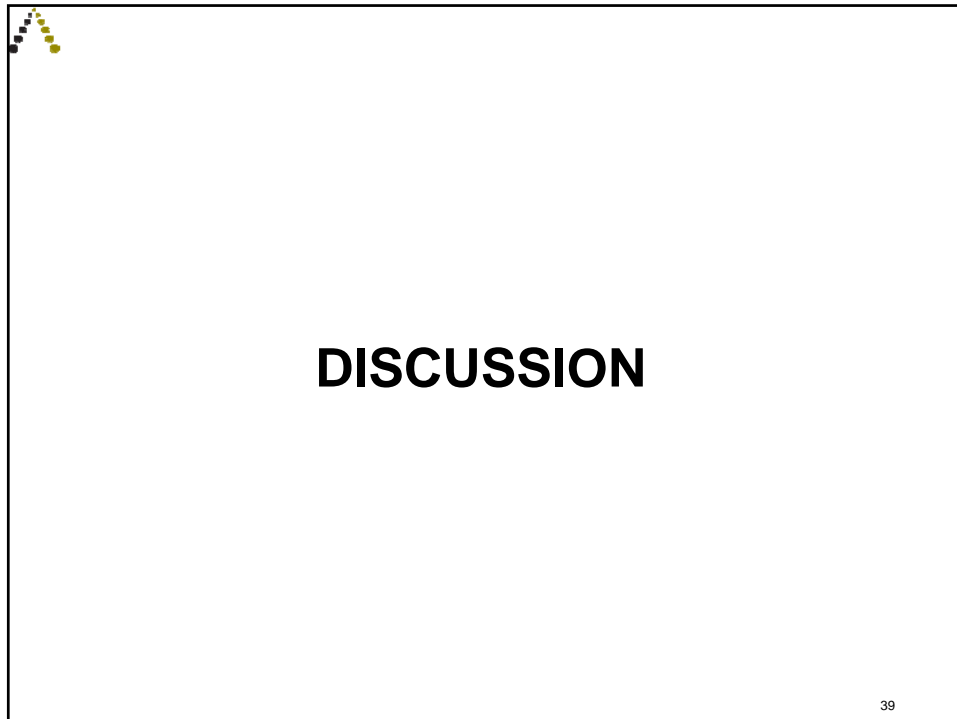
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## Interim Observations

- Essential to identify and articulate reason for PBN
- Broad interest by various stakeholders (in particular airports) in PBN implementations
- Roles and responsibilities defined – looking at filling gaps, providing consistency, connecting constituencies
- Community Outreach strategies have proven effective but need to be more structured
- Desire for common approaches to development and implementation of PBN
- Incomplete understanding of lessons learned and metrics as part of PBN development process

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## Next Steps from FAA Response to Recommendation #1

- From FAA response letter:

“The FAA AIM office requests a working meeting involving the members of the task group and the Federal NOTAM System (FNS) engineering and development teams to define stakeholder requirements for some of the specific requests (e.g., the flight path search tool).”


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## Next Steps from FAA Response to Recommendation #1

- Three aspects to Working Group:
  - Clarification of search and filter terms
  - Prioritization of search and filter options
  - Specific questions from FAA response letter


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## Clarification on Search and Filter Terms

- FAA requesting clarification of recommendations relating to a number of search or filter terms discussed in NOTAM TG Recommendation #1:
  1. Runways
  2. Regions
  3. FIRs
  4. Procedures
  5. Effective Dates and Times
  6. Altitude/Flight Level
  7. Keywords
  8. Flight Plan Route
  9. Desired Route Width
  10. Specific Airport along airman's route

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## Task Group Provided Detailed Clarification of Terms

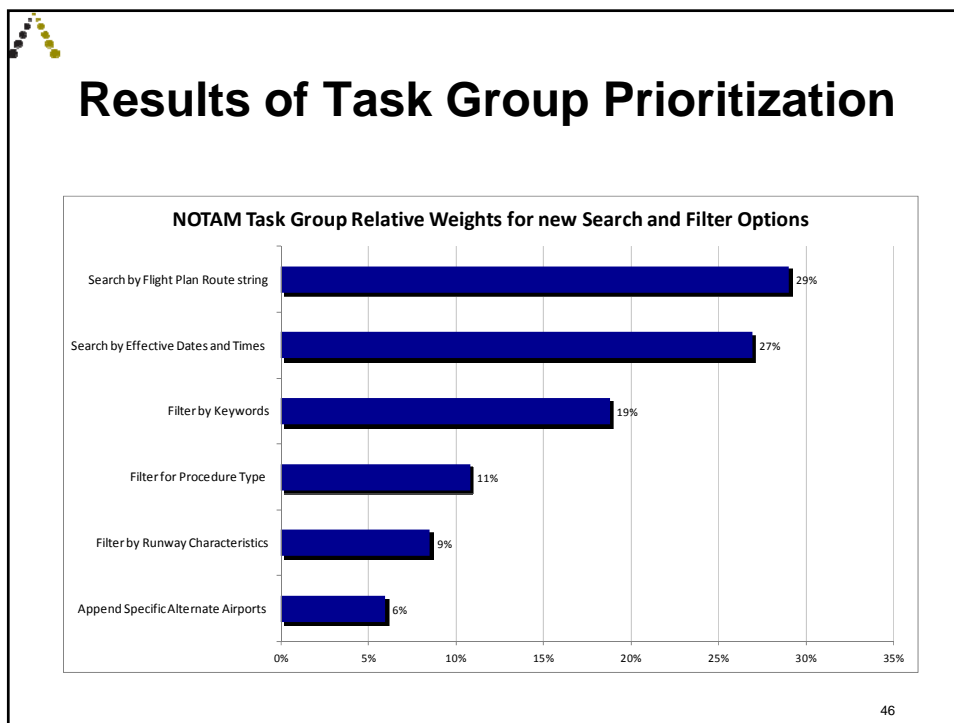
Term	Task Group Clarification
<b>Runways</b>	The Task Group recognized that NOTAMs for a specific runway could be searched currently in the FNS NOTAM Search tool using the free text option. Some Task Group members expressed an interest in the ability to search for NOTAMs based on runway characteristics such as length, width or surface type.
<b>Regions</b>	The Task Group clarified that Regions implied the ability to search for NOTAMs by geography. Given NOTAM Search currently allows for search by Center, TRACON, airport or other geographic boundary, the Task Group believes that search or filter by Region is sufficiently addressed by the NOTAM Search tool today.
<b>FIRs</b>	Given NOTAM Search currently allows for search within a FIR, the Task Group concluded that search by FIR is sufficiently addressed by the NOTAM Search tool today. The Task Group did discuss the importance of ensuring that International NOTAMs that cross over are included in NOTAM Search.
<b>Procedures</b>	The Task Group described search by Procedure as searching for a type of procedure. For example, an operator may wish to search for all procedures that are for RNP capable operators. An operator may wish to search to include all procedures of a certain type, or they may wish to exclude all procedures of a certain type. In the example, an operator that is not RNP capable may wish to exclude all procedures that require RNP capability.
<b>Effective Dates and Times</b>	The Task Group clarified that this search or filter option implies the ability to search for NOTAMs that correspond only to the time period in which the operator is planning to fly. There was interest for including a time buffer around the intended effective times to allow for changes in planned times.
<b>Altitude/Flight Level</b>	The Task Group stated that the intent of an altitude filter related to the interest in searching for a route of flight. Operators are interested in the ability to submit a route along with a route width buffer laterally around the route as well as an altitude buffer vertically around the route. One Task Group member described the search as a route with a square tube around it for which all relevant NOTAMs would be captured. The Task Group recognized that the FAA communicated the challenges it faces in enabling the altitude capability ahead of complete NOTAM digitization.
<b>Keywords</b>	The Task Group agreed that the keywords from NOTAM Policy comprise a strong starting list of keywords, and the group did not have any additional keywords to suggest.
<b>Flight Plan Route</b>	The Group stated that NOTAM Search should allow a user to input a flight plan route string and receive all NOTAMs associated with the route. The capability should allow the user to define a lateral route width and vertical buffer around the route of flight to capture NOTAMs contained in that "square tube" around the route.
<b>Desired Route Width</b>	The Task Group suggested that a 250nm route width around the route of flight should be a sufficient upper bound for the lateral route width option. This implies 125nm on either side of the center line of the flight plan route.
<b>Specific Airport Along Airman's Route</b>	The Task Group clarified that a flight plan route with a route width around it may not capture all possible alternates of interest. One operator gave an example of operating from the West coast to Newark and utilizing Boston as an alternate. In such case, airports that are within 125nm of the center line of the route would not include Boston. Hence, the Task Group requested that NOTAM Search include an option for appending additional alternate airports to the search and filter capability.


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## Prioritization of Search and Filter Options

- In what sequence should FAA approach the options not currently in NOTAM Search?
  1. Filter by Runway Characteristics (length, width, surface types)
  2. Filter for Procedure Type to include or exclude a procedure type
  3. Filter by Keywords  
(RWY, TWY, APRON, AD, OBST, NAV, COM, SVC, AIRSPACE, ODP, SID, STAR, CHART, DATA, IAP, VFP, ROUTE, SPECIAL, SECURITY)
  4. Search by Effective Dates and Times with a time buffer
  5. Search by Flight Plan Route string with a route and altitude width around it
  6. Append Specific Alternate Airports outside of route of flight and route width to the search

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




## Additional Recommendations (1 of 2)

1. The general approach users will take for searching and filtering NOTAMs is by searching broadly to begin. From there, users expect to drill down to specifics using filtering capabilities.
2. NOTAM Search should allow users to search for multiple keywords at the same time.
3. NOTAM Search should allow users to filter keywords to both include and exclude the filter term.

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## Additional Recommendations (2 of 2)

4. NOTAM Search should allow users to create personalized accounts.  
Accounts could include saved information specific to the individual's operation. This may include items such as saved profiles for specific aircraft types, certain city pairs, specific routes, previous trips, preferred alternates and preferred flight levels. The Task Group recognizes there would be more work required to define the requirements of a user profile.
5. The “end state” for NOTAMs is a single Federal NOTAM Service web site combining the best features of the current DoD NOTAM and Pilot Web sites into the NOTAM Search web site  
The TG realizes DoD may desire to keep its own site for DoD specific purposes.

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




## Additional Questions (1 of 3)

- **Response Letter Question 1:**  
What is intended or implied by “Integration of Artificial Intelligence technology to facilitate ease of use (e.g. pattern recognition)”?
  
- **Task Group Response:**  
Artificial Intelligence (AI) is an emerging discipline that offers great promise for human/machine interface. At present, in its most sophisticated form, it is probably not a practical addition to FNS, but less sophisticated aspects, like user profiles, may be a reasonable goal. The Task Group recognizes AI has much long term promise but suggests user profiles as a starting point for this item.


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## Additional Questions (2 of 3)

- **Response Letter Question 2:**  
On the recommendation for Flight Service Specialists: is the recommendation to allow FSS’s to create NOTAMs (which they do today with ENII) or for FSS’s to use NOTAM Manager in the future?
  
- **Task Group Response:**  
The Task Group recommends Flight Service Specialists utilize NOTAM Manager in the future. The Group is aware there may be other factors that make this recommendation difficult. However, the Task Group leaves this recommendation as is for the time being with the request to hear further detail from the FAA on the ramifications of the recommendation. While the Task Group envisions full use of NOTAM Manager from all NOTAM originators, the Group is also interested in understanding the challenges it creates for the FAA.

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## Additional Questions (3 of 3)

- **Response Letter Question 3:**

The FAA has stated that the NOTAM Improvement Panel will be an important participant in helping digitize the last 20% of NOTAMs. What ideas do different stakeholders, particularly those representing airports, general and business aviation, have to partner with the FAA to motivate digitization towards 100%?
- **Task Group Response:**

The Task Group suggested the FAA consider whether it should define a date in the future to **require digital entry** for all NOTAMs.

