

**Before an Independent Hearings Panel of Wellington
City Council**

In the matter of the Resource Management Act 1991 (the **Act**)

And

In the matter of hearing of submissions and further submissions on the
Wellington City Proposed District Plan (**PDP**)

**Statement of Evidence of
Jo Lester for Wellington International Airport Limited**

Dated: 18 July 2023

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1. INTRODUCTION

Qualifications and Experience

1.1 My name is Jo Lester. I hold a Bachelor of Resource and Environmental Planning (with Honours) from Massey University, obtained in 1995.

1.2 I am currently employed as the Airport Planning Manager at Wellington International Airport Limited (**WIAL**) that owns and is responsible for Wellington International Airport (**Wellington Airport or Airport**). I have held that position since 2021. Prior to that, I was employed by WIAL in 2019 as the Airport Planner. From 2015 until 2019, I worked as a Senior Policy Advisor in the Resource Management Practice Team at Ministry for the Environment.

1.3 My principal role at WIAL is the primary resource management planner of all environmental aspects at Wellington Airport. I have day-to-day oversight and management responsibility for all environmental planning, Resource Management Act 1991 (**RMA**) planning, noise, and monitoring the local, regional and central government legislative and regulatory environment for changes that may impact Wellington Airport operations.

1.4 A key focus of my employment for the last four years has been to lead the process of ensuring that the planning framework for Wellington Airport is flexible and enduring, ultimately resulting in the confirmation of the Airport Purpose designations over the Main Site Area (which consists of the main airport holdings), East Side Area (which is currently the southern half of Miramar Golf Course) and Miramar South Area (which is the former Miramar South School site) in the Wellington City Council (**WCC**) District Plan.

Code of Conduct

1.5 I am giving evidence based on my experience and position. I accept however, that because I am employed by WIAL, my evidence may not be considered entirely impartial or independent.

1.6 Subject to that point, and while this is not an Environment Court hearing, I have read and otherwise complied with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023.

2. SCOPE OF EVIDENCE

2.1 This statement of evidence relates to Hearing Stream 5 (District Wide Matters) where I will outline:

- (a) Wellington Airport's Infrastructure and Planning Requirements;
- (b) The Airport's need to be protected from incompatible use and development, and the planning tools to enable this;
- (c) Forecasting/projections on numbers of passengers used for noise contour modeling;
- (d) How the Airport manages its noise; and
- (e) Natural Hazard Risk Management.

2.2 Mr Thurston provides a separate brief of evidence that describes the Obstacle Limitation Surfaces (**OLS**) Designation which affects properties at and beyond the Airport and is proposed to be modified as part of the PDP process. The general OLS evidence being provided at this stage is so that the Panel can better understand the potential restrictions on land use activities in areas beyond the Airport's boundaries as a result of the Designation which is designed to ensure the safety of aircraft operations in and around the airport. More detailed evidence about OLS will be provided at hearing stream 10 which will include the OLS Designation.

2.3 Ms Raeburn's evidence in Hearing Stream 1 outlined the importance of Wellington Airport to the wellbeing of Wellington both socially and economically and outlines its recent Master planning process. This evidence is **attached** as **Appendix A** to this evidence for ease of reference.

3. WELLINGTON AIRPORT INFRASTRUCTURE PLANNING AND DEVELOPMENT

- 3.1** Airports take a long time to build and are costly to maintain. They have specific location requirements to be safe for flight operations and to be accessible to the communities they serve. Once built, they have a very long, intergenerational lifespan.
- 3.2** In order to understand its longer-term infrastructure requirements, and to input into its Master planning processes, Wellington Airport regularly commissions forecasting studies to consider future growth scenarios and associated requirements. A robust forecasting methodology matches the drivers of passenger growth, such as changes in population, economic activity/incomes, destination attractiveness, travel costs (e.g. airfares), behavioural changes and the impact of one-off events, with the anticipated change in aircraft supply and seat capacity; in other words, demand is capped by the number of seats that are available to use.
- 3.3** It is well known that Wellington Airport operates on a constrained site. In 2013, WIAL engaged AIRBIZ to evaluate the potential for alternative airport sites that may be able to accommodate that anticipated growth within the Wellington Region (**2013 Study**). A copy of the study produced by AIRBIZ is **attached as Appendix B**.
- 3.4** This work built on an earlier study undertaken by Works Consultancy Services in 1992 (**1992 Study**). The 1992 study encompassed the establishment of selection criteria for feasible airport sites, a search for such sites within the Wellington region, and a high-level economic evaluation of candidate locations. Seven sites were identified following review of the region's topography to find the preferred location. The conclusions of the 1992 Study supported retention of Wellington Airport at its current location.
- 3.5** The 2013 Study further confirmed that the current location of the Airport remained the most appropriate due to its close links to the Wellington CBD, and the existing investment and infrastructure already established at the site.

