

August 20, 2013

**Meeting Summary, July 23, 2013**  
**Tactical Operations Committee (TOC)**

The second meeting of the Tactical Operations Committee (TOC) held on July 23, 2013 at the Headquarters of RTCA in Washington, DC, convened at 10:00 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 – April 8, 2013 Meeting Summary

Attachment 4 – NOTAM Task Group Terms of Reference

Attachment 5 - Regional Task Group(s) Terms of Reference

Attachment 6 - VOR MON Task Group Terms of Reference

**Welcome and Introductions**

Committee Co-Chairs, Mr. Jim Bowman, Vice President of Flight Operations at FedEx Express, and Ms. Heidi Williams, Vice President of Air Traffic Services and Modernization at Aircraft Owners and Pilots Association (AOPA), 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 and General Public Attendees are identified in Attachment 1). One new member was recognized: Peter Cerda from IATA.

Mr. Bowman and Ms. Williams provided an overview of activities since the last meeting including the creation of the Terms of Reference that define the Taskings being discussed during the meeting. A critical part of the process was identifying leadership and the appropriate organizations to participate in the activities. Ms. Williams commented that the various Task Groups are now positioned to launch the “real work” of the Committee.

### **Designated Federal Official Statement**

Designated Federal Official (DFO), Ms. Lynn Ray, Vice President Mission Support, Air Traffic Organization (ATO), Federal Aviation Administration (FAA), read the Federal Advisory Committee Act notice governing the open meeting.

### **Approval of April 8, 2013 Meeting Summary**

The Co-chairs asked for and received approval of the written Summary for the April 8, 2013 meeting (Attachment 3).

### **FAA Report**

Ms. Ray provided an update on the uncertainties surrounding FAA funding for FY 2014 and the recent hearing by the House Aviation Subcommittee on NextGen implementation. She discussed the efforts of the recently appointed FAA Deputy Administrator, Mike Whitaker, to brand NextGen and work towards achieving implementation successes, and highlighting and promoting those successes. She also explained a merging of Terminal and Enroute functions in the FAA's Air Traffic Organization to align services and support for the operational delivery of services. A request was made by a Committee member to receive an updated chart after the organizational changes are made.

### **NextGen Advisory Committee**

RTCA's Andy Cebula, Vice President of Strategy and Programs, provided a briefing of the recent meeting of the NAC and its recommendations. This included approving three sets of recommendations for transmittal to the FAA:

1. Report on Data Sources for Measuring NextGen Fuel Usage, one of the metrics for tracking and analyzing the impacts of NextGen deployment, developed by the Business Case and Performance Metrics Work Group.
2. Recommendation for Implementing the Categorical Exclusion contained in the FAA Modernization Act of 2012, the new statutory authority for a streamlined environmental review process developed by the CatEx2 Task Group.
3. Recommendation for increasing utilization of Performance Based Navigation (PBN) by identifying barriers to implementation along with a list of mitigation strategies developed by the Operational Capabilities Work Group.

At the request of the FAA, the NAC also recommended potential future Taskings for the FAA's consideration:

- NextGen Activity Prioritization – responding to budget pressures and sequestration, review current FAA plans and activities that have an effect on the implementation of NextGen and

develop a prioritized list of Tier 1 (consensus on activities that should continue no matter what) and Tier 2 (consensus on things that should continue, resources permitting) recommendations.

- Revised Prioritized List of NextGen Integrated Capabilities and Locations - develop a shorter (i.e., 3-5) list of locations for deployment of selected capabilities in the near-term.
- Blueprint for Success of Performance Based Navigation - develop a checklist for planning and executing new procedures (including all necessary technical and non-technical aspects) that can be used to guide future PBN initiatives.
- Minimum Performance Requirements for Selected Integrated NextGen Capabilities - using the output from the Revised Prioritized List of NextGen Integrated Capabilities and Locations Task, including both cockpit avionics and ground automation across domains (e.g., PBN, time-based metering, ATC Automation, Optimized Profile Descents (OPDs), surface traffic management), identify minimum performance requirements, determine applicability of Best-Capable, Best-Served for the capabilities and consider the capabilities as defined in the ICAO Aviation System Block Upgrades (ASBU).
- Develop goals associated with the NextGen Performance Metrics as appropriate to measure the effectiveness of NextGen implementation.

### **Notice to Airmen (NOTAM)**

Mr. Joshua Gustin, FAA Director of Aeronautical Information Management, provided the background of the FAA's interest in Tasking the TOC with the evaluation and comment on the FAA's program to modernize the Federal NOTAM System. He then introduced Mr. Glenn Sigley, Manager of AIM Systems Group for the FAA, who briefed the Committee on the Pilot's Bill of Rights NOTAM Improvement Program (NIP) and on-going efforts to modernize the Federal NOTAM System (NFS).

Following the briefing, Mr. Gustin explained the FAA's approach to sorting and filtering that is based on the NOTAM data being digitized. He also outlined the FAA's efforts to obtain participation by airport operators in the filing of NOTAMs with an emphasis on small airports. A member of the Committee commented that NOTAM improvements are a good investment by the FAA.

Other Committee members commented on the need to prevent duplication of output information and another that international community participation in the FAA NOTAM system is important and the FAA must facilitate their involvement. The Committee also engaged in a robust conversation about the need to filter data to make it useful for pilots and others needing information contained in NOTAMs. Access to the system by air traffic controllers was also identified as a relevant issue, along with education and outreach to NOTAM users.

In summary, Ms. Ray emphasized that the issues the FAA wants the TOC to address cover the policies surrounding the NOTAM system rather the technology. She also commented that industry participation was a critical step in this process.

The Terms of Reference establishing the NOTAM Task Group that will also serve to advise the TOC in its role as the NOTAM Improvement Panel were approved by the Committee (Attachment 4). Tom Kramer of AOPA and Mark Cardwell of FedEx Express were also approved as the co-chairs for the Task Group.

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

The Committee received a briefing on the various issues of interest to aircraft operators in the areas identified for inclusion in the TOC RTGs. The Committee also discussed the next steps for the Groups. Ms. Ray emphasized the need for coordination between the TOC, the RTGs and the FAA so that the issues can be addressed from a local perspective, but under the appropriate requirements of the Federal Advisory Committee Act.

The Committee then approved the Terms of Reference (Attachment 5) establishing the following RTGs and leaders:

- Eastern - Bill Cranor, JetBlue and Glenn Morse, United Airlines
- Central - Mike O'Brien, American Airlines and Edwin Solley, Southwest Airlines
- Western - Dan Allen, FedEx Express and Bob Lamond, National Business Aviation Association

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

Ms. Deborah Lawrence, FAA Navigation Programs Manager, explained the FAA's plans for the VOR Minimum Operational Network (MON). The FAA is seeking industry recommendations associated with the plans to reduce the number of VORs by approximately half by 2020.

In response to a question about the proposed Terms of Reference and the scope of the Tasking, Ms. Ray clarified that the TOC was being asked to both review the FAA's plans, as well as make additional recommendations.

The Committee also discussed participants in the VOR MON Task Group to include aircraft operators and pilots (GA and air carrier), DoD, NATCA, GAMA, and Thales. The Terms of Reference identifying Heidi Williams of AOPA and Paul Railsback (later replaced by Don Dillman) of A4A as the co-chairs were approved by the Committee (Attachment 6).

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

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

**Other business**

No other business was raised.

**Adjourn**

Co-Chairs Bowman and Williams ended the meeting of the Committee at 3:00 p.m.

**Next Meeting**

The next meeting of the TOC is November 7, 2013 in Washington, DC.

**Attendees:  
July 23, 2013 Meeting of the Tactical Operations Committee  
Washington, DC**

**Name<sup>1</sup>**

*Baum, Chris*  
*Boguski, Mark*  
*Bowman, Jim*  
*Cardwell, Mark*  
*Cebula, Andy*  
*Cerda, Peter*  
*Chupein, Ed*  
*Courtney, Dale*  
*Foose, Scott*  
*Gerhardt, Adam*  
*Gustin, Joshua*  
*Habicht, Steven*  
*Hopkins, Mark*  
*Hueksha, Kathryn*  
*Jenny, Margaret*  
*Kalinowski, Nancy*  
*Kast, Christian*  
*Kramer, Tom*  
*Lamond, Bob*  
*Lawrence, Deborah*  
*Newton, David*  
*O'Brien, Michael*  
*Powers, Gary*  
*Ray, Lynn*  
*Ross, Matthew*  
*Sears, Bill*  
*Sigley, Glenn*  
*Solley, Edwin*  
*Strand, David*  
*Teel, Brandi*  
*Tennille, Greg*  
*Williams, Heidi*  
*Wright, Dale*

**Company**

*Air Line Pilots Association*  
*Thales*  
*FedEx Express*  
*FedEx Express*  
*RTCA, Inc.*  
*International Air Transport Association*  
*DoD Policy Board on Federal Aviation*  
*Federal Aviation Administration*  
*Regional Airline Association*  
*TASL*  
*Federal Aviation Administration*  
*CNA*  
*Delta Air Lines, Inc.*  
*Federal Aviation Administration*  
*RTCA, Inc.*  
*Federal Aviation Administration*  
*United Parcel Service*  
*Aircraft Owners and Pilots Association*  
*National Business Aviation Association*  
*Federal Aviation Administration*  
*Southwest Airlines*  
*American Airlines*  
*Federal Aviation Administration*  
*Federal Aviation Administration*  
*Real New Energy*  
*Beacon Management Group*  
*Federal Aviation Administration*  
*Southwest Airlines*  
*Strand Aviation Solution*  
*RTCA*  
*The MITRE Corporation*  
*Aircraft Owners and Pilots Association*  
*National Air Traffic Controllers Association*



## RTCA Tactical Operations Committee

Second Meeting

July 23, 2013

RTCA Headquarters



## Welcome and Introduction

Co-chairs:

Jim Bowman, FedEx Express

Heidi Williams, AOPA




## Tactical Operations Committee Members

Leadership

<p><b>Jim Bowman</b> <b>Heidi Williams</b> <b>Lynn Ray</b></p>	<p><b>FedEx Express</b> <b>AOPA</b> <b>FAA (DFO)</b></p>
<ul style="list-style-type: none"> <li>● Chris Baum ALPA</li> <li>● Peter Cerda IATA</li> <li>● Bruce DeCleene FAA AFS</li> <li>● Scott Foose RAA</li> <li>● Mark Hopkins Delta Air Lines</li> <li>● Margaret Jenny RTCA</li> <li>● Christian Kast A4A (UPS)</li> <li>● Nancy Kalinowski FAA ATO</li> </ul>	<ul style="list-style-type: none"> <li>● Bob Lamond NBAA</li> <li>● Joe Miceli ADF</li> <li>● Doug Molin MITRE</li> <li>● Juan Narvid USAF</li> <li>● David Newton SW Airlines</li> <li>● Chris Oswald ACI-NA</li> <li>● Dale Wright NATCA</li> <li>● <i>Andy Cebula Secretary</i></li> </ul>

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## Topical Agenda

- Approval of April 8 Meeting Summary
- FAA Report
- Notice to Airmen (NOTAM) Tasking
- Regional Task Groups
- VHF Omni-directional Range (VOR) Minimum Operating Network

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**PUBLIC MEETING ANNOUNCEMENT**  
**Read by: Designated Federal Official Elizabeth Ray**  
**Tactical Operations Committee (TOC)**  
**July 23, 2013**

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:

**July 3, 2013**

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:**

**April 8, 2013 Meeting Summary**




## NAC-Recommended Taskings

1. Prioritize FAA NextGen Activities/Investments
2. Prioritize NextGen Capabilities and Locations
3. Develop PBN Checklist
4. Develop Minimum Performance Requirements for Selected Integrated NextGen Capabilities (Ground)
5. Test Best Capable, Best Served at Specific Location
6. Set Performance Goals for Metrics



A photograph showing a group of approximately 15 people, including men and women in business attire, seated around a large conference table in a meeting room. They appear to be engaged in a discussion or presentation. In the background, a large screen displays a green pyramid diagram with text next to it.