Additionally, some Task Group members indicated an interest to examine data on which NOTAM generators are not originating NOTAMs digitally. Some Task Group members are membership based organizations and may be able to **leverage local members to support outreach** to airports that are not transitioning to digital. The members suggested that the message may have more weight if delivered from a local entity, and the local members of some organizations may be able to support this in the future.


Finally, the Task Group suggested the FAA consider including a **link to the primary FNS site in the “One Stop Shop” AIM Modernization Portal.**

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## DISCUSSION

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## TOC Action

Consider Recommendation on:


***NOTAM Search and Filter Options***

and Transmit to FAA

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- Review of meeting actions
- Anticipated Issues for TOC Consideration and Action at Next Meeting
- Other business



## **Closing Comments**

**Co-Chairs:**  
Jim Bowman, FedEx Express  
Dale Wright, NATCA

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

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Next Meeting:  
September 3, 2014

Washington, DC



**Adjournment**



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RTCA Paper No. 035-14/TOC-10

February 6, 2014

## **Meeting Summary, February 6, 2014**

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

The fourth meeting of the Tactical Operations Committee (TOC), held February 6, 2014 at RTCA Headquarters in Washington, DC, convened at 9:15 a.m. The meeting discussions are summarized below. The following attachments are referenced:

Attachment 1 – List of Attendees

Attachment 2 – Presentations for the Committee (containing much of the detail about the content of the material covered)

Attachment 3 – Summary of the November 7, 2013 TOC Meeting

Attachment 4 – NOTAM Success Criteria and Metrics recommendation

Attachment 5 – 20:1 Visual Area Surface Task Group recommendation

Attachment 6 – VOR MON Prioritization recommendation

Attachment 7 – Industry White Paper on Lemoore ATCAA

Attachment 8 – Navy White Paper on Lemoore ATCAA

### **Welcome and Introductions**

Committee Co-Chair, Mr. Jim Bowman, Vice President of Flight Operations at FedEx Express called the meeting to order and welcomed the TOC members and others in attendance. Mr. Bowman began by introducing Mr. Dale Wright of the National Air Traffic Controller Association as the new Co-Chair for the Tactical Operations Committee. All TOC members and attendees from the public were asked to introduce themselves (TOC members and General Public Attendees are identified in Attachment 1).

The Chairs reviewed the agenda and began the proceedings of the meeting.

### **Designated Federal Official Statement**

Ms. Elizabeth “Lynn” Ray, Vice President of Mission Support at the FAA, and the Designated Federal Official of the TOC, read the Federal Advisory Committee Act notice governing the open meeting.

### **Approval of November 7, 2013 Meeting Summary**

The Chairs asked for and received approval of the written Summary for the November 7, 2013 meeting (Attachment 3).

### **FAA Report**

Ms. Ray provided the FAA report. She began by noting that the budget situation for the FAA continues to be an important topic. She stated that the budget for FY14 was better than expected and did not include the significant cuts discussed previously related to the sequester. The FAA is awaiting feedback (referred to as the “passback”) from the Office of Management and Budget on plans for the FY15 budget. The FAA also plans to hire 3,000 new air traffic controllers in FY14 and FY15. A committee member noted that hiring that many new controllers was a positive direction but still lagged the pace of retirements of controllers.

Ms. Ray spoke about a new directorate, Air Traffic Procedures, that was established in the Air Traffic Organization. The Procedures organization will be developing operational policies and procedures around Traffic Management Advisor (TMA) and Time Based Flow Management (TBFM). Ms. Ray spoke about how these use policies will be a foundational aspect of Terminal Sequencing and Spacing (TSS) which must be in place for rolling out PBN broadly. A committee member inquired about what industry forums will be utilized to gather industry input into the operational policies and procedures. Ms. Ray commented that the FAA has not yet made a decision on how to incorporate input from stakeholders. The TOC members had extensive conversation about what the right forum might be for incorporating stakeholder input on these subjects.

Ms. Ray commented that the FAA’s commitments to Optimization of Airspace and Procedures in the Metroplex (OAPM) and WAAS remain in place. Additionally, the FAA has initiatives underway focused on “right sizing” the NAS on services and infrastructure such as the number of VORs, procedures, etc.

### **Notice to Airmen (NOTAM) Success Criteria and Metrics**

Mr. Tom Kramer, AOPA, and Mr. Mark Cardwell, FedEx Express, Co-Chairs of the Notice to Airman (NOTAM) Task Group, briefed the Committee on its recommendations on success criteria and metrics for the NOTAM Improvement Program (NIP). The NIP is an FAA initiative to modernize the NOTAM system by digitizing the information and making it more easily sorted and filtered. This enhances safety and increases the overall value of the information provided by NOTAMs to the aviation industry.

This Task Group serves as the NOTAM Working Group of the TOC, which serves as the NOTAM Improvement Panel, an industry advisory panel required by the language in the Pilot’s Bill of Rights (PBoR) legislation.

The Task Group recommended the following success criteria as drawn from the Pilot’s Bill of Rights. The NIP is successful if NOTAMs are:

- In useable format
- Pertinent / specific / relevant
- Timely
- Filterable
- Can be prioritized for flight safety info
- Searchable
- Decreased in volume
- Archived

Mr. Cardwell then reviewed the recommendations from the NOTAM Task Group:

- The Task Group agrees with FAA that future success of the NOTAM improvement effort relies heavily on conversion of all NOTAMs to digital format and encourages the FAA to continue to collect and share metrics describing progress made towards an ultimate goal of 100%.
- A survey option should be designed for the Future NOTAM System (FNS) website to elicit feedback from users as to what features are most valuable and this information should be organized and reviewed periodically. This data should be used to develop a metric reflecting customer satisfaction.
- The Task Group recommends that the various filtering and sorting options selected by users of the FNS website be recorded and reviewed periodically to gain insight into features most popular so as to assist in making decisions about where to allocate resources for the future.
- As Working Group of the TOC/NOTAM Improvement Panel, the Task Group should be used as an ongoing resource for the FAA in support of future NOTAM improvement efforts.

Finally, since the NOTAM Task Group had completed its requested tasks, the group offered a set of suggestions on how the Task Group could be utilized moving forward:

- Address issues or questions from FAA response to Task 1 document
- Identification of right sequence of NOTAM categories to focus on for digitization efforts
- Identification of the appropriate outreach, training, education or requirements to industry to improve NOTAM digitization towards 100%
- Evaluation of early iterations of the FAA-provided interface on NOTAMs
- Periodic review of metrics related to the NOTAM Modernization

Discussion followed the Task Group's presentation, and a Committee member asked how the Task Group's recommendations handle the subject of reduction of volume of NOTAMs, as this was a significant aspect of the PBoR. The Task Group noted that measuring reduction in NOTAM volume would be challenging as there would be no reliable data to capture data on the volume of NOTAMs before the NIP and the volume after the NIP. The Group pointed out that there are a number of subjective success criteria and these are addressed by the second recommendation about having a survey option in the FNS. For the subject of NOTAM volume, a survey could ask to what extent the NOTAM system provides irrelevant NOTAMs or whether the volume of NOTAMs provided has improved from the past.



On NOTAM volume, Mr. Cardwell also pointed out that the current NOTAM database includes NOTAMs that are obsolete and there may be opportunities to reduce the overall volume of NOTAMs that exist in the system. Mr. Joshua Gustin, FAA Director of Aeronautical Information Management, also spoke, pointing out to the TOC that digitizing NOTAMs may not reduce the absolute volume of NOTAMs. Mr. Gustin noted that by making digital data entry easier in the FNS, the overall volume of available NOTAM information may actually increase. Editor's note: digitizing NOTAMs is a foundational step to assist users in more effectively sorting and filtering NOTAMs, thereby making them useful regardless of the absolute number.

The TOC had discussion on whether to keep the Task Group sitting since the requested tasks were complete. Given the TOC is a relatively new committee, the TOC had questions as to whether it was acceptable to keep the committee in place. Mr. Andy Cebula of RTCA pointed out that since the Task Group recommended to keep itself standing, TOC acceptance of the recommendations would effectively keep the group in tact. Mr. Cebula also noted that there were precedents from other Federal Advisory Committees at RTCA for doing so.

**Committee Action:** The Committee agreed by consensus to approve the NOTAM Success Criteria and Metrics recommendation (Attachment 4).

#### **NextGen Advisory Committee (NAC)**

Mr. Andy Cebula briefed the TOC on the upcoming NAC Meeting scheduled for February 20<sup>th</sup> in Phoenix, Arizona. Mr. Cebula also spoke about a new "Blue Print" Task Group established in the NAC focused on establishing a blue print for successful PBN implementations. A committee member inquired what the role of the TOC was with respect to the PBN Blue Print Task Group. Ms. Ray said that PBN was a distinct possibility for future TOC Tasking. However, the Blue Print work was at a policy level at the moment which implied NAC ownership. In the future, Ms. Ray expected that the FAA would need additional insight and engagement on implementation of the PBN Blue Print and suggested that TOC participation would be warranted when that time arose.

#### **Visual Area Surface 20:1 Obstacle Clearance**

Mr. Chris Baum, ALPA, and Mr. Chris Oswald, ACI-NA, Co-Chairs of the Visual Area Surface Task Group, briefed the Committee on its recommendations on the FAA Memo "Mitigation of obstructions within the 20:1 Visual Area Surface". The Memorandum follows a risk-based approach in providing clear vertical descent paths into airports (referred to as a 20:1 surface) to ensure safety through the verification of obstructions, planning and actions to mitigate risk.

The Task Group made a series of recommendations to the TOC. With respect to the sufficiency of time and clarity of expectations in the verification stage, the Task Group recommended:

- In the context of "ASAP" as a goal, 30 days is appropriate for airport operator to verify existence

- Reevaluate timelessness of compliance after 180-days
- Provide for special circumstances in Alaska, other unique small airports
- No survey data required in verification stage – verify existence and general characteristics
- Enumerate specific information needed during verification process
  - Object existence/non-existence
  - Location, height, type of object, etc without survey data
- Plain language guidance for submitting information
- Clear guidance on the availability and access to 20:1 obstacle visualization tool

With respect to improving the planning and mitigation stages, the Task Group recommended:

- Compliance plans should include full range of mitigations
  - Eliminating/lowering, lighting, visual aids, infrastructure modifications, procedural restrictions
- Guidance on compliance plan, contents, scope, etc.
- Preferred priorities for removal or other mitigations
- Iterative process for developing compliance plans, may require more time
- Evaluate all other mitigations before restrictions on category C and D operations
- Provide mechanism for extending mitigation stage deadlines for special circumstances in Alaska, other unique small airports
- Clear guidance on the availability and access to 20:1 obstacle visualization tool
- Reevaluate timeliness of compliance after 180-days

With respect to providing clear guidance for actions to mitigate risk regarding visibility and night operations, the Task Group recommended:

- Guidance to airport operators on expectations for maintenance of 20:1 surfaces following mitigation actions and new approaches
- Fleet mix and frequency of operations important risk mitigation factors to resolve a penetration
- Unusual circumstances may require an alternative assessment of risk

With respect to communicating the process to key stakeholders, the Task Group recommended:

- Utilize industry associations – airport & aircraft operators:
  - ALPA, AOPA, A4A, ACI-NA, CAA, IATA, NASAO, NBAA, RAA, etc.
- Communications should leverage FAA and other organization's communications web/webinars, template/guidance documents, and Office of Airports presentations
- Message elements:
  - Rationale behind the FAA's current focus on 20:1 obstacle clearance
  - Scope and scale of 20:1 penetration issues within the NAS
  - Safety and access impacts of 20:1 penetrations
  - Verification, compliance, and mitigation requirements outlined in FAA's memo

Finally, the Task Group provided additional recommendations which were beyond the scope of the tasking request. The recommendations stated that the FAA should:

- Continue its safety risk assessment of the 20:1 visual surface area using recent flight track dispersion data to determine if the geometry of the area should be modified.
- Provide data requested by the VAS Task Group regarding the number of 20:1 visual surface area penetrations in the NAS and the details regarding them as requested by the VAS Task Group co-chairs to the FAA. These data are important to provide industry with insight into the scale and scope of 20:1 penetration issues.

