

Performance-Based Navigation (PBN)

Update to PBN Implementation Process Order 7100.41

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Federal Aviation
Administration



Overview

- **Purpose of FAA Order 7100.41, PBN Implementation Process**
- **Audience**
- **Benefits of the 7100.41**
- **Requirements of the 7100.41**
- **Five Phases Process**
- **NAC Recommendations vs. 7100.41**
- **7100.41 Update**
- **Summary**



Purpose

- Provides a standardized development and implementation process for PBN procedures and routes
 - RNAV SID
 - RNAV STAR
 - RNP AR SIAP
 - Q, T, and TK Routes
- Does not cover development and implementation of
 - RNAV (GPS, GLS, LPV)
 - Conventional (ILS, VOR, NDB)
- Does not eliminate the SMS process required in the decommissioning process of existing NAVAIDs
- Designed to be used by a Workgroup to meet agreed-upon project goals



PBN Implementation Order Benefits

- **Order signed April, 3, 2014 now in use throughout FAA**
- Meets the requirements of the Safety Management System (SMS) and deemed compliant by the Office of Safety
- Supersedes the interim safety guidance implemented in 11/1/12
- Implements a business case analysis process for proposed procedures, Baseline Analysis Report (BAR)
- Uses a tracking tool, Procedure Tracking Tool (PTT)
- Addresses NextGen Advisory Committee (NAC) recommendations
- Continues collaboration with key stakeholders (NATCA, SC's)



PBN Implementation Order Requirements

- **Requires a pre-RAPT evaluation**
 - Proponent required to submit rationale
 - Core Working Group completes Baseline Analysis Report
 - Procedure Conceptualization
 - Estimated Benefits
- **Potential Issues**
 - AJV-14 reviews and approves for RAPT submission
- **Requires a Post Implementation Analysis Report**
 - Benefits validation
 - Project lessons learned



Five Phase Process

- **Originally an 18-Step process detailed in the STAR Order (7100.9E)**
- **7100.41 breaks down 18-Steps into five separate phases**
 - Preliminary Activities
 - Development work
 - Operational preparations
 - Implementation
 - Post-implementation monitoring and evaluation



NAC Recommendations vs. PBN Order

PHASE 1: PROPONENT INPUT

- 1) What is the goal or aim of the procedure being proposed or amended?
- 2) Does it provide access or lower minima to a particular runway that did not have previous access

PHASE 1: BASELINE ANALYSIS REPORT

- 1) What is the goal or aim of the procedure being proposed or amended?
- 2) What metric will be used to measure success?
- 3) What are the implementation hurdles?
- 5) Does the procedure require an EIS?
- 1) To what degree is capacity or efficiency increased?
- 4) Does the procedure supply redundancy in case of a NAVAID outage?

PHASE 2: CORE WG DEVELOPMENT

- 5) Does the procedure require an EIS?
- 6) Was the procedure developed in a collaborative process with appropriate representation of navigation equipment in simulator trials?
- 7) Does the procedure have controller aids, such as similar fix names to other procedures, to promote application and usage?
- 3) How many operations are impacted by the procedure?
- 5) Does the procedure reduce terminal or approach flight time?
- 6) Are conflicts between adjacent airports resolved?

PHASE 3: OPERATION PREPARATION

- 4) Will PBN training, recommended in the NAC at their June 2013 meeting be accomplished?

PHASE 4/5: IMPLEMENTATION/POST-ANALYSIS

- 5) Does the procedure reduce terminal or approach flight time?
- 6) Are conflicts between adjacent airports resolved?

PREREQUISITE

BENEFITS/ACCESS



7100.41 Update

- Conducted national stakeholder meetings to discuss the Order and it's contents
- Signed “Non-OAPM PBN Initiatives MOU” with NATCA
- Developed master project schedule template
- Developed WBS Dictionary
- Capturing comments



7100.41 Update (continued)

- Coordinating Change 1 to Order
 - Administrative changes
- Formed and held national workgroup meetings in October to move overdue BARS into CWG's
- Began identifying workgroup members who will meet in Jan. 2015 to begin amending the Order



Summary

- **FAAO 7100.41 in effect since April 3, 2014**
 - Provides structure to PBN implementation
 - Reduces PBN implementation from 18 steps to 5
- **Project Schedule and Dictionary complement Order**
- **Well received ... questions remain**
 - Working closely with stakeholders to implement processes and requirements throughout the NAS
- **Updates will follow based upon user feedback**