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Notice to Airmen (NOTAM)

**Federal Aviation  
Administration**  
Aeronautical Information Management

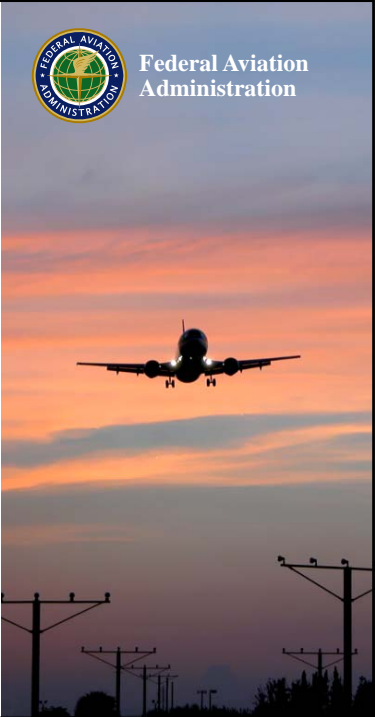
**Pilot's Bill of Rights  
NOTAM Improvement Program (NIP)  
via  
Federal NOTAM System (FNS)**

Presented to: Tactical Operations Committee (TOC)

By: Glenn Sigley, Manager AIM Systems Group FAA  
Date: July 23, 2013



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## TALKING POINTS



- Pilot's Bill of Rights
- FNS Overview & Accomplishments to Date:
  - AIM Modernization Segment 1 ~ In Service Decision 03.27.13
  - Impact to NAS
- Capabilities in Development
- FAA Notional Way Forward & TOC Feedback

**FNS Digital NOTAMS -- The Level Setting to Pilot's Bill of Rights**



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## The Federal NOTAM System (FNS)

### Pilot's Bill of Rights



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## Pilot's Bill of Rights

### Section 1

- Instructions to call this the “Pilot’s Bill of Rights”

### Section 2

- Deals with Legal aspects of approval, denial, amendment, modification, suspension, or revocation of an individual’s certificate
- Framework for providing notice to the person subject to investigation

### Section 3 (In detail on following slide)

- Section dealing with NOTAMs ~ the FAA ATO body of work
- Title 14 CFR Section 91.103 lays the framework for operators

### Section 4

- Deals primarily with Medical Certificates for airmen



## Pilot's Bill of Rights – Notices To Airmen

### Section 3 – Notices To Airmen (NOTAM)

- **NOTAM Improvement Program (NIP)**
  - **RELEVANT to ROUTE of FLIGHT:** “Improve the system providing airmen pertinent and timely information”
  - **SEARCHABLE:** “NOTAM Archive – public, central location”
  - **FILTERABLE:** “Filters for pilots to prioritize critical flight safety info”
- **Program Goals**
  - 1) Decrease overwhelming volume of NOTAMs for flight planning
  - 2) Make NOTAMs specific / relevant to route & user friendly format
  - 3) Provide full set of NOTAM results in addition to specific info requested
  - 4) Provide a document that is easily searchable
  - 5) Provide filtering mechanism similar to that used by DoD
- **Timeframes**
  - Begin NOTAM Improvement Program within 180 days of legislation
  - Phase in improvements within 1 year



# The Federal NOTAM System (FNS)

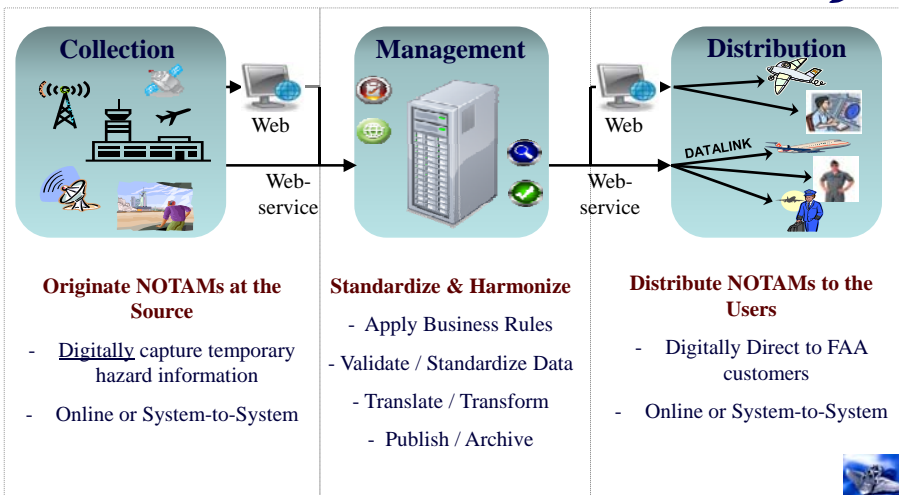
## FNS Overview & Accomplishments to Date



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### FNS CONOPS



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## FNS - NOTAM ORIGINATION 101

**Collection**

**Originate NOTAMs at the Source**

- Digitally Capture Temporary Hazard Information

**NOTAM Manager**

- Digital NOTAMs
- Direct NOTAM Submission

**eNOTAM II**

- Analog NOTAMS
- Flight Service Approval

**NOTAM Origination Service**

- Digital NOTAMs
- Direct System-to-System interface

Legacy Origination = 15 min. avg | Digital Origination = 5 seconds

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## AIM MODERNIZATION SEGMENT 1

- Deputy COO Signed In-Service Decision (ISD) 03/27/13
  - Now baselined in the NAS
- Direct Digital NOTAM Entry Capability Delivered to
  - 100+ airports in the NAS & 3 Tower Light Operators
  - 3 FAA Technical Operations Control Centers (OCCs)
- FAA Flight Services (FS) now originating NOTAMs via FNS
  - FNS Transformation Engine IDs qualified FS analog, legacy NOTAMs & stores them digitally for dissemination
  - Enabled 60% of all NOTAMs originated to be truly digital

**60% SO WHAT?!**  
 So, that means that 60% of NOTAMS are now: Sortable & Filterable

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## FNS RIGHT NOW – IMPACT TO NAS

### AIM Modernization Segment 1- March 27, 2013

- ✓ **Origination Services:** NOTAM Manager; eNOTAM II; NOTAM Origination Service
- ✓ **Distribution Services:** NOTAM Search; NOTAM Distribution Service (Beta)
- ✓ **Management Services:** FNS Administrator; Transformation Engine; NM Airport Self-Certification; FNS Dashboard

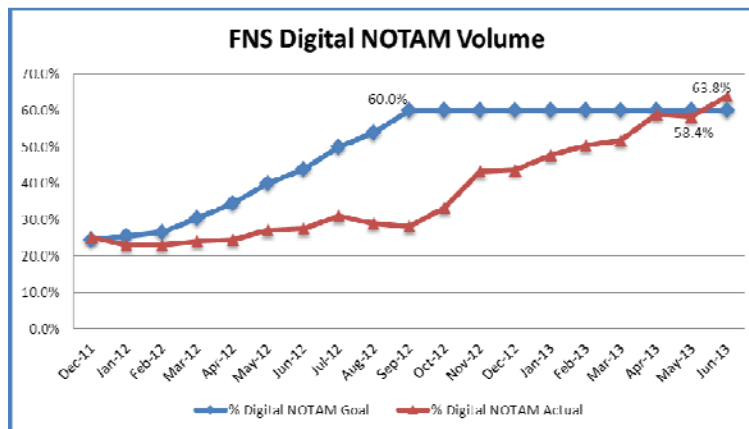
### System Deployments & Active Users – July 19, 2013

- ✓ **NOTAM Manager (NM): 142 Airports** – 1,600+ users
- ✓ **NOTAM Manager -Tech Ops:** FAA Operations Control Centers – 200+ users
- ✓ **eNOTAM II:** Flight Services & non-NM airports – 600+ FSS users, 3,300+ submitters
- ✓ **NOTAM Origination Services:** 4 Tower Light Operators
- ✓ **NOTAM Search:** Publically available
- ✓ **NM Self Cert:** 11 Airports deployed; 30 pending
- ✓ **Baseline Data Editor (BDE):** Deployed May 23; rapidly reducing baseline data backlog



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## CURRENT DIGITAL VOLUME



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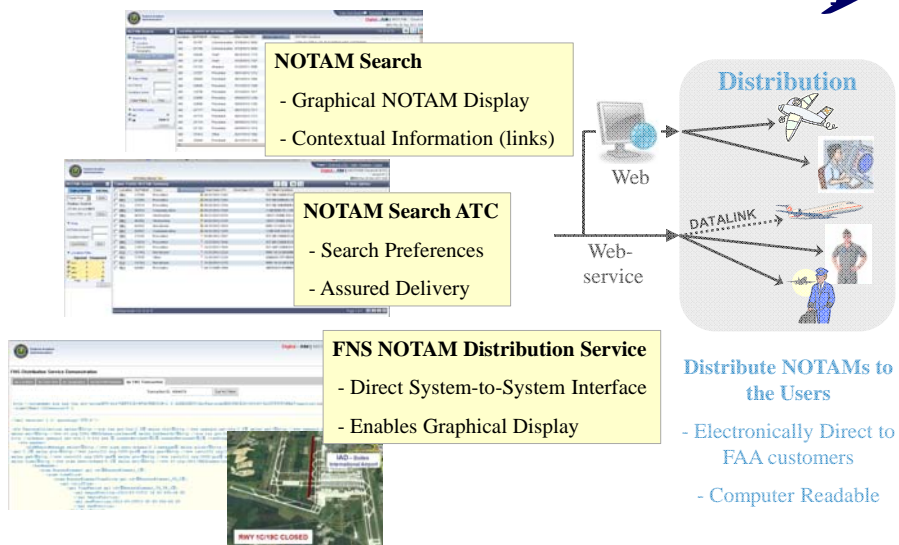
# The Federal NOTAM System (FNS)

