



**Approved by the Tactical Operations
Committee February 2015**

VOR MON Response to Task 3 Request

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

February 2015

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Background/Introduction

In order to transition from the use of a very high frequency (VHF) Omni-directional Range (VOR) based route structure to one based on Performance-Based Navigation (PBN), the VOR Minimum Operational Network (VOR MON) Implementation Program was established by the Federal Aviation Administration (FAA). It is one of many activities required to shift resources and operations from the legacy National Airspace System (NAS) 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 Program.

The VOR MON Program went before the FAA Joint Resources Council (JRC) and was approved for Investment Analysis Readiness Decision (IARD) in March 2014. A Final Investment Decision (FID) is expected in September 2015. Originally, plans for the VOR MON expected completion of the MON program in 2020 with approximately 500 VORs slated for decommissioning. However, recent assessment of the procedural modifications required to implement the MON along with negotiations with the Department of Defense have scaled the VOR MON Program back to a total of approximately 300 VORs. The Program intends to decommission 100 VORs by 2020 and an additional 200 by 2025.

The VOR MON Task Group has completed three previous tasks for the FAA to review VOR MON selection criteria and assumptions, offer additional criteria, prioritize criteria and provide input on outreach for the VOR MON.

This response focuses on Task #3, which requests Task Group input on the PBN Route Concept of Operations and the Waterfall/Implementation Roadmap for the VOR MON. The Task Group response addresses four areas:

1. Waterfall for VOR MON
2. Publishing List of Phase 1 VORs
3. Feedback on PBN Route CONOPs
4. Relationship between VOR MON and PBN Route CONOPs

Waterfall for VOR MON

The original intent of Task 3 was to focus on the Waterfall for the VOR MON program. However, from the inception of the VOR MON Task Group to today, there have been a number changes in the VOR MON Program. Namely, the Program, which was originally intended to decommission 500 VORs by the year 2020, now plans to decommission 100 by 2020 (Phase 1) and an additional 200 by 2025 (Phase 2). The need for Task Group input on the Waterfall was clear when the goal was decommissioning 500 VORs in five years. However, the number of VORs to decommission has been reduced and spread out over time. Hence, it is not as critical to solicit Task Group input on the Waterfall today, especially considering 30 of the initial 100 VORs are already offline.

The FAA stated that its initial focus on selecting VORs for Phase 1 decommissioning will be on those with the least impact on route structure. The Task Group believes this is a logical approach to begin implementation of the MON.

Publishing the List of Phase 1 VORs

The FAA advised the VOR MON Task Group that the Program is funded for planning purposes. However, funding to actually shut down VORs may not be used until the program gets further approval in September 2015. These funds would be received after the new fiscal year for the FAA begins on October 1, 2015.

The VOR MON Task Group strongly reemphasizes previous recommendations to the FAA to allow the public to see the proposed list of VORs for decommissioning as early as possible. Page six of the Task Group's September 2014 recommendation on VOR MON Outreach states:

"The Task Group strongly recommends that the FAA publish a list of all VORs planned for decommissioning at the beginning of the notification process. It is paramount to publish the full list upfront so there are no surprises to the public later in the process about which VORs are being shut down."

If the FAA receives funding in September as expected, and should any decommissioning begin early in FY2016, the Task Group expects the public response to be negative if the public is not provided the list of Phase 1 VORs early in CY2015. The potentially short time window from funding to the first decommissioning would likely result in the public questioning the transparency of the FAA's actions. While the Task Group cannot speak to the legal constraints within which the FAA is operating, it recommends the FAA publish a draft list of candidate VORs for the first 100 to be decommissioned as soon as practical.

Feedback on PBN Route CONOPs

The VOR MON Task Group offers high commendation for the effort to develop the PBN Route Concept of Operations (CONOPs). The Group's assessment is that the CONOPs is a reasonable plan that, if fully implemented, would likely deliver many of the operational benefits it predicts – reduction in chokepoints, enhanced throughput, reduced propagation of delay, reduced controller or pilot task complexity, more efficient flight paths and greater predictability. These are meaningful benefits for the operational community. The Task Group's feedback is that the CONOPs is an appropriate step towards a PBN route structure and the FAA should continue to aggressively implement. The Task Group is aware that the effort is currently unfunded and recommends the FAA rapidly address this to ensure a robust national PBN route network is developed.