- 3.6** As there is no realistic alternative location for an airport for Wellington, the Airport has significantly invested in upgrading its facilities and infrastructure over the past 10 years (approx. \$507 million in capital expenditure) and is looking to invest further to meet expected demand and increase its resilience.
- 3.7** It is therefore critical that this essential regionally and nationally significant airport asset is not adversely impacted from incompatible use and development. Those being the establishment of noise sensitive activities within the vicinity of the airport, and any structures that penetrate the Airport's Obstacle Limitation Surface (OLS).
- 3.8** The most appropriate planning tool to manage and control the establishment of noise sensitive activities (such as intensified residential development) within the vicinity of existing airports (those areas that are expected to be exposed to higher levels of aircraft noise) is through noise boundaries based on the New Zealand Standard for Airport Noise Management and Land Use Planning (NZS 6805:1992) implemented via District Plan provisions. The most suitable planning tool to manage OLS penetrations is through airspace designations. This is the approach that all major airports in New Zealand have adopted.

Obstacle Limitation Surface Designation (WIAL 1)

- 3.9** For the purpose of this hearing, Mr Thurston's evidence provides a high-level outline of how OLS work, and why they are important for the safe and efficient operation of the airport (i.e. the statutory and operational requirements that underpin it).
- 3.10** The OLS covers a large part of the airspace within Wellington City Council boundaries and applies irrespective of any underlying District Plan zones (refer Figure 1 below).

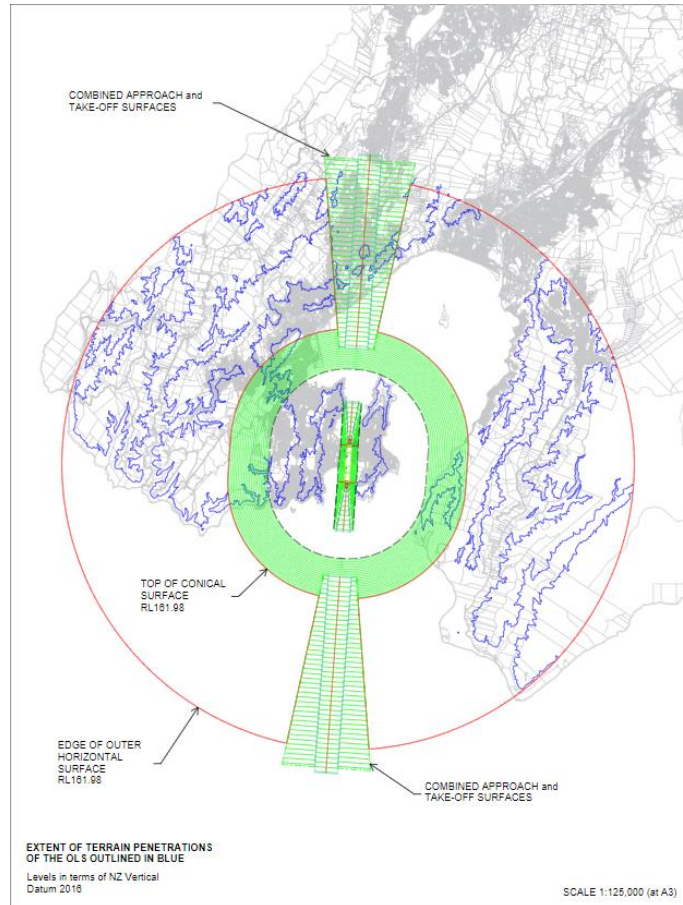


Figure 1: 2-dimensional version of Wellington Airport OLS. Given the hilly terrain of Wellington, much of it already penetrates the OLS. These terrain penetrations are shown with a blue outline.

