



RTCA, Inc.
1150 18th Street, NW, Suite 910
Washington, DC 20036
Phone: (202) 833-9339
Fax: (202) 833-9434
www.rtca.org

RTCA Paper No. 287-13/TOC-07

November 7, 2013

Meeting Summary, November 7, 2013

Tactical Operations Committee (TOC)

The third meeting of the Tactical Operations Committee (TOC) held November 7, 2013 at RTCA Headquarters in Washington, DC, convened at 9:00 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 – Summary of the July 23, 2013 TOC Meeting

Attachment 4 – 20:1 Visual Area Surface Task Group Terms of Reference

Attachment 5 – VOR MON Prioritization report

Attachment 6 - NOTAM Activity Prioritization report

Welcome and Introductions

Committee 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 member and General Public Attendees are identified in Attachment 1).

Mr. Bowman read a letter from Ms. Heidi Williams, former Co-Chair of the TOC, announcing her departure from AOPA and thanking members of the Committee and Task Groups for their support of the work of the TOC. He also expressed his thanks for Heidi's efforts that were also echoed by Designated Federal Official (DFO), Ms. Elizabeth "Lynn" Ray, Vice President Mission Support, Air Traffic Organization (ATO), Federal Aviation Administration (FAA).

The Chair reviewed the agenda and acknowledged the work of the Notice to Airman (NOTAM) and VOR Minimum Operating Network (MON) Task Groups in developing recommendations to be discussed and considered later in the meeting.

Designated Federal Official Statement

Ms. Ray read the Federal Advisory Committee Act notice governing the open meeting.

Approval of July 23, 2013 Meeting Summary

The Chair asked for and received approval of the written Summary for the July 23, 2013 meeting (Attachment 3).

FAA Report

Ms. Ray provided an overview of the FAA Air Traffic Organization (ATO), including an explanation of the recent changes from the merging of the Terminal and Enroute functions. In response to a comment from a committee member, Ms. Ray commented that the merging of the organizations should simplify the design and implementation of procedures. She also explained that Dennis Roberts continues to be the lead for the Metroplex Optimization initiative (Optimization of Airspace and Procedures in the Metroplex or OAPM).

She then briefed the TOC on the schedules of the OAPM effort, pointing out the importance of aligning the implementation schedules for OAPM and En Route Automation Modernization (ERAM). The furlough in FY 2013 caused delays due to the lack of controller participation in the study teams.

A committee member asked about the effects of the furlough and government shutdown on controller staffing. Ms Ray responded that training at the FAA Academy has been suspended and the FAA is evaluating the relationship between staffing and the ability to bring in new controllers.

Ms. Ray concluded her report by explaining that FAA Administrator, Michael Huerta, is conducting an evaluation of the FAA's resources and developing a strategic plan that will include "right sizing the National Airspace System (NAS)". This is relevant to the work of the TOC because it includes VOR MON, accelerating NextGen benefits and integrating Unmanned Aircraft Systems (UAS) into the NAS. The goal is to align the Agency's assets, people and infrastructure.

Mitigation of Obstructions within the 20:1 Visual Area Surface

Mr. Bill Davis, Deputy Mission Support, FAA ATO, provided a briefing of the new Tasking from the FAA requesting TOC recommendations in response to the FAA's recently issued internal policy guidance following a risk-based approach in providing clear vertical descent paths into airports (referred to as a 20:1 surface). The goal of the policy issued by the FAA's safety (AVS), Airports (ARP) and air traffic organizations (ATOs) is to ensure safety while allowing additional flexibility in time frames available for completing mitigations prior to affecting operations.

Mr. Davis explained that the purpose is to validate and update the FAA's database on approaches to ensure that it is accurate and reliable. Doing so is a key part of supporting the implementation of NextGen. The policy is attempting to reconcile legacy issues of validating the existence of an obstacle, ensuring appropriate mitigations are in place and/or documenting the removal of an obstacle. Mr. DeCleene of the FAA's Office of Aviation Safety also commented that this is a critical issue necessary to maintain a clear path for aircraft operators. The FAA is also looking at the possible use of RNP as a mitigation for obstacles.

Several committee members commented in support of the FAA's overall risk based approach to this issue, although they also recognized that the memo will likely trigger actions affecting existing procedures. This will require cooperation between the FAA, airport and aircraft operators as obstructions are evaluated and mitigations are developed and implemented.

Committee Action: The Committee agreed by consensus to approve the 20:1 Visual Area Surface Task Group Terms of Reference (Attachment 4) that identified Chris Baum, ALPA, and Chris Oswald, ACI-NA, as the Co-Chairs.

Regional Task Groups (RTGs)

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

Central - Mike O'Brien, American Airlines, covered issues related to the pending expiration of the Wright Amendment, removing current geographical limits on airline operations at Dallas Love Field; changes in the airport and airspace at Chicago O'Hare International Airport; airspace evaluation of the potential airport at Peotone in the Chicago area; Powder River special use airspace; and the OAPM activities in North Texas and Houston.

Eastern - Bill Cranor, JetBlue, addressed the challenges on operations associated with both the government sequestration and recent government shutdown; the commitment by the FAA to implement ERAM at Miami Center, pending the new runway becoming operational at Ft. Lauderdale International Airport; New York-New Jersey-Philadelphia airspace redesign; OAPM in South Florida; and Q routes linking Cleveland Center and New York.

Western - Dan Allen, FedEx Express, and Bob Lamond, National Business Aviation Association, discussed numerous military areas in the west including Lemoore MOA/ATCAA; the 20:1 Visual Area Surface; OAPM initiatives in Northern and Southern California, Phoenix and Denver; the availability of approach procedures at San Francisco and Oakland during airport construction; and Seattle Greener Skies.

The Committee also discussed the next steps for the Groups including how best to assist the FAA with industry consensus on local issues. Several committee members emphasized the need for ensuring good coordination on the localized implementation of national issues. Other committee members stressed the need to avoid duplication between the work of the NextGen Advisory Committee and the TOC.

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

Mr. Don Dillman, Airlines for America, and Co-Chair of the VOR MON Task Group, outlined the recommendation developed to review and validate the VOR MON selection criteria and make any additions as deemed necessary. The FAA estimates it will decrease the current 967 VOR ground based nav-aids to approximately 567 by 2020. The Industry endorsed the FAA's overall approach based on the transition to PBN and GPS-based navigation, and the transition plan that provides a basic level of coverage for users of VORs, and the back-up capability for navigation in the event of a GPS outage.

The Task Group recommended:

- Additional Criteria / Considerations
 - Proximity to areas of periodic GPS interference
 - Necessity of the VOR MON
 - To enable adequate IFR navigation for non-RNAV aircraft (GPS outage or aircraft equipage)
 - For training
- Disposition of functions associated with the VOR
 - STARS, SIDS, IAPS, ODPs, holding patterns, preferred routes, fixes, airways, VOR CHKPs
 - Non-navigation
 - AeroNav Chart products
- Retain VORs outside CONUS & western mountainous areas
- Allow local, state, municipality to assume ownership & maintenance
- Measure adequacy of VOR MON
 - Mixed equipage
 - Capability to navigate by VOR to an alternate within 100 NM
 - Need for specific stakeholders to maintain mission capability sub fleets
 - Ability to navigate known GPS jamming locations
- Service Volume Expansion
 - 70NM at 4000' AGL
 - 62NM at 3000' AGL

In response to a question about the FAA's ability to incorporate the service volume expansion being recommended by the Task Group, Mr. Dale Courtney from the FAA responded that this was consistent with their plans to meet the 77 NM coverage. A committee member asked a question

about the FAA's ability to develop and produce the needed changes to procedures or other navigational procedure references required by implementing the VOR MON. Mr. Ray responded that this is always an area that is considered by the FAA and will be an important determinate in moving forward.

Committee Action: The Committee agreed by consensus to approve the VOR MON Prioritization report (Attachment 5).

Notice to Airmen (NOTAM)

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 recommendation providing industry comments on the FAA's initiative to modernize the NOTAM system by digitizing the information and making it more easily sorted and filtered, enhancing safety and increasing the overall value of the information provided by NOTAMs to the aviation industry.

The Task Group recommended the following:

- Continue existing efforts to improve NOTAMs through AIM
- Offer "Route of Flight" search/filter
- Basic system with beta user testing
- Continue to educate potential third party vendors
- Develop education plan for system users
- Promote NOTAM Manager for originators & Flight Service Stations
- Expedite digitization of all NOTAMs
- Funding for geo-referenced airport data
- Develop comprehensive flight information data

Mr. Joshua Gustin, FAA Director of Aeronautical Information Management, expressed his appreciation for the recommendation and indicated that these will be helpful as the FAA moves forward with its modernization effort. He also explained that receiving the information from airports digitally is a key component for the FAA to achieve its goals of having a database that is capable of being sorted and filtered.

In response to a question from a committee member, Mr. Cardwell explained that graphical display is an important area to the aviation user community. Ms. Ray also commented that she would like the TOC, in its role as the NOTAM Improvement Panel, to serve as a "Beta" tester to help analyze the FAA program. A committee member requested that the report reflect the importance of the NOTAM system for aviation safety. While implied in several areas, the member requested this be further explained. Other members of the Committee endorsed this suggestion. Committee members also discussed the need for a definition of "route of flight".

Committee Action: The Committee agreed by consensus to approve the NOTAM Activity Prioritization report (Attachment 6) based on the addition of safety wording recommended by the Committee.

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, VOR MON and Visual Area Surface Task Groups, and reports from the RTGs.

Other business

No other business was raised.

Adjourn

Chairman Bowman ended the meeting of the Committee at 3:00 p.m.

Next Meeting

The next meeting of the TOC is February 6, 2014 in Washington, DC.

Attendees:
November 7, 2013 Meeting of the Tactical Operations Committee
Washington, DC

Name¹	Company
Allen, Dan	FedEx Express
<i>Baum, Chris</i>	<i>Air Line Pilots Association</i>
Boguski, Mark	THALES Avionics, Inc
<i>Bowman, Jim</i>	<i>FedEx Express</i>
Cardwell, Mark	FedEx Express
<i>Cebula, Andy</i>	<i>RTCA, Inc.</i>
Courtney, Dale	Federal Aviation Administration
Cranor, Bill	JetBlue Airways
Davis, Bill	Federal Aviation Administration
<i>DeCleene, Bruce</i>	<i>Federal Aviation Administration</i>
Dillman, Don	Airlines for America
Gustin, Joshua	Federal Aviation Administration
<i>Hopkins, Mark</i>	<i>Delta Air Lines, Inc.</i>
<i>Kast, Christian</i>	<i>United Parcel Service</i>
Kenagy, Randy	Raytheon Systems Company
Kramer, Tom	Aircraft Owners and Pilots Association
<i>Lamond, Bob</i>	<i>National Business Aviation Association</i>
<i>Molin, Doug</i>	<i>The MITRE Corporation</i>
Morse, Glenn	United Airlines, Inc.
<i>Newton, David</i>	<i>Southwest Airlines</i>
Niles, Rick	The MITRE Corporation
O'Brien, Michael	American Airlines
O'Hara, Adam	Aircraft Owners and Pilots Association
<i>Oswald, Chris</i>	<i>Airports Council International - North America</i>
<i>Ray, Lynn</i>	<i>Federal Aviation Administration</i>
Scheirer, Ariel	SELEX Systems Integration
Sigley, Glenn	Federal Aviation Administration
Tennille, Greg	The MITRE Corporation

¹Committee member names appear in italics.



THE GOLD STANDARD FOR AVIATION SINCE 1935

RTCA Tactical Operations Committee

Third Meeting

November 7, 2013

RTCA Headquarters



THE GOLD STANDARD FOR AVIATION SINCE 1935

Welcome and Introduction

Jim Bowman, FedEx Express

Chair



Topical Agenda

- Approval of July 23 Meeting Summary
- FAA Report
- Notice to Airmen (NOTAM) Tasking
- Regional Task Groups
- VHF Omni-directional Range (VOR) Minimum Operating Network
- New Tasking Mitigation of Obstructions within the 20:1 Visual Area Surface

3



PUBLIC MEETING ANNOUNCEMENT

**Read by: Designated Federal Official Elizabeth Ray
Tactical Operations Committee (TOC)
November 7, 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:

October 23, 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.

4



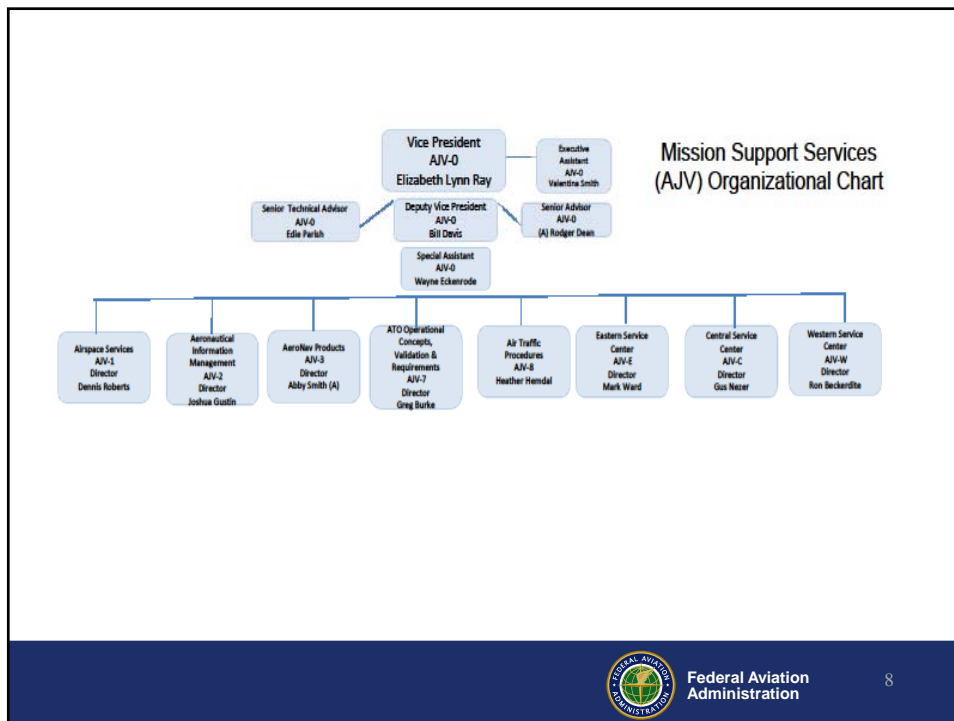
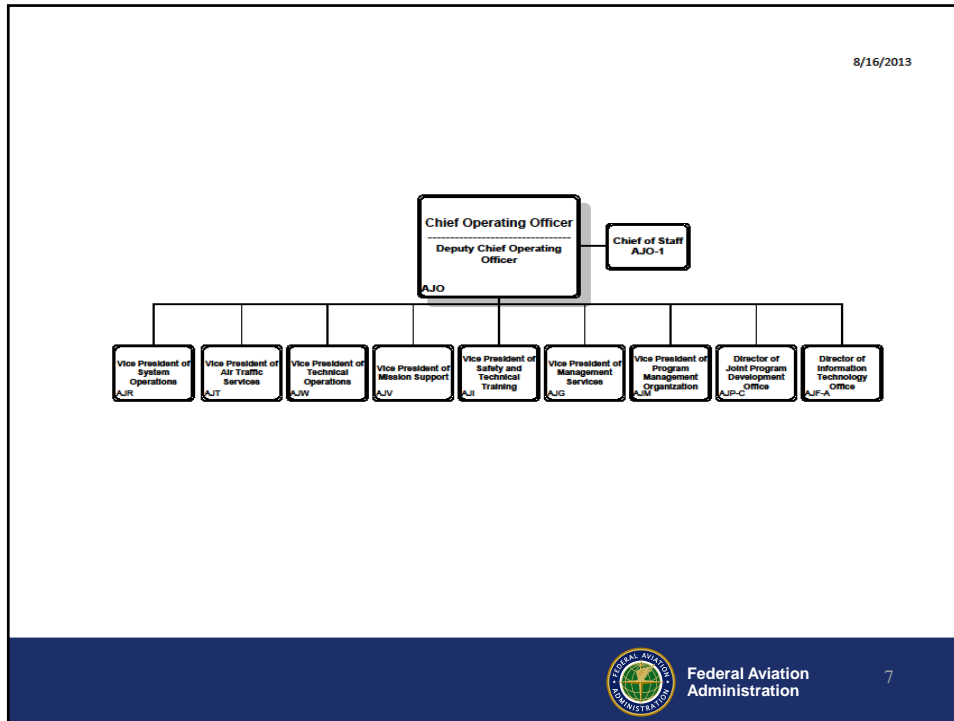
Review and Approval of:

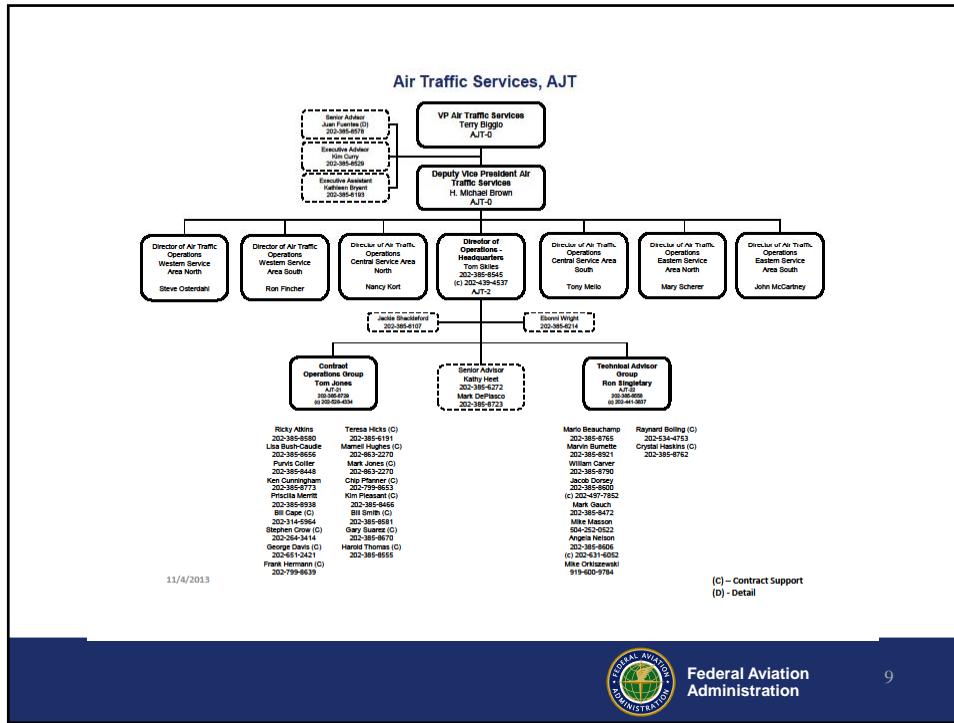
July 23, 2013 Meeting Summary



FAA Report

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





Federal Aviation Administration

Current OAPM Schedule

Site	FY13				FY14				FY15				FY16				FY17				FY18				FY19						
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q			
DC	E	E	F		E	E			I	I	I	I	I	P	P										S				Study		
North Tex	E	E	F		E				E	I	I	I	P	P															D		Design
Houston	E	I	F	I	I	I	I	I	I	P	P																		E		Evaluation
Charlotte	E	E	F		E	E	E	E					E	I	I	I	P	P	P										I		Implementation
Atlanta	E	E	F		E	E	E	E	I	I	I	I	P	P	P														P		Post Implementation
North Cal	E	E	F		E	E	E	E	I	I	I	I	P	P	P														S		Budget Impact
South Cal	D	D	F	S	D	D	D	E	E	E	E	E	I	I	I	I	P	P											F		Furlough Impact
Florida	S	S	S	S									D	D	D	D	E	E	E	E	E	E	E	E	I	I	I	I	P	P	
Phoenix	S	S	S	S	D	D	D	E	E	E	E	E	E	I	I	I	P	P	P												
CLE/DTW	S	S	S	S					S	S	D	D	D	D	D	E	E	E	E	E	E	E	E	E	I	I	I	I	P	P	
Memphis					S				S	S	D	D	D	D	D	E	E	E	E	E	E	E	E	E	I	I	I	I	P	P	
Chicago					S				S	S	D	D	D	D	D	E	E	E	E	E	E	E	E	E	I	I	I	I	P	P	
Boston									S	S	D	D	D	D	D	E	E	E	E	E	E	E	E	E	I	I	I	I	P	P	

Milestone Leads Organizational Symbol	Functional Description
AJV-1	Airspace Services
AJV-121	Airspace Optimization Group
AJV-E	Mission Support, Eastern Service Center
AJV-C	Mission Support, Central Service Center
AJV-W	Mission Support, Western Service Center
AJV-114	Environmental Analysis
AJV-3	Aviation Systems Standards – Flight Checks

Questions?



Federal Aviation
Administration

11

RTCA


THE GOLD STANDARD FOR AVIATION SINCE 1935

NOTAM Activity Prioritization

Co-Chairs:

Mark Cardwell, FedEx Express


Tom Kramer, AOPA



Overview

- Opening Observations
- Examination of Task One
- Task Group Membership
- Assumptions & Guiding Principles
- Recommendations
- Preview of Task Two (interim/status report)
- Discussion
- Next Action


13



Task One

- Identify needed stakeholders
- Examine & make recommendations on existing & planned FAA NOTAM improvement efforts
- Consider application of DoD NOTAM solutions


14



Task One Work Flow

- Agreed on scope to guide deliberations
- Identified participants
- Assessed recent & planned improvement efforts
- Received briefing on DoD efforts
- Established assumptions and guiding principles
- Discussed & responded to FAA questions
- Evaluated alternative options
- Developed consensus recommendation


15



Members

- Ensured needed stakeholders were identified
- Spectrum of NOTAM “users”


16



NOTAM Task Group

Baum, Chris Boll, Rich Aviation Bradshaw, Dave Cardwell, Mark Cebula, Andy Gerhardt, Adam Griffin, Matt Hoekstra, Kathlyn Hurley, Jack Jalleta, Ezra Kast, Christian Keany, Des Kramer, Tom Pilots Lamond, Bob	Air Line Pilots Association National Business Association Federal Aviation Administration FedEx Express RTCA, Inc. TASC, Inc. Airports Council International Federal Aviation Administration Delta Air Lines, Inc. The MITRE Corporation United Parcel Service American Airlines, Inc. Aircraft Owners and Association National Business Aviation Association	Langone, Christopher Miller, Jeffrey Mills, Jim Newton, David Ogrodzinski, Henry Serur, Steve Sigley, Glenn Solanki, Ashish Solley, Edwin Summers, Harold Utley, Robert Von Rinteln, David Williams, Michael	ARINC IATA U.S. Air Force Southwest Airlines National Association of State Aviation Officials Air Line Pilots Association Federal Aviation Administration Maryland Aviation Administration Southwest Airlines Helicopter Association International National Air Traffic Controllers Association Hewlett Packard Hewlett Packard
--	--	--	--


17



Assumptions

- NOTAMs are necessary
- Opportunity to improve distribution resulting in more functionality and operational benefit
- Volume must be reduced through filtering
- Digitization a critical factor for success


18



Guiding Principles

- Goal: make NOTAMs more relevant
- Digitization is needed to leverage benefits
- Basic and deluxe system solutions
- NOTAM originator participation
- Standards-based data
- Importance of metrics


19



Recommendations

- Continue existing efforts to improve NOTAMs through AIM
- Offer “Route of Flight” search/filter
- Basic system with beta user testing
- Continue to educate potential third party vendors
- Develop education plan for system users
- Promote NOTAM Manager for originators & FSS
- Expedite digitization of all NOTAMs
- Funding for geo-referenced airport data
- Develop comprehensive flight information data

20



Task 2 Preview


- Criteria needed to comply with Pilot's Bill of Rights
- Identify and quantify metrics to gauge success
- Anticipated submission: January 2014

21



DISCUSSION

22




TOC Action

Consider Recommendation on:

NOTAM Activity Prioritization

and Transmit to FAA

23



Break
Back at 11:10



THE GOLD STANDARD FOR AVIATION SINCE 1935

Regional Task Groups



THE GOLD STANDARD FOR AVIATION SINCE 1935

TOC Eastern Regional Task Group

Co-Chairs

Bill Cranor, JetBlue

Glenn Morse, United Airlines



THE GOLD STANDARD FOR AVIATION SINCE 1935

TOC Central Regional Task Group

Co-Chairs

Mike O'Brien, American Airlines

Edwin Solley, Southwest Airlines



THE GOLD STANDARD FOR AVIATION SINCE 1935

TOC Western Regional Task Group

September 16, 2013 Meeting Summary

Co-Chairs

Dan Allen, FedEx Express

Bob Lamond, NBAA

FAA Rep: Kim Stover

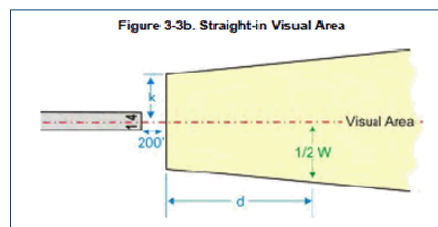
OSG Overview

- Military Areas
 - Lemoore MOA/ATCAA
 - San Diego National Security Areas
 - Cheyenne MOA
 - Powder River MOA/ATCAA
 - 29 Palms
 - Boardman MOA
 - EEL MOA
 - Juniper/Hart MOA
 - W570
 - Guam
- Las Vegas & San Diego Class B
- Salt Lake Class B (adjustment)
- Long Beach & Ontario Class C
- Santa Anna KEFFR STAR
- Various Helicopter Noise Issues
- PDX/VUO (“Pearson Box”)
- Alaska UAS Activity
- NW Mountain Area – 66 COAs
- WP Area – 105 COAs


29

20:1

- Recent enforcement of Straight-in Visual Area penetrations resulting in loss of VNAV on about 40% of runway ends at night and CAT C/D minima loss
- AFS Policy pending allowing for different “severity” of penetrations which drives “immediate” N/A action or longer time periods for mitigation




30



OAPM

- Northern California
 - Project on Track to publish 50 new procedures late 2014 - early 2015
 - Mid-2014: Draft EA due
- Southern California
 - Due to sequestration, the project has slipped approximately 3 months
 - Project designs are 75% complete
 - The Design and Implementation Team has a goal to publish up to 200 new procedures by late 2015
- Phoenix
 - Study Report Finalized
 - No date for Design and Implementation to begin
- Denver (technically not OAPM)
 - STARS/SIDS under revision


31



Adequate Instrument Approach Procedures During Construction

- SFO and OAK Review
- Industry needs visual guidance to assist with stabilized approaches
- Integration of work as much as possible; e.g., many tasks completed by various groups during single outage time frame.

32



Greener Skies

- Education issues for all of workforce still needed.
- Industry tech pilot work group addressing issues and including regional carriers.
 - VNAV action team result of issues and discussions with Flight Standards.
- Dispatch element missing from work groups so carrying extra gas as can't plan for appropriate STAR.
- Efficiencies cannot be lost just to have a new procedure.
- Training on cultural changes needed for acceptance and implementation.

