

Very High Frequency Omnidirectional Range (VOR) Minimum Operational Network (MON) Implementation Program

Program Update

Presented to: Aeronautical Charting Forum (ACF)

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Prepared by: VOR MON Program Office, AJM-324

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Federal Aviation
Administration



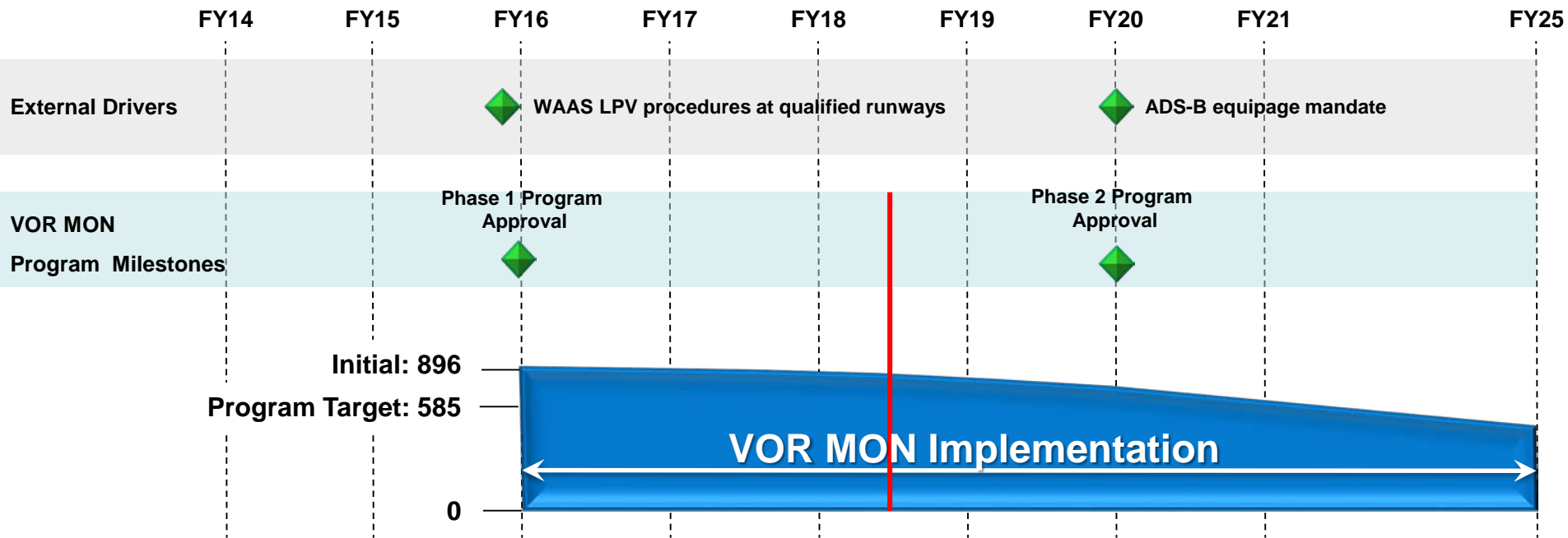
Agenda

- VOR MON Program Objectives
- Program Timeline
- CONUS Candidate Discontinued VORs & MON Airports
- Program Accomplishments
- VORs Planned for Discontinuance in the Next 6 Months
- Planned VOR MON Standard Service Volume
- Next Steps

VOR MON Program Objectives

- Support the NAS transition from VOR based routes to a more efficient Performance Based Navigation (PBN) structure consistent with NextGen goals.
- Within the contiguous 48 states (CONUS), the program will enable pilots to:
 - Revert from PBN to conventional navigation in the event of a Global Positioning System (GPS) outage;
 - Tune and identify a VOR at and above 5,000 feet above ground (coverage may be available at lower altitudes)
 - Navigate to a MON airport within 100 nautical miles to fly a Localizer (LOC), Instrument Landing System (ILS) or VOR instrument approach without Distance Measuring Equipment (DME), Automatic Direction Finder (ADF), surveillance, or GPS where the capability currently exists; and
 - Navigate along VOR Airways especially in mountainous terrain where surveillance services are not available and Minimum En Route Altitudes (MEAs) offer lower altitude selection for options in icing conditions.
- Discontinue approximately 30% (311) VORs by 2025, following guidance in FAA Order 7400.2 and established policies.