During Discussion, a Committee member mentioned that early feedback on use of the 20:1 obstacle visualization tool is positive.

The TOC had extensive discussion on the data available for 20:1 visual surface area penetrations. One committee member noted that uncertainty remains as to how widespread the 20:1 penetration issue is and that a data-driven assessment is important. Ms. Ray stated that since early January when the Memo went into effect, the FAA was seeing data on obstacle penetrations but also seeing quick resolution of the problems. Ms. Ray pointed out that it is helpful for airport operators to know that other airport facilities have been able to resolve their issues quickly. The Committee found this information helpful but reiterated the desire for macro level data and understanding of the scale of the problem.

For the Recommendation regarding communication of the process, Mr. Andy Cebula noted that the language should imply that the list of organizations is not exhaustive. Mr. Cebula suggested amending the wording in the recommendation to include the words “such as” when stating a list of suggested organizations. Additionally, the example list of organizations include two important oversights, and Mr. Cebula requested to include the Airport Association of Airport Executives (AAAE) and National Air Transportation Association (NATA) on the example list. The TOC accepted these changes to the language in the recommendation.

The TOC discussed the timing of notification that an obstacle has taken a procedure offline. One committee member noted that if an operator had a two-week lookahead that a procedure may go offline, the operator could adjust its operational plans and respond accordingly. Operators noted that their most significant challenges occur when changes occur overnight, and the operator must react immediately to a procedure going offline. The TOC suggested to the FAA that when an airport receives a notice of an obstacle, it may help to provide the same notice to industry organizations that represent operators. The FAA stated that it could support providing an advanced operator notification when a 20:1 obstacle is found.

One committee member inquired about obstacle databases, noting that there are three primary databases today and there are differences between them. Ms. Ray noted that the NavLean program continues to work on alignment of all navigation data into one database but that errors do remain. The TOC noted that having a solid foundation of data to work from is paramount for this effort.

This recommendation was the only task requested of this Task Group, and it will sunset after this TOC meeting. The Chairs thanked Mr. Baum and Mr. Oswald for their leadership in working collaboratively on a challenging issue and turning around the final recommendations in a short time frame.

**Committee Action:** The Committee agreed by consensus to approve the 20:1 Visual Area Surface Task Group recommendation (Attachment 5) with wording changes in the section on communicating the process to key stakeholders.

### **VHF Omni-directional Range (VOR) Minimum Operating Network (MON) Criteria Prioritization**

Mr. Don Dillman, Airlines for America, and Mr. Bob Lamond, National Business Aviation Association, Co-Chairs of the VOR MON Task Group, outlined the recommendations for prioritization of criteria to evaluate the MON. Although it was to be an interim report, the Task Group made significant progress and presented this as a final recommendation for this component of the VOR MON Tasking.

The FAA estimates it will decrease the current 967 VOR ground-based nav aids to approximately 500 by 2020. The Task Group recommended evaluation criteria for the MON include both the FAA's original criteria as well as additional criteria the Task Group identified in its Task 1 recommendations.

The Task Group shared results of a prioritization exercise in which it ranked the collective set of FAA and Task Group criteria. The relative weights of the criteria were as follows:

- Retain VORs to enable navigation to a "safe landing" airport within 100 NM – 32% weight
- Retain VORs that are in a known GPS "jamming" location – 19%
- Retain VORs to enable adequate IFR navigation for non-RNAV capable aircraft – 19%
- Provide full en-route coverage at or above 5,000 ft AGL – 16%
- Ensure ability to hold for Core 30 airports – 9%
- Retain VORs necessary for training – 6%

The Task Group considered two criteria as givens and outside the scope of the prioritization:

- Retain VORs in Western Mountainous region
- Retain Oceanic VORs

Mr. Dillman and Mr. Lamond then reviewed a series of recommendations. On the subject of Criteria for MON Evaluation, the Task Group said:

- The Task Group validates FAA's original selection criteria in development of the MON
  - Nearly all criteria originally used were either assumed as given or rated highly in prioritization exercise
- The Task Group recommends inclusion of three additional criteria for evaluation of the MON:
  - Retain VORs that are in a known GPS "jamming" location
  - Retain VORs to enable adequate navigation for non-RNAV capable aircraft
  - Retain VORs necessary for training

On the subject of the process of MON evaluation, the Task Group recommended the FAA iterate through the current MON based on weighted criteria results for the combined set of original FAA and Task Group criteria. A proposed process was suggested to examine VORs outside the MON that score highly on prioritized criteria for consideration of being Swapped or Added into the MON.

Finally, on the subject of handling exceptions to the process, the Task Group recommended:

- Weighted criteria provide basis for a VOR MON exception process
- Any VOR re-evaluated for decommissioning can be measured against weighted criteria and compared on these measures to other VORs in its peer group. Such criteria provide a structured way in which the FAA can evaluate individual exceptions
- The Task Group recommends FAA utilize a rigorous and transparent process with NAS users and local communities to evaluate exceptions

During Discussion, the TOC expressed concern that the definition of the Training criteria was too broad and may be too open for any flight school, large or small, to request to retain their VOR due to training needs. The Co-Chairs pointed out from the prioritization activity that the criteria “Retain VORs necessary for training” was last on the list and weighted at only 6%. That implied that the criteria may be a tie-breaker between two equal options, but it was not significant enough to be the only factor that drove a VOR to be included in the MON. The TOC was satisfied that the 6% weight for training addressed the concern. However, the TOC requested that the definition of the training criteria include language focusing on “high volume” flight schools to add additional clarity.

One committee member inquired about how the Task Group was considering the impact to an airfield, like missed approach procedures or raised minimums, of decommissioning a VOR. Mr. Lamond referred to the Task 1 recommendations in which the Task Group offered a series of recommendations of evaluating the impact of a decommissioning and what mitigations must be done. Also, Mr. Dale Courtney of the FAA suggested that swaps between VORs in and out of the MON may be used to focus on retaining VORs with high mitigation impact and decommissioning VORs with low mitigation impact when possible.

Ms. Ray inquired about the Task Group’s ideas on what a “rigorous and transparent process” of engagement on the MON implied. Mr. Dillman noted that the VOR MON Task Group will offer additional detail on this during its future requested tasks.

**Committee Action:** The Committee agreed by consensus to approve the VOR MON Prioritization recommendation with the additional clarification in the definition of the training criteria (Attachment 6).

### **Regional Task Groups (RTGs)**

The Committee received briefings on regional airspace issues from representatives of the RTGs.

Eastern – Mr. Bill Cranor, JetBlue, informed the TOC the next Eastern Regional Task Group meeting will be in March. One subject of discussion will be the increasing traffic in Miami, San Juan and the

Caribbean in general. The increasing traffic is creating some very busy sectors that consistently reach their MAP values. The group sees an opportunity to focus on Miami Center as ERAM and ADS-B both come online there.

Mr. Glenn Morse, United Airlines, spoke about the New York airspace redesign work. The work was put on hold in 2013 and there is uncertainty about it for 2014. Primary concerns include the freshness of the environmental document as well as the official forecasts which have evolved in recent years. Ms. Ray commented that a closer look is necessary at the forecast work and the design work remains paused for the time being.

Central – Mike O’Brien, American Airlines, spoke on behalf of the Central Regional Task Group. The primary issues of concern to this group include two Special Activity Airspace (SAA) issues, including the Powder River Training Complex, as well as the OAPM Implementation in North Texas. Mr. O’Brien said that no meetings are scheduled at the moment for this group.

Western – Mr. Bob Lamond, NBAA, informed the TOC that the Western group will be meeting on February 19<sup>th</sup> and 20<sup>th</sup> in Los Angeles. The anticipated subjects of discussion include LAX construction, Metroplex, 20:1 surface penetration and a template of best practices with respect to runway construction.

The discussion then turned to the Lemoore ATCAA for which some members of the Western RTG had written a white paper that spoke to the impact of Phase III of Lemoore on operator fuel burn. This document, included as Attachment 7, is the Industry White Paper on Lemoore ATCAA. The Western RTG communicated an interest to use the RTG forum as a mechanism to respond to SAA issues. One Committee member raised concern about whether any and all SAA issues should be the responsibility of the TOC as the volume of such issues could become unmanageable. Another committee member suggested that the Regional Task Groups had the right representation to respond to SAA issues and that it was the appropriate forum.

Ms. Ray of the FAA stated that the RTGs and TOC need to identify the appropriate process to have the RTGs respond on SAA issues. Those which are larger and perhaps more controversial would likely be appropriate for the RTGs to work on. However, those which are smaller may not belong on the agenda of the RTGs and the TOC. This led to identification of the need to determine the criteria that decide which SAA issues should come before the TOC.

A committee member commented that the predecessors to the Regional Task Groups have been valuable forums in which to have discussions on SAA issues in the past. The member commented that discussions about Special Activity Airspace arise in multiple forums currently and, as a result, there is no consistent output. The individual offered that the RTG would be an appropriate place in which to consolidate these discussions.

Given the DoD is a member of the TOC, Ms. Ray raised the question of the challenge of driving to consensus within the TOC on matters of Special Activity Airspace. To this, members of the DoD suggested that consensus was a feasible outcome even with participation of the DoD. Committee members pointed to a collaborative model used to make decisions on the GRASI SAA in which the

participants, which included both industry and DoD, did reach consensus and decision on how to structure and utilize GRASI.

As a next step, the TOC requested RTCA to work with the interested parties to develop a draft of criteria that determines which SAA proposals come before the TOC as well as a proposed process by which the TOC can consider new SAA issues.

Representatives of the Navy that attended the TOC provided a white paper communicating the Navy's perspective on the Lemoore ATCAA. They requested the document be included in the record of the TOC meeting and the request was approved by the Committee members. This document is included as Attachment 8, Navy White Paper on Lemoore ATCAA.

#### **Anticipated issues for TOC consideration and action at the next meeting**

At the next meeting, the Committee will receive recommendations for consideration from the VOR MON Task Group and reports from the RTGs.

#### **Other business**

No other business was raised.

#### **Adjourn**

Chairman Bowman ended the meeting of the Committee at 2:00 p.m.

#### **Next Meeting**

The next meeting of the TOC is May 16, 2014 in Washington, DC.



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

Mission Support Services  
800 Independence Avenue, SW.  
Washington, DC 20591

MAY 08 2014

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

Dear Ms. Jenny:

Thank you for the RTCA report “*Mitigations of Obstructions within the 20:1 Visual Area Surface*”, approved by the Tactical Operations Committee in February 2014. The FAA found the report helpful. Our responses are organized below under the same four issue areas and recommendations used in the report.

**Recommendation 1 Timeframes:**

**Absent special circumstances, the listed timeframes for verification, planning, and mitigation of obstacles penetrating the 20:1 surface appear to be appropriate as limits to bound FAA’s basic direction of “as soon as possible,” but should be reassessed within 180 days of the effective date of the FAA 20:1 Memorandum.**

**Response:**

We concur. The FAA conducted a 180-day reassessment in April 2014. The reassessment team has suggested that the timeframe structure outlined in the FAA 20:1 Memorandum be retained. An updated FAA 20:1 guidance memorandum is being prepared and anticipated this Summer.

**Recommendation 2 Verification Stage Scope:**

**New obstacle surveys should not be required in the verification phase.**

**Response:**

We concur. We will include guidance to this effect in an updated FAA 20:1 guidance memorandum that is being prepared.