33



DISCUSSION

34



Lunch
Back at 12:45




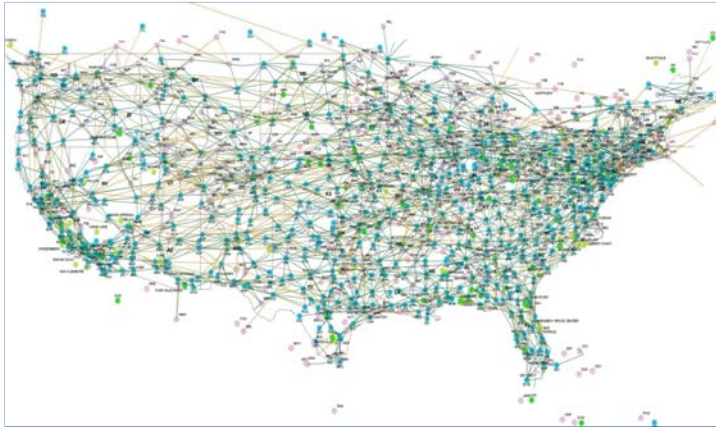
VHF Omni-directional Range (VOR)
Minimum Operating Network

Co-Chairs:
Don Dillman, Airlines for America
Heidi Williams (key leadership role)

VOR MON

FAA's Purpose

- Transition from VOR-defined Nav route structures to Performance-Based Navigation (PBN)

- Minimum Network for safe navigation if GPS outage

37

VOR MON Taskings (1st of 4)

<p>Task 1 – Review and validate the VOR MON selection criteria and assumptions and make additional recommendations as needed</p>	<p>Provide a report documenting the following actions:</p> <ol style="list-style-type: none"> 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. 	<p>Interim Report October 2013 Final Report January 2014</p> <p style="color: red; font-weight: bold;">Task Group Recommending FINAL</p>
<p>Task 2 – Review and validate the draft candidate VOR MON list, based on the criteria from Task 1.</p>	<p>Provide a report documenting the following actions:</p> <ol style="list-style-type: none"> 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. 	<p>Interim Report January 2014 Final Report April 2014</p> <p style="color: red; font-weight: bold;">Use Additional Time for More Complex & Challenging Issue</p>


38



VOR MON Task Group

Basso, Philip	DoD Policy Board on Federal Aviation	Massissimini, Vince	The MITRE Corporation
Boguski, Mark	Thales	McClure, Don	Air Line Pilots Association
Boll, Rich	National Business Aviation Association	Mendez, Rowena	Federal Aviation Administration
Cebula, Andy	RTCA, Inc.	Niles, Rick	The MITRE Corporation
Courtney, Dale	Federal Aviation Administration	Ross, Matthew	Real NewEnergy
Dillman, Don	Airlines for America	Solley, Edwin	Southwest Airlines
Ferguson, Bob	NetJets Association of Shared Aircraft Pilots	Sorkness, Stephen	SkyWest Airlines
Hennig, Jens	General Aviation Manufacturers Association	Tennille, Greg	The MITRE Corporation
Hopkins, Mark	Delta Air Lines, Inc.	Utlely, Robert	National Air Traffic Controllers Association
Kramer, Tom	Aircraft Owners and Pilots Association	Vogt, David	Delta Air Lines, Inc
Lamond Bob	National Business Aviation Association		
Manville, David	U.S. Army		


39



Addressing Task One

- Developed Basic Assumptions & Guiding Principles
- Reviewed FAA's Plans and Developed Responses
- Requested Additional Analytical Data
- Developed Consensus Recommendation
- Did Not Evaluate Specific List of VOR MON facilities – Task Two


40



Overarching Themes

- Scope
 - Defining “adequate” VOR coverage was challenging (user-specific)
- Communications
 - Continuous FAA outreach to user community will be essential
 - Vetting of public input regarding specific VORs is important
- Process
 - Deploying mitigations (*service replacement*) and dispositions (*service transition*) must be standardized and well-communicated
 - Decommissioning timing requires balance between user equipage opportunity & benefits of lower cost, smaller VOR network
- Miscellaneous
 - Lowering floor of VOR coverage from 5,000’ enhances safety and improves user acceptance


41



Assumptions

- Reliance on VORs is diminishing at different rates in individual user communities
- Mixed equipage is a reality
- Operational policies and procedures will need to transition e.g. fuel planning
- Funding will be needed to sustain the MON infrastructure


42



Guiding Principles

- Communications and stakeholder outreach
- Thorough process is needed to identify VOR services (navigation and non-navigation)
- Need for thorough but manageable evaluation of current VORs for inclusion/exclusion in the MON
- VOR MON provides basic IFR capability
- Need for more complete end-state definition (short and long term)


43



Recommendations

- General agreement with FAA's initial plans
- Additional Criteria / Considerations
 - Proximity to areas of periodic GPS interference
 - Necessity of the VOR MON:
 - To enable adequate IFR navigation for non-RNAV aircraft (GPS outage or aircraft equipage)
 - For training
- Disposition of functions associated with the VOR
 - STARS, SIDS, IAPS, ODPs, holding patterns, pref routes, fixes, airways, VOR CHKPs
 - Non-navigation
 - AeroNav Chart products
- Retain VORs outside CONUS & western mtns areas

44



Recommendations (cont.)


- Allow local, state, municipality assume ownership & mtc
- Measure Adequacy of VOR MON
 - Mixed equipage
 - Capability to navigate by VOR to an alternate within 100 NM
 - Need for specific stakeholders to maintain mission capability sub fleets
 - Ability to navigate known GPS jamming locations
- Service Volume Expansion
 - 70NM at 4000'AGL
 - 62NM at 3000' AGL

45



DISCUSSION

46




TOC Action

Consider Recommendation on:

VOR MON Prioritization

and Transmit to FAA


47



New Tasking: Obstacle Clearance

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

Background of Issue



Federal Aviation Administration

Memorandum

Date: DRAFT. v12. dtd 11/01/13 – wsd DRAFT – DRAFT – DRAFT

To: Bruce DeCicco, Manager, Flight Technologies and Procedures Division, AFS-400
Michael J. O'Donnell, Director, Office of Airports Safety and Standards, AAS-001

From: William S. Davis, Deputy Vice President, Mission Support Services, AJV-0

Subject: Mitigation of obstructions within the 20:1 Visual Area Surface

PURPOSE: To provide consolidated interim policy guidance for FAA staff to address the process related to the discovery, verification, risk assessment, and mitigation of obstacles identified as penetrations to the 20:1 Visual Area Surface of instrument approach procedures (IAP).

ACTION: When 20:1 obstacle/terrain penetrations (penetrations) are discovered within the Visual Surface Area of an IAP, action will be taken to evaluate the entire airport to ensure that all 20:1 obstacle penetrations for every IAP have been identified. Use the following process for the notification, verification, risk assessment, and mitigation of each penetration:


1. Notification and Verification. The Operations Support Group (OSG) Flight Procedures Team (FPT) will notify the airport owner/agent and the Airport District Office (ADO) within three business days of being informed of a potential penetration of an IAP. The OSG (FPT) will request the airport owner/agent to conduct an assessment and notify the OSG (FPT) in writing of the validity of each penetration as soon as possible but not to exceed 30 calendar days after notification. The airport owner/agent must provide the reply assessment to the OSG (FPT) in writing with a copy to the ADO (scanned documents are acceptable). This reply is due as soon as possible and shall not be delayed to address mitigation, which is addressed through the compliance plan (below). If no response is received within the prescribed time-frame, actions must be taken to restrict the IAP.
2. 20:1 Penetration Determined Invalid. If the 20:1 penetration(s) at issue have been determined to be invalid, the OSG (FPT) will notify AeroNav Products and Aeronautical Information Management Team and Obstacle Data Team (ODT). AeroNav Products will update the documentation on the periodic review sheet. The ODT will update the obstacle database within 10 calendar days. No action is required to restrict or modify the subject IAP.
3. 20:1 Penetration Determined Valid. If the 20:1 penetration(s) at issue is/are valid, one or more of the actions specified in paragraphs 3.1 through 3.3 below is/are required. If any of the timelines are not met, the airport compliance plan does not remove, light, or lower the obstacle, or if no

49

20:1 Tasking


Product	Description	Due Date
Review and develop recommendations related to the FAA Memorandum, "Mitigation of obstructions within the 20:1 Visual Area Surface"	Provide a report documenting comments on the following areas: (1) The sufficiency of time and clarity of expectations in the verification stage. (2) Improving the planning and mitigation stages. (3) Providing clear guidance for what actions must be taken to mitigate risk regarding visibility and night operations. The FAA also is requesting recommendations for the best mechanism(s) to communicate the process to key stakeholders.	Final Report January 2014

50




DISCUSSION

51



TOC Action

Consider Terms of Reference:
20:1 Visual Area Surface Task Group



RTCA, INC.
1140 18th Street, NW, Suite #10
Washington, DC 20036
Phone: (202) 833-9397
Fax: (202) 833-9434
www.rtca.org

TERMS OF REFERENCE
20:1 Visual Area Surface Task Group
Tactical Operations Committee

Position	Name	Organization	Telephone	Email
Co-Chairs	Christopher Coward	FAA/FAA	(202) 634-4012	ccoward@faa.gov
	Chris Baum	ALPA	(703) 609-4332	baum@alpa.org
FAA SME	Bill Davis	FAA Mission Support	(202) 493-4242	bill.davis@faa.gov

Background:
The FAA is responsible for the safety of civil aviation and it sets standards, evaluates effects, and ensures compliance in the area of obstacle penetration of protected runway surfaces. Standards are set under Terminal Instrument Procedures (TERP) requirements; evaluations of the effect of construction or alterations are done under Part 77, and compliance is ensured, in part, through Advisory Circulars. Several FAA Lines of Business have defined roles in this effort including the Office of Airports, Flight Standards, and the Air Traffic Organization.

The FAA is exploring a risk-based approach in providing clear vertical descent paths (referred to as a 20:1 surface) to ensure safety while allowing additional flexibility in the time frames available for completing mitigations prior to effecting operations at a given aerodrome. Normal vertical descent paths are protected through an obstacle identification surface, which originates 200' from the runway threshold and rises at 1 foot for every 20 feet laterally (a 2.87 degree slope). When this surface is free from penetrations, there are no visibility limitations on instrument approaches. However, when there are obstacles that penetrate this surface the pilot must be able to see and avoid those obstacles. This is accomplished by restricting operations to times when the visibility is at least 1 mile, and by lighting the obstacle for night operations. If the obstacle is not lit, then there is no assurance that the pilot will be able to see and avoid the obstacle and night minimums are not authorized.

During periodic inspection of procedures, sometimes new obstacles are identified which penetrate this 20:1 obstacle identification surface. Because of FAA requirements, the discovery of these apparent obstacles leads to FAA restrictions resulting in loss of airport access. This occurs because of visibility reduction or loss of night instrument operations if the obstacle is not lit. A variety of factors has contributed to this situation, such as inaccurate obstacle data in the FAA database, airport operators not being aware of their responsibilities, and a lack of consistent enforcement of this requirement.

52



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



Closing Comments

Chair

- Jim Bowman, FedEx Express
Designated Federal Official
- Lynn Ray, Federal Aviation Administration



Next Meeting
February 6, 2014
Washington, DC



Adjournment



RTCA, Inc.
1150 18th Street, NW, Suite 910
Washington, DC 20036
Phone: (202) 833-9339
Fax: (202) 833-9434
www.rtca.org

RTCA Paper No. 147-13/TOC-04

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.



RTCA, Inc.
 1150 18th Street, NW, Suite 910
 Washington, DC 20036
 Phone: (202) 833-9339
 Fax: (202) 833-9434
 www.rtca.org

November 7, 2013

TERMS OF REFERENCE

20:1 Visual Area Surface Task Group

Tactical Operations Committee

Committee Leadership:

Position	Name	Organization	Telephone	Email
Co-Chairs	Christopher Oswald	ACI-NA	(202) 626-4012	coswald@aci-na.org
	Chris Baum	ALPA	(703) 689-4312	chris.baum@alpa.org
FAA SME	Bill Davis	FAA Mission Support	(202) 493-4242	bill.davis@faa.gov

Background:

The FAA is responsible for the safety of civil aviation and it sets standards, evaluates effects, and ensures compliance in the area of obstacle penetration of protected runway surfaces. Standards are set under Terminal Instrument Procedures (TERPs) requirements; evaluations of the effect of construction or alternations are done under Part 77, and compliance is ensured, in part, through Advisory Circulars. Several FAA Lines of Business have defined roles in this effort including the Office of Airports, Flight Standards, and the Air Traffic Organization.

The FAA is exploring a risk-based approach in providing clear vertical descent paths (referred to as a 20:1 surface) to ensure safety while allowing additional flexibility in the time frames available for completing mitigations prior to effecting operations at a given aerodrome. Normal vertical descent paths are protected through an obstacle identification surface, which originates 200' from the runway threshold and rises at 1 foot for every 20 feet laterally (a 2.87 degree slope). When this surface is free from penetrations, there are no visibility limitations on instrument approaches. However, when there are obstacles that penetrate this surface the pilot must be able to see and avoid those obstacles. This is accomplished by restricting operations to times when the visibility is at least 1 mile, and by lighting the obstacle for night operations. If the obstacle is not lit, then there is no assurance that the pilot will be able to see and avoid the obstacle and therefore, night minimums are not authorized.

During periodic inspection of procedures, sometimes new obstacles are identified which penetrate this 20:1 obstacle identification surface. Because of FAA requirements, the discovery of these apparent obstacles leads to FAA restrictions resulting in loss of airport access. This occurs because of visibility reduction or loss of night instrument operations if the obstacle is not lit. A variety of factors has contributed to this situation, such as inaccurate obstacle data in the FAA database, airport operators not being aware of their responsibilities, and a lack of consistent enforcement of this requirement.

In order to improve the situation in the short term, the FAA is developing a process to address these penetrations, taking into account that some obstacle data is inaccurate and that not all penetrations pose the same level of risk to operations.

The goal is to establish a process in which mitigations are commensurate with risk, that facilitates compliance and establishes clear expectations between FAA and the airport community regarding the need to verify, plan, and implement approved mitigations for obstacle hazards. We believe the Tactical Operations Committee (TOC) could provide valuable feedback to help ensure that our new process meets the above goals is clearly communicated and can be effectively implemented.

In addition to release of the interim policy guidance, the FAA is also collecting data on the flight paths of aircraft in the visual segment and will update the obstacle identification surfaces accordingly. The FAA will also initiate an education campaign to the airport owners and operators to assist them in identifying and mitigating obstacles before they become an issue.

Deliverables:

Product	Description	Due Date
Review and develop recommendations related to the FAA Memorandum, "Mitigation of obstructions within the 20:1 Visual Area Surface"	Provide a report documenting comments on the following areas: <ol style="list-style-type: none"> (1) The sufficiency of time and clarity of expectations in the verification stage. (2) Improving the planning and mitigation stages. (3) Providing clear guidance for what actions must be taken to mitigate risk regarding visibility and night operations The FAA also is requesting recommendations for the best mechanism(s) to communicate the process to key stakeholders.	Final Report January 31, 2014

Scope:

The Task Group will provide recommendations related to the FAA Memorandum, "Mitigation of obstructions within the 20:1 Visual Area Surface" in the following areas:

- Task One – Review and comment on the sufficiency of time and clarity of expectations in the verification stage; improving the planning and mitigation stages; providing clear guidance for what actions must be taken to mitigate risk regarding visibility and night operations and make additional recommendations as needed.
- Task Two – Provide recommendations to the FAA on outreach and education that should be accomplished to communicate the new process to key stakeholders.

Limitation on Scope: Comments are limited to the issues covered in the Memorandum.

Envisioned Use of Deliverables:

The recommendations will inform the FAA plans and policies for the mitigation of obstructions within the 20:1 Visual Area Surface.

Specific Guidance:

The FAA will provide needed subject matter expertise to work this task. To ensure that the TOC considers all relevant issues, the Task Group should, at a minimum, include representatives from airports, aircraft operators (airlines, pilots, and general aviation), and state aviation officials.

