

Very High Frequency Omnidirectional Range (VOR) Minimum Operational Network (MON) Implementation Program Phase 1 (FY16-20)

Status Briefing

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Federal Aviation
Administration

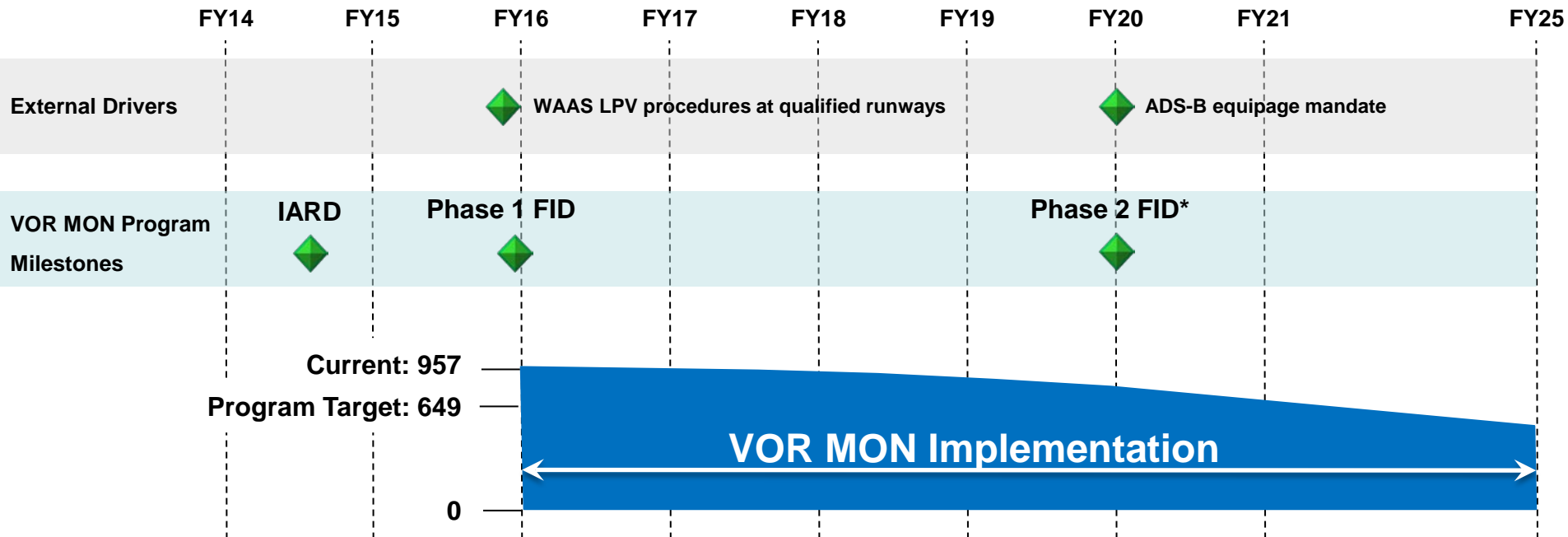


VOR MON Program Goals

- **Support the NAS transition from VOR based routes to a more efficient Performance Based Navigation (PBN) structure consistent with Next Gen goals and the NAS Efficient Streamlined Services Initiative (NESS).**
- **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 an altitude of 5,000 feet or higher;
 - Navigate using VOR procedures through a GPS outage area;
 - Navigate to a MON airport within 100 nautical miles to fly an Instrument Landing System (ILS) or VOR instrument approach without Distance Measuring Equipment (DME), Automatic Direction Finder (ADF), surveillance, or GPS; 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% (308) of VORs by 2025, in accordance with JO 7400.2 and established policies.**



VOR MON Program Strategy and Timeline



The VOR MON Program will be completed in 2 phases:

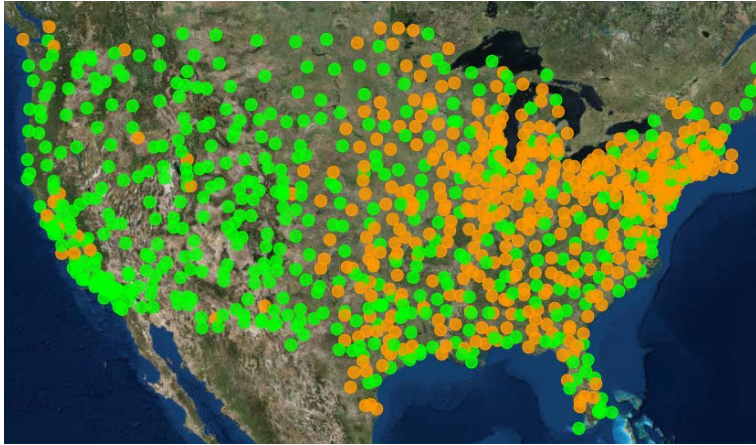
Phase 1: FY16 – FY20
Phase 2: FY21 – FY25