While the Task Group could provide input on the routes in a future PBN Route Network, or which routes to retain in the transition, it agrees with the assessment of the CONOPs team that development of the network will involve detailed work by a number of regional and overarching national workgroups.

Relationship Between VOR MON and PBN Route CONOPs

The Task Group recommends that the FAA only link the VOR MON Program and the future PBN Route Structure together where necessary. The VOR MON and PBN Route Structure are related but parallel efforts. The PBN Route Structure should be funded and developed based on the operational needs of the National Airspace System (NAS) and not be constrained by the VOR network of the past. The primary connection between the PBN Route Structure and the VOR MON Program will be in the relationship between synchronizing the decommissioning of VORs and the implementation of PBN routing. As VORs are decommissioned and come offline, the FAA needs to ensure that PBN routes are available to backfill any Jet or Victor routes that are removed from the decommissioning of VORs. However, sequencing the deployment of the PBN Route Structure should be the only point of integration between the PBN Route structure and VOR MON program.

If the FAA fails to provide funding to the PBN Route Structure effort, the Task Group recognizes the ultimate route structure would be an incremental effort to plug gaps created by the implementation of the VOR MON program. This would not be the preferred approach to develop the future PBN Route Structure as it would miss the aspect of national alignment of routes.

Finally, the Task Group sees its work as complete and recommends sun setting the VOR MON Task Group.

Appendix A: Members of the VOR MON Task Group

Philip Basso, DoD Policy Board on Federal Aviation
Rich Boll, National Business Aviation Association
Dale Courtney, Federal Aviation Administration
Don Dillman, FedEx Express
Bob Ferguson, NetJets Association of Shared Aircraft Pilots
Denise Fountain, DoD Policy Board on Federal Aviation
Jens Hennig, General Aviation Manufacturers Association
Trevor Henry, Federal Aviation Administration
Mark Hopkins, Delta Air Lines, Inc.
Jerry Johnson, Thales Group
Tom Kramer, Aircraft Owners and Pilots Association
Bob Lamond Jr, National Business Aviation Association
Deborah Lawrence, Federal Aviation Administration
David Manville, U.S. Army
Vince Massissimini, The MITRE Corporation
Don McClure, Air Line Pilots Association
Rowena Mendez, Federal Aviation Administration
Trin Mitra, RTCA, Inc.
David Newton, Southwest Airlines
Rick Niles, The MITRE Corporation
Robert Novia, Federal Aviation Administration
Matthew Ross, Real NewEnergy
Leonixa Salcedo, Federal Aviation Administration
Edwin Solley, Southwest Airlines
Stephen Sorkness, SkyWest Airlines
Greg Tennille, The MITRE Corporation
Brian Townsend, American Airlines, Inc.
Robert Utley, National Air Traffic Controllers Association
David Vogt, Delta Air Lines, Inc.

Appendix B: VOR MON Task #3

Task 3 – Review implementation planning to date and make recommendations to the preliminary waterfall schedule developed by FAA. Provide a report documenting the following actions:

1. Examine and analyze the PBN Route Strategy in light of the VOR MON Program. Provide recommendations on what criteria the FAA should consider in developing implementation/waterfall scenarios. Advise the FAA of the pros and cons of each.
 - a. For example, how should the FAA think about which geographies to implement earlier and which later? What are the operators' needs and concerns?
 - b. Should the FAA proceed in depth in one geographical area or start in multiple areas at the same time?
 - c. What is most important to take into account - routes? SIDs/STARs? Which conventional SIDs/STARs need to be retained? FAA will provide the TOC with a draft copy of the PBN Route Strategy.
2. Provide recommendations on the criteria for which victor and jet routes should be retained in the 2013-2020 timeframe and why. Please include the range of options and/or alternatives discussed in the documentation.
3. Provide high level industry perspective on the feasibility and actions needed to implement the National Route CONOPs.