Avionics Equipage

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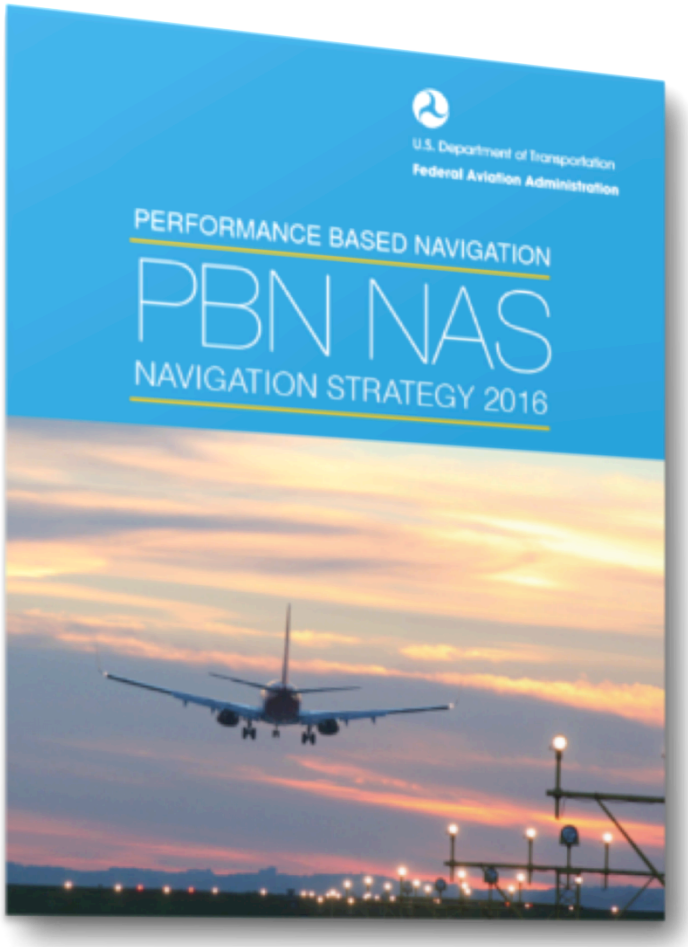
2016 Performance Based Navigation (PBN) National Airspace System (NAS) Navigation Strategy



- **Clear vision of PBN as the basis for daily operations at all locations in the NAS**
- **Identification of the key navigation capabilities that will be available in the NAS over the next 15 years**
- **Defined Navigation Service Groups (NSG) for navigation capabilities**
- **Expectations for evolution of operator capabilities**

2016 PBN NAS Navigation Strategy Equipage Targets

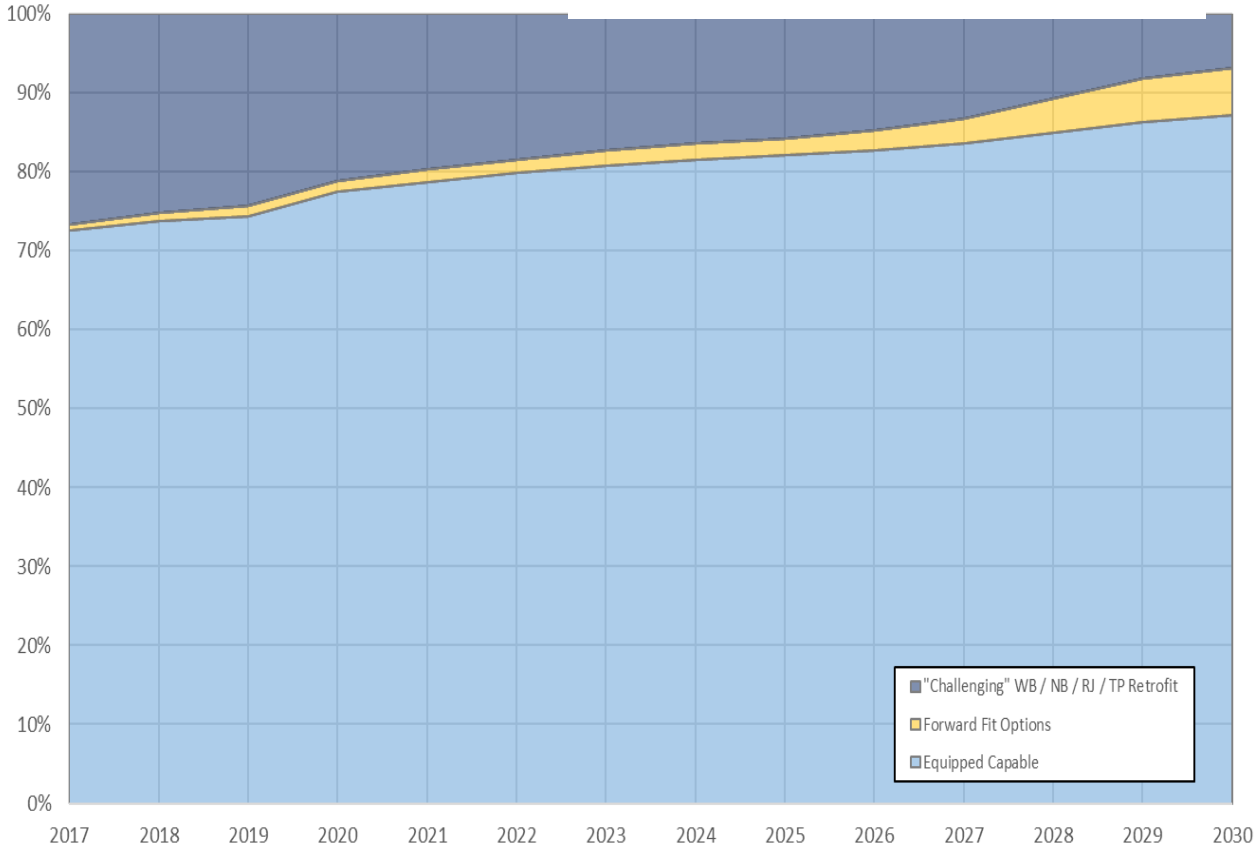
- **The minimum PBN avionics capabilities that support the transition to a PBN-centric NAS at NSG 1 and 2 airports:**