3.11 The OLS requirements are distinct from other height limits imposed by rules in the Operative District Plan (**ODP**) and PDP. In this regard, while a zone included in the ODP or the PDP may permit buildings and structures up to 11 metres in height (for example), the OLS requirements will take precedence over those provisions.

3.12 As a result, the OLS Designation requirements will still need to be satisfied despite any other more lenient provisions in the ODP or PDP and the exact requirement will depend on the particular part of the OLS in play. For example no new objects or extensions can penetrate the Take-off and Approach surfaces, the Transitional, Inner Horizontal, Conical and Visual Segment Surfaces and exceed a height of 8-metre above ground level. With respect to the Outer Horizontal Surface however (which covers most of Karori, all of Makara/Makara Beach, Wadestown, Crofton Downs, Ohariu, Ngaio, and some of Khandallah), an object or extension that penetrates the OLS may not exceed a height of 30 metres above ground level. There are exceptions provided for OLS penetrations where:

- (a) the object or extension is shielded by an existing object, the penetration is a temporary short term penetration (e.g. construction machinery or equipment); and
- (b) that penetration has been approved by Wellington International Airport Limited; or
- (c) Wellington International Airport has determined that such objects and structures will not affect aircraft operations within this area.

3.13 In order to ensure that WIAL can maintain its own record of all OLS penetrations as it is required to do so, WIAL needs to be notified of any penetration of the OLS. For those objects that exceed the height allowances (8 metres unless in the Outer Horizontal Surface where 30 metres is allowed), WIAL will need to determine whether any proposal additional penetration of the OLS will compromise aircraft safety before and if it gives written approval under Section 176 of the RMA. This will be dependent on factors such as whether there is higher terrain in the vicinity which effectively shields the proposal from causing any adverse effects on aircraft safety. In some cases, an aeronautical study might be required.

3.14 In order to help the public, as well as WCC officers, understand the OLS designation requirements on a site-by-site basis, the Airport has commissioned a GIS based tool to be incorporated into the WCC E-Plan. This means that anyone will be able to easily see when they search on a particular property address, how much clearance they have between their property and the OLS and whether they need to notify the Airport and/or obtain written approval (under s 176(1)(b) of the RMA) for any proposal. Details of the visual representation of this information are still being developed with the WCC District Plan and WCC GIS teams but should become live in the very near future.

Noise Contours/Boundaries/Overlays

3.15 As is described in more detail in Mr Humpheson's evidence Noise contours/boundaries are prepared using NZS 6805:1992.

- 3.16** NZS 6805 uses the noise control boundaries concept as a mechanism for local authorities to:
- (a) Establish compatible land use planning around an airport; and
 - (b) Set noise limits for the management of aircraft noise at airports.
- 3.17** I note that the noise measurement methods of NZS 6805 are a mandatory requirement in the New Zealand Planning Standards and areas subject to noise effects are described as Noise Control Boundary Overlays.
- 3.18** Wellington Airport has a unique noise management framework compared to other NZ airports, largely due to its geographical proximity to the city, and residential surroundings i.e. it has historically had a large number of houses in close proximity to the runway and therefore large numbers of houses are inside the ANB.
- 3.19** As for all NZ airports, the NZS 6805 recommendations had to be adapted to suit the location situation. The primary difference that sets Wellington apart from most other airports is that it operates with a partial night-time curfew (which is an additional control more stringent than NZS 6805 recommendations), and surrounding land use is currently controlled only within the ANB, and no OCB. The absence of the OCB in the existing ODP is a departure from the NZS 6805 which was considered appropriate for Wellington Airport by the Environment Court in 1997.
- 3.20** With the upcoming District Plan review in 2021, and the promotion of residential intensification throughout the district, the Airport discussed the opportunity with Council to update the existing ANB and to bring the associated land use planning framework into better alignment with the NZS 6805 (and also other NZ Airports) by adding a 60 dB Ldn contour/boundary.
- 3.21** Given the historic and existing development patterns surrounding the Airport, this is still a more moderated approach than NZS 6805 suggests, however is comparable to other airports such as Auckland, Queenstown and Rotorua which have land use

controls within the respective 60 dB Ldn contours and offer mechanical ventilation to existing houses within these areas.