Program Timeline



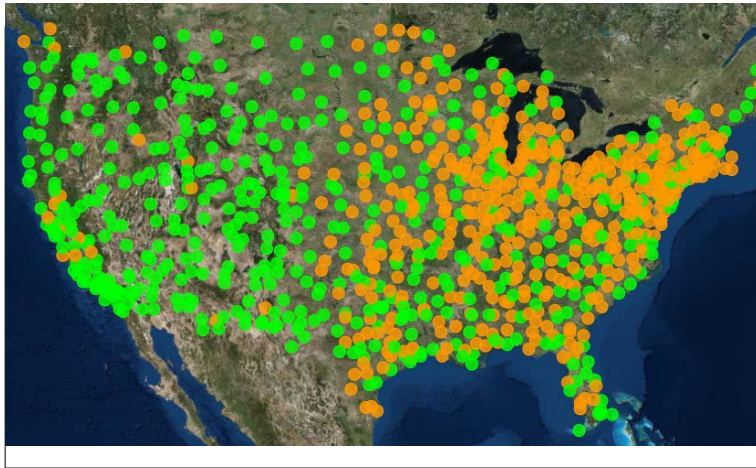
The VOR MON Program will be completed in 2 phases:

Phase 1: FY16 – FY20

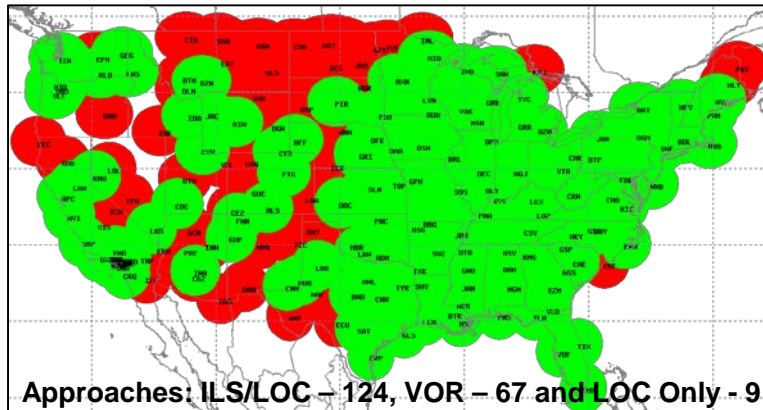
Phase 2: FY21 – FY25

Phase 1	Phase 2
<ul style="list-style-type: none"> Publish Final Policy FRN: “Provision of Navigation Services for the Next Generation Air Transportation System (NextGen) Transition to Performance Based Navigation (PBN)” Remove, Replace, Amend affected Instrument Flight Procedures (IFPs) Discontinue Phase 1 VORs (74) Plan for Phase 2 Final Investment Decision (FID) 	<ul style="list-style-type: none"> Continue IFP work Discontinue Phase 2 VORs (237)

CONUS Candidate Discontinued VORs & MON Airports



MON Airports



MON airports ensure that an aircraft is within 100 nm of a location where an LOC, ILS or VOR approach may be flown.

- Retained VORs (585*)
- Target Discontinued VORs (311*)

<i>VOR MON Discontinuance Target</i>	
Service Area	# Discontinued
Western	15
Central	163
Eastern	133*
Total Target	311*

**Changes reflect latest status*

<i>VOR Configurations (as of April 2018)</i>				
	Retention Target	Discontinuance Target (Remaining)	Current Total	Total Discontinued
VOR	17	9	26	3
VOR/DME	213	145	358	11
VORTAC	355	134	489	9
Total	585	288	873	23