**Recommendation 3 Compliance Plan Guidance:**

**The FAA should provide guidance on compliance plan contents, scope, etc. Ideally, this would be in the form of a sample compliance plan. These plans should be able to include a full range of options for obstacle mitigation including obstacle elimination/lowering, obstacle lighting, use of visual aids (e.g., Vertical Glide Scope Indicator, infrastructure modifications), and acceptance of procedural restrictions.**



Response:

We concur. The compliance plan format, scope and mitigation plan information will be included in the Airport Graphic Information System (GIS) tool that is currently undergoing evaluation and is scheduled for release in Summer 2014. Information and access to the GIS tool will be widely disseminated as it becomes available.

**Recommendation 4 Outreach Efforts:**

**Outreach efforts regarding 20:1 surface clearance requirements are critical to successful implementation of a risk-based mitigation strategy and should include stakeholder organizations such as: Air Line Pilots Association (ALPA), Aircraft Owners and Pilots Association (AOPA), Airlines for America (A4A), Airports Council International-North America (ACI-NA), American Association of Airport Executives (AAAE), Cargo Airline Association (CAA), International Air Transport Association (IATA), National Association of State Aviation Officials (NASAO), National Business Aviation Association (NBAA), National Air Transportation Association (NATA), and Regional Airline Association (RAA) as recipients of FAA messaging and as potential partners in the outreach efforts. Key messages that need to be included in these outreach efforts include (1) the rationale behind the FAA's current focus on 20:1 obstacle clearance, (2) the scope and scale of 20:1 penetration issues within the NAS, (3) the safety and access impacts of 20:1 Penetrations, and (4) verification, compliance, and mitigation requirements outlined in FAA's 20:1 Memorandum.**

Response:

We concur. The FAA plans future outreach regarding the importance of 20:1 surface clearance requirements and values the suggestions noted above. Previous outreach has included several meetings with the National Association of State Aviation Officials (NASO), State Aviation, and the Aeronautical Charting Forum. Further, the Office of Airports has sent information notifications to all National Plan of Integrated Airport Systems (NPIAS) airports. The FAA also briefs at the Regional Airspace and Procedure Team (RAPT) monthly meetings in each of the regional offices. RAPT membership includes a core of FAA, military, and non-governmental organizations, as well as representatives as needed, from other entities such as airport operators and users.

**Additional Recommendations****The FAA should:**

**Continue its safety risk assessment of the 20:1 visual surface area using recent flight track dispersion data to determine if the geometry of the area should be modified.**

Response:

We concur. The Airport Obstruction Standards Committees (AOSC) has initiated a study to determine the appropriate dimensions of the visual area associated with instrument approach procedures and anticipates results by the end of this calendar year.

**Provide data requested by the VAS Task Group regarding the number of 20:1 visual surface area penetrations in the NAS and the details regarding them as requested by**

**the VAS Task Group co-chairs to the FAA. These data are important to provide industry with insight into the scale and scope of 20:1 penetration issues.**

Response:

We concur. The data regarding the number of 20:1 visual area surface penetrations are planned to be included in the Airport GIS tool scheduled for release in Summer 2014.

Sincerely,

A handwritten signature in blue ink, appearing to read 'EL Ray', is positioned above the typed name.

Elizabeth L. Ray  
Vice President, Mission Support Services  
Air Traffic Organization



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

800 Independence Avenue, S.W.  
Washington, DC 20591

FEB 04 2014

Ms. Margaret T. Jenny  
President  
RTCA, Inc.  
1150 18<sup>th</sup> Street, NW  
Suite 910  
Washington, DC 20036

Dear Ms. Jenny:

In November 2013, the Tactical Operations Committee (TOC) provided the FAA a report in response to Task 1 of the Very High Frequency Omni-Directional Range (VOR) Minimum Operational Network (MON) tasking. The FAA appreciates the work of the TOC in providing a report of this quality ahead of schedule. The FAA reviewed the TOC's recommendations and intends to take the following actions:

*Recommendation 1*

The FAA agrees with this recommendation and will consider criteria including proximity to areas of Global Positioning Satellite (GPS) jamming, adequate navigation for non-RNAV capable aircraft and training for inclusion in the MON.

*Recommendation 2*

The FAA will catalogue all known uses, procedures and other non-navigation services of VORs proposed for decommissioning. The FAA will substitute/mitigate or remove these uses, as appropriate and practicable, prior to the VOR being decommissioned. Specific to One Engine Inoperative a procedure, the FAA does not have insight into these operator generated procedures and requests the TOC's recommendation as part of Task 3 on the best operator coordination method.

The FAA is still assessing the most effective way to coordinate these changes with the public. The FAA is currently developing a business case for the VOR MON that includes all government costs and benefits. The FAA does not have insight into user costs/impacts since avionics equipage, planned avionics upgrades and future flight paths are not available.

*Recommendation 3*

The FAA is pleased that the Task Group supports our draft criteria of retaining the VORs outside CONUS and in the Western Mountainous Areas.

*Recommendation 4*

The FAA will consider, on a case by case basis, the transfer of a federally owned and operated VOR to a non-federal owner and operator. The FAA must consider decommissioned VORs as resources that can be used to sustain VORs remaining in the MON as well as the resource implications that will arise from the creation of new non-federal VORs (flight inspection, procedure maintenance, maintenance oversight, etc.).

*Recommendation 5*

The FAA agrees the VOR MON should consider mixed equipage and the ability to navigate in areas of known GPS jamming. The FAA plans that the MON will support navigation and landing by either a VOR or VOR/ILS approach to an airport of no more than 100 nautical miles from any aircraft location in the CONUS.

The FAA understands that the Department of Defense has unique mission capability requirements and RNAV transition challenges. The FAA is currently working with DoD to see how/if the VOR MON can best accommodate military user needs.

*Recommendation 6*

The FAA appreciates the TOC's insight and utility in the recommendation to extend VOR service volume below 5,000 feet AGL and will address that coverage as part of the service volume change planned to support the MON. This recommendation will not result in "seamless" navigation coverage below 5,000 feet AGL, but will provide those unable to climb to 5,000 feet AGL additional capability.

*Other Comments*

The Background/Introduction section of the report states "Efforts separate from the VOR MON are ongoing to identify Alternative Position, Navigation, and Timing (APNT) solutions that will provide a full-scale backup system to GPS..." The FAA is still assessing requirements for APNT service, so it is premature to assert APNT will provide "a full-scale backup system to GPS".

If you have questions, please contact Rowena Mendez-Ruano at 202-267-3092 or Dale Courtney at 202-267-3051.

Sincerely,



Elizabeth L. Ray  
Vice President, Mission Support Services  
Air Traffic Organization



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

MAY 14 2014

Ms. Margaret T. Jenny  
President  
RTCA, Inc.  
1150 18<sup>th</sup> Street NW  
Washington, DC 20036

Dear Ms. Jenny:

In February 2014, the Tactical Operations Committee (TOC) provided the FAA the report "VOR MON Criteria Prioritization" in response to Task 2 of the Very High Frequency Omni-Directional Range (VOR) Minimum Operational Network (MON). The Federal Aviation Administration appreciates the work of the TOC in providing this report ahead of schedule and will use the methodology suggested by the TOC to develop a final list of VORs to be included in the MON.

Specifically, the FAA agrees with the TOC acceptance of the original FAA criteria of retaining Oceanic VORs and VORs in the Western Mountain Region. The FAA also agrees with the five weighted criteria for retention of other VORs in CONUS and will use the recommended tiers to create the final list of VORs for inclusion in the MON. However, it should be understood that the final list of VORs will be a balance of requirements. For example, a VOR that solely supports a third tier requirement may not be selected for retention in the MON.

The FAA understands that the feedback from NAS users and local communities is another important aspect that must be considered for the evaluation of the VOR MON. The FAA is looking forward to the results and recommendations of Task 4 on outreach and education.

If you have any questions, please contact Rowena Mendez-Ruano at 202-267-4540 or Dale Courtney at 202-267-4537.

Sincerely,

A handwritten signature in cursive script, appearing to read "Elizabeth L. Ray for".

Elizabeth L. Ray  
Vice President, Mission Support Services  
Air Traffic Organization





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

MAY 08 2014

Mission Support Services  
800 Independence Avenue, SW.  
Washington, DC 20591

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

Dear Ms. Jenny:

The Federal Aviation Administration (FAA) is required under Section 3(c) of Public Law 112-153, also known as the 2012 Pilot's Bill of Rights, to "establish a NOTAM Improvement Panel, which shall be comprised of representatives of relevant nonprofit and not-for-profit general aviation pilot groups, to advise the Administrator in carrying out the goals of the NOTAM Improvement Program." The FAA would like to build on the progress already made with "digital NOTAMs" to comply with the provisions of this law. We believe having the Tactical Operations Committee (TOC) serve as the NOTAM Improvement Panel will further assist the Agency in crafting specific goals and priorities to meet the law's intent and make needed enhancements to the NOTAM program.

We believe the work of the panel will yield an increasing amount of standardized digital NOTAMs that can be more easily filtered, sorted, and prioritized. This result should yield significant reductions in the volume of NOTAMs pilots must currently review and allow pilots to focus only on those NOTAMs relevant to their flight plan/path. As a result, pilots will be more confident in the quality and accuracy of this focused NOTAM information and the safety of the NAS will be improved.

We request the Tactical Operations Committee complete the following tasks:

**Task 2 – Provide input and recommendations for success criteria and compliance metrics**

The NOTAM Improvement Panel (NIP), consisting of the RTCA Tactical Operations Committee (TOC) and its dedicated NOTAM Task Group, delivered a report to the FAA providing recommendations for metrics and success criteria to gauge how NOTAM modernization activities are meeting the needs of the aviation community and the intent of the Pilot's Bill of Rights (PBoR) legislation. The three recommended high level metrics are listed below along with the FAA's response to each, discussing the extent of work accomplished to date in regard to that metric. In addition, the report included four recommendations from the NIP, which build on the recommended metrics, and are listed below along with the FAA's response to each. An overview of the FAA Aeronautical

Information Management (AIM) office's response to the recommendations can be summarized as:

- The FAA AIM Office will report the high level metrics suggested in the report to the NIP at scheduled meetings to present a snapshot of the FAA's progress toward meeting the intent of the PBoR legislation.
- The FAA AIM Office requests that the Task Group create the survey selection and recommend the survey approach to measure user satisfaction with the Federal NOTAM System (FNS) NOTAM Search site.
- The FAA AIM Office will incorporate these metrics and reporting requirements into its strategic plan for conducting outreach and engagement with aviation stakeholder groups.

### **High Level Metrics for Outside Reporting and FAA Responses:**

The RTCA NOTAM Task Group suggested three high level metrics that the FAA should report to inform aviation stakeholders on the progress toward meeting the intent of the PBoR legislation. These three metrics are presented below, along with the FAA response to each.

#### **1. Percent of NOTAMs available as digital NOTAMs.**

##### FAA AIM (AJV-2) Response:

The FAA AIM Office will report the percent of NOTAMs available as digital NOTAMs on a regular basis, as requested by the Task Group. Through the FNS today, approximately 60% of domestic and Flight Data Center (FDC) NOTAMs in the National Airspace System (NAS) are available digitally. The FAA AIM Office is now in the process of digitizing both military and instrument flight procedure NOTAMs, two key NOTAM originators, with plans to implement these capabilities by the end of FY2014. Efforts to digitize the remaining NOTAM categories will continue to be planned and evaluated as part of NOTAM modernization. Further, FNS is being implemented at new airports on a weekly basis, and additional tower light operating companies are coming online, both which continue to increase the percent of NOTAMs in the NAS that are available digitally. These activities highlight the fact that once new stakeholder capabilities have been developed, there is still effort required to pursue stakeholder deployments to achieve 100% digital NOTAMs.

