



Christchurch PBN Flight Paths Trial

Interim Report

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Christchurch PBN Flight Paths Trial

Interim Report

PBN trial partners have prepared the following summary outlining progress of the PBN flight paths trial. A full report is to be issued on completion of the 12 month trial at the end of 2018. Airways New Zealand, the Board of Airline Representatives New Zealand (BARNZ), Christchurch Airport and New Southern Sky (NSS) approved this interim review and recommendations of the PBN flight paths trial.

Interim Review of 2017-2018 Christchurch PBN Flight Paths Trial

On 9 November 2017 Airways New Zealand, BARNZ, Christchurch Airport and NSS began a trial of Performance Based Navigation (PBN) flight paths in Christchurch. PBN is a global air navigation standard, being introduced in accordance with international guidance and New Zealand government policy. The 12-month flight paths trial is for arrivals to Christchurch only and is part of NSS, a 10-year programme led by NZ Civil Aviation Authority that is introducing major changes to New Zealand's aviation system in order to make air travel smarter, quicker, safer and more sustainable.

Christchurch PBN Approach Flight Paths

The PBN approach paths selected for the trial were the product of consultation between Airways New Zealand, BARNZ, Christchurch Airport and NSS. The philosophy adopted when selecting any flight path is to achieve a level of consensus by balancing the technical and operational needs of the trial, with an aim to moderate the overall noise effects on communities. The initial findings of the trial confirm aircraft are flying at a higher altitude over the city and concentrated populous areas, which results in reduced audible noise. There are also fewer flights over the suburbs of Wigram, Hornby, Prebbleton and Rolleston, and the trial flight paths avoid direct overflight of Templeton and West Melton settlements. The trial continues to receive valuable feedback from communities and individuals, and the four trial partners will continue to assess these as the trial progresses.



Participating Aircraft

Most domestic and trans-Tasman jet aircraft are capable of flying the trial approaches and, later in 2018, some propeller aircraft will also become capable. However it is anticipated that many of these aircraft will still fly a non-PBN trial approach in fine weather (including north-westerly conditions using Runway 29), or for training, or for air traffic control reasons.

Flight Path Trial

The trial enables the collection of data (such as noise monitoring, number of flights) and community feedback, and helps to achieve the best balance of safety, airspace management and environmental benefits - such as noise reduction for communities, fuel and carbon emission savings.

Operational Data

For the period 9 November 2017 to 9 May 2018, Christchurch PBN trial flight paths were utilised by 2,607 aircraft. These aircraft flew 19,100 fewer kilometers, when compared to the shortest alternative instrument approach, and provided a number of additional benefits.

<i>Christchurch Runway</i>	<i>Total trial flights 09 Nov 17-09 May 18</i>	<i>Maximum trial flights/day</i>	<i>Maximum trial traffic %/day</i>
02	2108	28	30%
20	240	7 ¹	7%
29	259	31	31%

¹Trial flightpaths were not provided 'Straight-in' as existing approaches are already very efficient. Hence there is a low % of trial flightpath usage relating to Runway 20 - because the majority of arrival fights to Christchurch are inbound from the north (i.e. straight in for Runway 20).

Calculated benefits for the first six months:

<i>Distance saved</i>	19,100 km
<i>Flight time reduction</i>	1,500 minutes
<i>Fuel saving</i>	57,000 kgs
<i>CO₂ emissions</i>	182,000 kgs
<i>Passengers</i>	379,000 ¹

¹Number of passengers who received reduced flight times and other benefits from PBN vertically guided approaches.

Noise Data

The mid-trial calculation of noise contours (included in figure 4) identified that noise generated during the first six months of trial fits within the District Plan compliance contours. In addition to the calculated noise contours, noise measurement data on aircraft noise levels was gathered from six noise measurement terminals installed under the trial flight paths. In general, noise levels measured during the trial are comparable with pre-trial noise levels. Noise experts are completing a detailed analysis of the data for inclusion in the final trial report.

Community Feedback

Feedback from the community was actively sought during the first six months of the trial, through announcements in the news media as well as via a dedicated website (www.christchurchflightpathstrial.co.nz) which featured information about the trial and provided a feedback form.

In total, 118 flight path feedback messages were received from the community, though some were found not to be PBN related. This leaves us with 76 complaints from 46 separate complainants, as well as 15 neutral/undecided and 18 positive responses at the six month point. Refer to Figure 2 for a graphic indication of geographical responses.