Termination:

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



**Approved by the Tactical Operations
Committee November 2013**

VOR MON Prioritization

*Interim Report of VOR MON Selection Criteria in Response to Tasking from
The Federal Aviation Administration*

October 2013

VOR MON Prioritization

Contents

Background/Introduction	3
Executive Summary.....	3
Assumptions.....	4
Guiding Principles	5
Review of FAA Objectives and Criteria	7
Overall Program Objectives	7
General Criteria.....	8
Coverage for Approaches and Landings	9
Enroute Coverage	9
Recommendations	10
Appendix A: Members of the VOR MON Task Group	12
Appendix B: FAA Tasking Letter	13
Appendix C: VOR MON Federal Register Notice.....	18

Background/Introduction

In order to 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), the VOR Minimum Operational Network (VOR MON) Implementation Program was established by the FAA. It 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 Task Group (TG) was tasked by the RTCA Tactical Operations Committee (TOC) in July 2013 to provide recommendations to the FAA on the MON Implementation Program¹ so as to meet the target date of January 1, 2020.

While the work of the Task Group was broken into four parts, this report outlines the completion of Task One, “to review and validate the VOR MON selection criteria and assumptions and make additional recommendations as needed.”

The VOR MON Task Group limited its review of criteria for the decommissioning of domestic, FAA-owned VORs. Prior to the Task Group forming, the FAA developed initial draft VOR MON criteria and published them in the Federal Register for comment in December 2011 and addressed in a subsequent notice in August of 2012². 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. In addition, TACAN and DME are not considered by the VOR MON program.

Finally, the Task Group limited its efforts to establishing and validating criteria only for operators flying IFR.

Executive Summary

The VOR MON Task Group made several high-level assumptions including that overall high equipage rates of GPS is significantly reducing reliance on VORs for navigation in IFR flight and that there are pockets of users that will be slower in transitioning away from reliance of VORs due to cost or operational consideration. As a result, mixed equipage will be a reality during the transition period. Finally, the Task Group assumed that parallel efforts to modify operational procedures will be necessary to fully benefit from the MON Implementation.

During the Task Group deliberations several themes arose as emphasis items or concerns. These items were either addressed or deferred for inclusion in future components of the Tasking.

- Outreach and communications to the various user communities is essential and will be an ongoing effort. This includes the rationale for the MON in general and explanation of mitigations for users most heavily impacted by decommissioning of specific VORs. The TG felt that transparency into the selection process will help ensure a successful MON implementation.
- Defining "adequate" VOR coverage proved to be very difficult. The TG concluded that, in fact, the definition varied considerably by each user community, largely driven by current equipage. For instance, the DoD highlighted that while they have highly accurate GPS installations, many are not

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

² Federal Register notice, August 21, 2012

designed to support IFR navigation, especially during the approach phase. As a result, the TG concluded that a defined transition period should be established that allows a reasonable ability to equip, but that the MON Implementation Plan can't wait for a trigger equipage rate in all user communities prior to initiation of VOR decommissioning.

- The *timing* of the start of VOR decommissioning must balance the need to allow time for user equipage with GPS while also allowing as much benefit accrual as possible from lower operational costs of a smaller VOR network.
- The *process* for implementing navigation and non-navigation mitigations e.g. GPS Instrument Approach Procedures (IAP) and movement of communication services must be standardized throughout the NAS.
- There needs to be a well-defined process for vetting of public input related to specific VORs. This effort need to be transparent and robust but not overly burdensome to the FAA team tasked with executing the VOR MON Implementation Plan. The TG deferred further discussion on this item until Task 4.
- Finally there was considerable discussion about the desirability of lowering the floor of VOR coverage from 5,000' AGL by expansion of the VOR service volumes. The TG felt that this would enhance safety and improve user acceptance.

The Task Group came up with several specific recommendations about implementation of the VOR MON. The FAA should be very standardized in transitioning all navigation and non-navigation services e.g. Standard Terminal Arrival Routes (STARs), Standard Instrument Departures (SIDs), engine-out departure procedures, IAPs, Obstacle Departure Procedures (ODP), communications functions and Geographical Position Descriptions. To help ease the impact of decommissioning select VORs, the FAA should allow local entities to assume ownership and maintenance responsibilities for the VOR. Finally, the Task Group recommends that the service volume of VORs be expanded to 62 NM at 3,000' AGL and 70 NM at 4,000' AGL so as to generally provide coverage at and above 3,000' AGL.

The VOR MON Task Group agreed with the general criteria presented by the FAA in the Tasking that will allow the network of VORs to decrease from 967 to approximately 500. It also agrees that the MON should provide coverage in known areas of frequent GPS jamming, mountainous terrain in the Western US and non-GPS, IFR navigation to any destination within 100 NM of the intended point of landing in the contiguous US.

Assumptions

The VOR MON Task Group made the following assumptions as a basis for its work:

Reliance on VORs

- Reliance on VORs continues to decrease since civil aircraft GPS equipage is replacing the need for VORs.³
- DoD is and will continue to be reliant on VORs for:
 - flight training in specific geographic areas

³ The following GPS equipage rates (but not necessarily WAAS capable) were derived based on an analysis of IFR flight plan data from November 2012 to March 2013: 86% of the air transport fleet; 88% of the General Aviation fleet; and 95% foreign carriers.

- Enroute, terminal, and instrument approach procedures for VOR (non-TACAN) equipped aircraft that are not certified for RNAV operations.
- Flight training continues to use VORs for initial and recurrent training requirements.

Equipage Considerations

- Mixed equipage will continue to be a factor in the transition to a PBN system.
- VORs are required for the use of non-WAAS IFR GPS receivers (such as, TSO-C129).
- VORs are required for use of Part 121/135 dispatch of certain aircraft and in specific circumstances.

Operational and Funding Considerations

- Current operators will have to expect changes in the way they operate in the NAS from VORs in the transition to PBN technology (efficiency, increased reliance on GPS, flight planning changes including fuel minimums, etc.).
- PBN equipped aircraft will not be operating uniformly across the NAS.
- DME/DME IRU aircraft would continue to operate and continue to dispatch in the event of a GPS outage.
- Once the VOR MON is fully implemented, it will provide for basic and less efficient terminal and Enroute operations for VOR-only operators and for GPS-equipped operators in the event of a GPS outage.
- VOR MON is not dependent on air traffic control surveillance technology.⁴
- Funding will be available to maintain the VOR MON until it is operationally removed from service.

Guiding Principles

The Task Group established the following principles to provide the FAA with consensus issues related to the VOR MON:

Need for communications and stakeholder outreach

- Opportunities for participation/input by all stakeholders in the process of determining the future VOR MON is necessary
- It is important that a robust communications initiative be undertaken to explain clearly the changes taking place that affect aircraft operations as a result of the VOR MON (training, charting, flight planning under a VOR MON scenario, etc)

Current VOR services

- Navigation services provided by VORs – terminal/Enroute/Instrument Approach/Missed Approach Procedures, STARS, SIDS, engine inoperative departure procedures, airway structure (High/Low)

⁴ While the ADS-B equipage requirement includes a GPS capability, it is not related to navigation.

- Geographic Position Determination -- references to intersections and waypoints that define SAA, NOTAM, LOA, Sigmet/Airmets, PIREPS, airspace classifications, TFRs
- Non-navigation services provided by VORs are – communications (FSS, HIWAS, ATIS).

Need for evaluation of current VORs for inclusion in the MON

- It is essential a thorough evaluation of the navigation and non-navigation services be made regarding the impacts that a VOR discontinuance would have on the NAS, and to ensure there is a standardized approach undertaken by the FAA similar to that used for nav aid decommissioning (this could include a “checklist”).⁵
- Based on the outcome of the evaluation, an appropriate plan for addressing/mitigating these impacts is developed and implemented prior to shutdown.
- A cost/benefit analysis should be conducted to evaluate the continuation/decommissioning of the VOR and the proposed substitution/mitigation to include costs/inefficiencies incurred by the operator.

VOR MON Basic Capability and End-state definition

- Safety is essential – the VOR MON should meet the target level of safety.
- The VOR MON should provide a backup basic navigational capability for GPS users for navigation and transition to safe landing in the event of GPS outage.
- The VOR MON should provide an adequate navigation capability for VOR users while transitioning to PBN.
- The VOR MON should provide an adequate infrastructure to enable training of civil and military pilots.
- It is important that adequate VOR availability be retained in areas where GPS is intentionally unavailable (jamming).
- As much as possible, international accessibility/utilization should not be adversely affected by the VOR MON.
- Priority shall be given to maintain the availability of the VOR MON and the associated landing facilities (equipment).
- FAA should continue making investments for the utilization of PBN procedures and policies a high priority.

Considerations for transition to the VOR MON

- There is recognition of the need to migrate in a phased approach from conventional VOR ground based navigation to a PBN based system that would provide adequate time for transition to the MON.
- As much as practical, the timing of VOR decommissioning should take into consideration the local users rate of transition to PBN.

⁵ The Task Group has identified the issue of both technical analysis and public notice of VOR decommissioning as an important issue for future consideration by the Task Group.

- As the VOR MON is being implemented, FAA's (ATO/AVS) policies, orders and requirements shall be revised accordingly

Review of FAA Objectives and Criteria

The VOR MON Task Group reached consensus on the following responses and recommendations to the FAA's VOR MON program objectives and criteria.

Overall Program Objectives

The VOR MON Implementation Program works collaboratively to provide management oversight, strategic implementation guidance and tactical implementation guidance

FAA: Focuses on safety and coordination across organizational lines of business

Task Group Response: Implementing the VOR MON will require close coordination between ATO-AVS (AIR/AFS) organizations within the FAA. Close coordination with the user community is also critical.

FAA: Transitions from a legacy network of 967 VORs to a MON of approximately 500 VORs by a target date of January 1, 2020

Task Group Response: The scope of the effort is very significant. The date seems aggressive in consideration of work to be done in rulemaking, policies and procedures. Because this date is aggressive, perhaps an alternative date that is in-line with other related NextGen implementation may be appropriate and should be based on the rate of transition to GPS based equipage. Another consideration, and an example of challenges associated with the date, is the FAA's ability to upgrade existing VORs – recapitalization of VORs.

The starting date of FY2014 is viable, but the ability to modify procedures is crucial to completing the implementation as is the opportunity for public comment on the discontinuance of VORs and procedures. Decommissioning of VORs in areas with a high percentage of PBN capable aircraft could commence in the early years, as the number of PBN procedures in these areas and hence GPS equipage is significant

Budget/funding availability is crucial for full implementation of VOR MON – the timing could be affected by sequestration or other budget considerations.

FAA: This is one of a myriad of complex activities required to shift resources from the legacy NAS into NextGen.

Task Group Response: While implementation of a VOR MON is not necessary to implement PBN – it does provide:

- Cost avoidance measures for the FAA
- Investment of resources to implement PBN

An educated and informed decision process needs to be put in place to validate the proposed list of VORs to be de-commissioned as part of the VOR MON implementation. Currently, for a normal de-commissioning of any NAVAID in the NAS, the FAA uses a standardized set of criteria to evaluate the

cost/benefit of the proposed shutdown. Currently, the de-commissioning of individual NAVAIDs does not take into consideration the VOR MON end state and this may result of decommissioning of NAVAIDs necessary from a whole NAS perspective.

Task Group Recommendation:

1. The following should be considered as criteria for inclusion in the MON:
 - The proximity to areas of routine GPS interference and the necessity to maintain sufficient VOR infrastructure to continue efficient operations when GPS is unavailable in these locations.
 - The necessity of the VOR to enable adequate navigation for non-RNAV capable aircraft.
 - The necessity of the VOR for training.

2. The Task Group recommends the FAA use the process outlined below to evaluate the VORs for de-commissioning as part of the VOR MON.

For each VOR proposed to be de-commissioned the following functions should be dispositioned by the FAA:

- All STARS, SIDS, IAPs (to include Missed Approaches and One Engine Inoperative procedures⁶) that have the targeted VOR as part of the procedure.
- All Obstacle Departure Procedures (ODP) and take off minima that are dependent on the targeted VOR.
- All Holding Patterns, Pref Routes, Fixes, Airways (high/low) and VOR CHKPs dependent on the targeted VOR.
- Non-navigation services provided by the targeted VORs – communications (FSS, HIWAS, ATIS), references to intersections and waypoints that define SAA, NOTAM, LOA, Sigmets/Airmets, PIREPS, airspace classifications, TFRs and intra-/inter-facility letters of agreement and MOUs.
- All AeroNav Chart products that depict the VOR.

For each item identified above, the FAA needs to decide and document, in coordination with the user community (a) no mitigation or replacement is necessary, and the rationale or (b) a mitigation or replacement is needed, a description of the mitigation/replacement and the effective date. Both (a) and (b) will include a cost/benefit analysis to include user costs/impacts. To the maximum extent possible, no VOR shall be decommissioned prior to implementing the mitigation or publishing the replacement procedure.

General Criteria

FAA: Retain VORs outside of CONUS and most VORs in designated mountainous areas

Task Group Recommendation: The Task Group strongly supports retaining the VORs outside of the CONUS and in “western mountainous areas.”

⁶ The FAA should coordinate with operators to determine the effect of VOR disestablishment on specific OEI procedures for specific operators.

FAA: Only FAA owned/operated VORs will be considered

Task Group Recommendation: The VOR MON TASK GROUP recommends the FAA allow a local entity, state or municipality to assume ownership and maintenance of a VOR. As evidenced by coverage gaps filled through the inclusion of current non-federal VORs, NAS users could benefit from the continuation or possible expansion of coverage offered by non-federal VORs.

FAA: 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

Task Group Response: This is supported by the Task Group.

Coverage for Approaches and Landings

FAA: 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

Task Group Recommendation: The Task Group recommends the FAA consider the following perspectives to measure the adequacy of the VOR MON in meeting the needs of the various NAS stakeholders. These include but aren't limited to:

- Supporting mixed equipage such as users with primarily GPS-only systems, mixed GPS and legacy systems, FMS/DME-DME systems and VOR-only systems.
- The capability to navigate by VOR to an alternate airport within 100 NM (great circle) of an IFR airport within the CONUS. NOTE: see appendix for list of anticipated policy and procedural changes to support the transition to the VOR MON.
- The need for specific stakeholders to maintain mission capability in select sub-fleets as they transition to GPS equipage e.g. Army helicopters to fulfill training mission requirements.
- Ensuring there remains an ability to navigate in known GPS "jamming" locations. For instance, the DOD has several known areas throughout the country where routine GPS jamming is conducted.

FAA: Retain VORs to support international arrival airways from the Atlantic, Pacific, the Caribbean, and at the Core 30 airports

Task Group Response: Ensure that the VOR MON provides sufficient coverage to the "Core 30" airports and associated Metroplex.

