

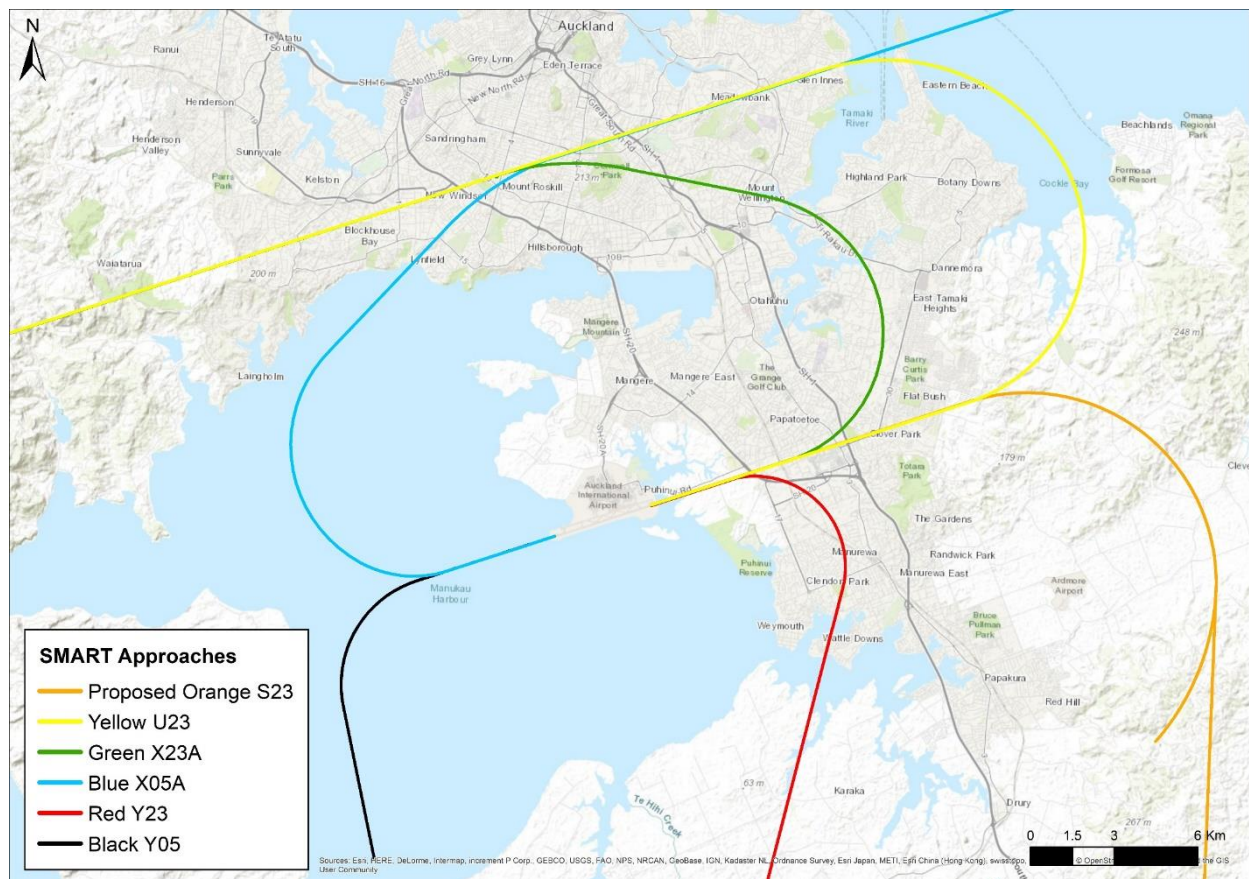
Memo

To: ANCCG
Date: 29 November 2021
Subject: Orange Trail Track Final Report
From: Auckland Airport, BARNZ and Airways

Development of Orange SMART track over Clevedon

SMART Approaches use satellite-based navigation and enable aircraft to burn less fuel, emit less carbon dioxide and fly more quietly. They contribute to international aviation carbon dioxide-emission reduction proposals and are aligned with the Government's National Airspace and Air Navigation Plan.

The development of a Smart Track for flights from the South to approach Auckland Airport over Clevedon was signaled in the final decision implementing the Red Smart Track for flights from the South approaching Auckland Airport over Wattle Downs and Manurewa.



The Orange Smart Track trial for flights from the South to approach Auckland Airport over Clevedon was commenced Quarter 1 2019, however had to be halted after approximately one month because of concerns raised by pilots that the original Track was too close to gliders at Drury (even though there was the legally required level of separation). The Track path was adjusted, re-tested in the simulator and the Trial recommenced September 2019, however was impacted by COVID-19 lockdowns which significantly

affected flight volumes so was stopped again. The trial was recommenced in October 2020 with the Orange Track in use since then, although use was significantly curtailed over the last six weeks of the trial from mid August to the end of September due to the Auckland region going into further level 3 and 4 COVID-19 lockdowns.

The Orange Track trial was initially based on the parameters of a maximum use of 25 movements per day (with no use at night time after 10pm). At its mid-point review in June 2021 the maximum limit of 25 movements per day was removed, reflecting the absence of noise complaints received in relation to its use during its first seven months.