#### **2. Binary measure of whether the FAA has created all of the functionality required to meet PBoR.**

##### FAA AIM (AJV-2) Response:

The FAA AIM Office will report on the implementation of all functionality required to meet the intent of the PBoR legislation, as requested by the Task Group. In the report five binary measures are recommended to track implementation of functionality. They are listed below along with the current status of each:

**1. Are NOTAMs archived and available according to the recommendations of Task #1?**

The FAA AIM Office released the NOTAM public archive feature in March 2014, thus fulfilling this requirement of the PBoR legislation.

**2. Is the filtering function (for Class, Dates/Times, Procedures, Altitude, Flight Level, Route, Keyword, Q codes, etc.) made available in the FAA interface?**

The FNS NOTAM Search website (i.e., the FAA interface) currently contains some of the filtering functions recommended by the Task Group (e.g., filter by keyword). The FAA AIM Office plans to meet with the Task Group in May 2014 to further define requirements for enhanced filtering capabilities and plans to release new features for FNS NOTAM Search by the end of 2014.

**3. Is the prioritization function made available in the FAA interface?**

The FNS NOTAM Search website currently allows users to sort or prioritize, NOTAMs based on categories such as: class, start/end times, and NOTAM number. The FAA AIM Office plans to meet with the Task Group in May 2014 to further define requirements for enhanced sorting and prioritization capabilities and plans to release new features for FNS NOTAM Search by the end of 2014.

**4. Is the search function made available in the FAA interface?**

The FNS NOTAM Search website currently contains some of the search functions recommended by the Task Group (e.g., search by airports/aerodromes). The FAA AIM Office plans to meet with the Task Group in May 2014 to further define requirements for enhanced searching capabilities and plans to release new features for FNS NOTAM Search by the end of 2014.

**5. Can 3rd parties access and use the data?**

The FAA AIM Office will release the FNS NOTAM Distribution Service, a standards-based web service that will provide a system-to-system interface for digital NOTAM data to 3rd parties, to the public in two phases: a request/reply service will be available in Spring 2014 and a publish/subscribe service will be available later in 2014.

**3. Synthetic measure of user satisfaction (with FNS NOTAM Search).**

FAA AIM (AJV-2) Response:

The FAA AIM Office will solicit feedback to gauge how user-friendly the FNS NOTAM Search is through a synthetic measure of user satisfaction, as recommended by the Task Group. In the report, the Task Group recommended ten measures of user satisfaction with the FAA interface (i.e., NOTAM Search). Since the primary users of the NOTAM Search website are represented by the Task Group, the FAA



AIM Office would like to ensure the development of a useful survey and accurate measure of user satisfaction by requesting that the Task Group create the survey selection to be used from these measures. Further, the Task Group should suggest potential means of conducting the survey among users. For example, the representatives on the Task Group could distribute surveys to the members of their organizations and have the results sent to the FAA.

### **Recommendations and FAA Responses:**

The RTCA NOTAM Task Group also provided four recommendations to the FAA that offer additional guidance on the collection and reporting of metrics for NOTAM modernization activities. These four recommendations are listed below, along with the FAA response to each.

- 1. The Task Group agrees with the FAA that future success of the NOTAM improvement effort relies heavily on the conversion of all NOTAMs to digital format and encourages the FAA to continue to collect and share metrics describing progress made towards an ultimate goal of 100%.**

#### FAA AIM (AJV-2) Response:

As recommended by the Task Group, the FAA AIM Office will continue to collect and share metrics describing the progress of the NOTAM Improvement Program toward the ultimate goal of 100% digital NOTAMs<sup>1</sup>. The metrics will include the percent of NOTAMs available as digital NOTAMs as recommended by the Task Group. The FAA AIM Office will continue to review and analyze potential metrics to ensure that the Task Group is well informed on the progress of digital NOTAMs.

- 2. In addition to the "Feedback" feature already envisioned for the FNS website, a survey selection should also be designed to elicit feedback from users as to what features are most valuable and that this information be organized and reviewed periodically. This data should be used to develop a metric reflecting customer satisfaction.**

#### FAA AIM (AJV-2) Response:

The FAA AIM Office agrees with the Task Group that feedback from the user community is one of the most valuable methods to ensure that the FNS NOTAM Search meets the needs of its users. As mentioned above, the FAA AIM Office requests further guidance from the Task Group to develop this survey selection.

- 3. The Task Group recommends that the various filtering and sorting options selected by users of the FNS website be recorded and reviewed periodically to gain insight into those features that are most popular so as to assist in making**

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<sup>1</sup> Note that while the FAA AIM Office agrees on the need to maximize the availability of digital NOTAMs, it will be very difficult to ever achieve 100% digital NOTAMs. For example, it would be very challenging to predict every possible NOTAM scenario that can ever exist, and each new NOTAM scenario would need an evaluation of the costs and benefits of creating and maintaining a digital scenario for it.

**decisions about where to allocate resources for future developments and improvements.**

FAA AIM Response:

The FAA AIM Office agrees that the use of a website logging feature could be used to analyze the trends and patterns of use of the FNS NOTAM Search website. The FAA AIM Office will evaluate the use of this feature in conjunction with the user input fields recommended in the survey selection above to solicit feedback on where to improve the NOTAM Search website.

**4. As the TOC serves as the NOTAM Improvement Panel, the Task Group should be used as an ongoing resource for the FAA in support of future NOTAM improvement efforts.**

FAA AIM (AJV-2) Response:

The FAA AIM Office agrees that the Task Group, as an assembly of representatives from aviation groups and stakeholders, could be leveraged as a key resource to engage with for future efforts. In fact, in the response to the first report, the FAA AIM Office specifically requested a working meeting with the Task Group to further define sorting and filtering functions for the FNS NOTAM Search application to ensure these features would meet user needs. Further, in addition to providing input on new features of the system, the FAA AIM Office views the Task Group as a critical partner in the communication and outreach of its NOTAM modernization activities. For example, the FAA AIM Office could deliver presentations describing new features of the FNS at stakeholder group conferences and Task Group members could also serve as champions of the FNS by relaying new features and developments throughout their stakeholder organizations.

The NIP has provided recommendations to help achieve the Administrator's goal of fulfilling the 2012 Pilot's Bill of Rights intent and enhancements to the NOTAM program.

Sincerely,



Elizabeth L. Ray  
Vice President, Mission Support Services  
Air Traffic Organization



**Approved by the Tactical Operations  
Committee May 2014**

**NOTAM Search and Filter Options**

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*Report of the NOTAM Task Group in Response to Tasking from  
The Federal Aviation Administration*

*May 2014*

## NOTAM Search and Filter Options

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## Background/Introduction

The Federal Aviation Administration (FAA) is required under Section 3(c) of Public Law 112-153, also known as the 2012 Pilot’s Bill of Rights (“PBoR”), to “establish a NOTAM Improvement Panel, which shall be comprised of representatives of relevant nonprofit and not-for-profit general aviation pilot groups, to advise the Administrator in carrying out the goals of the NOTAM Improvement Program.” The FAA would like to build on the progress already derived from previously established efforts to digitize NOTAMs to comply with the provisions of this law.<sup>1</sup>

The Tactical Operations Committee (TOC) serves as the NOTAM Improvement Panel to further assist the Administration in crafting specific goals and priorities to meet the law’s intent and make needed enhancements to the NOTAM program. In this capacity, the TOC is relying on the NOTAM Task Group (TG) to provide specific recommendations on issues related to the NOTAM program.

The work of the panel will yield an increasing amount of standardized digital NOTAMs that can be more easily filtered, sorted, and prioritized. This should result in a significant reduction in the volume of NOTAMs pilots must currently review and allow pilots to focus only on those NOTAMs relevant to their flight plan/path. As a result, pilots will be more confident in the quality and accuracy of this focused NOTAM information, and the safety of the National Airspace System (NAS) will be improved.

The panel has delivered two recommendations which were approved by the TOC. The first was delivered in November 2013 and the second in February 2014. The FAA wrote a response letter to the November 2013 submission (see Appendix B) that was shared with the TOC members in February 2014 (hereafter referred to as “Response Letter”). This report serves as a response from the NOTAM Task Group to the additional questions raised in the FAA’s February 2014 letter.

## Task and Approach

The FAA Response Letter requested a “working meeting between the members of the Task Group and the Federal NOTAM System (FNS) engineering and development teams to define stakeholder requirements for some of the specific requests.” The Task Group Leadership engaged directly with the FNS team and identified the following areas in which the FAA was interested in Task Group feedback:

- Clarification of search and filter terms
- Prioritization of search and filter options
- Specific questions from FAA response letter

The NOTAM Task Group’s first set of recommendations included a number of requests for options by which to search and filter NOTAMs. The FAA team requested clarification on the definition and intent of the options listed below:

- Runways

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<sup>1</sup> Letter from Elizabeth L. Ray (Vice President, Mission Support Services) to Margaret Jenny (RTCA President) dated July 10, 2013.

- Regions
- Flight Information Regions (FIRs)
- Procedures
- Effective Dates and Times
- Altitude/Flight Level
- Keywords
- Flight Plan Route
- Desired Route Width
- Specific Airport along airman’s route

In addition, the FNS team requested assistance from the Task Group to prioritize this list in importance given that not all capabilities could be implemented immediately.

Finally, the Response Letter included a few specific questions that fell outside the scope of search and filter terms that the Task Group addressed directly.

The NOTAM Task Group held two meetings in early May 2014 to respond to the questions raised in the FAA Response Letter.

### Clarification of Search and Filter Terms

The following table summarizes the Task Group feedback on the intent of the search and filter terms for which the FAA requested clarification:

Term	Task Group Clarification
<b>Runways</b>	The Task Group recognized that NOTAMs for a specific runway could be searched currently in the FNS NOTAM Search tool using the free text option. Some Task Group members expressed an interest in the ability to search for NOTAMs based on runway characteristics such as length, width or surface type.
<b>Regions</b>	The Task Group clarified that Regions implied the ability to search for NOTAMs by geography. Given NOTAM Search currently allows for search by Center, TRACON, airport or other geographic boundary, the Task Group believes that search or filter by Region is sufficiently addressed by the NOTAM Search tool today.
<b>FIRs</b>	Given NOTAM Search currently allows for search within a FIR, the Task Group concluded that search by FIR is sufficiently addressed by the NOTAM Search tool today. The Task Group did discuss the importance of ensuring that International NOTAMs that cross over are included in NOTAM Search.
<b>Procedures</b>	The Task Group described search by Procedure as searching for a type of procedure. For example, an operator may wish to search for all procedures that are for RNP capable operators. An operator may wish to search to include all procedures of a certain type, or they may wish to exclude all procedures of a certain type. In the example, an operator that is not RNP capable may wish to exclude all procedures that require RNP capability.



<b>Effective Dates and Times</b>	The Task Group clarified that this search or filter option implies the ability to search for NOTAMs that correspond only to the time period in which the operator is planning to fly. There was interest for including a time buffer around the intended effective times to allow for changes in planned times.
<b>Altitude/Flight Level</b>	The Task Group stated that the intent of an altitude filter related to the interest in searching for a route of flight. Operators are interested in the ability to submit a route along with a route width buffer laterally around the route as well as an altitude buffer vertically around the route. One Task Group member described the search as a route with a square tube around it for which all relevant NOTAMs would be captured. The Task Group recognized that the FAA communicated the challenges it faces in enabling the altitude capability ahead of complete NOTAM digitization.
<b>Keywords</b>	The Task Group agreed that the keywords from NOTAM Policy comprise a strong starting list of keywords, and the group did not have any additional keywords to suggest.
<b>Flight Plan Route</b>	The Group stated that NOTAM Search should allow a user to input a flight plan route string and receive all NOTAMs associated with the route. The capability should allow the user to define a lateral route width and vertical buffer around the route of flight to capture NOTAMs contained in that “square tube” around the route.
<b>Desired Route Width</b>	The Task Group suggested that a 250nm route width around the route of flight should be a sufficient upper bound for the lateral route width option. This implies 125nm on either side of the center line of the flight plan route.
<b>Specific Airport Along Airman’s Route</b>	The Task Group clarified that a flight plan route with a route width around it may not capture all possible alternates of interest. One operator gave an example of operating from the West coast to Newark and utilizing Boston as an alternate. In such case, airports that are within 125nm of the center line of the route would not include Boston. Hence, the Task Group requested that NOTAM Search include an option for appending additional alternate airports to the search and filter capability.