3.22 It should be noted that Wellington Airport has also given an undertaking via a mediation agreement during the Main Site Area Designation Environment Court Appeal, to amend the Designation so that the acoustic mitigation obligations that are currently delivered via the Quieter Homes Programme (refer 5.26 – 5.35 below) are incrementally extended out to the 60 dB Ldn contour (which within the 60 dB Ldn contour will be the provision of mechanical ventilation only). Currently these obligations apply to existing residential dwellings within the ANB only¹. I discuss this agreement further in 5.41 below.

3.23 It is therefore extremely important that within the proposed Air Noise Overlay (which equate to the ANB and 60dB Ldn Noise Boundaries) that residential development (and other noise sensitive activities) is less permissive than in other areas, so that more people are not exposed to aircraft noise and any adverse amenity effects related to this over time which in turn will lead to reverse sensitivity effects.

4. NOISE CONTOUR MODELLING

4.1 For the PDP noise contour modelling, WIAL provided Mr Humpheson (the noise consultant for WIAL) with a forecast in aircraft movements undertaken by consultancy InterVISTAS. InterVISTAS is an international expert consultancy in aviation forecasting having undertaken studies across the globe for airlines, airports and aviation regulators.

4.2 The forecasts supplied to Mr Humpheson in October 2021 were based on the same forecasting methodology as used for the Wellington Airport Masterplan in 2018². Updated information for inputs such as economic growth, travel trends, route development and airline fleet plans were used based on the best information at the time. The forecasts also considered the impact and anticipated recovery from

¹ Condition 28 of WIAL 4 Main Site Area Designation

² [WIAL 2040 Masterplan_FINAL.pdf](#)

Covid-19 travel restrictions, which at the time had significantly suppressed the travel market for 20 months and continue to have an impact.

4.3 The future scenario used represents an “optimistic”³ growth scenario (with no runway extension assumed). Under this scenario, scheduled aircraft movements are expected to grow from approximately 82,500 in FY2020 to 142,800 movements in FY2050, a compound annual growth rate of 1.8%. By FY2050, the modelling anticipated the:

- Introduction of large “widebody” aircraft on the domestic main-trunk (Auckland-Wellington);
- Continued increase in size of narrow-body jet aircraft (e.g. replacement of the A320 with the larger A321);
- Transition to smaller low carbon aircraft (electric, hybrid) which will operate more frequently;
- Introduction of smaller regional jets on international short-haul sectors; and
- A gradual increase in international widebody aircraft flying via Australia.

4.4 Future aircraft movements were allocated to origin airport (for Wellington arriving) and destination airport (for Wellington departing) by aircraft type so that the impact on future flight paths could be determined.

4.5 Mr Humpheson’s modelling was provided to the Council after it had been peer reviewed by Marshall Day Acoustics as part of WIAL’s consultation with the Council regarding the PDP preparation.

5. NOISE MANAGEMENT FRAMEWORK AT WELLINGTON AIRPORT

5.1 Wellington Airport is conveniently located close to the city. This proximity to residential areas means that the Airport has to carefully monitor and manage the effects of airport noise on the surrounding neighbours and community.

3 The optimistic scenario is defined as the 95th percentile future scenario based on a number of simulated outcomes.

- 5.2** Although the Airport has maximum noise limits that are imposed via WIAL's designations, the way in which noise is managed is ultimately guided by the Airport Noise Management Plan (**ANMP**), under the direction/governance/oversight of the Airport Noise Management Committee (**ANMC**).

Airport Noise Management Plan (ANMP)

- 5.3** The Airport has recently undertaken a full review of its ANMP (which has been in place since 1999). This full review, which included a community submission period, was a requirement of condition 32 of WIAL's newly confirmed Main Site Area Airport Purpose Designation⁴. The updated ANMP was certified by Wellington City Council on 2 May 2023.⁵

Airport Noise Management Committee (ANMC)

- 5.4** Integral to the management of airport noise is the ANMC. This committee has been operating since 1997. It is comprised of resident representatives (currently 5), the Airport, the Board of Airline Representatives, airlines, air traffic control (Airways NZ), Wellington City Council and other airport stakeholders.
- 5.5** This Committee meets quarterly and closely monitors adherence to the noise limits imposed by the designations, and oversees the compliance, development and implementation of the NMP for remedying and mitigating adverse effects of airport noise.
- 5.6** The ANMC receives full support of the Airport in the management of Wellington Airport's noise. It can make recommendations to WIAL on procedures to ensure that it manages the Airport in a way to both comply with the relevant noise conditions and minimise its impact on the surrounding community as much as practicable.