Enroute Coverage

FAA: Provide coverage at and above 5000ft AGL

Task Group Recommendation: The current proposal envisions the FAA creating a new service volume of 77 NM at 5000' AGL or above. The task group recommends that the service volume be expanded to 70 NM at 4000' AGL and 62 NM at 3000 ft AGL in order to provide additional capability for aircraft that may not be able to climb to 5000' AGL.

The idea of allowing coverage down to 3000/4000 feet allows for aircraft to remain out of icing during inclement weather or to remain clear of overhead traffic (segregate mixed traffic) in the

Metroplex environment where arrivals and departures operate at lower altitudes. The Washington, DC area is an example where overhead stream of traffic into IAD operates between 4000-6000 feet. The coast of Oregon is an example of areas where lower altitudes need to be available to avoid icing. Based on the coverage and preliminary spectrum analysis, lowering the enroute coverage to 3000 feet and out to 62 NM should be a reasonable consideration.

FAA: Support VOR-to-VOR navigation capability (VOR service volume remains the same below 5000ft at 40 NM, under the VOR MON, Enroute becomes 77 NM radius at 5000' ft AGL

Task Group Response: The current proposal envisions the FAA creating a new service volume of 77 NM at 5000' AGL or above. The task group recommends that the service volume be expanded to 70 NM at 4000' AGL and 62 NM at 3000 ft AGL in order to provide additional capability for aircraft that may not be able to climb to 5000' AGL.

Recommendations

The Task Group is in general agreement with the FAA's initial VOR MON plans and makes the following specific additional recommendations.

1. In addition to the general criteria we recommended that these also be considered as criteria for inclusion in the MON:
 - The proximity to areas of GPS interference and the necessity to maintain sufficient VOR infrastructure to continue efficient operations when GPS is unavailable in these locations.
 - The necessity of the VOR to enable adequate navigation for non-RNAV capable aircraft.
 - The necessity of the VOR for training.

2. The Task Group recommends the FAA use the process outlined below to evaluate the VORs for de-commissioning as part of the VOR MON.

For each VOR proposed to be de-commissioned the following functions should be dispositioned by the FAA:

- All STARS, SIDS, IAPs (to include Missed Approaches and One Engine Inoperative procedures⁷) that have the targeted VOR as part of the procedure.
- All Obstacle Departure Procedures (ODP) and take off minima that are dependent on the targeted VOR.
- All Holding Patterns, Pref Routes, Fixes, Airways (high/low) and VOR CHKPs dependent on the targeted VOR.
- Non-navigation services provided by the targeted VORs – communications (FSS, HIWAS, ATIS), references to intersections and waypoints that define SAA, NOTAM, LOA, Sigmet/Airmets, PIREPS, airspace classifications, TFRs and intra-/inter-facility letters of agreement and MOUs.

⁷ The FAA should coordinate with operators to determine the effect of VOR disestablishment on specific OEI procedures for specific operators.

- All AeroNav Chart products that depict the VOR.

For each item identified above, the FAA needs to decide and document, in coordination with the user community (a) no mitigation or replacement is necessary, and the rationale or (b) a mitigation or replacement is needed, a description of the mitigation/replacement and the effective date. Both (a) and (b) will include a cost/benefit analysis to include user costs/impacts. To the maximum extent possible, no VOR shall be decommissioned prior to implementing the mitigation or publishing the replacement procedure.

3. The Task Group supports retaining the VORs outside of the CONUS and in “western mountainous area.”
4. The VOR MON Task Group recommends the FAA allow a local entity, state or municipality to assume ownership and maintenance of a VOR. As evidenced by coverage gaps filled through the inclusion of current non-federal VORs, NAS users could benefit from the continuation or possible expansion of coverage offered by non-federal VORs.
5. The Task Group recommends the FAA consider the following perspectives to measure the adequacy of the VOR MON in meeting the needs of the various NAS stakeholders. These include but aren't limited to:
 - Supporting mixed equipage such as users with primarily GPS-only systems, mixed GPS and legacy systems, FMS/DME-DME systems and VOR-only systems.
 - The capability to navigate by VOR to an alternate airport within 100 NM (great circle) of an IFR airport within the CONUS. NOTE: see appendix for list of anticipated policy and procedural changes to support the transition to the VOR MON.
 - The need for specific stakeholders to maintain mission capability in select sub-fleets as they transition to GPS equipage e.g. Army helicopters to fulfill training mission requirements.
 - Ensuring there remains an ability to navigate in known GPS “jamming” locations. For instance, the DOD has several known areas throughout the country where routine GPS jamming is conducted.
6. The current proposal envisions the FAA creating a new service volume of 77 NM at 5000' AGL or above. The task group recommends that the service volume be expanded to 70 NM at 4000' AGL and 62 NM at 3000' AGL in order to provide additional capability for aircraft that may not be able to climb to 5000' AGL.

Appendix A: Members of the VOR MON Task Group

Members of the VOR MON Task Group

Phillip Basso	DoD Policy Board on Federal Aviation
Mark Boquski	Thales ATM US
Rich Boll	National Business Aviation Association
Andy Cebula	RTCA, Inc.
Dale Courtney	Federal Aviation Administration (SME)
Donald Dillman	Airlines for America (Co-Chair)
Bob Ferguson	NetJets Association of Shared Aircraft Pilots
Jens Hennig	General Aviation Manufacturers Association
Mark Hopkins	Delta Air Lines, Inc.
Bob Lamond	National Business Aviation Association
Deborah Lawrence	Federal Aviation Administration (SME)
David Manville	U.S. Army
Vince Massissimini	The MITRE Corporation
Don McClure	Air Line Pilots Association
Rick Niles	The MITRE Corporation
Paul Railsback	Airlines for America
Matthew Ross	Real NewEnergy
Edwin Solley	Southwest Airlines
Stephen Sorkness	SkyWest Airlines
Greg Tennille	The MITRE Corporation
Robert Utley	National Air Traffic Controllers Association
David Vogt	Delta Air Lines, Inc.
Heidi Williams	Aircraft Owners and Pilots Association (Co-Chair)

Appendix B: FAA Tasking Letter



U.S. Department
of Transportation

**Federal Aviation
Administration**

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

JUL 10 2013

Ms. Margaret T. Jenny
President
RTCA, Inc.
1150 15th Street, NW
Suite 910
Washington, DC 20036

Dear Ms. Jenny:

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 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) into 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, the 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 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 location within the Continental United States (CONUS). Efforts are ongoing to identify Alternative

Position, Navigation, and Timing solutions that will provide a full-scale backup system to GPS and are separate from the VOR MON effort. The FAA developed the 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 the draft candidate list, the VOR MON Program Office worked with the Service Areas and various FAA Headquarters organizations and identified some preliminary implementation issues. We 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 we are requesting the assistance of the Tactical Operations Committee (TOC), to provide recommendations in three key 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 the 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. More detail on each task follows.

Task 1: Review and validate the VOR MON selection criteria and assumptions

We plan to transition from VOR defined route structures as the primary means of navigation to PBN using Area Navigation (RNAV) and Required Navigation Performance (RNP) by January 1, 2020. Since VORs do not enable advanced RNAV, RNP, or ADS-B operations, FAA will reduce operating costs by reducing the number of FAA-provided VORs and associated conventional procedures and routes. Reductions in VORs will be limited to the CONUS. Most VORs in the western mountains and all FAA- owned VORs outside CONUS will be retained. Remaining VORs will form the VOR MON and will accomplish the following:

- Provide navigation coverage above 5000 feet above ground level.
- Allow an aircraft in the CONUS to fly safely VOR to VOR or to a safe landing site with a GPS-independent approach within 100 nm of any location in CONUS.
- Support international arrival routes and operations at the Core 30 airports.
- Support Hazardous In-Flight Weather Advisory and Flight Service Station voice services.

We request the TOC:

- Review and validate the basic program assumptions made to date concerning the selection criteria. We 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.
- If amendments are recommended, please provide specific details with the recommendations to include the range of options and/or alternatives discussed.

We request this tasking be complete by January 2014 with an interim report in October 2013.

Task 2: Review and validate the draft candidate VOR MON list

Based on the criteria noted above, we have developed a preliminary candidate list for the VOR MON. Those VORs not on the list would be slated for discontinuance. FAA Service Areas have reviewed the lists and commented based on the criteria above. We request the TOC:

- 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.
- Advise the 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.

We request this tasking be complete by April 2014 with an interim report in January 2014.

Task 3: Review implementation planning to date and make recommendations to the preliminary waterfall schedule developed by the FAA

We have identified the need to develop a waterfall schedule taking into account instrument procedures cancellation activities, Optimization of Airspace and Procedures in the Metropolises, and the development of high altitude (Q) and low altitude (T) area navigation routes. Clearly the effort has to be carefully coordinated with other activities which result in the development and charting of instrument flight procedures and routes in the NAS. Each VOR not on the candidate MON will likely have numerous conventional procedures or routes associated with the VOR. These procedures and routes will either need to be replaced or canceled. The order or timing of VOR cancellations must not reduce safety in the NAS. For example, Victor 3 extends from Maine to Florida and has 14 VORs identified for discontinuance/decommissioning. Should we implement based on an entire route like this?

Should we transition the entire route to a PBN based route structure first and retain end to end flight planning capability and minimize automation issues? We request the TOC:

- 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. We will provide the TOC with a draft copy of the PBN Route Strategy.
- 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.
- Provide high level industry perspective on the feasibility and actions needed to completely retire the legacy route structure after 2020.

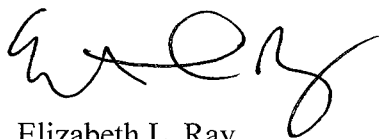
We request this tasking be complete by July 2014 with an interim report in April 2014.

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

- Advise the 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.
- Advise the FAA on an outreach strategy to include modes of outreach, timelines, etc. and provide recommendations on how the industry can assist the FAA in outreach efforts.

We request this tasking be complete by July 2014 with an interim report in April 2014.

Sincerely,



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

Appendix C: VOR MON Federal Register Notice

This proposal will be subject to an environmental analysis in accordance with FAA Order 1050.1E, "Environmental Impacts: Policies and Procedures" prior to any FAA final regulatory action.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me, the Federal Aviation Administration proposes to amend 14 CFR Part 71 as follows:

PART 71—DESIGNATION OF CLASS A, B, C, D AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

1. The authority citation for 14 CFR Part 71 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

§ 71.1 [Amended]

2. The incorporation by reference in 14 CFR 71.1 of the Federal Aviation Administration Order 7400.9V, Airspace Designations and Reporting Points, dated August 9, 2011, and effective September 15, 2011 is amended as follows:

Paragraph 6002 Class E Airspace Designated as Surface Areas.

* * * * *

ANM WA E2 Pullman, WA [Modified]

Pullman/Moscow Regional Airport, WA
(Lat. 46°44'38" N., long. 117°06'35" W.)

Within a 4-mile radius of Pullman/Moscow Regional Airport, and within 1.7 miles each side of the Pullman/Moscow Regional Airport 046° bearing extending from the 4-mile radius to 8 miles northeast of the airport, and within 1.7 miles each side of the Pullman/Moscow Regional Airport 227° bearing extending from the 4-mile radius to 6 miles southwest of the airport. This Class E airspace area is effective during the specific dates and times established in advance by a Notice to Airmen. The effective date and time will thereafter be continuously published in the Airport/Facility Directory.

Paragraph 6005 Class E Airspace Areas Extending Upward From 700 Feet or More Above the Surface of the Earth.

* * * * *

ANM WA E5 Pullman, WA [Modified]

Pullman/Moscow Regional Airport, WA
(Lat. 46°44'38" N., long. 117°06'35" W.)

That airspace extending upward from 700 feet above the surface within a 10-mile radius of the Pullman/Moscow Regional Airport, and within 1.7 miles each side of the Pullman/Moscow Regional Airport 229° bearing extending from the 10-mile radius to

13 miles southwest of the airport, and that airspace bounded by a line beginning at the intersection of the 10-mile radius of the airport and the Pullman/Moscow Regional Airport 307° bearing to the intersection of the 23-mile radius of the airport and the Pullman/Moscow Regional Airport 328° bearing extending clockwise within a 23-mile radius of the Pullman/Moscow Regional Airport; thence to the intersection of the 23-mile radius of the airport and the Pullman/Moscow Regional Airport 064° bearing of the airport to the intersection of the 10-mile radius of the airport and the Pullman/Moscow Regional Airport 066° bearing of the airport; thence to the point of origin. That airspace extending upward from 1,200 feet above the surface bounded by a line beginning at lat. 46°46'00" N., long. 117°51'00" W.; to lat. 47°06'00" N., long. 117°29'00" W.; to lat. 47°10'00" N., long. 117°13'00" W.; to lat. 47°07'00" N., long. 116°50'00" W.; to lat. 46°57'00" N., long. 116°28'00" W.; to lat. 46°38'00" N., long. 116°41'00" W.; to lat. 46°31'00" N., long. 116°23'00" W.; to lat. 46°12'00" N., long. 116°25'00" W.; to lat. 46°19'00" N., long. 116°57'00" W.; to lat. 46°24'00" N., long. 117°30'00" W.; thence to the point of origin.

Issued in Seattle, Washington, on August 14, 2012.

John Warner,

Manager, Operations Support Group, Western Service Center.

[FR Doc. 2012–20543 Filed 8–20–12; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 91, 97, 121, 125, 129, and 135

[Docket No. FAA–2011–1082]

Proposed Provision of Navigation Services for the Next Generation Air Transportation System (NextGen) Transition to Performance-Based Navigation (PBN); Disposition of Comments

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed policy; disposition of comments.

SUMMARY: On December 15, 2011, the FAA published a **Federal Register** Notice (76 FR 77939) requesting comments on the FAA's plans for providing PBN services, and particularly the transition from the current Very High Frequency Omnidirectional Ranges (VOR) and other legacy navigation aids (NAVAIDS) to Area Navigation (RNAV)-based airspace and procedures. This action responds to the public comments the FAA received.

ADDRESSES: You may review the public docket for this notice (Docket No. FAA–2011–1082) at the Docket Management Facility at DOT Headquarters in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC 20590–0001 between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. You may also review the public docket on the Internet at <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: Mr. Greg Joyner, AJM–324, Program Management Organization, Navigation Program Engineering, Federal Aviation Administration, 800 Independence Avenue SW., Washington DC 20591; telephone 202–493–5721.