Navigation Service Group (NSG)	NSG Criteria	Mid Term (2021-2025)	Far Term (2026-2030)
1	Top 10 large hub airports and other large hub airports within 100 nmi of one another.	❑ GNSS and DME/DME navigation ❑ RNAV (GPS) approach capability (LNAV/VNAV or LPV) ❑ RNP 1 capability ❑ RF capability	❑ Time of Arrival Control guidance and automation
2	Remaining large hub airports, medium hub airports and additional airports with operational volume comparable to medium hub airports.	❑ GNSS and DME/DME navigation	❑ RNAV (GPS) approach capability (LNAV/VNAV or LPV) ❑ RF capability

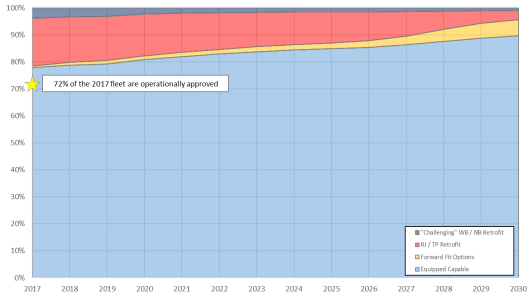
- **These capabilities represent the minimum set expected for routine operation at the listed NSG airport**
- **Aircraft without these capabilities may not be able to efficiently access the airport**

PBN Equipage Survey Results Inconsistent with PBN NAS Navigation Strategy

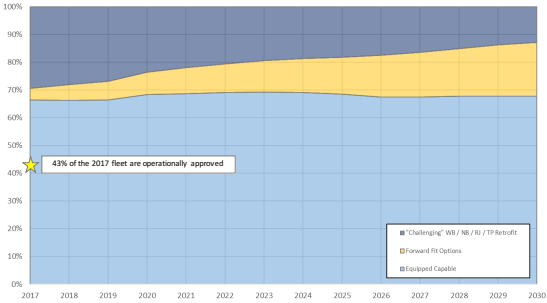
Expected Air Transport Fleet LNAV/VNAV with RF Equipage



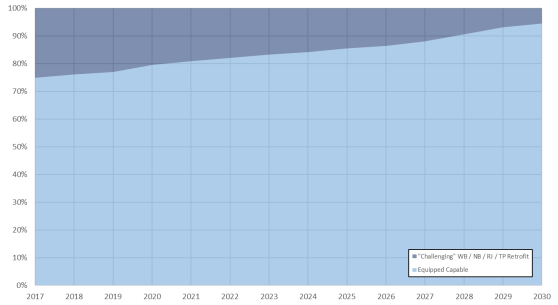
Expected Air Transport Fleet LNAV/VNAV Equipage



Expected Air Transport Fleet RNP AR Equipage



Expected Air Transport Fleet RNP 1 with RF Equipage



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Panel Discussion