Program Accomplishments

- **Discontinued twenty three (23) VORs to date:**

- [EDS] Edisto, in Orangeburg, SC – *February 4, 2016*
- [BUA] Buffalo, in Buffalo, SD – *July 21, 2016*
- [PNN] Princeton, in Princeton ME – *July 21, 2016*
- [PLB] Plattsburgh, in Plattsburgh, NY – *September 15, 2016*
- [AOH] Allen County , in Lima, OH – *September 15, 2016*
- [ABB] Nabb, in Nabb Indiana – *January 5, 2017*
- [SYO] Sayre, in Sayre Oklahoma – *April 27, 2017*
- [ENW] Kenosha, in Kenosha Wisconsin – *June 22, 2017*
- [BTL] Battle Creek, in Battle Creek, Michigan – *June 22, 2017*
- [HRK] Horlick, in Horlick Wisconsin – *June 22, 2017*
- [HUW] West Plains, Missouri – *August 17, 2017*
- [RIS] Kansas City, Missouri – *September 14, 2017*
- [DDD] Port City, in Muscatine, IA – *October 12, 2017*
- [JKS] Jacks Creek, TN – *October 12, 2017*
- [MXW] Maxwell, CA – *October 12, 2017*
- [STE] Stevens Point, WI - *October 12, 2017*
- [GHM] Graham, in Centerville, TN – *December 7, 2017*
- [DKK] Dunkirk, in Dunkirk, NY – *December 7, 2017*
- [DUC] Duncan, in Duncan, OK – *February 1, 2018*
- [HZL] Hazleton, in Hazelton, PA – *March 29, 2018*
- [MMJ] Montour, in Pittsburg, PA – *March 29, 2018*
- [AOO] Altoona, in Altoona, PA – *March 29, 2018*
- [ECA] Manteca, in Stockton, CA - *March 29, 2018*

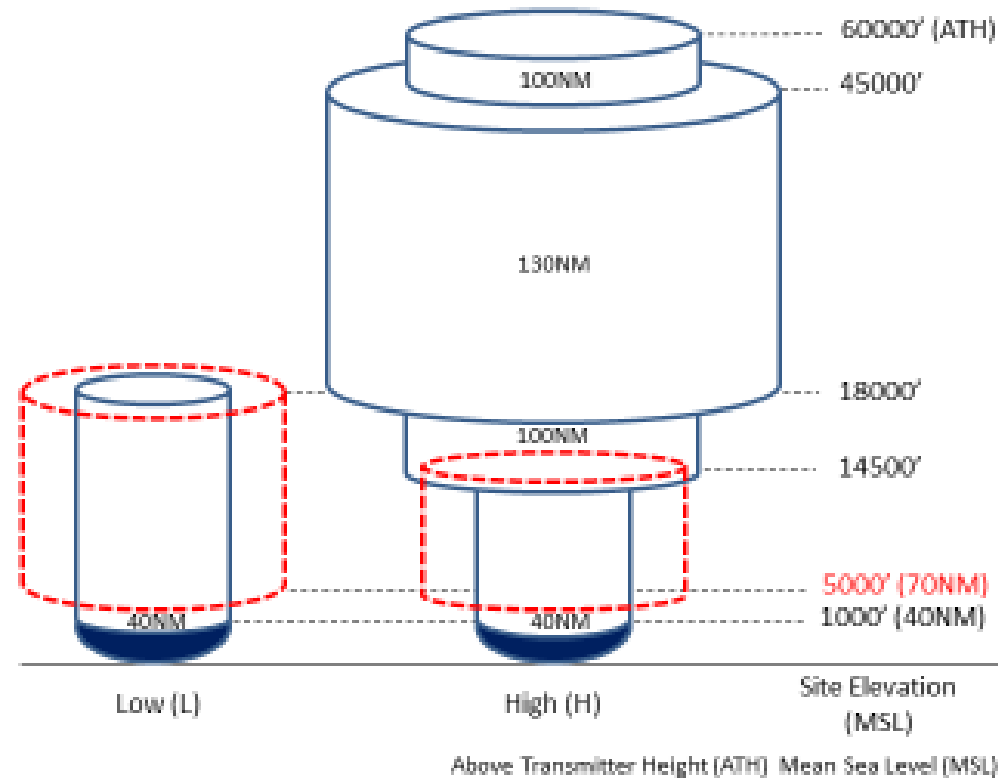
VORs Planned for Discontinuance in the Next 6 Months

- [HVN] New Haven, in New Haven, CT – *May 24, 2018*
- [BRD] Brainerd, in Brainerd, MN – *July 19, 2018*
- [BUU] Burbun, in Burlington, WI - *July 19, 2018*
- [DAK] Drake, in Fayetteville, AR - *July 19, 2018*
- [HLL] Handle, in Panama City, FL - *July 19, 2018*
- [IJX] Jacksonville, in Jacksonville, IL - *July 19, 2018*
- [LJT] Timmerman, in Milwaukee, WI - *July 19, 2018*
- [RID] Richmond, in Richmond, IN - *July 19, 2018*
- [TVT] Tiverton, in Tiverton, OH – *July 19, 2018*
- [PNE] North Philadelphia, in North Philadelphia, PA – *September 13, 2018*
- [FLP] Flippin, in Flippin, AR - *September 13, 2018*
- [LAN] Lansing, in Lansing, MI - *September 13, 2018*
- [LWV] Lawrenceville, in Lawrenceville, IL - *September 13, 2018*
- [PSI] Pontiac, in White Lake, MI - *September 13, 2018*
- [RUT] Rutland, in Rutland, VT - *September 13, 2018*