SUPPLEMENTARY INFORMATION:

Summary of the December 15, 2011 FRN

The FAA sought comments on the proposed transition of the U.S. National Airspace System (NAS) navigation infrastructure to enable PBN as part of the NextGen. The FAA plans to transition from defining airways, routes and procedures using VOR and other legacy NAVAIDS, to a NAS based on RNAV everywhere and Required Navigation Performance (RNP) where beneficial. RNAV and RNP capabilities will primarily be enabled by the Global Positioning System (GPS) and the Wide Area Augmentation System (WAAS). The FAA plans to retain an optimized network of Distance Measuring Equipment (DME) facilities and a Minimum Operational Network (MON) of VOR facilities to ensure safety and support continued operations in high and low altitude en route airspace over the Conterminous United States (CONUS) and in terminal airspace at the Core 30 airports. The FAA is also conducting research on non-GPS based Alternate Positioning, Navigation and Timing (APNT) solutions that would enable further reduction of VORs below that of the MON.

In addition, the FAA plans to satisfy any new requirements for Category I (CAT I) instrument landing operations with WAAS Localizer Performance with Vertical guidance (LPV) procedures. A network of existing Instrument Landing Systems (ILSs) will be sustained to provide alternative approach and landing capabilities to support continued recovery and dispatch of aircraft during GPS outages.

This transition is consistent with the FAA's NextGen Implementation Plan (NGIP), NAS Enterprise Architecture (NASEA), and other documentation. More information is available on the

FAA's NextGen Web site at <http://www.faa.gov/nextgen> and the NASEA Web site at <https://nasea.faa.gov>.

Discussion of Comments Received

Summary

The FAA received 330 comments on the FRN. Commenters include aircraft manufacturers, airline operators, individuals, and associations representing users, airports and several federal, state and local government organizations. Most comments were supportive of the evolution of the NAS to an RNAV based system, but a significant number of commenters were concerned about reliance on GPS and WAAS related to possible impacts of interference or disruption, as well as the requirements and costs of avionics. A number of commenters were concerned about loss of approach services at specific airports in the event of discontinuation of service from specific VOR facilities. A substantial number of the comments (185) received were from individuals concerned about noise and environmental impact in the New York metropolitan area. Some reflected concerns about aircraft emissions and flight paths used by helicopters. These comments have been forwarded to the FAA Eastern Region for action.

Discussion

The FAA has reviewed all the comments received in response to the FRN and plans to proceed with the strategy as outlined in the FRN. The FAA is developing an initial VOR MON Plan, which will be publicly available when it is sufficiently matured. Development of this Plan will harmonize with development of a national Concept of Operations (CONOPS) supporting navigation and positioning in the NAS as it evolves from conventional navigation to PBN. When completed, this CONOPS will also be publicly available.

As part of the coordination process, the FAA plans to develop a schedule showing the requisite activities associated with the discontinuance of VOR services. These activities will include timely notification for individual facilities and airspace and procedure redesign.

Comment #1: Several commenters (International Air Traffic Association (IATA), Boeing Commercial Airplanes, National Association of State Aviation Officials (NASAO), Aircraft Owners and Pilots Association (AOPA), Department of Defense (DoD), and Airlines For America (A4A)) expressed interest in being included in the working group that the FRN indicated would be formed

to complete the details of VOR discontinuance. Some airlines commented that they would like to be consulted on the policy.

FAA Response: The FAA will convene a working group that will engage aviation industry stakeholders and other members of the public for input once the Program has reached a sufficient level of maturity conducive to working group.

Comment #2: NASAO commented that planning the transition to NextGen PBN well in advance would be beneficial to the FAA and the state government aviation agencies.

FAA Response: The FAA's VOR MON plan is proceeding to support transition to NextGen PBN in accordance with the NASEA. The NGIP, FRN and NASEA, all publicly available via FAA Web sites, are integral to the transition of the NAS to PBN operations.

Comment #3: The Nebraska Department of Aviation (DoA) recommended that VORs remain available as a viable means for air navigation while the services to support NextGen PBN be provided for users that can obtain benefits from them during a transition.

FAA Response: The VOR MON will remain in place during the PBN transition.

Comment #4: Nebraska state-owned VORs, similar to the FAA inventory of Second Generation VORs, are maintained by the State, who reports there have been no problems with support cost or availability of parts.

FAA Response: VOR facilities not owned or operated by the FAA are not being considered for discontinuance.

Comment #5: Operators that fly outside the United States desired clarification on the GNSS reference to be used.

FAA Response: The FRN used the terms GPS and WAAS, the specific U.S. implementations of the GNSS and Space Based Augmentation System (SBAS) described in ICAO Annex 10. Other countries have, or are building systems that implement these standards, such as Europe's GNSS (Galileo) and SBAS (European Geostationary Navigation Overlay Service (EGNOS)). Since the U.S. does not make regulatory determinations on navigation systems allowed in other countries, the U.S. cannot authorize use of GPS in other countries. The FAA is responsible for determining which services are adequate for operations in the U.S. NAS, and has, to date, only approved the use of the U.S. GPS and WAAS, and Russia's Globalnaya Navigatsionnaya Sputnikovaya Sistema (GLONASS) on a supplemental basis. The U.S. is working

with other GNSS providers to assure that their signals may be used to improve performance in the U.S. when those signals become available. Plans for navigation services will continue to use specific references (e.g., GPS and WAAS) and policies will be updated as additional constellations are approved for use in the U.S. The ability of avionics to use different GNSS constellations and services depends both on the authorized equipment available for specific aircraft and the type of systems the operators decided with which to equip their aircrafts. It also depends on what avionics manufacturers decide to develop. FAA's plans for navigation services will continue to use the "GPS" and "WAAS" terms so that it is clear that the U.S. is referring to U.S. systems/services for the U.S. NAS. Text describing this reasoning will be included in future documents to help ensure clarity.

Comment #6: Some users stated that they either will not equip with GPS avionics or will not be flying in airspace that requires ADS-B. The Nebraska DoA stated that many pilots and users do not plan to equip aircraft with GPS and that instructors will still require students to learn VOR navigation.

FAA Response: Pilots may continue to use VORs that remain in the MON or fly under Visual Flight Rules (VFR) in non-ADS-B airspace. Instructors will still teach VOR navigation.

Comment #7: Operators and some aircraft and equipment manufacturers stated that they did not intend to equip with WAAS because (1) WAAS service is not provided in many parts of the world outside the United States, and (2) many air carrier aircraft are equipped with avionics that allow at least RNAV, if not some level of RNP, and they do not believe WAAS provides benefits commensurate with the added complexity and cost involved with equipage.

FAA Response: WAAS avionics (Technical Standard Order (TSO)-C145/146) with suitable other avionics, such as Flight Management Systems (FMS) support LPV and Lateral Navigation/Vertical Navigation (LNAV/VNAV) terminal procedures and lower minima instrument approaches that are not available to users equipped with non-augmented GPS (TSO-C129 and C196) avionics. Pilots may continue to use non-augmented GPS or other RNAV capabilities as described in FAA advisory circulars AC 90-100, AC 90-101, AC 90-105, AC 90-107 and other directives.

Comment #8: Federal Express stated that the FRN described implementation of PBN based on GPS and WAAS

backed up by a minimum network of VORs and DMEs, which it stated would require equipage of aircraft with avionics that is not offered by major airline airframe manufacturers.

FAA Response: While the FAA intends to reduce the VOR infrastructure to a MON, it will maintain an optimized DME network to support RNAV operations throughout the NAS. In the NextGen timeframe, an optimized DME network could be used to support APNT.

Comment #9: The DoD was concerned about discontinuation of service from all types of ground based navigation aids. The concept and planning described in the FRN does not contemplate discontinuation of service from all ground based navigation aids. It describes the considerations for determining the discontinuation of service by VOR ground based navigation aids. Where the VOR functionality is collocated with DME or DME and UHF azimuth equipment (which is the Tactical Air Navigation or TACAN), the FRN only addresses the VOR service and not these other services.

FAA Response: The MON described in the FRN is a network of VORs only, and does not include TACAN. Retention of DMEs and the DME function provided via TACAN is desirable because of the large proportion of the air carrier fleet that uses DME/DME or DME/DME/Inertial Reference Unit (IRU) for RNAV. Any national discontinuation of DME or TACAN service is separate from the VOR MON, not a part of this activity, and not contemplated in the near future.

Comment #10: Some organizations (IATA, United Air Lines, FedEx, Honeywell, Thales, and A4A) expressed concern about the future of ILSs and other vertically guided approaches, in particular at 14 CFR Part 139 airports serving air carriers.

FAA Response: The FAA has no current plans to remove ILSs, but most new vertically guided approach requirements using Facilities and Equipment funding will be fulfilled with LPV approaches. ILS can continue to be approved under Airport Improvement Program (AIP) funding. While LPVs will receive increasing emphasis for projects funded under the AIP, the needs of users for ILS equipment will be considered in the determination of the types of approach navigation installed under the AIP. It is envisioned that many air carrier runways at major airports will continue to be supported by ILS (in addition to LPV). Additionally, the FAA plans to 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. RNP approaches will be developed where beneficial, and GLS approaches will be developed as appropriate at airports with access to GBAS equipment.

APNT

The FAA's NextGen Alternate PNT (APNT) program ensures that alternate PNT services will be available to support flight operations, maintain safety, minimize economic impacts from GPS outages within the NAS and support air transportation's timing needs. APNT will be an alternative for all users. Avionics equipage is a major consideration. APNT requirements will be met with the optimum use of existing avionics. The current plan is for APNT equipage to be optional.

Comment #11: The airline industry voiced support for an increase in DME to provide additional coverage for DME-DME navigation provided by modern Flight Management Systems (FMS).

FAA Response: The FAA concurs. Current planning is for implementation of the new DME sites beginning in 2014. The FAA goal is to have complete DME-DME coverage enroute at FL 180 and above throughout CONUS and in the terminal area of large airports in the CONUS.

Comment #12: The airline industry was concerned about a statement in the FRN that seemed to indicate that WAAS was required for ADS-B.

FAA Response: WAAS is not required for ADS-B. Other methods of meeting the performance requirements are being investigated. ADS-B implementation in international operations will require use of regionally or globally available services.

Comment #13: IATA stated implementation of any new technology should be driven by coordinated operational requirements of stakeholders. The International Civil Aviation Organization PBN Manual (Document 9613) was cited by IATA in describing the steps that must be followed in implementing PBN, and states the FAA may not have followed the described process. IATA then related the plan described in the FRN to the ADS-B Out regulations at 14 CFR 91.225 and 91.227 and the implied SBAS mandate and provides comments on the implementation and the requirements that it states are very different from European requirements to obtain the same performance with simpler equipage. IATA states they do not support use of any SBAS systems such as WAAS and desires to be

consulted on revision of the VOR MON and alternate positioning, navigation and timing and systems, such as eLORAN, Galileo and others. IATA does not support the use of LPV approaches as a universal solution and requires an adequate number of precision approaches be maintained to provide capacity without GNSS. IATA states GBAS and Baro VNAV approaches should be published to complement LPV approaches at airports used by international carriers. IATA does not want PBN levels to be specified that require augmentation unless they are operationally required.

FAA Response: FAA will engage stakeholders via the working group in implementing the MON. PBN transition strategy is currently being developed within the FAA. The FAA will not mandate WAAS. PBN can be achieved by multiple means, such as DME/DME and ILS. GBAS is currently in the Research & Development phase.

Comment #14: Boeing Commercial Airplanes was concerned about the interpretation text for the operational requirements for two independent systems (reference 14 CFR 121.349, 125.203, 129.17 and 135.165). Specifically, they questioned the statement that the requirements for a second navigation system apply to the entire set of equipment needed to achieve the navigation capability, not just the individual components. They are concerned that this statement could be interpreted as requiring dual independent navigation computers. Additionally, they state that existing, certified multi-sensor navigation systems under AC 20-130A can meet the proposed policy requirements.

FAA Response: The text does not imply the need for dual independent navigation computers. The text instead emphasizes the need for independence of the navigation systems and their components to ensure that there will be no potential single point of failure or event that could cause the loss of the ability to navigate along the intended route or proceed safely to a suitable diversion airport. The interpretation of this requirement as applied to an aircraft approved for multi-sensor navigation and equipped with a single FMS is that the aircraft must maintain an ability to navigate or proceed safely in the event that any one component of the navigation system fails, including the FMS. Retaining an FMS-independent VOR capability would satisfy the requirement, even as the NAS is transitioned to the MON. This interpretation corresponds to the advisory wording in AC 20-130A.

Comment #15: The Maryland Aviation Administration (MAA) expressed concern about current GPS equipage rates.

FAA Response: Though approximately 19 percent of all general aviation aircraft are equipped with aviation-qualified GPS, most aircraft that actually file IFR flight plans are typically equipped with GPS. Specifically, more than 72% of aircraft that filed at least two IFR flight plans in 2011 filed with an equipment code indicating they had IFR GPS receivers on board. Of aircraft that filed more than 100 IFR flight plans in a year the rate was above 97%. While it may be the case that a significant number of aircraft flying VFR are not equipped with GPS, the purpose of the VOR system is to provide navigation for aircraft flying IFR, not VFR. VFR traffic is permitted to use hand-held and non-IFR certified GPS equipment for situational awareness as an aid to navigation and often use pilotage and dead reckoning navigation. While the VORs retained in the MON will support VFR aircraft operations, their purpose is clearly to support those aircraft operating under IFR.

Comment #16: Two commenters (the Nebraska DoA and Thales) were concerned over the impact that a reduction in VORs would have on training and training requirements.

FAA Response: The current training standards for the FAA emphasize VORs as the primary navigation source. The transition to NextGen will require that the FAA shift emphasis from VOR navigation to satellite-based navigation by changing training syllabi and the PTS. However, some emphasis will need to remain on VOR and ILS to ensure that pilots can navigate using these systems in the event of a GPS outage. These considerations will be included in the FAA's plan for discontinuance of VORs. Additionally, transfer of FAA-owned VORs not selected to be in the MON to operation under non-Federal ownership for training may be considered on a case-by-case basis.

Comment #17: The Nebraska DoA and Thales were also concerned with airport infrastructure requirements resulting from development of RNAV or RNP approaches.

FAA Response: FAA airport infrastructure requirements resulting from instrument approaches are published in FAA Advisory Circular 150/5300-13. Because airport infrastructure upgrades may be required for the attainment of lowest instrument approach minima, collaboration with local and state officials will be

accomplished during the approach development process. For example, development of an LPV approach could not be accomplished if the required runway length were not available. However, if a decision was made in collaboration with local and state officials, to extend the runway, then an LPV could be reconsidered.

Comment #18: United Air Lines and GE Aviation expressed concern on the use of GPS approach capability by air carriers at alternate airports.