- | Phase 1 | Phase 2 |
|--|--|
| <ul style="list-style-type: none"> • Publish Final Policy FRN: “Provision to Discontinue Very High Frequency Omnidirectional Range NavAids to a Minimum Operational Network” • 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 (234)* |

* The indicated quantity and activity is planned and may adjust as Phase 1 of the VOR MON program is implemented.



Candidate Discontinued VORs and MON Airports



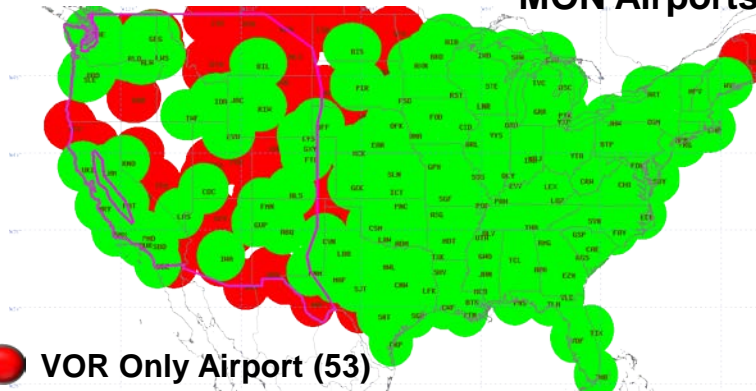
● Retained VORs (649)

● Target Discontinued VORs (308)

VOR MON Discontinuance Target	
Service Area	# Discontinued
Western	15
Central	162
Eastern	131
Total Target	308

Note: The discontinuance goal for the VOR MON Program may adjust based on annual coordination with the Capital Investment Team (CIT) and approved allocated funding.

MON Airports



● VOR Only Airport (53)

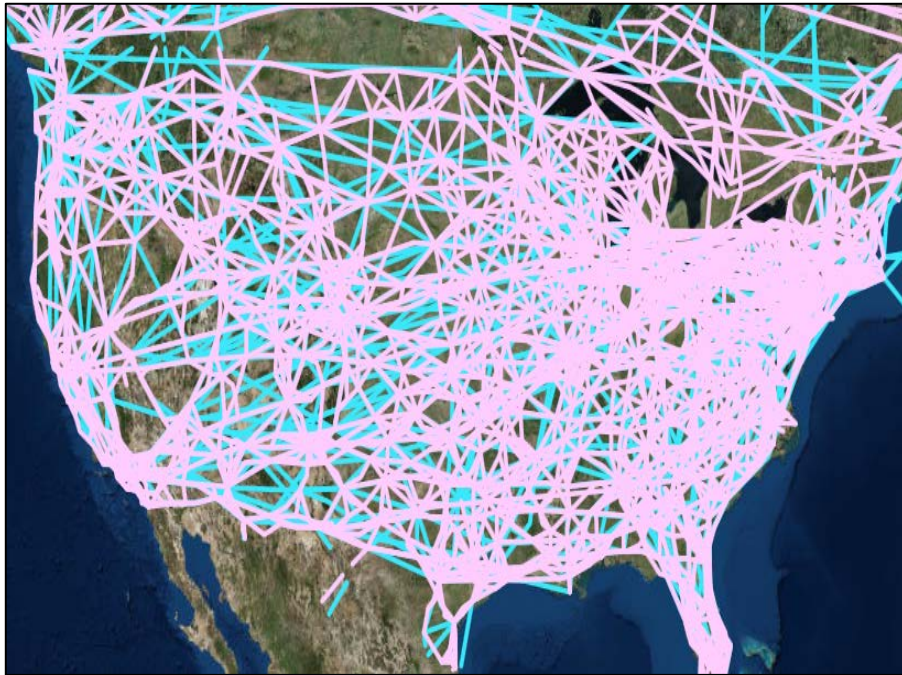
● ILS Airport (136)