•Schedule as of 4/18/18

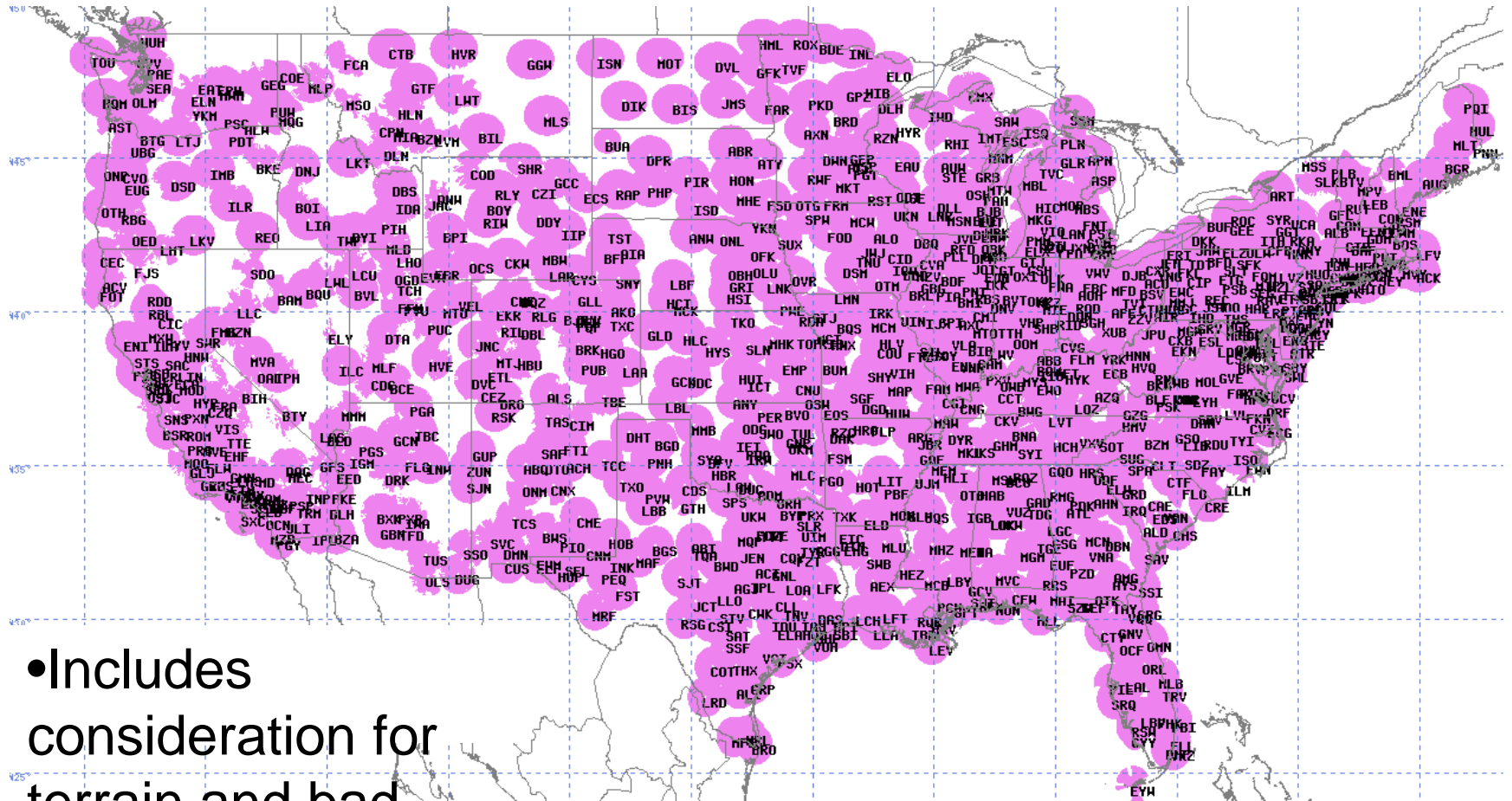


Planned VOR MON Standard Service Volume



Current Full FAA VOR Network

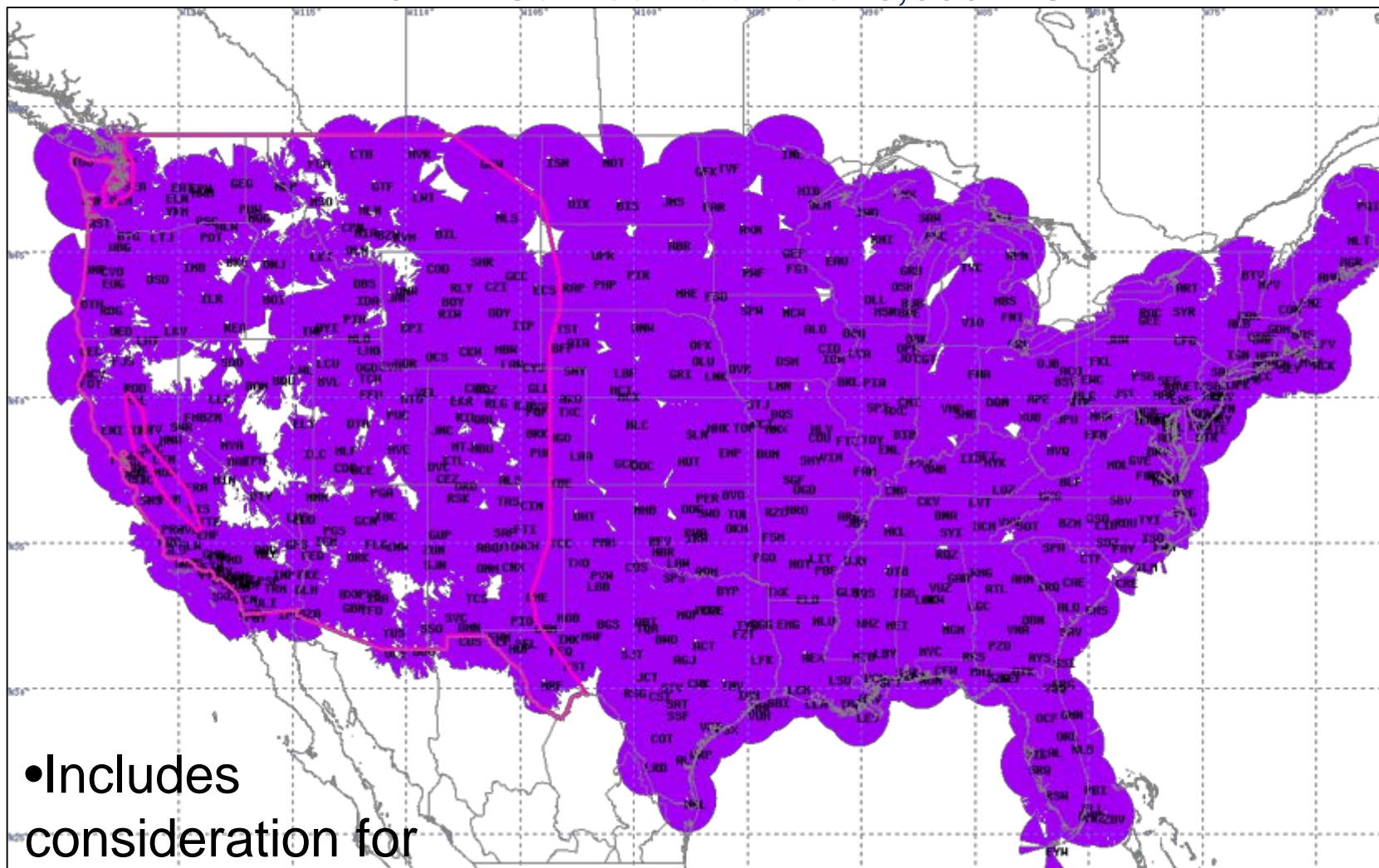
40 NM Service Volume at 5,000' AGL



- Includes consideration for terrain and bad radials

VOR MON Network

70 NM Service Volume at 5,000' AGL



- Includes consideration for

terrain and bad
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radials



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Next Steps

- Continue coordinating with Metroplex, other PBN development projects, and Instrument Flight Procedure (IFP) removal teams to develop an aligned process to discontinue VORs
- Continue VOR discontinuance

Contacting the VOR MON Program Team

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