## Capabilities in Development



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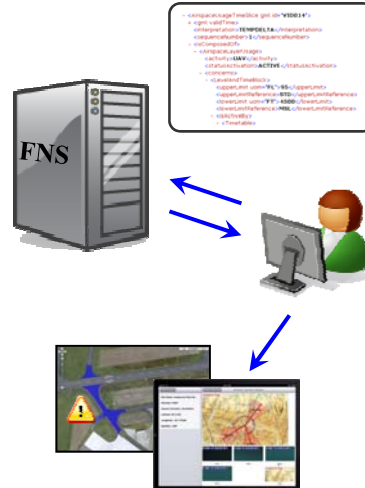
## FNS - NOTAM DISTRIBUTION 101



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## NOTAM Distribution Service: FNS-NDS

- **Data feed that uses OGC web-services**
  - Graphical representation web-service
- **Standards:** AIXM 5.1 format
- **ALL or Some:** Provides the user with the ability to query and select types of data
- **External Market:** Enables third party application development
- **Standards support the information management necessary for fusing data**



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## NOTAM SEARCH ATC (NSATC)

### Distribute NOTAMs to Terminal ATC Facilities



- Prototype web application for NOTAM Distribution to Terminal ATC Facilities
- System assures delivery of NOTAM
- Notification Alarm (ATC Notifier)
  - Audibly and visually alerts user of new NOTAMs
  - NOTAMs must meet user- defined criteria
  - Brings attention to unopened new NOTAMs and NOTAMs that will become effective in < 4 hours
- NOTAMs can be filtered based on preferences



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## The Federal NOTAM System (FNS)

### FAA Notional Way Forward & TOC Feedback



## FAA Notional ~ Bridge to Pilot's Bill of Rights

FAA Enhancements	Meet Pilot's Bill of Rights
<b>Distribution Services</b>	
NOTAM Search (Pilot Portal) →	Pilot Filters to "prioritize flight safety information"
NOTAM Distribution Service →	Digital NOTAMs Direct to Consumer
<b>Management System</b>	
NOTAM Archiving →	"Public Central Archive"
<b>Origination Services</b>	
All Stakeholder Deployment →	"Providing airmen with pertinent and timely information"
International Standards →	"Document easily searchable"
<b>System Integration</b>	
Pilot Portal (Websites Consolidation) →	"Full set of NOTAM results"
AISR, CAREF, SAA, TFR Integration →	"NOTAMs more specific and relevant to airman's route"
USNS Replacement →	"timely information"
<b>Aeronautical Information Reconciliation</b>	
Information Quality – accurate, timely, reliable – 'Fit for Use' →	"Decrease overwhelming volume of NOTAMs"



## SCOPING THE “RELEVANCE” PIECE

- FNS NM enables digital NOTAM originators to sort & filter:
  - Airport Originators:
    - Aerodrome, Runway, Apron, Taxiway & Obstructions
  - Technical Operations Originators:
    - Aerodrome, Runway, Communications, Lighted Aids, Nav aids, Radar, Weather
  - These Big “10” define what originators consider relevant
- Challenge exists in knowing what Commercial, Military, GA & other pilots **ALL consider relevant...from a receiving view point**
- We can distribute NOTAMS with various categorical keywords: Dates, Geography, International, Military & Procedures.....but we need to know what your prioritized list is:
  - What format benefits you (pilots) most?

**RELEVANCE – IT’S NOT A TECHNICAL GAP...IT’S A SCOPING ISSUE**



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## Thank you




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# BACKUP










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# MANAGING PERTINENT NOTAMS

- **NSATC provides ability to toggle between multiple subscription profiles (pre-defined by Subscription Administrator)**
  - Allows the Subscription User to sort, filter, and hide according to the operational need
  - Use of Icons to highlight NOTAM status
    -  Alertable
    -  Unread
  - Use of Icons to highlight NOTAM conditions
    -  FICON
    -  Closed
- **ATC Notifier provides notification of NOTAMs that match the subscription profile**




Location	NOTAM #	Class	Start Date UTC	End Date UTC	NOTAM Condition
EIL	M0030-12	Military	01/06/2012 1656	01/07/2012 2359	RUNWAY CONDITION READING (RCR) FOR RWY 14/32: LSR12, TWY A LSR...
EILS	M0007-12	Military	01/06/2012 1655	01/12/2012 0400	11 JUNE R2205 AND STUART CREEK IMPACT AREA ACTIVE WITH HELICOPT...
EILS	M0006-12	Military	01/06/2012 1654	01/11/2012 0500	10 JUNE R2205 IN ADDITION TO PUBLISHED TIMES WILL BE ACTIVE W/L...
EILS	M0005-12	Military	01/06/2012 1652	01/11/2012 0500	10 JUNE R2205 AND STUART CREEK IMPACT AREA ACTIVE WITH HELICOPT...
EM	01179	Aerodrome	01/06/2012 1626	02/01/2012	
EM	01177	Aerodrome	01/06/2012 1448	02/01/2012	
EM	01176	Aerodrome	01/06/2012 1446	02/01/2012	
EM	01175	Aerodrome	01/06/2012 1444	02/01/2012	
EM	01170	Aerodrome	01/06/2012 1346	02/01/2012	
EM	01168	Aerodrome	01/06/2012 1303	02/01/2012	
EM	01160	Aerodrome	01/06/2012 0843	02/01/2012	

ATC Notifier (Federal Aviation Administration)

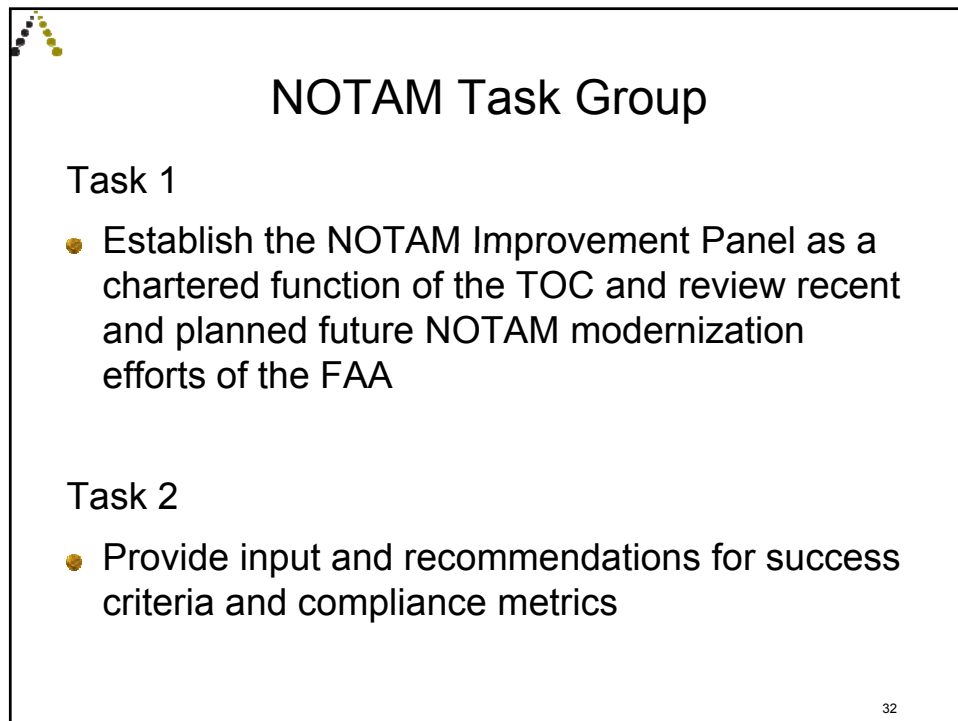
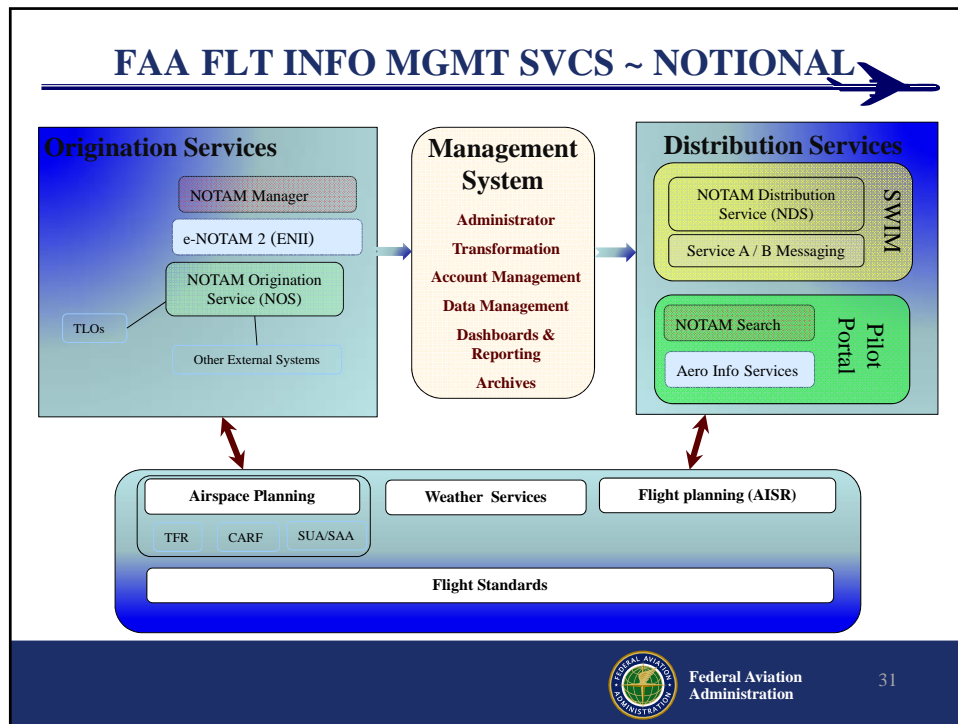
SFO 09/005 YOSEM ONE ARRIVAL...  
 IAD 09/010 COATT FOUR ARRIVAL (COATT.COATT4)...  
 DCA 7/7061 F/T RONALD REAGAN WASHINGTON NATL, WASHINGTON, DC...  
 DCA 7/7061 F/T RONALD REAGAN WASHINGTON NATL, WASHINGTON, DC...  
 There are 0 unread NOTAMS

