

Implementing ADS-B

Airways New Zealands Journey

14 April 2015



Outline

- Introduction
- Current systems and coverage
- Our opportunity to adopt new technologies early
- Defining future needs
- Developing a future surveillance solution
- Timeline
- Learnings
- Questions

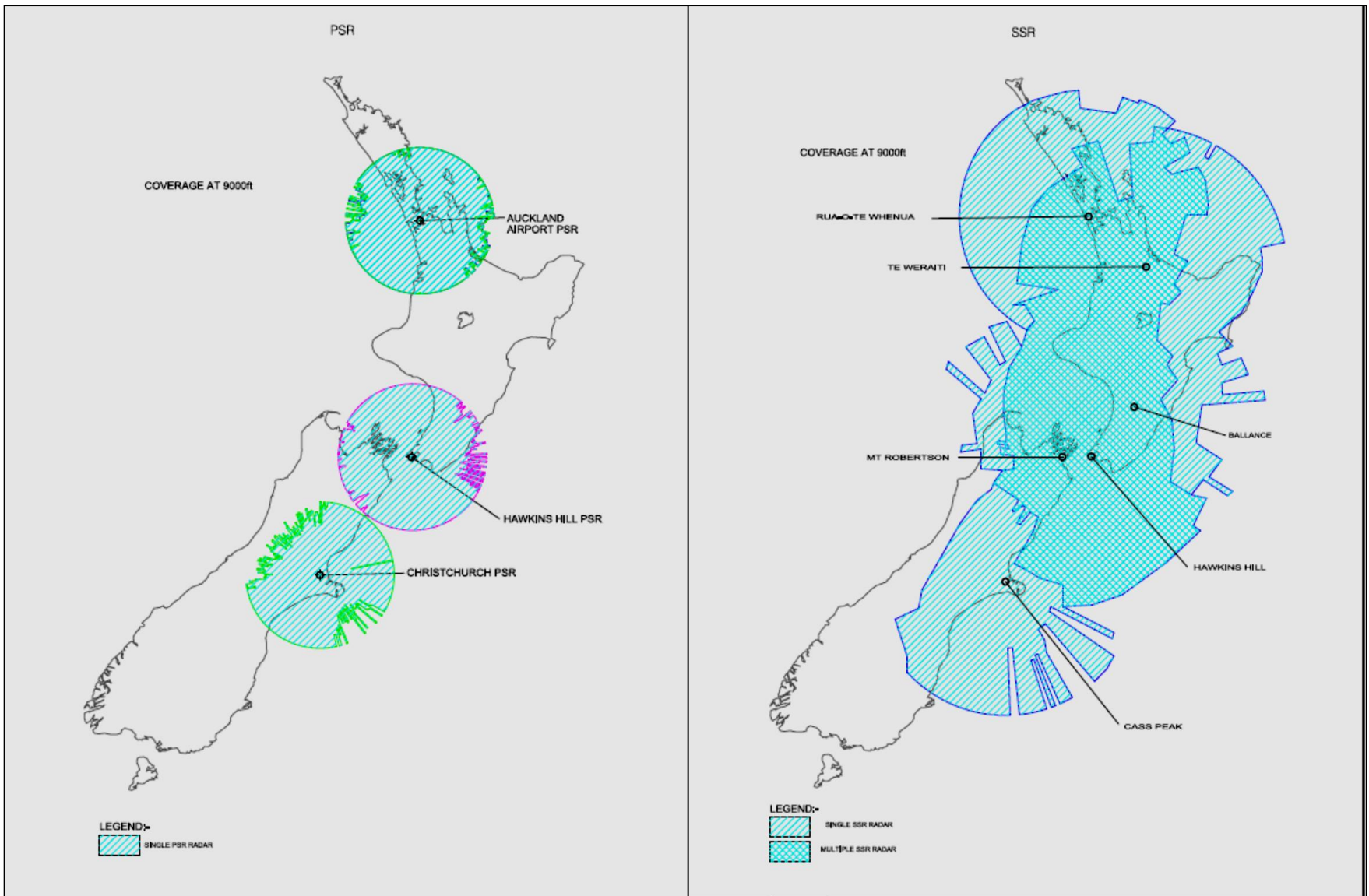


Introduction

- **Surveillance Systems are critical infrastructure**
- **Any changes need to account for future needs**
 - Improved levels of safety
 - Support for new and more cost effective services
 - Greater expectations of reliability and resilience
- **What has worked in the past may not be fit for our future**
 - Operating context is changing (increasing dependence on GNSS, growth in UAV/RPAS activity, Google Balloon operations) are just a few examples.
 - Expectations are changing (MH370 has shown us that the public wont tolerate losing air transport aircraft without trace).
- **Airways current systems**