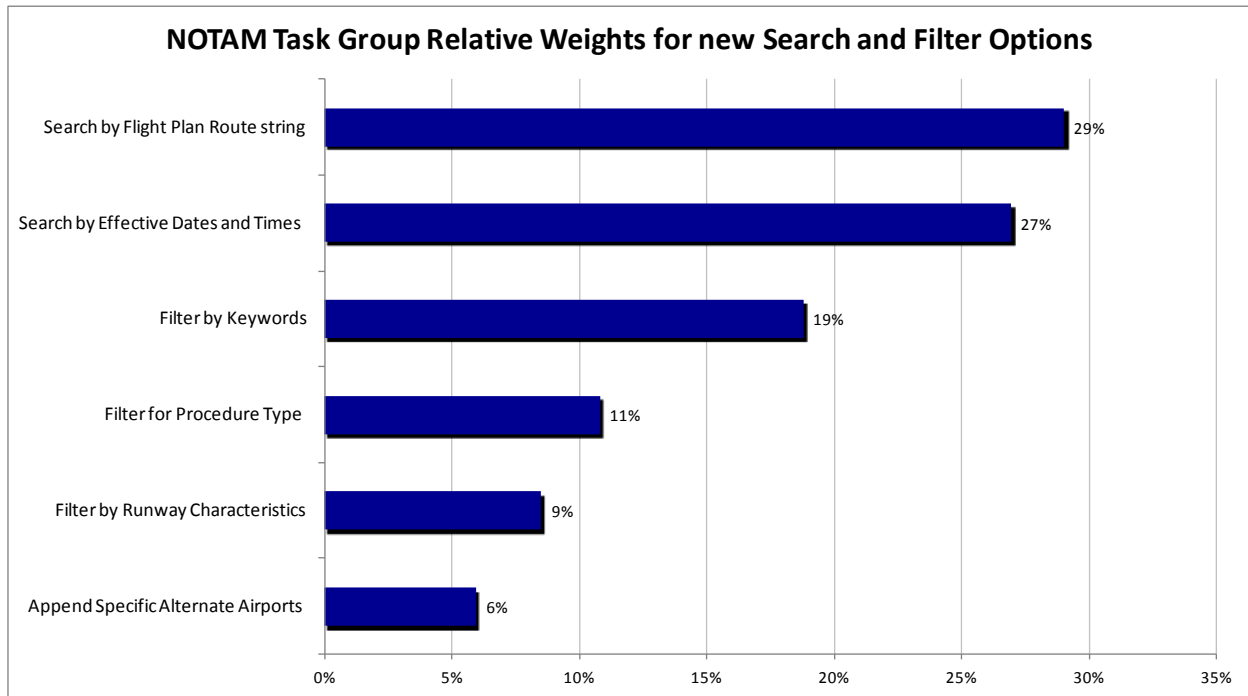
## Prioritization of Search and Filter Terms

After completing the clarification exercise above, the Task Group identified the following six search and filter options not currently available in NOTAM Search:

1. Filter by **Runway Characteristics** (length, width, surface types)
2. Filter for **Procedure Type** to include or exclude a procedure type
3. Filter by **Keywords**  
(RWY, TWY, APRON, AD, OBST, NAV, COM, SVC, AIRSPACE, ODP, SID, STAR, CHART, DATA, IAP, VFP, ROUTE, SPECIAL, SECURITY)
4. Search by **Effective Dates and Times** with a time buffer
5. Search by **Flight Plan Route** string with a route and altitude width around it
6. Append **Specific Alternate Airports** outside of route of flight and route width to the search

The Task Group then prioritized this list of six options using an analytical framework known as the Analytic Hierarchy Process. The Group utilized a software tool known as Decision Lens to conduct the prioritization.

The results of the prioritization are depicted in the following chart. The numbers represent the weighted priority for each of these options according to the NOTAM Task Group:



The Task Group placed the greatest emphasis on the ability to search NOTAMs by a Flight Plan Route String (with lateral/vertical buffers) as well as by Effective Dates and Times (with time buffers).

A secondary priority was the ability to filter by Keywords.

Finally, the third tier preferences were the ability to Filter for Procedure Type, Filter by Runway Characteristics and Append Specific Alternate Airports.

### Additional Recommendations on Search and Filter of NOTAMs

During the course of discussion on search and filter options, the Task Group made note of a few additional recommendations:

1. The general approach users will take for searching and filtering NOTAMs is by searching broadly to begin. From there, users expect to drill down to specifics using filtering capabilities.
2. NOTAM Search should allow users to search for multiple keywords at the same time.
3. NOTAM Search should allow users to filter keywords to both include and exclude the filter term.
4. NOTAM Search should allow users to create personalized accounts. Accounts could include saved information specific to the individual’s operation. This may include items such as saved



profiles for specific aircraft types, certain city pairs, specific routes, previous trips, preferred alternates and preferred flight levels. The Task Group recognizes there would be more work required to define the requirements of a user profile.

5. The TG recommends that the “end state” for NOTAMs is a single Federal NOTAM Service web site combining the best features of the current DoD NOTAM and Pilot Web sites into the NOTAM Search web site (The TG realizes DoD may desire to keep its own site for DoD specific purposes).

## Response to Specific Questions in FAA Response Letter

Finally, the Task Group responded to some specific questions raised in the FAA’s Response Letter:

### Response Letter Question 1:

What is intended or implied by “Integration of Artificial Intelligence technology to facilitate ease of use (e.g. pattern recognition)”?

### Task Group Response:

Artificial Intelligence (AI) is an emerging discipline that offers great promise for human/machine interface. At present, in its most sophisticated form, it is probably not a practical addition to FNS, but less sophisticated aspects, like user profiles, may be a reasonable goal. The Task Group recognizes AI has much long term promise but suggests user profiles as a starting point for this item.

### Response Letter Question 2:

On the recommendation for Flight Service Specialists: is the recommendation to allow FSS’s to create NOTAMs (which they do today with ENII) or for FSS’s to use NOTAM Manager in the future?

### Task Group Response:

The Task Group recommends Flight Service Specialists utilize NOTAM Manager in the future. The Group is aware there may be other factors that make this recommendation difficult. However, the Task Group leaves this recommendation as is for the time being with the request to hear further detail from the FAA on the ramifications of the recommendation. While the Task Group envisions full use of NOTAM Manager from all NOTAM originators, the Group is also interested in understanding the challenges it creates for the FAA.

### Response Letter Question 3:

The FAA has stated that the NOTAM Improvement Panel will be an important participant in helping digitize the last 20% of NOTAMs. What ideas do different stakeholders, particularly those representing airports, general and business aviation, have to partner with the FAA to motivate digitization towards 100%?

### Task Group Response:

The Task Group suggested the FAA consider whether it should define a date in the future to require digital entry for all NOTAMs.

Additionally, some Task Group members indicated an interest to examine data on which NOTAM generators are not originating NOTAMs digitally. Some Task Group members are membership based organizations and may be able to leverage local members to support outreach to airports that are not transitioning to digital. The members suggested that the message may have more weight if delivered from a local entity, and the local members of some organizations may be able to support this in the future.

Finally, the Task Group suggested the FAA consider including a link to the primary FNS site in the “One Stop Shop” AIM Modernization Portal which is expected to have Initial Operating Capability in late 2015. Doing so will offer support to the FAA in getting closer to the 100% digitization goal because those originators not entering NOTAMs digitally may need other services from the AIMM portal and get exposure to the FNS site. This also supports the FAA and NextGen’s objectives of having one place where users can go to get all aeronautical information.

## Appendix A: Members of the NOTAM Task Group

Kal Bala	RTCA, Inc.	Bob Lamond	National Business Aviation Association
Chris Baum	Air Line Pilots Association		
Rich Boll	National Business Aviation Association	Jeffrey Miller	International Air Transport Association
Dave Bradshaw	Federal Aviation Administration	Jim Mills	U.S. Air Force
<b>Mark Cardwell</b>	<b>FedEx Express (Co-Chair)</b>	Trin Mitra	RTCA, Inc.
Andy Cebula	RTCA, Inc.	David Newton	Southwest Airlines
Jocelyn Cox	CNA	Glenn Sigley	Federal Aviation Administration
Trish Gay	Federal Aviation Administration	Ashish Solanki	Maryland Aviation Administration
Adam Gerhardt	TASC, Inc.	Edwin Solley	Southwest Airlines
Steve Habicht	CNA	Harold Summers	Helicopter International Association
Shaelynn Hales	CNA		
Jack Hurley	Delta Air Lines, Inc.	Brandi Teel	RTCA, Inc.
Ezra Jalleta	The MITRE Corporation	Robert Utley	National Air Traffic Controllers Association
Scott Jerdan	Federal Aviation Administration	David von Rinteln	Hewlett Packard
Christian Kast	United Parcel Service	Michael Williams	Hewlett Packard
Des Keany	American Airlines, Inc.	Diana Young	Federal Aviation Administration
<b>Tom Kramer</b>	<b>Aircraft Owners and Pilots Association (Co-Chair)</b>		

## **Appendix B: FAA Response Letter to NOTAM Recommendation #1**



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

Mission Support Services  
800 Independence Avenue, SW.  
Washington, DC 20591

FEB 04 2014

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

Dear Ms. Jenny:

The Federal Aviation Administration (FAA) is required under Section 3(c) of Public Law 112-153, also known as the 2012 Pilot's Bill of Rights, to "establish a NOTAM Improvement Panel, which shall be comprised of representatives of relevant nonprofit and not-for profit general aviation pilot groups, to advise the Administrator in carrying out the goals of the NOTAM Improvement Program." The FAA would like to build on the progress already made with "digital NOTAMs" to comply with the provisions of this law. We believe having the Tactical Operations Committee (TOC) serve as the NOTAM Improvement Panel will further assist the Agency in crafting specific goals and priorities to meet the law's intent and make needed enhancements to the NOTAM program.

We believe the work of the panel will yield an increasing amount of standardized digital NOTAMs that can be more easily filtered, sorted, and prioritized. This result should yield significant reductions in the volume of NOTAMs pilots must currently review and allow pilots to focus only on those NOTAMs relevant to their flight plan/path. As a result, pilots will be more confident in the quality and accuracy of this focused NOTAM information and the safety of the NAS will be improved.

We request the Tactical Operations Committee complete the following tasks:

**Task 1 – Establish the NOTAM Improvement Panel as a chartered function of the TOC and review recent and planned future NOTAM modernization efforts of the FAA**

We have provided documentation as needed as well as subject matter expertise to assist the TOC and task groups in its deliberations as described in Task 1.

Federal Aviation Administration (FAA) Response to Recommendations from the Radio Technical Commission for Aeronautics (RTCA) Notices To Airmen (NOTAM) Improvement Panel (NIP)

## Summary

The NIP delivered a draft report to the FAA listing **10 recommendations** to prioritize certain NOTAM modernization activities to meet the needs of the aviation community and the intent of the Pilot's Bill of Rights (PBoR) legislation. The 10 recommendations are listed below along with the FAA's response to each, discussing the extent of work accomplished to date, the anticipated plans for future work, and any additional information as appropriate. An overview of the FAA Aeronautical Information Management (AIM; AJV-2) office's response to the recommendations can be summarized as:

- The recommendations provide valuable stakeholder requirements to guide development under the NIP.
- The FAA AIM office requests a working meeting involving the members of the task group and the Federal NOTAM System (FNS) engineering and development teams to define stakeholder requirements for some of the specific requests (e.g., the flight path search tool).
- The FAA AIM office is developing a strategic plan to conduct outreach and engagement with aviation stakeholder groups.