There are 0 unread NOTAMS




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# TOC Action

## Consider Terms of Reference: NOTAM Task Group



**RTCA**  
THE GOLD STANDARD FOR AVIATION SINCE 1935

RTCA, Inc.  
1150 19th Street, NW, Suite 510  
Washington, DC 20036  
Phone: (202) 833-7030  
Fax: (202) 833-7424  
www.rtcainc.org  
July 11, 2013

**TERMS OF REFERENCE**  
**NOTAM Task Group**


**Tactical Operations Committee**

Committee Leadership				
Position	Name	Organization	Telephone	Email
Co-Chairs	Mark Carlswell Tom Kramer	FedEx Express ADFA		<a href="mailto:mark.carlswell@fedex.com">mark.carlswell@fedex.com</a> <a href="mailto:tom.kramer@adfa.org">tom.kramer@adfa.org</a>
FAA SME	Glenn Sigley	Federal Aviation Administration		<a href="mailto:Glenn.Sigley@faa.gov">Glenn.Sigley@faa.gov</a>
Secretary	TBD			

**Background:**  
 The Federal Aviation Administration (FAA) is required under Section 5(c) of Public Law 112-151 also known as the 2012 Pilot's Bill of Rights, to "establish a NOTAM Improvement Panel, which shall be comprised of representatives of relevant airports 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. The Tactical Operations Committee will serve as the NOTAM Improvement Panel to further assist the Agency in crafting specific goals and priorities to meet the law's intent and make needed enhancements 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. The result will yield significant reductions in the volume of NOTAMs pilots must frequently review and allow pilots to focus only on those NOTAMs relevant to their flight/path. As a result, pilots will be more confident in the quality and accuracy of the focused NOTAM information and safety of the NAS will be improved.

Deliverable	Facet	Description	Due Date
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		Provide a report documenting the following actions: 1. Ensure needed stakeholders are identified and participate in any task groups formed. 2. Examine and make recommendations/comments on recent and planned future NOTAM modernization activities underway at	Establish NOTAM Improvement Panel and Develop Final Report October 2013



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# Break



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## Regional Task Groups




### Review of Regional Groups

Three RTGs: Eastern, Central and Western

- Scope
  - Airspace redesign
  - Associated airspace management issues
  - Local and regional issues
- Participants
  - FAA Liaison (MTO)
  - Operators (Airlines, GA, Military)
- Determining Work Plan/Assignments






# TOC Action

## Consider Terms of Reference: Regional Task Groups

RTCA, Inc.  
1100 19<sup>th</sup> Street, NW, Suite 910  
Washington, DC 20036  
Phone: (202) 833-8397  
Fax: (202) 833-9424  
www.rtca.org  
July 23, 2013



**TERMS OF REFERENCE**  
Regional Task Groups  
Tactical Operations Committee

**Committee Leadership:**


Position	Name	Organization	Telephone	Email
Co-Chair	Richard Hill	United Airlines	(770) 799-8746	<a href="mailto:richard.hill@united.com">richard.hill@united.com</a>
	John Mervin	United Airlines	(800) 991-0348	<a href="mailto:john.mervin@united.com">john.mervin@united.com</a>
	Carol Kline O'Brien	American Airlines	(770) 488-4041	<a href="mailto:Carol.Kline@aa.com">Carol.Kline@aa.com</a>
	Clare Salter	Southwest Airlines		<a href="mailto:csalter@swair.com">csalter@swair.com</a>
Western	Paula Yarnes	Delta	(909) 238-1119	<a href="mailto:Paula.Yarnes@delta.com">Paula.Yarnes@delta.com</a>
	Don Olson	NSA	(202) 755-2118	<a href="mailto:Don.Olson@nsa.gov">Don.Olson@nsa.gov</a>
FAA Liaison	MTCA			
Secretary	TBD			

**Background:**  
The aviation industry, through RTCA under the Federal Advisory Committee (FAC) process, has a long history of providing recommendations to the FAA on issues related to airspace, procedures and aircraft operations to improve flight in the National Airspace System (NAS). Most recently, this activity is covered by Regional Task Groups (RTGs) under the structure of the Tactical Operations Committee (TOC). In recognition of the value of this function and its importance to the industry and the Agency, the FAA has determined that the RTGs should operate under the Tactical Operations Committee (TOC).

Three RTGs (Eastern, Central and Western) have been established<sup>1</sup> to provide the forum for robust discussions on airspace redesign and associated airspace management issues that are local and regional in nature and critically important for the FAA's management of the NAS. The FAA's Manager of Tactical Operations (MTO) will serve as the federal agency liaison to each of the RTGs and coordinate the assigned issues that will be covered by recommendations presented to the TOC for consideration.


<sup>1</sup>The Airspace and Procedures Work Group under the FAC created the regional groups. These have been established to maximize the resources of the aviation industry and the FAA.

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THE GOLD STANDARD FOR AVIATION SINCE 1935


## Lunch Back at 1:15




**RTCA**  
THE GOLD STANDARD FOR AVIATION SINCE 1935

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

**VOR Minimum  
Operational Network  
(MON)**



Federal Aviation  
Administration



**By: Deborah Lawrence  
FAA Navigation  
Programs Manager**

**To: RTCA TOC**

**Date: July 23, 2013**

## Background

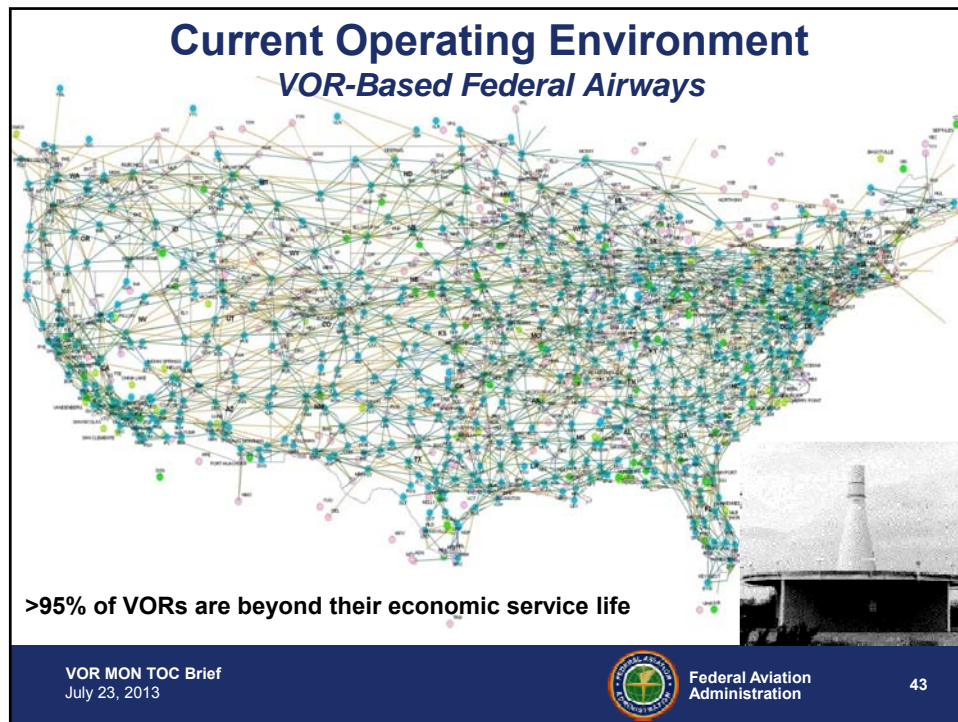
- **The FAA will transition from VOR-defined route structures as the primary means of navigation to Performance-Based Navigation (PBN)**
  - PBN uses Area Navigation (RNAV) and Required Navigation Performance (RNP)
- **VORs must give way to a more efficient means of air navigation**
  - Objective is to provide improved accuracy, availability, integrity, and continuity to support PBN



## Objectives

- **The VOR Minimum Operational Network (MON) Implementation Program works collaboratively to provide management oversight, strategic implementation guidance and tactical implementation guidance**
  - Focuses on safety and coordination across organizational lines of business (LOBs)
  - Transitions from a legacy network of 967 VORs to a MON of approximately 500 VORs by a target date of January 1, 2020
  - This is one of a myriad of complex activities required to shift resources from the legacy NAS into NextGen





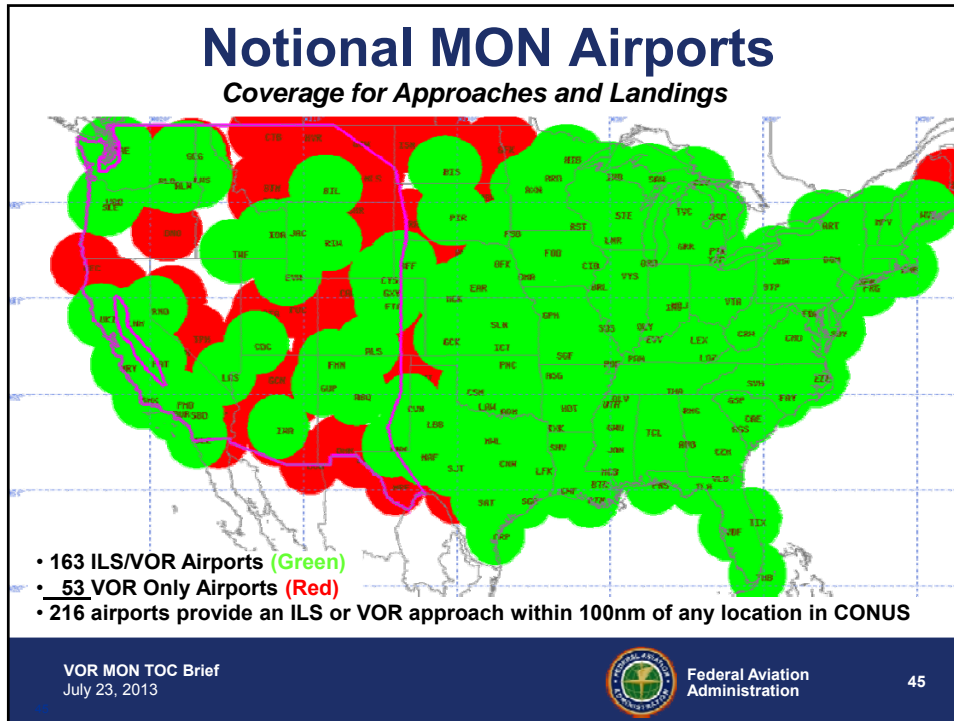
## Criteria for Selecting VORs for the MON

- **General**

- Retain VORs outside of CONUS
- Retain most VORs in designated mountainous areas
- Only FAA owned/operated VORs will be considered
- DMEs and TACANS will generally be retained (and/or enhanced)
  - If VOR service is removed from a site, any DME or TACAN at the site would, in general, be retained