Existing Radar Coverage from PSR and MSSR @ 9000ft



Secondary Surveillance Radar

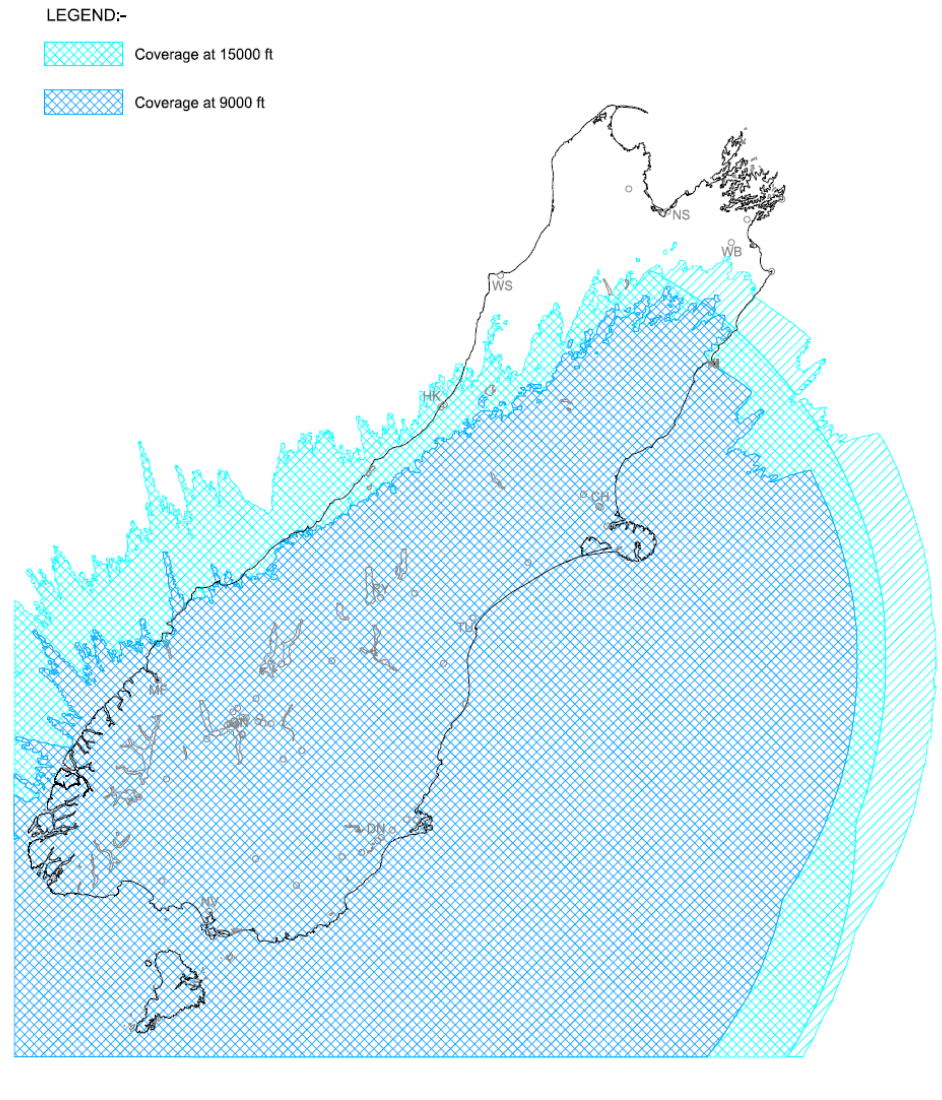
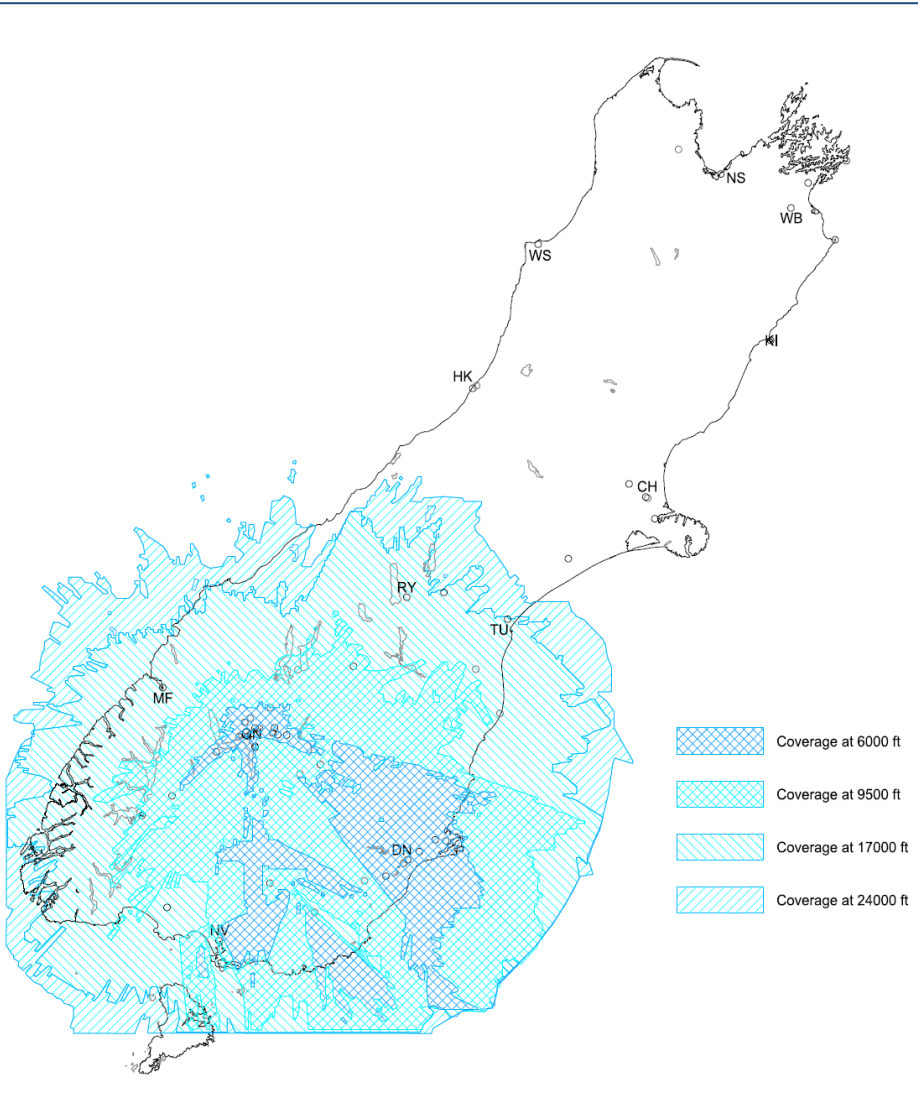