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

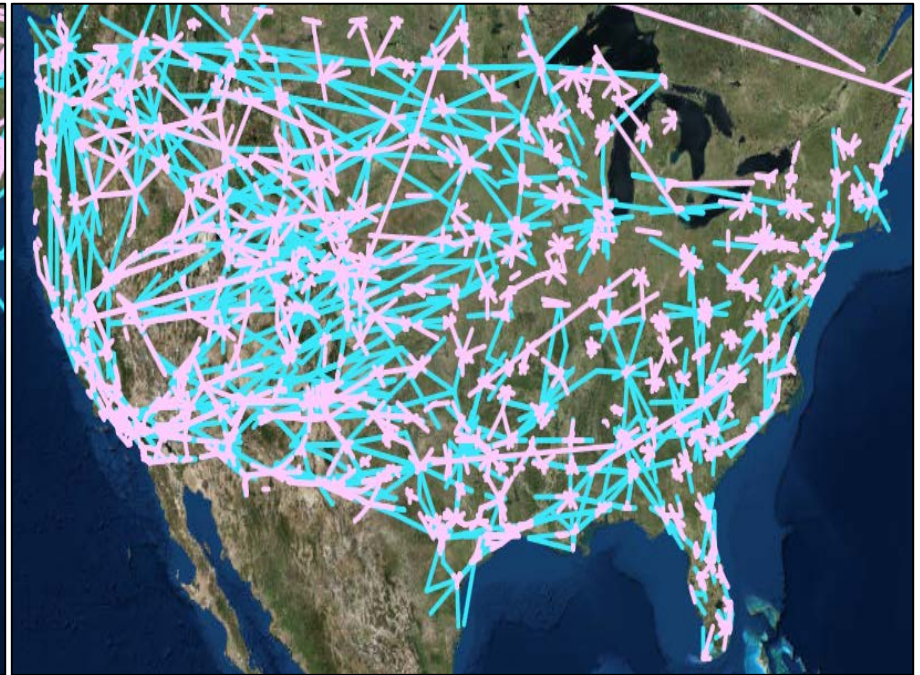
VOR Configurations			
	Retention Target	Discontinuance Target	Current Total
VOR	18	12	30
VOR/DME	245	155	400
VORTAC	386	141	527
Total	649	308	957

VOR Airway Structure and Impact

Current Airway Structure



Impact of VOR MON Program on Current Airway Structure



Legend:  Victor Airway  Jet Route

Instrument Flight Procedure Activities

- VOR Discontinuance will be completed in accordance with FAA Order 7400.2, “Procedures for Handling Airspace Matters”
- Preliminary designs and Air Traffic coordination will be performed
- For each VOR, the procedures affected will be either amended (including chart revisions), canceled, or replaced prior to discontinuance of the service (*FAA Order 8260.19 Flight Procedures and Airspace*)
- PBN coordination will be done to avoid duplication of efforts or creating unnecessary conventional routes
- ILS, LOC, or VOR approaches supporting MON airports will be retained

IFPs	Action	Program Total
VOR/DME/TACAN/SDF	AMEND	9
	CANCEL	950
	CANCEL/REPLACE	27
RNAV (GPS)/(RNP)	AMEND	2127
	CANCEL	14
	CANCEL/REPLACE	38
ILS/LOC/LDA	AMEND	995
	CANCEL	0
	CANCEL/REPLACE	27
NDB	AMEND	0
	CANCEL	256
	CANCEL/REPLACE	0
VISUAL	AMEND	12
	CANCEL	0
	CANCEL/REPLACE	0
SID/STAR/ODP	AMEND	1631
	CANCEL	0
	CANCEL/REPLACE	474
STAND ALONE FIXES	AMEND	180
ANCHORED V-ROUTES	CANCEL/REPLACE	1028
ANCHORDE J-ROUTES	CANCEL/REPLACE	220
CHART REVISIONS	AMEND	7700

Proposed Execution Plan Schedule

Phase 1 Milestones*		Completion Date	Duration
Discontinue 5 VORs		Sep-16	12 Months
Discontinue 4 VORs		Sep-17	12 Months
Discontinue 4 VORs		Sep-18	12 Months
Discontinue 25 VORs		Sep-19	12 Months
Discontinue 36 VORs		Sep-20	12 Months
Total	74		

** The discontinuance milestones for Phase 1 may adjust based on annual coordination with the Capital Investment Team (CIT) and approved allocated funding.*

VOR MON Charting Issues



VOR MON Charting Recommendations

- Charting DME-only Facilities
 - Recommendation 14-02-284 – Dale Courtney
- Charting MON Airports (former “Safe Landing” Airports)
 - Recommendation 15-01-295 – Vince Massimini