All enquiries were responded to by Christchurch Airport, with specific and individualised information provided by the partners. This feedback has been incorporated into the interim recommendations.

Interim Recommendations

The following interim recommendations have been made by the trial partners as a result of the 2017-2018 Christchurch PBN flight paths trial interim review:

1. Continue the one-year trial of PBN flight paths for arrivals to Christchurch Airport as planned, because a range of benefits is being achieved, and valuable data and feedback is being gathered.
2. Restrict the use of sensitive PBN flight paths prior to 9am on weekends from 14 July 2018. This is a direct response to community feedback and is expected to provide a material reduction in the noise impact for some residents.
3. Design an additional PBN flight path to approach runway 02 from the northwest (east of West Melton), as an alternative to the current PBN flight path. This would address residential noise concerns and increase pilot participation.
 - a. Trialing a new flight path may be achievable from 8 November 2018.
 - b. Noise sharing across these two flight paths should be considered as a future option.

These recommendations have been considered and agreed to by the four trial partners

Information about the Christchurch flight paths trial will continue to be made available on this website (www.christchurchflightpathstrial.co.nz), and a full report will be prepared and released following completion of the trial on 8 November 2018.

Figure 1: Christchurch PBN Trial Flightpaths:



Figure 2: Christchurch PBN Trial Flightpaths with indicative geographical responses (green positive, red negative):