Primary Surveillance Radar



- MSSR and PSR retire in 2021
- Replacement surveillance system needs to be operational by 2020
 - Includes regulatory framework
 - Fleet equipage

Existing WAM and ADS-B Coverage



Existing WAM and ADS-B Receiver Site



Mt Difficulty site

Defining Future Needs

Clearly defined objectives

- Government Policy developed with industry input
- Airways Customers / Stakeholders needs

Understanding the risks

- Increasing dependence on GNSS (e.g. PBN and ADS-B)
- Potential common point of failure
- New airspace users (e.g. UAVs)

Creating a Safety Case for Change

- Developing potential technical solutions
- Evaluating each solution against the objectives
- Understanding the impact on all airspace users
- Shortlisting viable and cost effective solutions for business case approval and procurement.

Concept

ADS-B: Main cooperative surveillance system

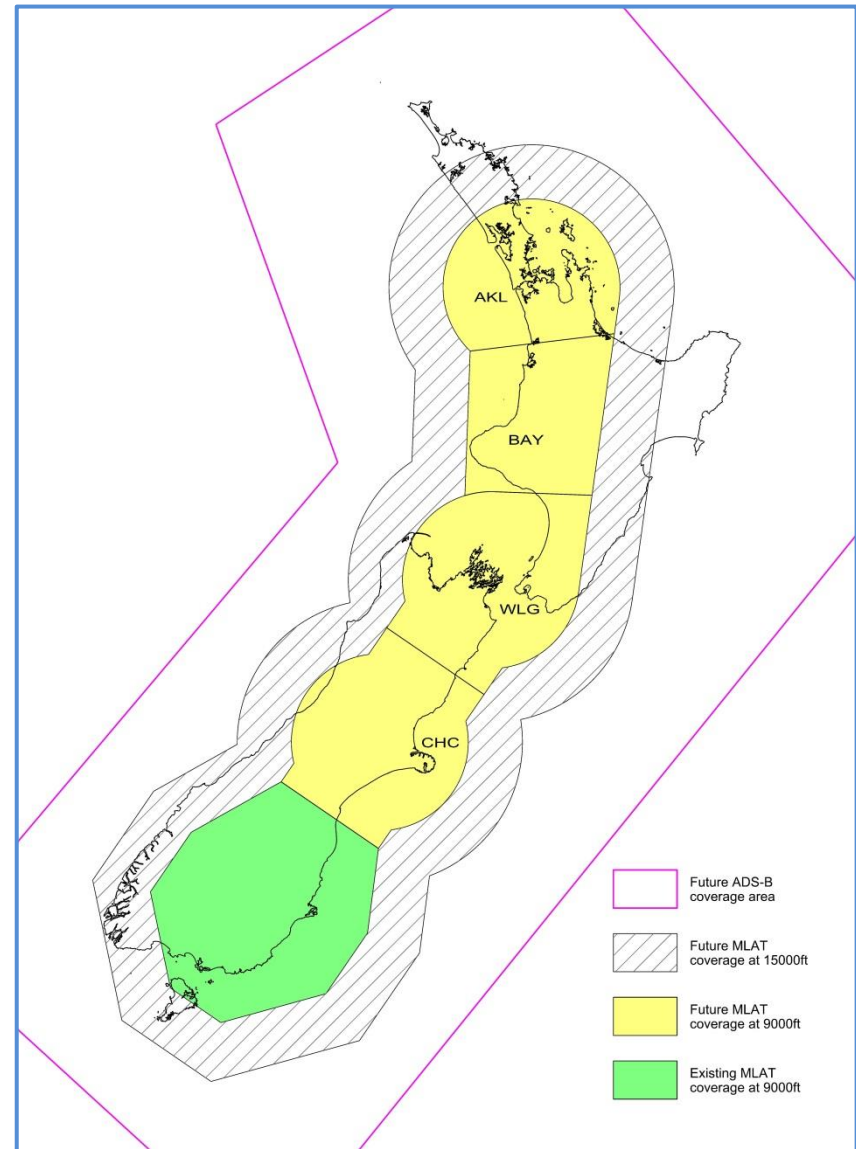
- Provides extensive coverage
- Overlapping coverage

Contingency System: Shorter Range cooperative surveillance

- Enables recovery of traffic
- Enables early service restoration

Non-cooperative System: Short Range surveillance for AKL, WLG and CHC

- Detects airspace intrusions
- Enables management of flights with TXPDR Failure



Process Timeline

- **Airways** need to finalise MSSR and PSR replacement plans in 2015
- **CAA** will need to publish mandates and means of compliance information in 2016
- **Aircraft owners & operators** need to install and secure operational approvals for compliant avionics prior to the relevant ADS-B mandate. Proposed dates are;
 - Airspace above FL245 (31 December 2018)
 - All Controlled airspace (date to be confirmed in 2021)



Summary of Learnings

- **Change takes time**
 - Consult early with industry and government stakeholders
 - Agree clear objectives
 - Assess risks / issues
 - Develop a plan that addresses the risks and issues
- **Change takes leadership and stakeholder commitment**
 - NSS has provided us with a programme structure, clear accountabilities and appropriate governance.
 - Resource the programme to achieve the objectives
- **Finally, Change takes perseverance**

Airways wish you well as you embark on similar journeys and are willing to provide support and advice, if needed.

Questions?

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Indicative Aircraft Numbers

- ANZ Group is 104 aircraft

NZZC year ending 31 Jan 13 (FY billing data)

- 701 aircraft operated IFR
- 2571 aircraft operated VFR
 - 1039 AA/WN/CH/QN
 - 1532 elsewhere
- Majority of IFR will have also featured in VFR data
- Realistic to assume approx
 - 1250 IFR and Main Centres (5 years = 250 per year)
 - 1250 Other VFRs
 - >260 already approved to operate GNSS

