

Helicopter TK Route Implementation



Federal Aviation
Administration



Presented to: 2017 Infrastructure Summit

By: Mike Webb, AFS-420

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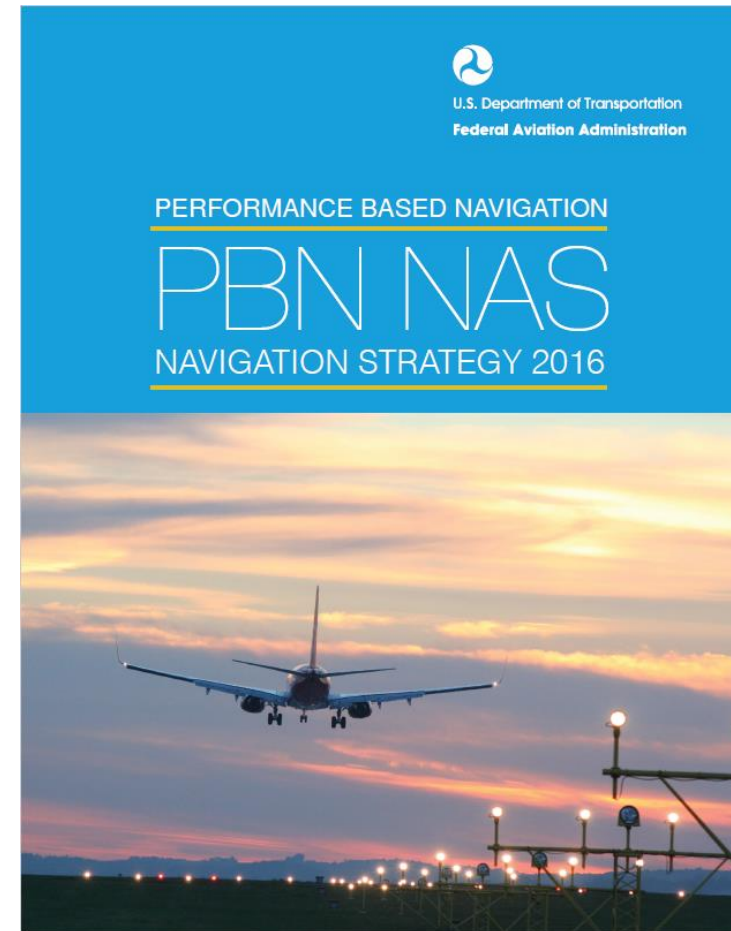
Overview

- **Need**
- **Nav Spec**
 - AC 90-105A
- **Criteria**
 - 8260.58A Change 1
- **Implementation Issues**



Need

- A key activities required to transition today's NAS to a PBN-centric NAS
 - Incorporating IFR helicopter operations into the low altitude PBN procedure infrastructure
- HELICOPTER OPERATIONS
 - Increasing important to consider the integration of helicopter operations. The focus area will be de-conflicting low altitude airspace shared among multiple aircraft types through the
 - Publication of helicopter IFR routing and PBN approaches to heliports. While this strategy document does not extensively discuss heliports and helicopters, the FAA continues to develop the PBN strategy in this area.



Need

RTCA Low Altitude Performance Based Navigation (PBN) Route System

- Task 1 - Use broader expertise and data to refine or validate CONOPs problem statement.
- Task 2 - Recommend refinement to the criteria-based methodology for establishing low and 5 high altitude PBN route structure.
- Task 3 - Recommend a NAS-wide point-to-point navigation strategy.
- Task 4 - Recommend alternatives to the proposed approach for design and implementation

Extensive Helicopter recommendations

- Demonstration of the implementation of RNP 0.3 routes for helicopters.