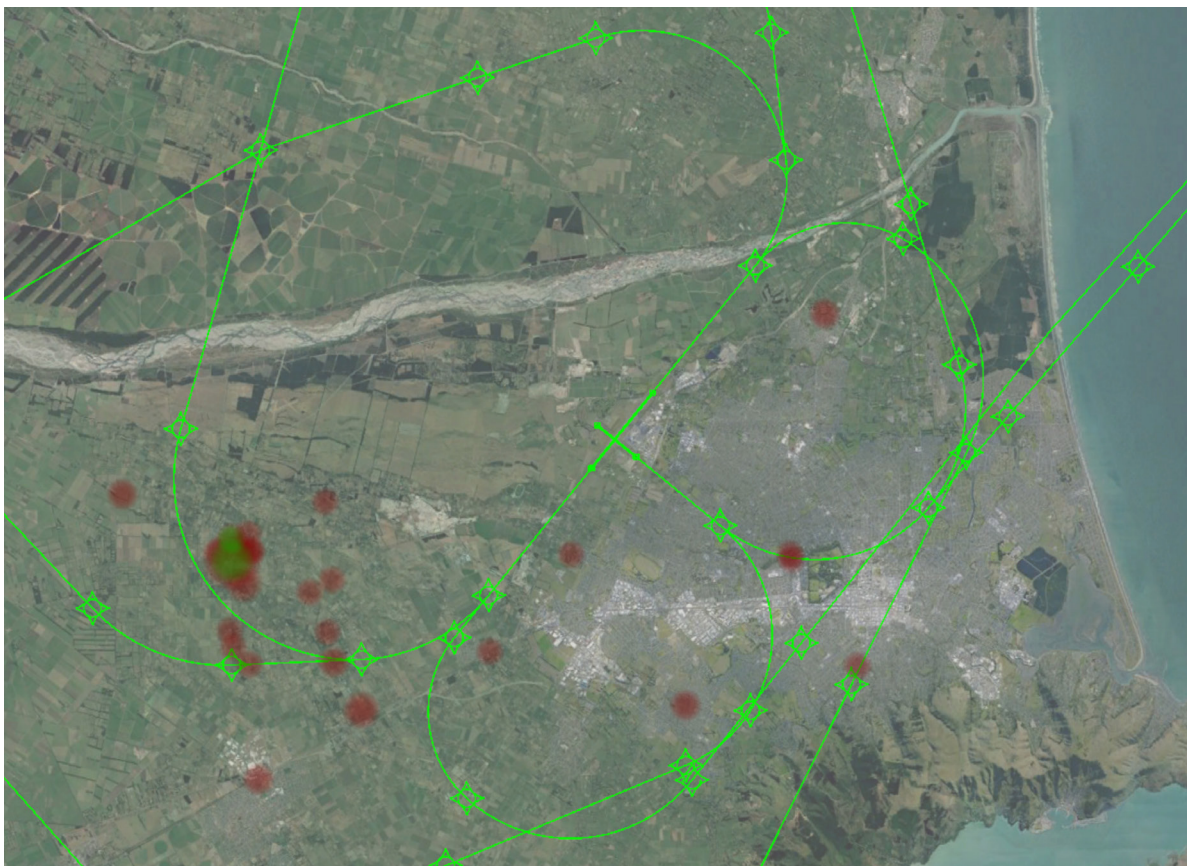
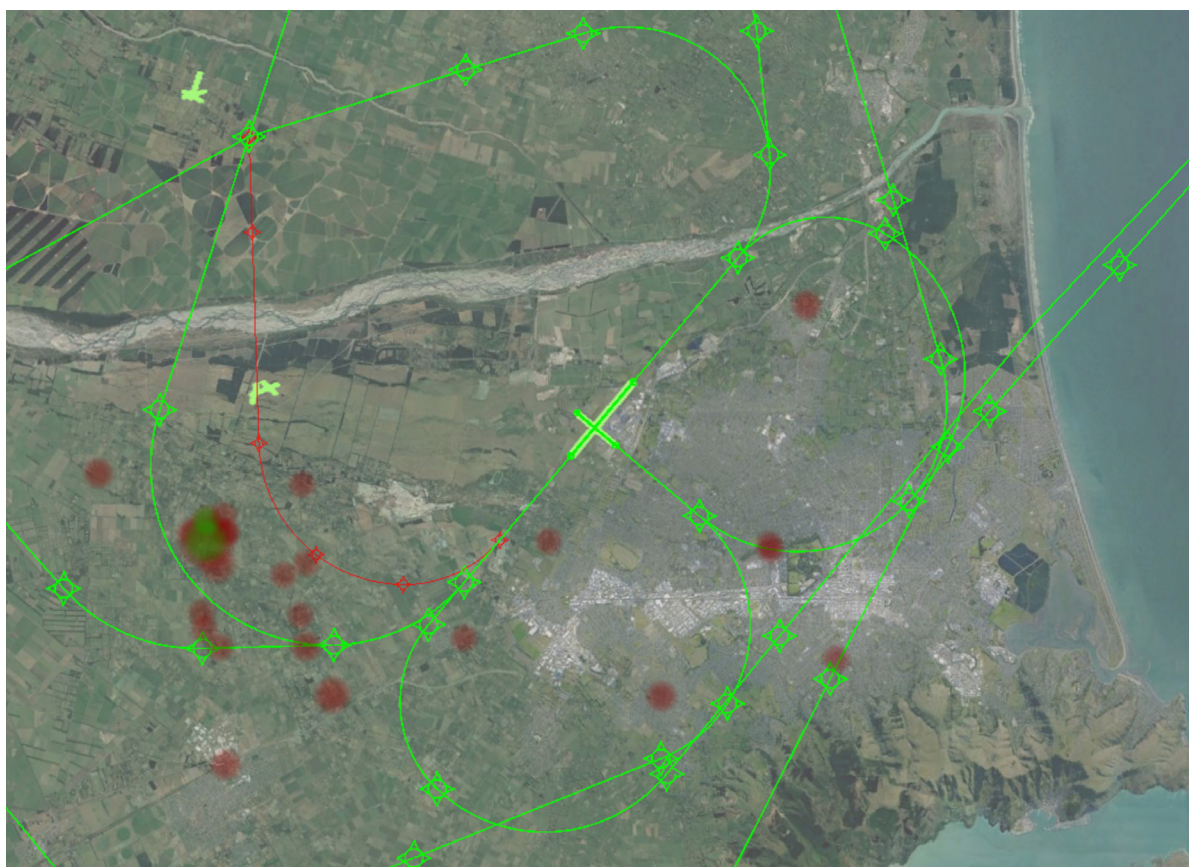


Figure 3: Christchurch PBN Trial Flightpaths – Recommended New Flightpath (red):



Path: I:\JOBS\2014\2014180A\06 Drawings\Internal\GIS\GIS001 2014180A RNP\GIS001 2014180A RNP.aprx

Map Legend

- Runways
- Proposed RNP tracks
- 50 dB Ldn
- 55 dB Ldn
- 65 dB Ldn
- Mid-RNP Trial Noise Contours
- 50 dB Ldn
- 55 dB Ldn
- 65 dB Ldn

Christchurch Airport

aid-RNP Trial Assessment contours (December 2017-February 2018)

Prepared By: Date: 4/05/2018 Time: 12:16 PM

Scale at A3 1:100,000
0 1,000 2,000 4,000 m

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