- **Coverage for Approaches and Landings**


- Retain sufficient VOR ground stations to enable aircraft to proceed safely to another VOR or to a suitable destination with a GPS-independent approach (ILS, LOC or VOR) within 100 NM of any location within CONUS
- Retain VORs to support international arrival airways from the Atlantic, Pacific, the Caribbean, and at the Core 30 airports



## MON Selection Criteria (continued)

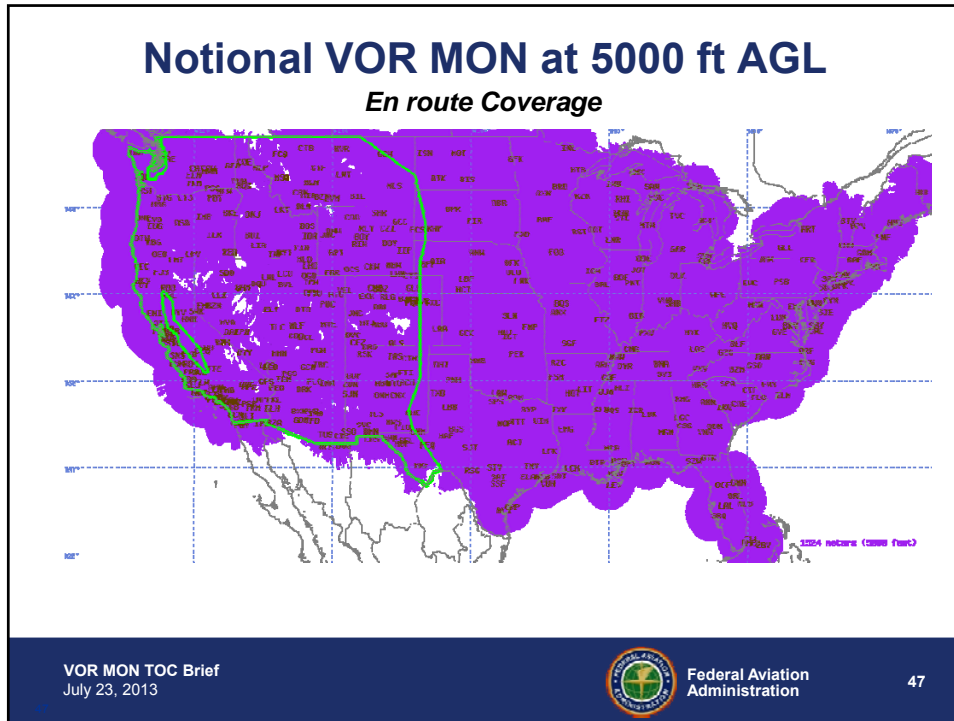
- **Enroute Coverage**
  - Provide seamless coverage at and above 5000ft AGL
  - Support VOR-to-VOR navigation capability (VOR service volume becomes 77 nmi radius at 5000 ft AGL)

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## Reducing Dependencies on VORs

- **As the FAA transitions to PBN, aircraft reliance on VORs will decrease significantly**
- **This will allow the FAA to transition to a VOR MON, which will provide backup coverage during a GPS outage as well as basic navigation capability**
  - A majority of operators, operating under rules other than Part 91, will have GPS and Distance Measuring Equipment/Inertial Reference Unit (DME/DME/IRU) or DME/DME and Instrument Landing System (ILS)
  - For all other aircraft, the MON will provide sufficient coverage to enable aircraft to proceed safely VOR-to-VOR and/or to a suitable landing destination with a GPS-independent approach within approximately 100 nm of any location in CONUS
  - Some aircraft may need VOR to fulfill requirements for independent navigation systems



## Attributes of VOR MON Capability

- **The VOR Minimal Operational Network (MON) will provide:**
  - A backup capability for non-DME/DME/IRU IFR aircraft in the event of a GPS outage
  - An operational contingency, but not the robust network of current VORs
  - A transitional network of VORs to allow users time to equip with new avionics to transition to RNAV and RNP
  - VOR coverage of sufficient density to allow RNAV operation using TSO-129 avionics
  - Basic, though not efficient, navigation service to users who choose not to equip with GNSS



## Program Status

- **Federal Register Notice (FRN) on Proposed Navigation Strategy published Dec 2011**
  - Public comment period ended March 2012
  - Follow-on FRN with disposition of comments was published Aug 2012 FAA Docket No. FAA-2011-1082
- **Program Charter is in the signature cycle**
  - Air Traffic Org (AJO-0), Aviation Safety (AVS-1), Airports (ARP-1), Policy, International Affairs and Environment (APL-1), Finance and Management (AFN-1), NextGen (ANG-1)
- **Final Draft VOR MON list developed with coordination between Headquarters and Service Areas**



## Program Status – continued

- **Service Area/ Service Center coordination on Draft MON “list” - Completed March 2013**
- **Stakeholder Briefings**
  - Currently conducted – AOPA, PASS, NATCA, DoD, A4A
  - Upcoming – NASEO, RAA, IATA, AAAE
- **Participated at the first meeting of the Tactical Operations Committee (TOC) on April 8th**
- **Briefed Capital Investment Team (CIT) on VOR MON and received action items on April 11th**
  - Update Spend plan
  - Provide assumptions for cost estimate
  - Identify how we are capturing costs
  - Verify costs for procedures
- **Provided copy of draft VOR MON list to DoD on April 11th**

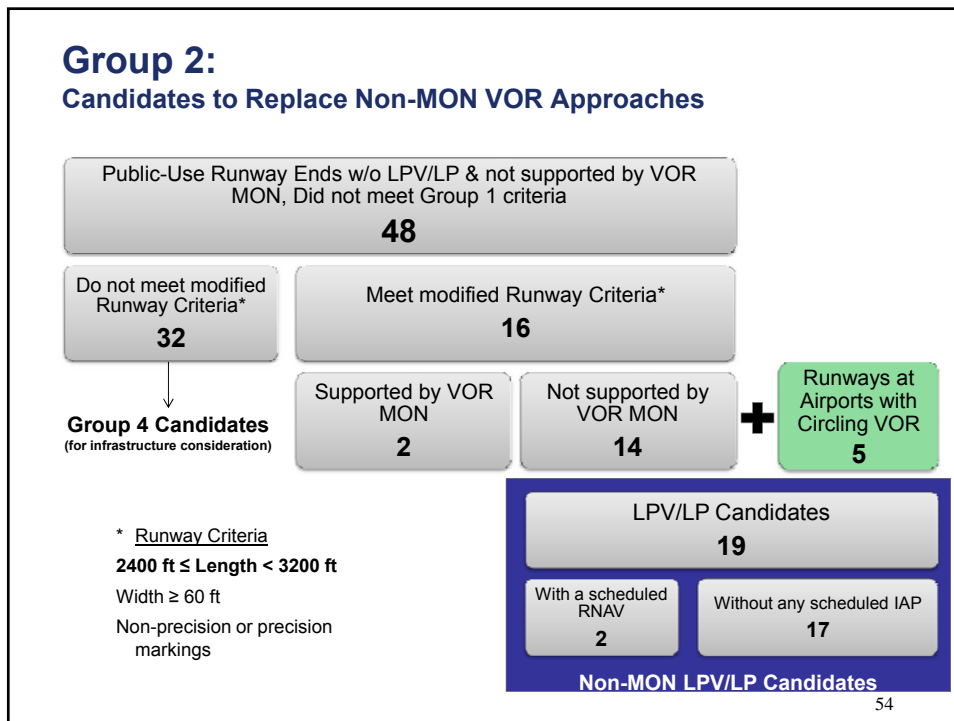
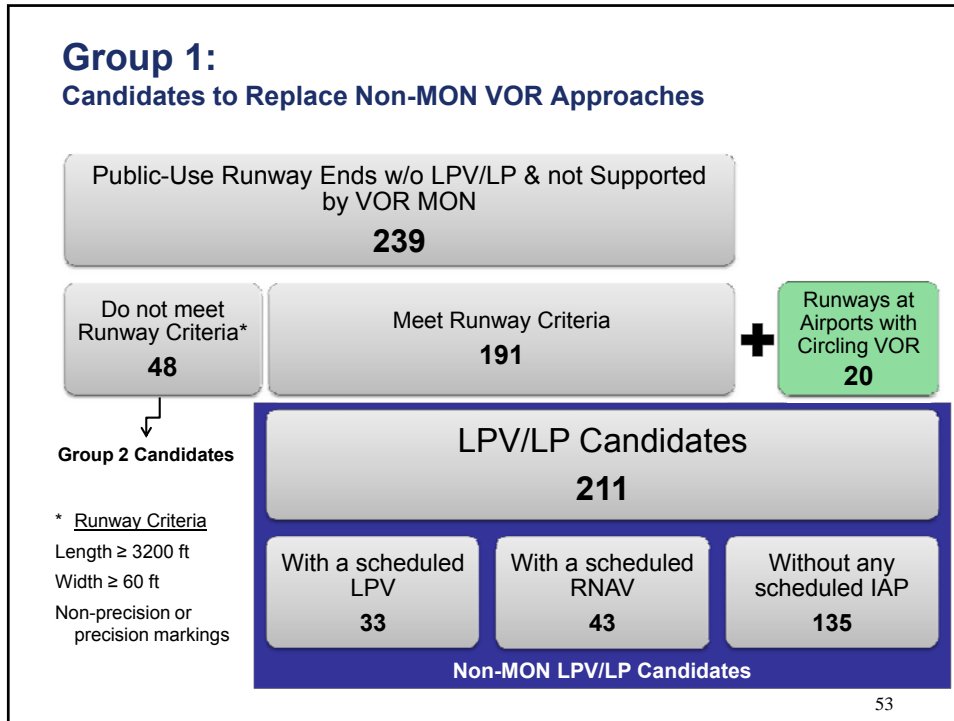


## VOR Non-MON Procedures

- **FAA will continue to develop LNAV/VNAV approaches, which can be flown by GPS-equipped aircraft with barometric vertical navigation and by WAAS-equipped aircraft to qualified runways used by air carrier aircraft**
- **Worked with MITRE and AeroNav Products on RNAV GPS procedure plan for FY14 and FY15**
  - Performed study to determine how many RNAV GPS procedures need to be published to replace the VOR approach procedures affected by the MON
    - Considered runway ends and circling approaches to public-use airports
  - Study yielded results in two groups:
    1. FY14 LPV/LP/LNAV candidates (runway length  $\geq$  3200 ft)
    2. FY15 LPV/LP/LNAV candidates (2400 ft  $\leq$  runway length < 3200 ft)







## MON Implementation

**Objective: Reduce dependence on VORs**

- Near-term: Discontinue approximately half of the VORs to a Minimum Operational Network (MON) by 2020
- Longer-term: Re-evaluate MON once full operational capability has been achieved for Alternate Positioning Navigation and Timing (APNT) service

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

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## Waterfall

<u>DATES</u>	<u>SITES</u>
FY14	Target: Work with Service Centers/Areas to discontinue ~4% (approximately 20) VORs in CONUS.
FY15	Target: Work with Service Centers/Areas to discontinue ~14% (approximately 60) VORs for the identified budget year.
FY16	Target: Work with Service Centers/Areas to discontinue ~22% (approximately 80) VORs for the identified budget year.
FY17	Target: Work with Service Centers/Areas to discontinue ~27% (approximately 80) VORs for the identified budget year.
FY18	Target: Work with Service Centers/Areas to discontinue ~38% (approximately 80) VORs for the identified budget year.
FY19	Target: Work with Service Centers/Areas to discontinue ~60% (approximately 80) VORs for the identified budget year.
FY20	Target: Work with Service Centers/Areas to discontinue 100% (approximately 56) VORs for the identified budget year.