## Panel Recommendations and FAA Responses:

### **1. Continue to promote and support NOTAM modernization through the AIM office.**

#### FAA AIM (AJV-2) Response:

The FAA AIM office has continued its efforts to modernize the NOTAM system by improving the origination, management, and dissemination of digital NOTAMs. In the coming year, NOTAM origination capabilities will be expanded to include Department of Defense (DoD) and instrument flight procedure NOTAMs. Distribution capabilities will be enhanced through the release of the NOTAM distribution service, an FAA System Wide Information Management (SWIM) service that will serve as a system-to-system interface for digital NOTAM information. The recommendations from the NIP will serve as the basis to further enhance the dissemination (improved search, sort, and filter options) and management (NOTAM central archive) of NOTAMs.

### **2. Develop filter options based on the DoD's ability to define a flight route request in terms of planned routing, altitude/flight level, width of search, departure and Enroute times, and customization selections designed to identify "suitable" airports Enroute (e.g. runway length, width, load bearing capability, approach capabilities).**

#### FAA AIM (AJV-2) Response:

To date, FNS NOTAM Search provides the initial capability for flight plan route searching by allowing the user to enter multiple location identifiers into the search box. A robust flight plan route search tool appears to be a key recommendation from

the NIP to “present NOTAMs that are specific and relevant to the airman’s route.” The FAA AIM office will work with stakeholders represented by the NIP to further define the necessary attributes to specify a flight path and can also leverage the desirable characteristics of the DoD flight route filtering option to enhance the FNS NOTAM Search application. The level of effort required to develop the full capability will depend on further clarifying these requirements; e.g., defining a route as a straight line from point A to point B could be a straight forward implementation, but defining the most optimal route from point A to point B would be a much more complex endeavor. The FAA AIM office could work with the panel to set up a work group with these stakeholders to define the initial requirements for this capability.

- 3. Define, create and support a base-level NOTAM interface that combines the elements described in the “Key Observations, Findings and Outcomes” section of this report and that test groups from various aviation backgrounds be employed to beta-test and refine any developments in this area prior to deployment. Organizations representing various segments of the aviation community could be enlisted to help identify volunteers who would be willing to participate in efforts to test and refine NOTAM developments thereby helping to reduce the likelihood that unproductive and inefficient tools reach production status.**

FAA AIM (AJV-2) Response:

The “Key Observations, Findings and Outcomes” section of the report lists a variety of search options and filters that should be implemented to improve NOTAM distribution. FNS NOTAM Search already includes the ability to search and filter using some of the options listed in the report. The FAA AIM office would work with the panel to set up a work group with these stakeholders to define and, if possible, prioritize the remaining search/sort/filter options to adequately evaluate the requirements and the level of effort required to implement them.

The report also defines characteristics of a user-friendly format for the airman, which includes:

- Plain Text (when desired)
- “Smart” Capitalization (Capitalization consistently and exclusively used to highlight specific words or abbreviations for emphasis purposes)
- Graphical NOTAMs
- Integration of Artificial Intelligence technology to facilitate ease of use (e.g. pattern recognition) to the maximum extent possible
- The ability to create a user profile option that would help customize, abbreviate and simplify the user’s experience
- Print friendly
- Appropriate notation that once NOTAMs have been filtered, all NOTAMs may no longer be visible

FNS is already addressing 4 of the 7 items listed above:

- FNS NOTAM Search currently provides a **plain text** option for NOTAMs
- FNS NOTAM Search ATC (currently in development) provides the ability to create a **user profile**—this option could be extended to FNS NOTAM Search
- FNS NOTAM Search currently uses a text box **notation** to tell the user how many NOTAMs have been filtered based on their actions
- FNS NOTAM Search currently provides “**print friendly**” views, and these could be enhanced based on other user requirements if necessary

The remaining 3 items:

- “**Smart**” **capitalization** and other features for emphasis purposes should be explored with Human Factors to develop the most effective solution; this effort may also leverage recommendations from SAEG10
- FAA AIM office is building the foundation for **graphical NOTAM** display through the collection of digital data and to date has focused on making this data available through standard web services to allow the development of graphical NOTAMs by third party vendors
- Need to clarify what is meant by **artificial intelligence**/pattern recognition technology

In addition to search, filter, and format options, this section also defines some of the NIP’s recommendations for the NOTAM public archive. The implementation of the archive will focus on adding a date range to the current FNS NOTAM Search application to retrieve historical NOTAMs. This implementation will provide archive users with the same sorting and filtering capabilities that would be used to retrieve active NOTAMs.

**4. Continue the efforts already underway to educate third-party developers in the potential of products based on digitized NOTAMs.**

FAA AIM (AJV-2) Response:

The FAA AIM office agrees with the Panel and will continue to leverage FAA and other forums to educate stakeholders on the potential of digital NOTAMs. The FAA AIM office hosts a session dedicated to the progress and new developments of digital NOTAMs at the annual Air Transportation Information Exchange Conference (ATIEC). The FNS deployment team engages airport operators through a variety of outreach mechanisms to convey the benefits of digital NOTAMs. There is also a publically available website (<https://notams.aim.faa.gov>) that presents the digital NOTAM effort and new developments to FNS. Further, the FAA AIM Office is developing a strategic plan to conduct outreach and engagement with stakeholder groups, including third party developers, to help realize this potential.



- 5. Develop a plan to educate users in the practice of sorting and filtering NOTAMs with emphasis on those tools currently available and that additional training be provided as both a refresher and as an introduction to new features. Such an effort could take the form of a tutorial, ideally in video format, which could be accessed from the FAA's NOTAM website. In addition, a quick reference guide should be developed for download in PDF format.**

FAA AIM (AJV-2) Response:

The FAA AIM Office agrees with the Panel that training is a key resource for the effective use of NOTAM applications and their features. The FNS NOTAM Search application has a user guide that is readily available from the website and is also available to download in PDF format. This guide captures the current functionality of the application and will continue to be updated as new features are added. The FAA AIM office will explore means to provide additional training resources, to ensure that users can fully exploit the features of FNS applications, such as NOTAM Search.

- 6. Undertake an effort to communicate to and educate U.S. airport operators in the use and value of NOTAM Manager as a means of creating NOTAMs and that goals be established in support of these efforts. It may be necessary to establish a date beyond which NOTAMs could only be created using NOTAM Manager. In such a case, it would fall on the FAA to create a timeline which allows for such a conversion in an orderly manner. While benefits of the NOTAM digitization effort will become increasing apparent in the coming years, complete exploitation of this potential will not occur until all NOTAMs are created through an interface, such as NOTAM Manager, which digitizes the information at point of origin.**

FAA AIM (AJV-2) Response:

The FAA AIM office will continue to explore and pursue efforts to maximize the number of digital NOTAMs available in the National Airspace System (NAS). The FAA AIM office currently conducts outreach and communication efforts to educate multiple NOTAM origination stakeholders on the use and value of FNS NOTAM Manager to facilitate the move to digital NOTAMs. FNS NOTAM Manager currently supports NOTAM origination by airport operators, tower light operators, and FAA technical operations personnel, and will add DoD personnel and instrument flight procedures personnel by the end of calendar year 2014. For airport stakeholders, the FAA AIM office engages US airport operators on the use of FNS NOTAM Manager through a dedicated FNS airport deployment team for FAA-guided implementation and more recently through an online Airport Self-Certification website to allow operators to begin the implementation process themselves. The FAA AIM office would welcome a partnership with the key stakeholder groups represented by the NIP to raise awareness of FNS NOTAM Manager and the Airport Self-Certification website among airport operators. In addition to digital origination of NOTAMs at the source, it should be noted that the

FNS can transform some standardized analog NOTAMs into digital NOTAMs through the use of a transformation engine.

- 7. Modify NOTAM Manager to allow Flight Service Specialist to use as an interface for creating NOTAMs from those originators who are not immediately capable of doing so themselves.**

FAA AIM (AJV-2) Response:

Flight Services currently uses another FNS application, eNOTAM II (ENII), to create and approve NOTAMs that are received via phone, fax, or other legacy methods. This application allows electronic capture of NOTAM information but still produces NOTAMs in analog, rather than digital, format to support airports without baseline data and to support the origination of NOTAMs that do not have a digital event scenario. Although these NOTAMs are originated in analog format, the FNS transformation engine can transform some of these standardized analog NOTAMs into digital NOTAMs. Thus, through ENII, Flight Service Specialists already have an interface for creating NOTAMs from those originators who are not immediately capable of doing so themselves, and these NOTAMs are then disseminated via FNS. The FAA AIM office would request that the NIP clarify if the intent of this recommendation is to allow FAA Flight Services to create NOTAMs, or is a specific recommendation to have FAA Flight Services use NOTAM Manager. Further, as recommended by the Panel, the FAA AIM office will continue to work with FAA Flight Services and other offices as appropriate, to ensure that there are methods in place to capture NOTAMs by legacy methods as necessary.

- 8. Expedite the effort to digitize all remaining NOTAM categories to include airspace, procedures, TFR, pointer NOTAMs, international, and military.**

FAA AIM (AJV-2) Response:

The FAA AIM office has focused efforts on digitizing NOTAMs from stakeholders based on the percent of total NOTAMs issued in the NAS, and agrees with the Panel that continuing to provide digital NOTAM capabilities to new stakeholders should be a priority. Through the Federal NOTAM system today, approximately 60% of NOTAMs in the NAS are available digitally.

The FAA AIM office is now in the process of digitizing both military and procedure NOTAMs, two key NOTAM originators, with plans to implement these capabilities by the end of FY2014. Through these efforts, and the ability to transform some standardized analog NOTAMs to digital format, the FAA AIM office estimates that by the end of calendar year 2014, approximately 80% of NOTAMs in the NAS will be available digitally. Efforts to digitize the remaining NOTAM categories will continue to be planned and evaluated.

**9. Provide funding in support of efforts to create geo-referenced data for all taxiways and ramps within the NAS thereby expanding the potential use of graphical NOTAMs.**

FAA AIM (AJV-2) Response:

The FAA AIM Office agrees with the Panel that collecting geo-referenced taxiway and ramp data is critical to support the creation and use of graphical NOTAMs. FNS currently contains geo-referenced baseline data to support the airports that use FNS NOTAM Manager, and the FNS deployment team currently collects this data as part of the implementation process for NOTAM Manager. In the near term, the extent of baseline data will continue to increase as FNS is deployed to more airports. Looking forward, FAA programs such as NAV Lean are working on solutions to realize an authoritative set of baseline data for airports. The FNS NOTAM Distribution Service will then disseminate NOTAMs and their associated baseline data in the Aeronautical Information Exchange Model (AIXM) format, which represents the ICAO-adopted international standard for data exchange, and will support third party efforts to develop graphical NOTAM display capabilities.

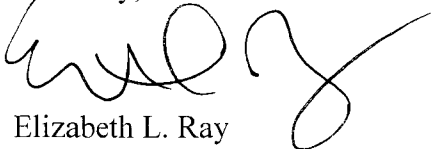
**10. Develop a comprehensive approach to aeronautical information in which required flight information is not necessarily categorized and sourced separately but is instead drawn and assembled from all available information and is based on the unique needs of a particular flight. While this goal may not be immediately achievable, steps can be taken now to begin to digitize and organize all flight information with the goal of creating an interface where all pertinent flight information (not just NOTAMs) is provided upon user request.**

FAA AIM (AJV-2) Response:

The FAA AIM Office agrees with the Panel on the value of a single portal to access all pertinent flight information. The work performed under the NIP will provide the NOTAM information necessary to fulfill this recommendation. Looking forward, the FAA AIM office is currently collaborating with the FAA NAV Lean program and the FAA Project Management Organization (PMO), who have begun planning for this type of solution as part of its overall modernization effort. Further, the FAA has taken a lead role in developing and maturing data exchange standards (AIXM, Weather Information Exchange Model (WXXM), and Flight Information Exchange Model (FIXM)) to support this effort.