Analysis of Usage, Noise Monitoring and community response

A report has been prepared by Marshall Day (item 8 on the ANCCG Agenda) which summarizes the use of the Orange Track, the noise recorded and the complaints received over the full trial period from 1 October 2020 to 30 September 2021. Note, that in its calculations, Marshall Day have made adjustments for the low use of the Orange Track during the last six weeks of the trial, in order to reflect noise levels as if flights had continued to use the Orange Track for the full 12 month period.

In summary:

- 2556 Orange Approaches were flown over this time
- On average, when the Orange Approach was able to be used, there were 11 approaches per day
- Marshall Day calculate that the Average L_{Amax} level of an individual aircraft overflight event at Clevedon is 61 dB L_{Amax}
- Marshall Day calculate that the L_{dn} level measured at the Clevedon noise monitor from aircraft movements during the trial was 36 dB L_{dn} compared with 23 dB L_{dn} for aircraft noise base line measurements undertaken in 2019 prior to the commencement of the trial
- Marshall Day calculate that Auckland Airport noise wouldn't contribute to the overall L_{dn} noise level in Clevedon until Orange approaches exceeded 65 approaches per day
- No complaints were received regarding flights using the Orange Approach
- One complainant made several complaints regarding flights using the Red Approach and was supportive of the Orange Approach
- One complainant made several complaints about the volume of flights experienced over the Flatbush area and wanted increased use of the Red and Green Approaches in order to reduce flights on the main approach path over Flatbush.

Marshall Day's overall conclusion is that:

... the aircraft noise level during the trial (36 dB Ldn), while higher than baseline (23 dB Ldn), is a low level of aircraft noise and was significantly lower than the ambient noise in the area (55 dB Ldn). At almost 20 decibels lower than ambient, the total noise from AIA is an insignificant contribution to the overall noise level in the area. We note this doesn't mean residents in the area wouldn't notice any aircraft events – they may notice discreet events as they occur – but the overall noise level in the area wouldn't increase by adding a significant number of flights on the Orange track.

And

We note that New Zealand Standard NZS 6805: 1992 Airport Noise Management and Land Use Planning states that areas exposed to aircraft noise levels below 55 dB Ldn are suitable for residential use. During the trial, the noise level from AIA aircraft was 36 dB Ldn, which is 19 decibels below the NZS 6805 criterion. As such, the noise from AIA operations – and specifically the use of the Orange track – during the trial readily met the criteria in NZS 6805, and was significantly lower than the ambient noise level in the area. Therefore, we consider the noise impact in Clevedon from the use of the Orange track during the trial to be minimal.

Decision Process of new aircraft flight paths

The design, development and implementation of new Smart Approach paths occurs as a joint initiative by the airlines (represented by BARNZ), Airways and Auckland Airport:



- Airways designs the proposed SMART Approach flight paths at the request of the participating airlines:
 - in line with civil aviation and Council requirements and or designations (in Auckland Airport's case the noise contours may be found under Designation 1100)
 - in line with other air space restrictions (eg avoidance of other aerodromes such as Ardmore Aerodrome or the Drury Glider airspace)
 - reflecting aircraft technical requirements, specifications and limitations
 - taking account of and endeavoring to minimize the impact of aircraft noise on populated areas under potential routes for the new Approach, so far as practicable
- The airlines test the proposed SMART Approach flight paths in flight simulators and advise of any adjustments required from an aircraft safety and maneuverability perspective.
- Auckland Airport agrees that the airport can be used for the SMART Approach flight paths before any flight path is implemented.
- Auckland Airport arranges for noise monitoring to be put in place under the proposed new Approach path and for base line noise monitoring to be undertaken, and monitors feedback received from the community.
- After an assessment of the trial results and community feedback by BARNZ, Airways and Auckland Airport, a decision is reached regarding the confirmation or other adjustment of the new Approach path.
- Auckland Airport then formally advises Airways its agreement or disagreement to the new Approach path.

For more about the roles and shared responsibilities in the development of Smart Approaches refer [SMART Approaches | Auckland Airport](#)

Future use of the Orange Track

The Orange Track trial is regarded as successful by BARNZ, Airways and Auckland Airport.

From a technical aeronautical perspective, the trial identified an issue with the initial route, with pilots feeling it was too close to the airspace used by gliders at Drury, and adjustments were able to be made to the Track to reflect this and thus reduce the visual distraction pilots were reporting. The trial allowed this issue to be identified, corrected, and retested.

From a noise perspective, the additional aircraft noise caused by having flights use the Orange Track was at a relatively modest level and did not cause any complaints from residents. The 36 dB dB L_{dn} recorded from use of the Orange Track during the trial, and the forecast up to 39 dB L_{dn} if useage increased are both well within the 55 dB dB L_{dn} identified as suitable for residential use by New Zealand Standard NZS 6805: 1992 Airport Noise Management and Land Use Planning. As noted above, Marshall Day's advice from an acoustic noise perspective, is that the noise impact in the Clevedon area from the use of the Orange track at the levels during the trial is minimal and significantly lower than the ambient noise level in the area.

Auckland Airport therefore intends to formally confirm to Airways the ongoing use of the Orange Track, following the route flown during the September 2020 to September 2021 trial period during daytime hours (7am to 10pm) without any specified cap on volumes. This is supported by BARNZ and Airways.

Community feedback regarding use of the Orange Track will be continued to be monitored and responded to in line with established processes and reported to the ANCCG.