Low Altitude Performance Based Navigation (PBN) Route System

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

March 2017



Nav Spec

- **AC 90-105A RNP 0.3**
 - Enroute
 - Terminal
 - Departure
 - Missed Approach



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Advisory Circular

Subject: Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System and in Oceanic and Remote Continental Airspace
Date: 3/7/16
Initiated by: AFS-400
AC No: 90-105A
Change:

FOREWORD

This advisory circular (AC) provides guidance for operators to conduct Required Navigation Performance (RNP) operations in the United States, in oceanic and remote continental airspace, and in foreign countries which adopt International Civil Aviation Organization (ICAO) standards for RNP operations. Guidance is provided for the following:

- Required Navigation Performance Approach (RNP APCH) procedures;
- Barometric vertical navigation (baro-VNAV);
- RNP 1 (terminal) operations;
- RNP 0.3 (rotorcraft) operations;
- RNP 2 domestic, offshore, oceanic, and remote continental operations;
- RNP 4 oceanic and remote continental operations;
- RNP 10 (Area Navigation (RNAV) 10) oceanic and remote continental operations;
- Advanced Required Navigation Performance (A-RNP), and
- Additional Capabilities.

This AC does not apply to those approaches which require unique authorization (Required Navigation Performance Authorization Required (RNP AR), as described in [AC 90 101\(\)](#), Approval Guidance for RNP Procedures with AR, nor does it address instrument approach procedures (IAP) using localizer performance with vertical guidance (LPV) or localizer performance without vertical guidance (LP), which are addressed in [AC 90-107\(\)](#), Guidance for Localizer Performance with Vertical Guidance and Localizer Performance without Vertical Guidance Approach Operations in the U.S. National Airspace System.

John Barbagallo
Deputy Director, Flight Standards Service



Nav Spec

- **RNP 0.3**
 - Route Width 3X RNP
 - Primary 2 x RNP
 - Secondary 1 RNP
 - GPS Wide Area Augmentation System
 - TSO C-145/6
 - Flight Director and or Autopilot Required
 - Pilot can set RNP 0.3



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Criteria

- **FAA Order 8260.58A Change 1**
 - In coordination
 - Publication 2 Qtr 2017

CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

8260.58A
CHG 1

National Policy

Effective Date:
MM/DD/YYYY

SUBJ: United States Standard for Performance Based Navigation (PBN) Instrument Procedure Design

- 1. Purpose.** This change incorporates standardized methods for designing and evaluating Performance Based Navigation (PBN) instrument flight procedures (IFPs) in the United States and its territories.
- 2. Who this change affects.** All personnel who are responsible for Instrument Flight Procedure (IFP) development and/or evaluation.
- 3. Where you can find this change.** You can find this order on the Federal Aviation Administration's (FAA) Web site at http://www.faa.gov/regulations_policies/orders_notices.
- 4. Explanation of changes.**
 - a. General.**
 - (1) Advanced-Required Navigation Performance (A-RNP) added to all appropriate sections to enable A-RNP procedure design.
 - (2) Helicopter criteria added throughout as a transitional step in migrating FAA Order 8260.42, U.S. Standard for Helicopter Area Navigation, helicopter PBN criteria into this order.
 - b. Table of Contents.** Updated to coincide with the pages changed.
 - c. Chapter 1.**
 - (1) Paragraph 1-2-4.a. Added AC 90-100, U.S. Terminal and En Route Area Navigation (RNAV) Operations and AC 90-107, Guidance for Localizer Performance with Vertical Guidance and Localizer Performance without Vertical Guidance Approach Operations in the U.S. National Airspace System, to the reference list for definitions.
 - (2) Table 1-2-1. Added range of values to departure flight phase and footnote 2 to A-RNP.
 - (3) Table 1-2-1 Note 2. Added 'ATT' to clarify intent for OEA construction
 - (4) Table 1-2-1. Added footnote 8 and "Domestic" to the En route flight phase.
 - (5) Paragraph 1-2-5.b(2)(b). Added width changes for A-RNP.

Distribution: Electronic Only

Initiated By: AFS-400



Issue

- **Helicopter routes are “TK”**
 - Name assigned by ICAO
- **HOW will TK routes will be Implemented?**
 - RNAV 2, standard
 - RNP 0.3, by exception
- **Currently being worked**
 - US Instrument Flight Procedures Panel
 - Aeronautical Charting Forum



Questions?

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- **Performance Based Navigation (PBN) Navigation Strategy 2016**
- **https://www.faa.gov/nextgen/media/pbn_nas_nav.pdf**