DRAFT

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## VOR MON Program Challenges

- **PBN Coordination**
- **Procedure/Route Redesign**
- **Decommissioning of Facilities**
- **Coordination with all internal FAA stakeholders**
  - AVS
  - PBN Policy and Support Group (PPSG)
  - Service Center
    - Initiating Waterfall schedules
- **Scheduled Interference (GPS Testing by DOD)**
- **VORs with broadcast or communication services are not necessarily retained in the original location**
  - Services may need to be shifted to VORs retained in the MON
    - HIWASS
    - FSS Communications
    - ATIS



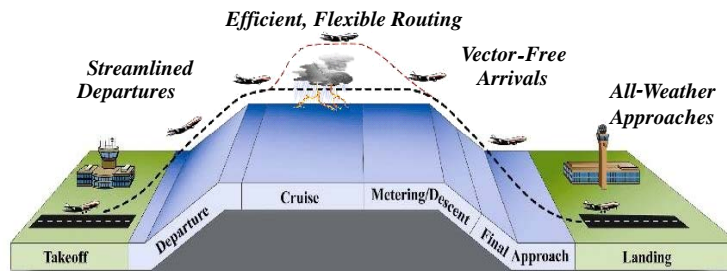
## Next Steps

- **Collect comments from DoD Final Draft List**
  - Summer 2013
- **Brief External Stakeholders per TOC recommendation**
- **Continue Acquisition Management System (AMS) Work**
  - Business Case ROM
  - Shortfall Analysis
  - ConOps




## Vision for NextGen Navigation Services

- **Most Aircraft will have Performance Based Navigation (PBN) capability by 2020:**
  - Majority of Aircraft will have GNSS capability
    - In compliance with 2020 ADS-B Mandate
  - Most Major Air Carriers will have DME/DME/Inertial Capability
  - Many airlines and general aviation aircraft may need VOR for backup and/or redundancy



## Questions






# VOR MON Task Group

**Task 1**

- Review and validate the VOR MON selection criteria and assumptions and make additional recommendations as needed

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# TOC Action

## Consider Terms of Reference: VOR MON Task Group

**RTCA**

**TERMS OF REFERENCE**  
VOR MON Task Group

**Tactical Operations Committee**

Position	Name	Organization	Telephone	Email
Co-Chairs	Heidi Williams	AGFA	(802)895-2227	heidi.williams@agfa.com
	Paul Rishback	FAA	(202)626-4020	prishback@faa.gov
FAA SME	Deborah Lawrence	FAA Navigation		deborah.lawrence@faa.gov
Secretary	TBD			

**Background:**  
In order to provide navigation services in a more efficient and cost effective manner and meet the goals of the Next Generation Air Transportation System (NextGen), a transition from the use of a very high frequency (VHF) Omnidirectional Range (VOR) based route structure to that of a Performance Based Navigation (PBN) based route structure is necessary and underway. To meet the goals of NextGen, current processes for defining airways, routes, and developing procedures using VORs must give way to routes and procedures with improved accuracy, availability, integrity and continuity using PBN. The VOR Minimum Operational Network (VOR MON) Implementation Program has been established and is one of myriad of activities required to shift resources and operations from the legacy National Airspace System (NAS) to NextGen. The VOR MON Program is designed to be a collaborative effort, which includes various lines of business (LOBs) within the Federal Aviation Administration (FAA) as well as numerous aviation stakeholder groups to provide the tactical and strategic planning and implementation guidance to safely and systematically transition from a legacy network of 967 VORs to a MON of approximately 500 VORs by January 1, 2020.

The timing of the VOR MON Program is critical. Our current operating system of Federal Airways is based on 546 VOR/tactical air navigation (TACAN) and 421 VOR/distance measuring equipment (DME). All of these VORs are beyond their economic service life. By 2020, FAA projects the widespread availability of PBN procedures and the mandate of Automatic Dependent Surveillance-Broadcast (ADS-B) Out will result in most operators having a global positioning system (GPS) or wide area augmentation system (WAAS) and flying both PBN and conventional procedures using PBN avionics. This transition to PBN as the primary means of navigation will result in a significant decrease in the reliance on VORs. The remaining VORs will serve as a backup navigation service to non-OMI/DME/Distance Reference Unit (DRU) equipped aircraft but PBN functionality will be limited. The VOR MON

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July 23, 2013



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



## Closing Comments

### Co-Chairs

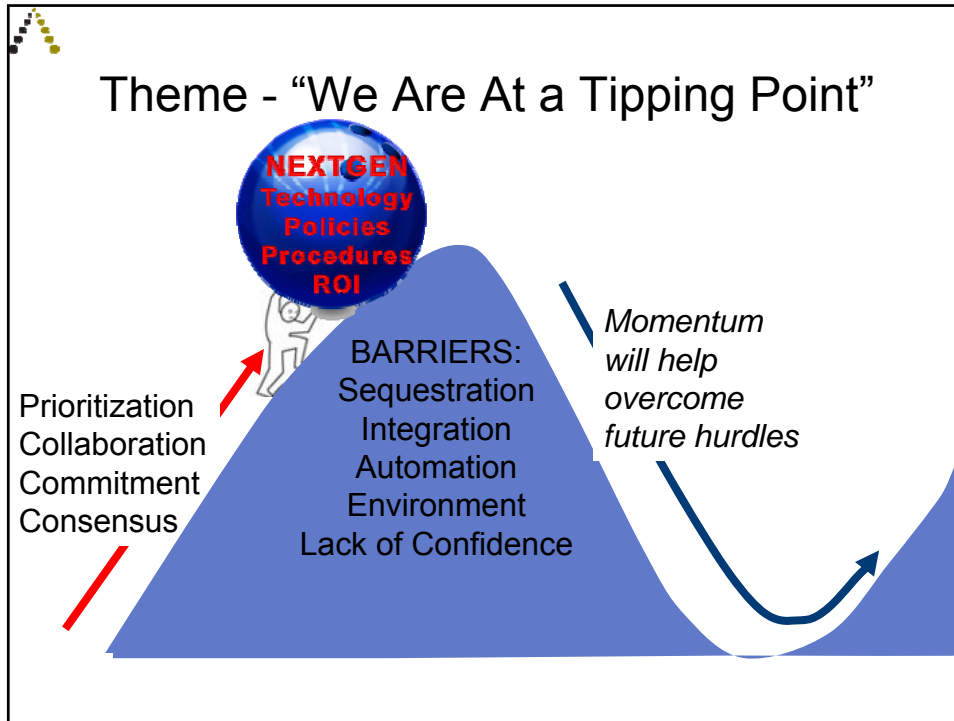
- Jim Bowman, FedEx Express
- Heidi Williams, AOPA



**Next Meeting**  
**Thursday**  
**November 7, 2013**  
**Washington, DC**



**Adjournment**



### Environmental – CatEx 2 Task Group

- Implement CATEX in FAA Modernization Act, 2012
- Unanimous recommendation from diverse group
- "Net Noise Reduction Method"
- Measuring PBN noise impacts on "per flight" basis

Number of people exposed to DNL Level with new PBN procedure versus existing procedure			
	Number of People Exposed under New Procedure INCREASES	Number of People Exposed under New Procedure DECREASES	Number of People Exposed under New Procedure UNCHANGED
DNL Level			
M25			
M30-45			
M35-50			
Total			

**Community outreach essential to success!**

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## PBN Obstacles & Mitigations

<u>Barrier Categories</u>	<u>Mitigations</u>
	<ul style="list-style-type: none"> <li>● Implement TBFM at Metroplexes</li> <li>● Devise method to determine impact of PBN on all fleets</li> <li>● Apply lessons learned to subsequent implementations</li> <li>● Revise controller handbook and update frequently</li> <li>● Standardize local procedures training</li> </ul>

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## Data Sources for Measuring NextGen Fuel Impact: Findings

- Airline OOOI data is viable source
- FAA should establish a data steward for routine OOOI data sharing
- Aviation Safety Information Analysis and Sharing (ASIAS) not appropriate for Fuel Impact effort
- Identify specific data elements support a “calibrate and count” approach

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## NAC-Recommended Taskings

1. Prioritize FAA NextGen Activities/Investments
2. Prioritize NextGen Capabilities and Locations
3. Develop PBN Checklist
4. Develop Minimum Performance Requirements for Selected Integrated NextGen Capabilities (Ground)
5. Test Best Capable, Best Served at Specific Location
6. Set Performance Goals for Metrics




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## Current NAC Taskings

- Complete Fuel Data Sharing
- Performance Based Navigation (PBN) Procedures
  - Criteria for prioritizing PBN procedures
  - Criteria for selection/prioritization of OAPM sites
- DataComm Roadmap
  - Re-engage NAC (DataComm Roadmap TG) to complete work on DataComm roadmap
  - Include all stakeholders who chose to abstain from previous effort due to ongoing acquisition

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**Next NAC Meeting  
Wednesday/Thursday  
September 18/19, 2013  
Washington, DC**

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RTCA Paper No. 090-13/TOC-03

April 19, 2013

**Meeting Summary, April 8, 2013  
Tactical Operations Committee (TOC)**

The first meeting of the Tactical Operations Committee (TOC) held on April 8, 2013 at the Headquarters of RTCA in Washington, DC, convened at 10:00 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 - Committee Terms of Reference

Attachment 4 – White Paper - Discussion of FAA Potential Taskings

**Welcome and Introductions**

Committee Co-Chairs, Mr. Jim Bowman, Vice President, Flight Operations, FedEx Express, and Ms. Heidi Williams, Vice President, Air Traffic Services and Modernization, Aircraft Owners and Pilots Association (AOPA), 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 and General Public Attendees are identified in Attachment 1).

