

PBN Status and Deployment

PBN ICG/3

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- **PBN Implementation Plan NZ v1.0 – (Dec 2009)**
- **New Southern Sky Programme (2014 – 2023)**
 - Modernisation of Aviation System
 - Further Safety Enhancement
 - Infrastructure Changes
 - Technology Introduction
 - Stakeholder Focused
 - Operational Efficiency, Fuel Saving, Environmental (\$2BN – 20 years)

<http://nss.govt.nz/assets/Uploads/NSS-Printed-Plan.pdf>
- **Revised PBN Implementation Plan – Scheduled 2016**
 - Enablement plan – Delivery into service

- **GNSS Development Work – Complete 2015**
 - **GNSS Sole Means**
 - **Satellite Availability**
 - **RAIM**
 - **Multiconstellation GNSS**
 - **GNSS Risks**
 - **Space Weather**
 - **Spoofing**
 - **Jamming**
 - **USA Alternate means to GPS**
 - **European Alternate Means to PBN**
 - **SBAS**
 - **International Developments**

New Zealand State

- **Primary Means of Navigation – GNSS**
 - Today – GPS
 - Future – Multiconstellation (GPS – GLONASS)
- **Alternate Means of Navigation**
 - Conventional Ground Based (VOR/DME/NDB)
 - Minimum Operational Network - (Strategy 2016)
 - Recovery of Aircraft – if GNSS failure
 - Continuation of Operational Service Post GNSS Failure
- **Do not have a ground based RNAV network**
 - i.e. DME/DME

New Zealand Current PBN (GNSS) Deployment

Terminal

- STAR/SID: RNAV 1 – Nationwide
- STAR/SID: RNP 1 – South Island & Increasing

Enroute

- RNAV 2 – Nationwide

New Zealand Current PBN (GNSS) Deployment

Approach

- RNAV (GNSS) RWY – Nationwide (RNP APCH)
- Approach with Vertical Guidance (APV) (A37-11)
 - **BARO VNAV**
 - International Airports – 100%
 - Domestic Airports – Majority
 - **SBAS**
 - Cost Benefit Analysis – Challenge
 - Aviation Alone Cannot Support SBAS
 - Currently On Hold

New Zealand Current PBN Deployment

RNP Authorisation Required

- **RNP 0.3 – 0.1**
- **For Approved Operators Only**
- **For Operators with CAANZ Approval Only**
- **International Airports with RNP-AR**
 - **Queenstown**
 - **Auckland**
 - **Christchurch**
 - **Wellington**
 - **Rotorua (regional airport)**
- **RNP AR Implemented for Access and Efficiency**

New Zealand Future PBN Deployment

- RNP 2 – Enroute (Domestic) – future
- RNP 2 – Enroute (International) – future (Trans-Tasman)
- RNP 0.3(H) – Operator Specific – within 1 year
- Advanced RNP – future

New Zealand PBN Lessons Learnt

Focus On:

- Operator Training (Mid to Small Operators)
- Private Operators - Knowledge
- Noise Levels associated with RNP AR
- Maintenance Licensing/PBN Knowledge
- Design Organisation Approval/Knowledge
- Available Aircraft Embodiment Resource