The NIP has provided recommendations to help achieve the Administrator's goal of fulfilling the 2012 Pilot's Bill of Rights intent and enhancements to the NOTAM program.

Sincerely,



Elizabeth L. Ray  
Vice President, Mission Support Services  
Air Traffic Organization

## **Appendix C: Pilot's Bill of Rights Public Law 112-153**

Public Law 112–153  
112th Congress

An Act

To amend title 49, United States Code, to provide rights for pilots, and for other purposes.

Aug. 3, 2012  
[S. 1335]

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

**SECTION 1. SHORT TITLE.**

This Act may be cited as the “Pilot’s Bill of Rights”.

Pilot’s Bill of  
Rights.  
49 USC 40101  
note.

**SEC. 2. FEDERAL AVIATION ADMINISTRATION ENFORCEMENT PROCEEDINGS AND ELIMINATION OF DEFERENCE.**

49 USC 44703  
note.

(a) **IN GENERAL.**—Any proceeding conducted under subpart C, D, or F of part 821 of title 49, Code of Federal Regulations, relating to denial, amendment, modification, suspension, or revocation of an airman certificate, shall be conducted, to the extent practicable, in accordance with the Federal Rules of Civil Procedure and the Federal Rules of Evidence.

(b) **ACCESS TO INFORMATION.**—

(1) **IN GENERAL.**—Except as provided under paragraph (3), the Administrator of the Federal Aviation Administration (referred to in this section as the “Administrator”) shall provide timely, written notification to an individual who is the subject of an investigation relating to the approval, denial, suspension, modification, or revocation of an airman certificate under chapter 447 of title 49, United States Code.

Notification.

(2) **INFORMATION REQUIRED.**—The notification required under paragraph (1) shall inform the individual—

(A) of the nature of the investigation;

(B) that an oral or written response to a Letter of Investigation from the Administrator is not required;

(C) that no action or adverse inference can be taken against the individual for declining to respond to a Letter of Investigation from the Administrator;

(D) that any response to a Letter of Investigation from the Administrator or to an inquiry made by a representative of the Administrator by the individual may be used as evidence against the individual;

(E) that the releasable portions of the Administrator’s investigative report will be available to the individual; and

(F) that the individual is entitled to access or otherwise obtain air traffic data described in paragraph (4).

126 STAT. 1160

PUBLIC LAW 112–153—AUG. 3, 2012

(3) EXCEPTION.—The Administrator may delay timely notification under paragraph (1) if the Administrator determines that such notification may threaten the integrity of the investigation.

(4) ACCESS TO AIR TRAFFIC DATA.—

(A) FAA AIR TRAFFIC DATA.—The Administrator shall provide an individual described in paragraph (1) with timely access to any air traffic data in the possession of the Federal Aviation Administration that would facilitate the individual's ability to productively participate in a proceeding relating to an investigation described in such paragraph.

(B) AIR TRAFFIC DATA DEFINED.—As used in subparagraph (A), the term “air traffic data” includes—

- (i) relevant air traffic communication tapes;
- (ii) radar information;
- (iii) air traffic controller statements;
- (iv) flight data;
- (v) investigative reports; and
- (vi) any other air traffic or flight data in the Federal Aviation Administration's possession that would facilitate the individual's ability to productively participate in the proceeding.

(C) GOVERNMENT CONTRACTOR AIR TRAFFIC DATA.—

(i) IN GENERAL.—Any individual described in paragraph (1) is entitled to obtain any air traffic data that would facilitate the individual's ability to productively participate in a proceeding relating to an investigation described in such paragraph from a government contractor that provides operational services to the Federal Aviation Administration, including control towers and flight service stations.

(ii) REQUIRED INFORMATION FROM INDIVIDUAL.—The individual may obtain the information described in clause (i) by submitting a request to the Administrator that—

- (I) describes the facility at which such information is located; and
- (II) identifies the date on which such information was generated.

(iii) PROVISION OF INFORMATION TO INDIVIDUAL.—If the Administrator receives a request under this subparagraph, the Administrator shall—

- (I) request the contractor to provide the requested information; and
- (II) upon receiving such information, transmitting the information to the requesting individual in a timely manner.

(5) TIMING.—Except when the Administrator determines that an emergency exists under section 44709(c)(2) or 46105(c), the Administrator may not proceed against an individual that is the subject of an investigation described in paragraph (1) during the 30-day period beginning on the date on which the air traffic data required under paragraph (4) is made available to the individual.

49 USC 44703.

(c) AMENDMENTS TO TITLE 49.—

(1) AIRMAN CERTIFICATES.—Section 44703(d)(2) of title 49, United States Code, is amended by striking “but is bound by all validly adopted interpretations of laws and regulations the Administrator carries out unless the Board finds an interpretation is arbitrary, capricious, or otherwise not according to law”.

(2) AMENDMENTS, MODIFICATIONS, SUSPENSIONS, AND REVOCATIONS OF CERTIFICATES.—Section 44709(d)(3) of such title is amended by striking “but is bound by all validly adopted interpretations of laws and regulations the Administrator carries out and of written agency policy guidance available to the public related to sanctions to be imposed under this section unless the Board finds an interpretation is arbitrary, capricious, or otherwise not according to law”.

49 USC 44709.

(3) REVOCATION OF AIRMAN CERTIFICATES FOR CONTROLLED SUBSTANCE VIOLATIONS.—Section 44710(d)(1) of such title is amended by striking “but shall be bound by all validly adopted interpretations of laws and regulations the Administrator carries out and of written agency policy guidance available to the public related to sanctions to be imposed under this section unless the Board finds an interpretation is arbitrary, capricious, or otherwise not according to law”.

49 USC 44710.

(d) APPEAL FROM CERTIFICATE ACTIONS.—

(1) IN GENERAL.—Upon a decision by the National Transportation Safety Board upholding an order or a final decision by the Administrator denying an airman certificate under section 44703(d) of title 49, United States Code, or imposing a punitive civil action or an emergency order of revocation under subsections (d) and (e) of section 44709 of such title, an individual substantially affected by an order of the Board may, at the individual’s election, file an appeal in the United States district court in which the individual resides or in which the action in question occurred, or in the United States District Court for the District of Columbia. If the individual substantially affected by an order of the Board elects not to file an appeal in a United States district court, the individual may file an appeal in an appropriate United States court of appeals.

(2) EMERGENCY ORDER PENDING JUDICIAL REVIEW.—Subsequent to a decision by the Board to uphold an Administrator’s emergency order under section 44709(e)(2) of title 49, United States Code, and absent a stay of the enforcement of that order by the Board, the emergency order of amendment, modification, suspension, or revocation of a certificate shall remain in effect, pending the exhaustion of an appeal to a Federal district court as provided in this Act.

(e) STANDARD OF REVIEW.—

(1) IN GENERAL.—In an appeal filed under subsection (d) in a United States district court, the district court shall give full independent review of a denial, suspension, or revocation ordered by the Administrator, including substantive independent and expedited review of any decision by the Administrator to make such order effective immediately.

(2) EVIDENCE.—A United States district court’s review under paragraph (1) shall include in evidence any record of the proceeding before the Administrator and any record of the proceeding before the National Transportation Safety

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Board, including hearing testimony, transcripts, exhibits, decisions, and briefs submitted by the parties.

49 USC 44701  
note.

**SEC. 3. NOTICES TO AIRMEN.**

(a) IN GENERAL.—

(1) DEFINITION.—In this section, the term “NOTAM” means Notices to Airmen.

Deadline.

(2) IMPROVEMENTS.—Not later than 180 days after the date of the enactment of this Act, the Administrator of the Federal Aviation Administration shall begin a Notice to Airmen Improvement Program (in this section referred to as the “NOTAM Improvement Program”)—

(A) to improve the system of providing airmen with pertinent and timely information regarding the national airspace system;

(B) to archive, in a public central location, all NOTAMs, including the original content and form of the notices, the original date of publication, and any amendments to such notices with the date of each amendment; and

(C) to apply filters so that pilots can prioritize critical flight safety information from other airspace system information.

(b) GOALS OF PROGRAM.—The goals of the NOTAM Improvement Program are—

(1) to decrease the overwhelming volume of NOTAMs an airman receives when retrieving airman information prior to a flight in the national airspace system;

(2) to make the NOTAMs more specific and relevant to the airman’s route and in a format that is more useable to the airman;

(3) to provide a full set of NOTAM results in addition to specific information requested by airmen;

(4) to provide a document that is easily searchable; and

(5) to provide a filtering mechanism similar to that provided by the Department of Defense Notices to Airmen.

Establishment.

(c) ADVICE FROM PRIVATE SECTOR GROUPS.—The Administrator shall establish a NOTAM Improvement Panel, which shall be comprised of representatives of relevant nonprofit and not-for-profit general aviation pilot groups, to advise the Administrator in carrying out the goals of the NOTAM Improvement Program under this section.

Deadline.

(d) PHASE-IN AND COMPLETION.—The improvements required by this section shall be phased in as quickly as practicable and shall be completed not later than the date that is 1 year after the date of the enactment of this Act.

49 USC 44703  
note.

**SEC. 4. MEDICAL CERTIFICATION.**

(a) ASSESSMENT.—

Deadline.

(1) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act, the Comptroller General of the United States shall initiate an assessment of the Federal Aviation Administration’s medical certification process and the associated medical standards and forms.

(2) REPORT.—The Comptroller General shall submit a report to Congress based on the assessment required under paragraph (1) that examines—

(A) revisions to the medical application form that would provide greater clarity and guidance to applicants;



(B) the alignment of medical qualification policies with present-day qualified medical judgment and practices, as applied to an individual's medically relevant circumstances; and

(C) steps that could be taken to promote the public's understanding of the medical requirements that determine an airman's medical certificate eligibility.

(b) GOALS OF THE FEDERAL AVIATION ADMINISTRATION'S MEDICAL CERTIFICATION PROCESS.—The goals of the Federal Aviation Administration's medical certification process are—

(1) to provide questions in the medical application form that—

(A) are appropriate without being overly broad;

(B) are subject to a minimum amount of misinterpretation and mistaken responses;

(C) allow for consistent treatment and responses during the medical application process; and

(D) avoid unnecessary allegations that an individual has intentionally falsified answers on the form;

(2) to provide questions that elicit information that is relevant to making a determination of an individual's medical qualifications within the standards identified in the Administrator's regulations;

(3) to give medical standards greater meaning by ensuring the information requested aligns with present-day medical judgment and practices; and

(4) to ensure that—

(A) the application of such medical standards provides an appropriate and fair evaluation of an individual's qualifications; and

(B) the individual understands the basis for determining medical qualifications.

(c) ADVICE FROM PRIVATE SECTOR GROUPS.—The Administrator shall establish a panel, which shall be comprised of representatives of relevant nonprofit and not-for-profit general aviation pilot groups, aviation medical examiners, and other qualified medical experts, to advise the Administrator in carrying out the goals of the assessment required under this section.

Establishment.

(d) FEDERAL AVIATION ADMINISTRATION RESPONSE.—Not later than 1 year after the issuance of the report by the Comptroller

Deadline.

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General pursuant to subsection (a)(2), the Administrator shall take appropriate actions to respond to such report.

Approved August 3, 2012.

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LEGISLATIVE HISTORY—S. 1335:

CONGRESSIONAL RECORD, Vol. 158 (2012):  
June 29, considered and passed Senate.  
July 23, considered and passed House.