**Designated Federal Official Statement**

Designated Federal Official (DFO), Ms. Lynn Ray, Vice President Mission Support, Air Traffic Organization (ATO), Federal Aviation Administration (FAA), read the Federal Advisory Committee Act notice governing the open meeting.

**Background on Formation of Committee**

Ms. Margaret Jenny, President, RTCA, provided an overview of RTCA, and its role as a unique Public-Private Partnership that operates under the Federal Advisory Committee Act providing technical and policy recommendations to the FAA. She also gave an overview of the history of RTCA's involvement in providing recommendations on operational issues under the Air Traffic Management Advisory Committee and later the NextGen Advisory Committee (NAC), and the formation of the TOC. The goal of the TOC is to be agile, timely, collaborative and reach a consensus, but not dilute the outcome or delay development of recommendations if a consensus cannot be achieved.

**Discussion of Committee Purpose and Scope (Source: TOC Terms of Reference – Attachment 3)**

TOC Secretary, Mr. Andy Cebula, Vice President, Strategy and Programs, RTCA reviewed the primary responsibility of the Committee—to provide recommendations to the FAA. To accomplish

this, the Committee will develop and manage Task Groups including structure, leadership, deliverables and schedules.

**Committee Operating Norms (Source: TOC Terms of Reference – Attachment 3)**

Mr. Cebula also led the Committee through a review of operating norms explaining that the group will meet in public plenary three times per year, augmented by organizational non-public meetings as necessary. Committee members are assigned two-year terms and the Committee members are expected to attend and participate in the meetings. Each Committee member may designate an alternate who can attend in place of a Subcommittee Member, but not more than twice a year.

**Reports from Regional Task Groups**

The TOC received reports from representatives of Regional Task Groups that served under the NAC. These groups addressed varied issues in conjunction with the FAA in specific geographic areas. To assist the Committee in considering how to incorporate this function into the TOC, representatives of the Regional Task Groups were asked to cover:

- Activities during the last 18 months
- Identify immediate future activities/issues that would be appropriate for the region
- Provide overall thoughts/comments/observations about regional groups that would maximize their effectiveness for the industry and the FAA

**Western Pacific – Co-Chairs, Dan Allen, FedEx Express/Tom Kramer, AOPA**

Issues covered:

- Greener Skies Over Seattle – PBN implementation initiative in partnership between FAA-controllers-airlines (aircraft operators), emphasized the importance of collaborative work and controllers decision support tools.
- Special Use Airspace (SUA) – National Special Activity Airspace project concentrating on providing scheduling information related to the status of SUA.
- Unmanned Aircraft Systems (UAS) – integration into the airspace, Certificates of Authorization for operations in the National Airspace System (NAS).
- Optimization of Airspace and Procedures in the Metroplex (OAPM) – expressed strong support for the engagement by the Regional Task Groups in the Southern California, Northern California and Phoenix study teams.

Both Mr. Allen and Kramer expressed a need for the Regional Task Groups to develop actionable recommendations and a process for delivering these recommendations to the FAA for implementation.

**Southwest – Chair, Dan Allen, FedEx Express**

Issues covered:

- Optimized Profile Descents (OPDs) – challenged to capture the benefits, for example, extra miles in-trail/additional track miles result in additional time that may cost more than the fuel savings achieved by an OPD.

- Gulf of Mexico Regional Airspace – goal is to ensure continued viability for civilian operations during growth in military operations. (During this portion of the discussion, a Committee member from the Department of Defense emphasized the importance of having good collaboration with the aviation community on military airspace and operations.)

**Northeast – Chair, Glenn Morse, United Airlines**

Issues covered:

- New York Airspace Redesign – the aviation community has a long history of involvement in working with the FAA on issues related to operations including recommendations related to facility changes and airspace design.
- Philadelphia – participating in work related to the overall NY airspace redesign that impacts PHL in the 2015-2017 time periods.
- OAPM – the NE Task Group is engaged in the Washington DC study team.
- T-Routes – participating in the design and implementation of T-Routes in the Cleveland area.

**Southeast – Chair, Bill Cranor, JetBlue Airways**

Issues covered:

- OAPM – the SE Task Group is engaged in the Atlanta, Charlotte and South Florida study teams.
- Caribbean Airspace (San Juan – Miami) – working to address improving the efficiency of airspace operations (i.e. eliminating dog-legs) for aircraft equipped with NextGen capabilities, while ensuring that legacy aircraft can continue operating under current procedures and routes.
- Space Launches – addressing how to accommodate space launches from Cape Canaveral without closing the airspace each time there is a launch.

**Midwest – Chair, Mike O’Brien, American Airlines**

Issues covered:

- Resectorization of Airspace – providing aircraft operator perspectives on resectoring of airspace in Minneapolis and Toronto.
- OAPM – addressing community concerns related to proposed PBN procedures being implemented at MSP.
- Chicago Area – engaged in the implementation of Standard Instrument Departures (SIDs) and Standard Terminal Arrivals (STARs) and associated issues related to the changes in runways at ORD planned for October. Also working on revisions related to the management of airspace controlled by Chicago and Cleveland Centers.
- Denver Area – working through issues related to aircraft specific challenges of new SIDs and STARs.

**Discussion of Regional Task Groups (RTGs)**

After the completion of the reports from the RTG leaders, the Committee members engaged in a conversation about the purposes, goals and structure for RTGs. Several Committee members, as well as many of the NAC RTG Chairs expressed the need for fewer groups to maximize the

participation of the industry, DoD and air traffic controller workforce. It was unanimously agreed that three groups would be the appropriate number, provided that this was acceptable with the FAA. Ms. Ray volunteered to discuss this with her colleagues to make this determination. (Subsequently it was agreed by the FAA ATO that the structure of EA/CE/WE would be acceptable in-line with the FAA service areas.)

A draft Terms of Reference defining the structure and scope for the RTGs, along with leadership, will be presented for consideration by the Committee at the next meeting.

#### **Discussion of FAA Taskings (Attachment 4)**

During the course of the meeting, the Committee engaged in a discussion about each of the following three potential Taskings:

#### **Tactical Operations Committee Pre-Tasking Discussion Paper #1**

##### **“VOR MON”**

Ms. Ray outlined that the FAA looking for additional recommendations on proceeding with establishing a Minimum Operating Network for VORs as a back-up navigation in the event of a GPS outage. This is distinct from an on-going effort related to TACON/DME. The target is to implement by January 2020, and the Tasking could include conducting a review of the previous work on MON selection criteria and assumptions, review and validate MON candidate list, and develop recommendations on the preliminary waterfall.

In response to questions from the Committee members, Ms. Ray explained that the FAA is currently “drawing down” VORs, but it is important that all of these actions be considered against the long term plan.

It was agreed by the Committee that a sub-group would receive a briefing by the FAA on the VOR MON issue to help shape the subsequent FAA Tasking and the associated TORs for consideration by the TOC at the next meeting.

#### **Tactical Operations Committee Pre-Tasking Discussion Paper #2**

##### **“NOTAM Improvement”**

Ms. Ray briefed the Committee on the issue of improving the Notice to Airman (NOTAM) system an aviation industry wide goal. Congress has also directed the FAA in the “Pilot Bill of Rights” legislation to create a NOTAM Improvement Panel. This Tasking would also build on the FAA ATO Safety evaluation and would include a review FAA’s NOTAM modernization efforts with the goal of developing recommendations to strengthen entire NOTAM program.

Ms. Ray and other members of the Committee suggested that the issue was important and any related work groups should include entities, such as state aviation organizations and helicopter operators that may not be represented on the TOC. The Committee members also endorsed the idea of naming the TOC as the NOTAM Improvement Panel created by law. A group of TOC members (Chris Baum, ALPA; Chris Oswald, ACI-NA; Heidi Williams, AOPA; Dale Wright, NATCA) volunteered to work with the FAA to develop a Tasking and associated TORs for the Work Group.

**Tactical Operations Committee Pre-Tasking Discussion Paper #3  
“PBN Outreach”**

Ms. Ray explained to the Committee that challenges by communities can slow or stop publication of procedures and affect the efficiency of the routes. There is an increasing recognition of the need for outreach with impacted airports and the community. There are also issues being identified in the implementation of PBN related to the variability in Flight Management System software.

The Committee engaged in a robust conversation highlighting the importance of community engagement. However, it was pointed out that several activities currently underway by the NAC, are addressing this issue.

Following the discussion, the Committee concluded that it was not appropriate at this time to address PBN Outreach because it is currently being covered by the work of the NAC. However, it was recognized that there are certain technical issues that might be important to consider in the future.

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

Co-Chairs Bowman and Williams thanked the members for participating in the initial meeting of the TOC. Moving forward, the Committee will address Taskings covering Regional Task Groups, VOR MON, and NOTAM Improvements.

**Other business**

No other business was raised.

**Adjourn**

Co-Chairs Bowman and Williams ended the meeting of the Committee at 3:00 p.m.

**Next Meeting**

The next meeting of the TOC is July 23, 2013 in Washington, DC.





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July 11, 2013

## TERMS OF REFERENCE

### NOTAM Task Group

#### Tactical Operations Committee

##### Committee Leadership:

Position	Name	Organization	Telephone	Email
<b>Co-Chairs</b>	Mark Cardwell	FedEx Express		<a href="mailto:mccardwell@fedex.com">mccardwell@fedex.com</a>
	Tom Kramer	AOPA		<a href="mailto:Tom.kramer@aopa.org">Tom.kramer@aopa.org</a>
<b>FAA SME</b>	Glenn Sigley	Federal Aviation Administration		<a href="mailto:Glenn.sigley@faa.gov">Glenn.sigley@faa.gov</a>
<b>Secretary</b>	TBD			

##### Background:

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. The Tactical Operations Committee will serve as the NOTAM Improvement Panel to further assist the Agency in crafting specific goals and priorities to meet the law's intent and make needed enhancements 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. The result yield significant reductions in the volume of NOTAMs pilots must currently review and allow pilots to focus only on those NOTAMs relevant to their plan/path. As a result, pilots will be more confident in the quality and accuracy of this focused NOTAM information and safety of the NAS will be improved.