FAA Response: Current FAA policy allows operators of aircraft equipped with WAAS to plan for RNAV (GPS) approaches to the LNAV line of minima at their alternate. Furthermore, the FAA is currently investigating what requirements will be necessary to allow un-augmented GPS (TSO-C129/-C129a, TSO-C196/-C196a) equipped aircraft to plan for RNAV (GPS) or RNAV (RNP) approaches at alternate airports.

Comment #19: Several commenters expressed concern that the navigation transition strategy as outlined in the FRN is indirectly requiring certain types of equipage, specifically GPS or WAAS equipage.

FAA Response: The FAA is committed to the use of performance-based operations in the NAS. They remain the optimal way to both enable technological advances while maintaining safety, efficiency and consistency. Therefore, it is not the intention of the FAA to limit operational approvals to specific technologies or to force retrofit navigation solutions on current operators with legacy equipment. VOR navigation will continue to be a viable option for airspace users for the near future. Once the FAA completes implementation of the VOR MON, VOR navigation will still serve the NAS, albeit in a less robust fashion than today. Early publication of transition considerations and planning will allow users to consider long-term equipage strategies for their aircraft. Operators are encouraged to continue to seek approvals for the use of navigation equipment that was emphasized in the FRN, e.g. DME/DME/IRU, GPS, and WAAS. The FAA will continue to work with industry to advance new technologies not yet matured, e.g., GBAS and APNT. Additionally, the FAA will continue to work with our international partners on global strategies for multi-constellation/multi-frequency GNSS solutions.

Comment #20: AOPA and the National Business Aviation Association (NBAA) both expressed support for direct routing and avoiding excessive

implementation of additional T and Q routes.

FAA Response: In the NextGen environment, T and Q routes increase capacity and efficiency while maintaining safety by minimizing impact to air traffic control. T and Q routes allow controllers to safely manage air traffic during peak periods and to ensure predictable transitions between busy traffic areas. T and Q routes overlaid on existing airways defined by VORs could mitigate potential impacts to the discontinuance of VOR navigation services.

Comment #21: Comments from military and general aviation expressed interest in participating in VOR discontinuation planning.

FAA Response: As stated in the FRN, "The FAA will convene a working group that will develop a candidate list of VORs for discontinuance using relevant operational, safety, cost and economic criteria. As part of the process, this working group will engage aviation industry stakeholders and other members of the public for input." Detailed planning for the implementation of the MON is still under development. As the program planning process is further developed, the FAA will solicit input from government and industry stakeholders before the VORs selected for the MON are finalized.

Comment #22: Several commenters (MAA, Boeing Commercial Airplanes, United Air Lines, AOPA, Thales and DoD) indicated that an overall plan is necessary and requested more detail on the MON. MAA commented that without a national plan for discontinuation, the removal of specific VORs from service might be premature. They believed that several VORs in Maryland are currently planned for discontinuance and they suggested that the discontinuation of specific facilities should be considered on both a regional and national level using analysis to identify costs and benefits in a more holistic manner to make the consideration of facilities objective and consistent.

FAA Response: The FAA has not developed a final list of VORs that will be included in the MON. The FAA is developing objective criteria, which will be applied consistently both nationally and regionally to help identify those VOR facilities that will remain operational. A specific overall national CONOPS and discontinuance plan are being developed to support this effort. The draft CONOPS and draft discontinuance plan will be presented to stakeholders, and the FAA will

engage stakeholders in the discontinuance process.

Comment #23: Military and airline industry commenters expressed concern with the FAA plan to establish the VOR MON by January 1, 2020.

FAA Response: This date coincides with the January 1, 2020 mandate for ADS-B equipage. Once aircraft are equipped with ADS-B, it is assumed that they will be equipped with GPS as well, since currently GPS is the only known position source that can satisfy the NIC/NAC/SIL requirements of ADS-B. At that time, the VOR MON will serve as the required GPS backup for non DME-DME equipped aircraft in the event of a GPS outage. By January 1, 2020, the VOR MON will provide sufficient VOR coverage to enable aircraft to fly VOR-to-VOR either through the GPS outage or to a safe landing.

Comment #24: A number of operators, service providers and equipment manufacturers were concerned about the level of reliance on GPS expressed in the FRN in light of possible interference with the GPS service. Interference on a regular basis from government testing and training was specifically identified, as was possible widespread interference from licensed operators as well as unintentional interference from a variety of human and natural sources. There remains a concern among users that GPS is susceptible to interference and VORs should remain as a cost effective reliable means of navigation.

FAA Response: U.S. National policy recognizes the vulnerability of GPS signals, from both human and natural sources, and requires operations reliant on GPS position, navigation, and timing (PNT) for safety, security, or significant economic benefit to have sufficient backups in place. The FAA has operated and will continue to operate GPS-independent systems to fulfill this requirement, such as ILS, DME, and VOR. As the NAS transitions to NextGen, there is also a requirement to move from conventional facility based navigation to point-to-point navigation using PBN, a role that the airways supported by VORs cannot support. The FAA will continue to operate a subset of the current VOR facilities in a MON to support those aircraft not equipped with GPS-independent RNAV capability, while developing an RNAV-capable APNT system to fulfill this role in the future. DoD Interference with GPS: The FAA recognizes the need for DoD elements as part of their mission to operate and conduct training in a GPS-denied environment. Both the FAA and DoD are committed to working together

to ensure that the DoD mission will not impact the FAA's mission to operate a safe and efficient NAS. DoD GPS interference testing is fully coordinated with the FAA and prior to testing, the FAA issues a Notice to Airmen (NOTAM) that describes the potential extent of interference and the timeframe in which it might occur. During testing the FAA maintains direct communications with DoD at all times and can have tests suspended in the event of any impact to NAS operations. Today, aircraft with non-GPS RNAV avionics are not impacted by this interference, and in the future, all APNT-equipped aircraft will similarly be unaffected.

Comment #25: Comments were received relative to several specific VORs with reasons for their specific retention. In the case of the Wichita, KS VOR (ICT), it was stated that the facility is needed for testing and airworthiness demonstration of new manufactured aircraft by a number of companies in the area.

FAA Response: While a VOR signal is necessary for this activity, it is not necessary that the service be provided by a FAA owned VOR, whose purpose under the MON will be to ensure safe operations in the event of a GPS outage. A non-Federal VOR, owned by an airport authority, state instrumentality or private entity could also perform this function. In cases where individuals/organizations have an interest in maintaining a specific VOR service, the VOR could be transferred to and operated under agreement with the FAA as a non-federal facility.

Comment #26: Thales expressed a concern over how the VOR MON will support non-GPS aircraft and GPS aircraft during GPS interference if a key MON VOR is down for maintenance.

FAA Response: In determining the VORs that will make up the MON, consideration will be given to the availability and continuity of navigation service expected from each facility. The VOR MON's purpose, a non-PBN backup in the event of a GPS outage, will be considered in making this determination. An element of this consideration will be the availability of non-GPS dependent surveillance services that would allow air traffic to provide services in the event of both a GPS and individual VOR service outage. Additionally, the equipage rate of IFR traffic with IFR GPS is significant and expected to be near 100% as we approach the year 2020 ADS-B mandate. While possible to fly IFR using the VOR MON, the increased distance of the VOR-only route as compared to using RNAV navigation will likely be

highly undesirable. This will further drive GPS equipage.

Comment #27: The DoD stated concern on the cost of transition versus benefits for their fleet of aircraft.

FAA Response: The NAS' transition to NextGen is a national priority, in which the FAA plays an important role in concert with other Federal agencies and the aviation community. The transition to PBN as enabling capability for NextGen is a key part of the NGIP. Additionally, the considerations of the military in transitioning a 14,600 aircraft fleet and operating practices to RNAV/RNP stated in comments to the public docket appear to include the notion that TACAN services from VORTAC facilities will be terminated when VOR service is discontinued. This is not the case. The military also desires the FAA to retain VOR and TACAN service for specific enroute and terminal locations and procedures as the military aircraft fleet equipage and operating procedures evolve.

The FAA notes that there is historic precedent for the transition to a single national system—specifically the establishment of VORs and associated airways, DME, and ILS in the 1950s. At that time the military did not want to equip with VOR or ILS in tactical aircraft due to weight and space constraints, stating that Non-Directional Beacons (NDB) and four course ranges for enroute navigation and ground controlled approach (GCA) for landing was sufficient pending implementation of TACAN. The military also wanted to evolve to use TACAN because of weight/size and operational advantages over VOR and to include their implementation of DME, rather than the civil DME standard. The civil community, particularly airlines, wanted VOR for improved accuracy and usability over four course ranges and NDBs with ILS for approaches. In the end the NDBs and four course ranges were retained until military aircraft and operating practices transitioned to TACAN, the military DME standard was adopted for all DMEs and ILS was standardized for approaches, though the military continued GCA approaches, particularly for tactical aircraft.

The transition to RNAV/RNP may be undertaken economically for military aviation by retaining TACAN as a system, discontinuing only specific facilities on an individual basis; incorporating military use considerations for identifying VOR service for discontinuation in enroute and terminal environments; designating special use airspace and other military usage features with RNAV references as well as TACAN or VOR rho/theta and

distance references; and retaining ILS at current sites with installation of new ILSs by military where needed in lieu of LP and LPV.

* * * * *

Issued in Washington, DC, on August 14, 2012.

Lansine Toure,

Acting Manager, Navigation Programs.

[FR Doc. 2012-20464 Filed 8-20-12; 8:45 am]

BILLING CODE 4910-13-P

COMMODITY FUTURES TRADING COMMISSION

17 CFR Part 39

RIN 3038-AD47

Clearing Exemption for Swaps Between Certain Affiliated Entities

AGENCY: Commodity Futures Trading Commission.

ACTION: Proposed rule.

SUMMARY: The Commodity Futures Trading Commission (“CFTC” or “Commission”) is proposing a rule to exempt swaps between certain affiliated entities within a corporate group from the clearing requirement (the “inter-affiliate clearing exemption” or the “proposed exemption”) under Section 2(h)(1)(A) of the Commodity Exchange Act (“CEA”). The Commission also is proposing rules that detail specific conditions counterparties must satisfy to elect the proposed inter-affiliate clearing exemption, as well as reporting requirements for affiliated entities that avail themselves of the proposed exemption. The Commission has finalized a rule that addresses swaps that are subject to the end-user exception. Counterparties to inter-affiliate swaps that qualify for the end-user exception would be able to elect to not clear swaps pursuant to the end-user exception or the proposed rule. The proposed rule does not address swaps that an affiliate enters into with a third party that are related to inter-affiliate swaps that are subject to the end-user exception. The Commission intends separately to propose a rule addressing swaps between an affiliate and a third party where the swaps are used to hedge or mitigate commercial risk arising from inter-affiliate swaps for which the end-user exception has been elected.

DATES: Comments must be received on or before September 20, 2012.

ADDRESSES: You may submit comments, identified by RIN number 3038-AD47, by any of the following methods:

• *The agency’s Web site, at: <http://comments.cftc.gov>. Follow the*

instructions for submitting comments through the Web site.

• *Mail:* David A. Stawick, Secretary of the Commission, Commodity Futures Trading Commission, Three Lafayette Centre, 1155 21st Street NW., Washington, DC 20581.

• *Hand Delivery/Courier:* Same as mail above.

• *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

Please submit your comments using only one method.

All comments must be submitted in English, or if not, accompanied by an English translation. “Inter-affiliate Clearing Exemption” must be in the subject field of responses submitted via email, and clearly indicated on written submissions. Comments will be posted as received to <http://www.cftc.gov>. You should submit only information that you wish to make available publicly. If you wish the Commission to consider information that is exempt from disclosure under the Freedom of Information Act, a petition for confidential treatment of the exempt information may be submitted according to the established procedures in CFTC regulation 145.9.¹

Throughout this proposed rulemaking, the Commission requests comment in response to specific questions. For convenience, the Commission has numbered each of these comment requests. The Commission asks that, in submitting responses to these requests, commenters identify the specific number of each request to which their comments are responsive.

The Commission reserves the right, but shall have no obligation, to review, pre-screen, filter, redact, refuse, or remove any or all of a submission from www.cftc.gov that it may deem to be inappropriate for publication, such as obscene language. All submissions that have been redacted or removed that contain comments on the merits of the rulemaking will be retained in the public comment file and will be considered as required under the Administrative Procedure Act and other applicable laws, and may be accessible under the Freedom of Information Act.

FOR FURTHER INFORMATION CONTACT:

Gloria Clement, Assistant General Counsel, (202) 418-5122, gclement@cftc.gov, Office of General Counsel; Jonathan Lave, Associate Director, Exchange & Data Repository, (202) 418-5983, jlave@cftc.gov, and

Alexis Hall-Bugg, Attorney-Advisor, (202) 418-6711, ahallbugg@cftc.gov, Division of Market Oversight; Warren Gorlick, Supervisory Attorney-Advisor, (202) 418-5195, wgorlick@cftc.gov, and Anuradha Banerjee, Attorney-Advisor, (202) 418-5661, abanerjee@cftc.gov, Office of International Affairs; Theodore Kneller, Attorney-Advisor, (202) 418-5727, tkneller@cftc.gov, Division of Enforcement; Elizabeth Miller, Attorney-Advisor, (202) 418-5985, emiller@cftc.gov, Division of Swap Dealer and Intermediary Oversight; Esen Onur, Research Economist, (202) 418-6146, eonur@cftc.gov, Office of the Chief Economist; and Jolanta Sterbenz, Counsel, (202) 418-6639, jsterbenz@cftc.gov, Office of General Counsel, Commodity Futures Trading Commission, Three Lafayette Centre, 1155 21st Street, NW., Washington, DC 20581.

I. Background

A. Clearing Requirement for Swaps

On July 21, 2010, President Obama signed the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank Act” or “DFA”).² Title VII of the Dodd-Frank Act amended the CEA,³ and established a new regulatory framework for swaps. The legislation was enacted to reduce systemic risk, increase transparency, and promote market integrity within the financial system by, among other things: (1) Imposing clearing and trade execution requirements on standardized derivative products; (2) creating rigorous recordkeeping and data reporting regimes with respect to swaps, including real-time public reporting; and (3) enhancing the Commission’s rulemaking and enforcement authorities over all registered entities, intermediaries, and swap counterparties subject to the Commission’s oversight.

Section 723 of the Dodd-Frank Act added section 2(h) to the CEA, which establishes a clearing requirement for swaps.⁴ The new section makes it unlawful for any person to engage in a swap, if the Commission determines such swap is required to be cleared, unless the person submits the swap for clearing to a registered derivatives clearing organization (“DCO”) (or a DCO that is exempt from registration).⁵ The

² See Dodd-Frank Wall Street Reform and Consumer Protection Act, Public Law 111-203, 124 Stat. 1376 (July 21, 2010).

³ 7 U.S.C. 1 *et seq.* (2006).

⁴ CEA section 2(h)(1)(A), 7 U.S.C. 2(h)(1)(A).

⁵ See CEA section 2(h)(1)(A), 7 U.S.C. 2(h)(1)(A). The CEA’s clearing requirement states that, “[i]t shall be unlawful for any person to engage in a swap unless that person submits such swap for

¹ 17 CFR 145.9. Commission regulations may be accessed through the Commission’s Web site, <http://www.cftc.gov>.



**Approved by the Tactical Operations
Committee November 2013**

NOTAM Activity Prioritization

*Report of the Tactical Operations Committee in Response to Tasking from
The Federal Aviation Administration*

October 2013

NOTAM Prioritization

Contents

Background/Introduction	3
Executive Summary.....	4
Methodology.....	4
Assumptions.....	5
Guiding Principles	5
Key Observations, Findings and Outcomes.....	6
Recommendations	9
Appendix A: Members of the NOTAM Task Group.....	11
Appendix B: FAA Tasking Letter	12
Appendix C: Pilot's Bill of Rights Public Law 112-153.....	15

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, 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.¹

The Tactical Operations Committee (TOC) will serve 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 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 FAA has requested the following activities:

NOTAM Activity Prioritization:

- a. Establish the NOTAM Improvement Panel as a chartered function of the TOC and review recent and planned future NOTAM modernization efforts of the FAA; To provide a report documenting the following actions:
 - i. Ensure needed stakeholders are identified and participate in any task groups formed (see Appendix A).
 - ii. Examine and make recommendations/comments on recent and planned /future NOTAM modernization activities underway at FAA and offer possible additional recommendations (this may include education and outreach).
 - iii. 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.
- b. Provide input and recommendations for success criteria and compliance metrics, while documenting the following actions:
 - i. Recommend the criteria FAA needs to follow to successfully comply with the Pilot's Bill of Rights with regards to NOTAMs.

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

- ii. Recommend one or more metrics for success to ensure continued compliance and to enable reporting to outside entities.

Executive Summary

The NOTAM Improvement Panel was convened under the TOC in Response to the Pilot's Bill of Rights. The Task Group was charged with identifying relevant stakeholders to serve on the committee, review the FAA's existing NOTAM modernization efforts, and recommend future NOTAM improvements, including consideration of DoD NOTAM modernization solutions. An overarching principle guiding the work is the importance of the information contained in NOTAMS to the safety of the aviation system.

The Task Group reached consensus on all findings and recommendations outlined in this report.

Efforts to address the tasking assignments derived from the Pilot's Bill of Rights benefited greatly from a NOTAM improvement program already underway at the FAA's Aeronautical Information Management (AIM) office, specifically in the area of NOTAM digitization. Digitization of NOTAMS represents a critical first-step in providing a NOTAM product which can be customized for the individual user's needs. It is essential that this work continue.

The full exploitation of NOTAM digitization will likely occur beyond the scope of the FAA's NOTAM effort but it will fall on the FAA to educate and promote the efforts of those third-party entities that elect to capitalize on the potential of NOTAM digitization. In addition, the FAA must continue to provide (and improve) a base-level interface designed to allow all users to perform sorting and filtering functions with the goal of distilling a large amount of data (represented by NOTAMS in their entirety) to the specific and unique needs of that user and in so doing, increase awareness of those particular NOTAMS which are critical to safe flight operations.

Methodology

To complete this initiative, the Task Group took the following steps in creating the recommendation:

1. Determined and reached consensus on the scope of the task that guided the process of deliberations and subsequent outcome of the Task Group recommendation.
2. Decided and identified the necessary participants from the broader aviation community to cover the scope of interests for the Task Group and asked members from additional organizations to join the Task Group.
3. Assessed recent and planned FAA NOTAM modernization efforts. This included evaluating the implementation timeframes.
4. Received briefing on DoD NOTAM System improvements to consider interoperability and best practices for FAA solution.
5. Established a set of assumptions which in turn led to the development of guiding principles from which recommendations were established for the purpose of this report.
6. Discussed and responded to questions received from the FAA.

7. Evaluated other possible approaches to improving NOTAMs and origination/distribution processes.
8. Developed the final recommendation.

Assumptions

The NOTAM Task Group made the following assumptions as a basis for its work:

- NOTAMs are necessary for aviation safety by providing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility service or procedure of or hazard in the NAS) the timely knowledge of which is essential to personnel concerned with flight operation.
- The legacy method of NOTAM distribution² has limited functionality and needs continued improvement as the NAS evolves.
- The sheer volume of NOTAMs can distract the user which can in turn, deemphasize NOTAMs of a critical nature.
- A significant number of irrelevant NOTAMs can create a distraction for the user which can, in turn, contribute to a reduction in safety.
- Operators would benefit from Information selected on the basis to their particular needs.
- The ability to easily filter and sort NOTAMs has the potential of greatly increasing the relevancy of NOTAMs for that user.
- The information contained in NOTAMs is important and useful to any individual, entity or organization and not simply airmen alone.
- Full exploitation of the digital NOTAM effort will likely occur within the commercial marketplace from third-party developers.
- Any effort to further the development of a NOTAM user-interface must recognize the value of simplicity in making such a tool relevant to a wide range of potential users.

Guiding Principles

The NOTAM Task Group established the following principles to provide the FAA with responses to the questions and issues requested by the Tasking letter and Terms of Reference:

- The overriding goal of all future developments in NOTAM distribution is to make NOTAMs more specific and relevant, delivered to interested parties at the correct location, and at the appropriate time. This will have the important benefit of enhancing safety.

² Direct Feed (non-digitized), Teletype, Flight Service Station & Direct User Access Terminal(System)

- The digitization³ of NOTAM information is a critical step in creating modern tools to better manage the flow of information. (Baseline data used to extract digital NOTAMS should be done in accordance with RTCA DO-272.)
- The FAA should continue to provide basic NOTAM services equal to or better than current practices while modernizing the NOTAM system and while third-party development is likely, it is incumbent on the FAA to continue to provide sorting and filtering tools as part of their basic service.
- Full participation/adoption by NOTAM originators of the Federal NOTAM System (FNS) is critical to ensure the success of any effort to improve NOTAM distribution. (The non-NOTAM Manager participants should have a mechanism for filing NOTAMs that could be digitized (i.e., FSS)).
- The FAA should make standards-based data (i.e., AIXM) available for third parties use, including domestic and international users, and continue to promote such developments.
- Metrics are essential to evaluate the success of the NOTAM Modernization effort and should be consistent with established statistical practices.

Key Observations, Findings and Outcomes

The NOTAM Task Group discussed questions and/or statements provided by the FAA related to the NOTAM Modernization Effort and developed the following responses to each one.

An important first step was reaching a common understanding of the following terms to accurately determine options for NOTAM distribution:

- Sort - Customized ordering of information based on user preference.
- Filter - A tool that presents (or withholds) NOTAMs meeting specific user-defined criteria.
- Search - Request for specifically-defined information.
- Prioritize - Information organized into a specific hierarchy based on user preference.

FAA: Search options are needed to improve NOTAM distribution

Task Group Response:

An ideal NOTAM search option would include the ability draw all pertinent information from one web location and would include the following options (requested singularly or in combination):

- Airports/Aerodrome
- Runways
- Regions

³ Digitization: Refers to the direct digital entry, storage and dissemination of NOTAM data, in a machine-to-machine, standards-based, interpretable format. The information used to create a digital NOTAM may be geo-referenced and linked to static baseline data, versus a simple text string, used for analog NOTAMs.

- FIRs
- NOTAM Number
- Procedures
- NAVAIDs
- Text Search
- Effective Dates and Times
- By Specific Route

FAA: Filters needed to prioritize flight safety information

Task Group Response: An ideal NOTAM filter option would include the ability to draw all pertinent information from a single source location and would include the following options (requested singularly or in combination):

- Class
- Effective Dates and Times
- Procedure (i.e. SIDs, STARs)
- Altitude/Flight Level
- Keywords

FAA: Criteria needed to present NOTAMs that are specific and relevant to the airman's route

Task Group Response:

- Flight Plan Route
- Altitude
- Desired Route Width
- Time Based to include Departure and Enroute Time
- Specific Airport Criteria along the airman's route

FAA: Filtering mechanisms used by the DoD to be incorporated into FNS

Task Group Response: The DoD has demonstrated an enroute filtering option whose characteristics are described in the question/answer above.

FAA: Characteristics of a user-friendly format for the airman

Task Group Response: All future developments related to product interface must recognize and reflect the value of simplicity in creating a user-friendly format that will be accessible to a wide range of users and applications such as an Electronic Flight Bag and/or Multi-function Display. Such characteristics would include:

- Plain Text (when desired)
- “Smart” Capitalization (Capitalization consistently and exclusively used to highlight specific words or abbreviations for emphasis purposes)
- Graphical NOTAMs⁴ to the maximum extent possible
- Integration of Artificial Intelligence technology to facilitate ease of use (e.g. pattern recognition)
- 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.

FAA: Uses of a public archive

Task Group Response: Uses of a public archive include, but are not limited to:

- Operational Analysis
- Statistical Analysis
- Trends
- Event Reconstruction
- Enforcement Action
- Training
- Design and Development

FAA: NOTAM information to be archived

Task Group Response: All NOTAMs in their entirety should be retained.

FAA: Length of time for NOTAM information to remain in archive

Task Group Response: Digital data storage is increasingly economical and there are significant benefits in having the ability to research historic NOTAM data. To best utilize the value in historic NOTAM data, the Task Group recommends that original FAA provided NOTAMs be archived consistent with FAA policy for similar types of information, but no less than 3 years.

FAA: Search options needed for the public interface of the NOTAM archive

Task Group Response: All search and filter mechanisms available for real-time NOTAM retrieval should be made available for the NOTAM archive with the addition of a date-ranging option.

⁴ Recognizing that not all NOTAM information is presented graphically.

Recommendations

Consistent with the direction from the FAA in the Tasking to the Tactical Operations Committee to serve as the NOTAM Improvement Panel as created under the Pilot's Bill of Rights (Public Law 112-153), the Task Group includes representatives from the following areas of the aviation industry⁵:

- Air Carriers
- Airline Pilots
- Airports
- Cargo Operators
- Department of Defense
- Airline Dispatchers and others involved in operations
- Helicopter Operators
- General Aviation (Pilots and Business Aviation Operators)
- Labor Organizations
- Aviation Research and Development
- State Aviation Officials
- NOTAM producers

The FAA should:

- Continue to promote and support NOTAM modernization through the AIM office.
- Develop filter options leveraging the DoD's prototype characteristics 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).
- 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.

⁵ The Task Group reserves the right to reach out to other relevant participants in the future (i.e., Alaska FSS, Lockheed Martin (FSS), DUAT(S), and individual airport operators).

- Continue the efforts already underway to educate third-party developers in the potential of products based on digitized NOTAMs.
- 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.
- 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.
- 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.
- Expedite the effort to digitize all remaining NOTAM categories to include airspace, procedures, TFR, pointer NOTAMs, international, and military.
- 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.
- 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.

Appendix A: Members of the NOTAM Task Group

Members of the NOTAM Task Group

Chris Baum	Air Line Pilots Association	Bob Lamond	National Business Aviation Association
Dave Bradshaw	Federal Aviation Administration	Christopher Langone	ARINC Incorporated
Mark Cardwell	FedEx Express (Co-Chair)	Jeffrey Miller	International Air Transport Association
Andy Cebula	RTCA, Inc.	Jim Mills	U.S. Air Force
Adam Gerhardt	TASC, Inc.	David Newton	Southwest Airlines
Matt Griffin	Airports Council International – North America	Henry Ogrodzinski	National Association of State Aviation Officials
Steve Habicht	Federal Aviation Administration	Steve Serur	Air Line Pilots Association
Shaelynn Hales	Federal Aviation Administration	Glenn Sigley	Federal Aviation Administration
Kathlyn Hoekstra	Federal Aviation Administration	Ashish Solanki	Maryland Aviation Administration
Jack Hurley	Delta Air Lines, Inc.	Edwin Solley	Southwest Airlines
Ezra Jalleta	The MITRE Corporation	Harold Summers	Helicopter International Association
Christian Kast	United Parcel Service	Brandi Teel	RTCA, Inc.
Des Keany	American Airlines, Inc.	Robert Utley	National Air Traffic Controllers Association
Tom Kramer	Aircraft Owners and Pilots Association (Co-Chair)	David von Rinteln	Hewlett Packard
		Michael Williams	Hewlett Packard
		Diana Young	Federal Aviation Administration

Appendix B: FAA Tasking Letter



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

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

JUL 10 2013

Ms. Margaret T. Jenny
President
RTCA, Inc.
1150 15th 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 will provide documentation as needed as well as subject matter expertise to assist the TOC and task groups in its deliberations.

- To ensure needed stakeholders are identified and participate in any task groups formed.
- To examine and make recommendations/comments on recent and planned /future NOTAM modernization activities underway at FAA.

- To assess the interoperability of FAA NOTAM improvement efforts with the United States Department of Defense (DoD) and international stakeholders to provide feedback and recommendations on any actions needed.

FAA requests completion of this task by October 2013.

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

As stated in Section 3(b) of Public Law 112-153, 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.
- (5) To provide a filtering mechanism similar to that provided by the DoD Notices to Airmen.

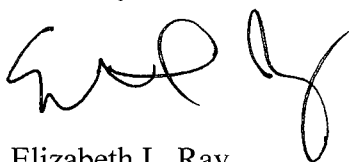
The FAA and industry stakeholders need to understand what criteria need to be established to ensure compliance under the law and there needs to be common metrics to easily ascertain whether FAA is successful in achieving the above listed goals. We request that the TOC:

- Recommend the criteria that the FAA needs to follow to successfully comply with the Pilot's Bill of Rights with regards to NOTAMs.
- Recommend one or more metrics for success to ensure continued compliance and to enable reporting to outside entities.

We request the TOC provide an interim report on this tasking in October 2013 with completion of this task in January 2014.

We believe there could be additional opportunities to involve the TOC in taskings to make improvements to the FAA's NOTAM system but initial efforts will focus on those related to the mandates in the Pilot's Bill of Rights.

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).

(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.

(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

126 STAT. 1162

PUBLIC LAW 112–153—AUG. 3, 2012

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) 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.

126 STAT. 1164

PUBLIC LAW 112–153—AUG. 3, 2012

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

Approved August 3, 2012.

LEGISLATIVE HISTORY—S. 1335:

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