##### Deliverables:

Product	Description	Due Date
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	Provide a report documenting the following actions: <ol style="list-style-type: none"> <li>1. Ensure needed stakeholders are identified and participate in any task groups formed.</li> <li>2. Examine and make recommendations/comments on recent and planned /future NOTAM modernization activities underway at</li> </ol>	<b>Establish NOTAM Improvement Panel and Develop Final Report October 2013</b>

	<p>FAA and offer possible additional recommendations (this may include education and outreach).</p> <p>3. Assess the interoperability of FAA NOTAM improvement efforts with the United States Department of Defense (DoD) and international stakeholders and provide feedback and recommendations on any actions needed.</p>	
<p>Task 2 – Provide input and recommendations for success criteria and compliance metrics.</p>	<p>Provide a report documenting the following actions:</p> <ol style="list-style-type: none"> <li>1. Recommend the criteria FAA needs to follow to successfully comply with the Pilot’s Bill of Rights with regards to NOTAMs.</li> <li>2. Recommend one or more metrics for success to ensure continued compliance and to enable reporting to outside entities.</li> </ol>	<p><b>Interim Report October 2013 Final Report January 2014</b></p>

**Scope:**

The Task Group will provide recommendations related to NOTAMs:

- Establish the NOTAM Improvement Panel as a chartered function of the TOC and review recent and planned future NOTAM modernization efforts of the FAA
- Provide input and recommendations for success criteria and compliance metrics

**Envisioned Use of Deliverables:**

The recommendations will inform the FAA plans, modernization efforts and provide success criteria for the NOTAM system.

**Specific Guidance:**

The FAA will provide the background materials and briefings, as well as Subject Matter Experts from the Agency to support the efforts of the Task Group.

**Termination:**

Activities of the Task Group will be reevaluated upon completion of the Taskings for improving the FAA’s NOTAM system related to the Pilot’s Bill of Rights.



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July 23, 2013

## TERMS OF REFERENCE

### Regional Task Groups

### Tactical Operations Committee

#### Committee Leadership:

Position	Name	Organization	Telephone	Email
Co-Chairs	<b>Eastern</b> Bill Cranor Glenn Morse	JetBlue United Airlines	(718)709-3745 (516)797-5048	<a href="mailto:William.cranor@jetblue.com">William.cranor@jetblue.com</a> <a href="mailto:Glenn.morse@united.com">Glenn.morse@united.com</a>
	<b>Central</b> Mike O'Brien Edwin Solley	American Airlines Southwest Airlines	(773) 686-4341	<a href="mailto:Mike.obrien@aa.com">Mike.obrien@aa.com</a> <a href="mailto:Edwin.solley@wnco.com">Edwin.solley@wnco.com</a>
	<b>Western</b> Dan Allen Bob Lamond	FedEx Express NBAA	(901) 224-5114 (202)783-9255	<a href="mailto:Daniel.allen@fedex.com">Daniel.allen@fedex.com</a> <a href="mailto:Rlamond@nbaa.org">Rlamond@nbaa.org</a>
FAA Liason	MTOs			
Secretary	TBD			

#### Background:

The aviation industry, through RTCA under the Federal Advisory Committee (FACA) process, has a long history of providing recommendations to the FAA on issues related to airspace, procedures and aircraft operations in specific locations in the National Airspace System (NAS). Most recently, this activity operated as Regional Task Groups (RTGs) under the structure of the NextGen Advisory Committee (NAC). In recognition of the value of this function and its importance to the industry and the Agency, the FAA has determined that the RTGs should operate under the Tactical Operations Committee (TOC).

Three RTGs (Eastern, Central and Western) have been established<sup>1</sup> to provide the forum for robust discussions on airspace redesign and associated airspace management issues that are local and regional in nature and critically important for the FAA's management of the NAS. The FAA's Manager of Tactical Operations (MTO) will serve as the federal agency liaison to each of the RTGs and coordinate the assigned issues that will be covered by recommendations presented to the TOC for

<sup>1</sup> The Airspace and Procedures Work Group under the NAC operated five regional groups. Three have been established to maximize the resources of the aviation industry and the FAA.

consideration and forwarding to the FAA. To the extent possible, the leaders of the RTGs are also encouraged to schedule their meetings (dates/times/locations) in alignment with FAA's regional customer forums.

The RTGs will include representation from the aircraft operator and stakeholder groups necessary to address the Taskings from the FAA. The RTGs will operate in accordance with the operating norms of the TOC Terms of Reference.

**Deliverables:**

In collaboration and as requested by the MTO and the appropriate program office, the RTG will develop recommendations in response to Taskings on specific areas. The scope of the subject matter covered by the RTGs will require the development of the recommendations in a timely and efficient manner.

**Scope:**

The following areas will be addressed by the RTGs:

- New and legacy airspace issues/redesigns
- Specific implementation of Best-Capable, Best-Served applications
- Optimization of Airspace Procedures in Metroplex (OAPM1)
- Utilization and maximization of Special Activity/Special Use Airspace
- Specific implementation of Performance Based Navigation (PBN)
- Specific implementation unique to the region as identified by the FAA
- Others as requested by the FAA

**Envisioned Use of Deliverables:**

The deliverables of the RTGs will document the consensus recommendations of the RTGs informed by input from the TOC. The FAA will use the deliverables to inform its planning and execution of near-term tactical aspects of NextGen.

**Specific Guidance:**

The RTGs will receive this from the FAA as it relates to the Taskings.



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July 23, 2013

## TERMS OF REFERENCE

### VOR MON Task Group

#### Tactical Operations Committee

##### Committee Leadership:

Position	Name	Organization	Telephone	Email
<b>Co-Chairs</b>	Heidi Williams	AOPA	(301)695-2227	<a href="mailto:Heidi.williams@aopa.org">Heidi.williams@aopa.org</a>
	Paul Railsback	A4A	(202)626-4012	<a href="mailto:prailsback@airlines.org">prailsback@airlines.org</a>
<b>FAA SME</b>	Deborah Lawrence	FAA Navigation		<a href="mailto:deborah.lawrence@faa.gov">deborah.lawrence@faa.gov</a>
<b>Secretary</b>	TBD			

##### Background:

In order to provide navigation services in a more efficient and cost effective manner and meet the goals of the Next Generation Air Transportation System (NextGen), a transition from the use of a very high frequency (VHF) Omni-directional Range (VOR) based route structure to that of a Performance-Based Navigation (PBN) based route structure is necessary and underway. To meet the goals of NextGen, current processes for defining airways, routes, and developing procedures using VORs must give way to routes and procedures with improved accuracy, availability, integrity, and continuity using PBN. The VOR Minimum Operational Network (VOR MON) Implementation Program has been established and is one of a myriad of activities required to shift resources and operations from the legacy National Airspace System (NAS) in to NextGEN. The VOR MON Program is designed to be a collaborative effort, which includes various lines of business (LOBs) within the Federal Aviation Administration (FAA) as well as numerous aviation stakeholder groups, to provide the tactical and strategic planning and implementation guidance to safely and systematically transition from a legacy network of 967 VORs to a MON of approximately 500 VORs by January 1, 2020.

The timing of the VOR MON Program is critical. Our current operating system of Federal Airways is based on 546 VOR/tactical air navigation (TACAN)s and 421 VOR/distance measuring equipment (DME)s. All of these VORs are beyond their economic service life. By 2020, FAA projects the widespread availability of PBN procedures and the mandate of Automatic Dependent Surveillance-Broadcast (ADS-B) Out will result in most operators having a global positioning system (GPS) or wide area augmentation system (WAAS) and flying both PBN and conventional procedures using PBN avionics. This transition to PBN as the primary means of navigation will result in a significant decrease in the reliance on VORs. The remaining VORs will serve as a backup navigation service to non-DME/DME/Inertial Reference Unit (IRU) equipped aircraft but PBN functionality will be limited. The VOR MON

will provide backup navigation services to non-GPS and non-WAAS equipped aircraft but it will not be as efficient.

The VOR MON is envisioned to allow an aircraft to safely navigate VOR to VOR to land at an airport with a GPS independent approach within 100 nautical miles (nm) of any locations within the Conterminous United States (CONUS). Efforts are ongoing to identify Alternative Position, Navigation, and Timing (APNT) solutions that will provide a full-scale backup system to GPS and are separate from the VOR MON effort. The FAA developed initial draft VOR MON criteria and published them in the Federal Register for comment in December 2011. Based on comments, the criteria were clarified and a draft candidate list was established. Based on this draft candidate list, the VOR MON Program office worked with the Service Areas and various FAA Headquarters organizations and identified some preliminary implementation issues. The FAA also held some early discussions with the Department of Defense (DoD) to facilitate future coordination and to assess any impacts to DoD CONUS operations. TACAN and DME are not considered by the VOR MON program. Several other stakeholder groups have also been briefed about the program but FAA is requesting the assistance of the Tactical Operations Committee (TOC), to provide recommendations related to the VOR MON.

**Deliverables:**

<b>Product</b>	<b>Description</b>	<b>Due Date</b>
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: <ol style="list-style-type: none"> <li>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.</li> <li>2. If amendments are recommended, please provide specific details with the recommendations to include the range of options and/or alternatives discussed.</li> </ol>	<b>Interim Report October 2013 Final Report January 2014</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: <ol style="list-style-type: none"> <li>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</li> </ol>	<b>Interim Report January 2014 Final Report April 2014</b>

	<p>provide the range of options and/or alternatives considered.</p> <ol style="list-style-type: none"> <li>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.</li> </ol>	
<p>Task 3 – Review implementation planning to date and make recommendations to the preliminary waterfall schedule developed by FAA.</p>	<p>Provide a report documenting the following actions:</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>3. Provide high level industry perspective on the feasibility and actions needed to completely retire the legacy route structure after 2020.</li> </ol>	<p><b>Interim Report April 2014</b>  <b>Final Report July 2014</b></p>
<p>Task 4 – Provide recommendations to the FAA on outreach and education that should be accomplished to prepare stakeholders for the VOR MON reduction.</p>	<p>Provide a report documenting the following actions:</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> </ol>	<p><b>Interim Report April 2014</b>  <b>Final Report July 2014</b></p>

**Scope:**

The Task Group will provide recommendations related to the VOR MON in the following areas:

- Task One – Review and validate the VOR MON selection criteria and assumptions and make additional recommendations as needed;
- Task Two – Review and validate the draft candidate VOR MON list, based on the above criteria;
- Task Three – Review implementation planning to date and make recommendations to the preliminary waterfall schedule developed by FAA.
- Task Four – Provide recommendations to the FAA on outreach and education that should be accomplished to prepare the industry for the VOR MON reduction.

Limitation on Scope: TACAN and DME are not considered by the VOR MON program and not included in the Tasking. In addition, efforts are ongoing to identify Alternative Position, Navigation, and Timing (APNT) solutions that will provide a full-scale backup system to GPS and are separate from the VOR MON effort.

**Envisioned Use of Deliverables:**

The recommendations will inform the FAA plans, policies and investments for the VOR MON infrastructure.

**Specific Guidance:**

The FAA will provide the background materials and briefings, as well as Subject Matter Experts from the Agency to support the efforts of the Task Group.

**Termination:**

Activities of the VOR MON Task Group will terminate with approval by the TOC of the committee's final reports.