⁴ WIAL 4 (confirmed in ODP and PDP on 18 July 2022)

⁵ [Airport Noise Management Plan \(wellingtonairport.co.nz\)](https://www.wellingtonairport.co.nz).

Airport Operational Procedures

- 5.7** Included as an addendum to the ANMP are the Airport's Operations Procedures (AOP) which outline the Airport's obligations placed on airline operators and other stakeholders to ensure compliance with the designation conditions, particularly in relation to curfew movements (including disrupted flight allowances), and engine testing.
- 5.8** In terms of engine testing, the Airport has detailed procedures for the appropriate locations of engine testing (depending on power setting). Prior to any engine tests being undertaken the aircraft engineer/operator must call the WIAL Integrated Operations Centre (IOC) to ensure that the required engine run complies with the specified time and location requirements. Once the engine run is complete, the aircraft engineer is required to complete an Engine Test Form and send it to the Wellington Airport Operations team and myself. An annual audit outlining compliance with the engine testing conditions and procedures is reported to the ANMC.
- 5.9** With respect to curfew procedures, the Airways NZ Control tower emails through a Curfew Observation Form at the end of their night shift to the Airport Operations team. This form is reviewed by WIAL to ensure each flight complied with the curfew provisions of the Airport designations (for example checking to ensure that they are all medical emergency flights). For flights that are disrupted/delayed, or diverted, the IOC are informed ahead of time. If a delayed flight is unable to arrive within the 30-minute allowance, the aircraft must be diverted to another airport. Delayed flights which arrive within the allowable 30-minute window⁶, must provide the Airport with a detailed explanation of why they were delayed. Diverted flights⁷ are only allowed to land at Wellington, if the scheduled airport is unavailable (for example if there is fog in Christchurch and the aircraft is unable to land).
- 5.10** This information is then reconciled with the Monthly data and night movement reports received from Envirosuite and reviewed by the ANMC.

⁶ Condition 27(a) of WIAL 4 – Main Site Area Designation

⁷ Condition 27(c) of WIAL 4 – Main Site Area Designation

Noise Monitoring, Compliance and Reporting

- 5.11** Until July 2022, noise generated by the Airport was controlled by the provisions within the ODP, however, is now largely controlled under the Airport Purpose designations⁸. The relevant designation for the control of operational noise is WIAL 4 – the Main Site Area designation. The designation condition generally repeats the noise limits that are included in the Airport Zone under the operative District Plan with a few minor changes.
- 5.12** Noise from aircraft operations (arrivals, departures and taxing) is controlled by the 65 dB _{L_{dn}} noise limit at the ANB. The ANB is implemented via the District Plan (not the designation) and is the area around Wellington Airport where it is projected that a noise limit of 65 dB L_{dn} will not extend beyond the boundary based on projected aircraft volumes/types, growth estimates etc.
- 5.13** Aircraft noise monitoring is undertaken under a Services Agreement between WIAL, WCC and Envirosuite. Every month WIAL receives monitoring reports which are included with the ANMC agenda. The noise monitoring system is known as ANOMS (Airport Noise and Operations Management System). Under this system, aircraft noise is continually monitored at three locations around the airport at the ANB. The locations of these monitors are at Rongotai College, Kekerenga Street in Strathmore Park, and Akaroa Street in Maupuia, as shown (by red squares) on the map below:

⁸ WIAL 2 (Miramar South Area), WIAL 4 (Main Site Area) and WIAL 5 (East Side Area)



- 5.14** Included in the monthly noise monitoring report from Envirosuite is:
- the daily Ldn for each month to show compliance with the noise limit.
 - a “Night Movements Report” - which incorporates flight observations data provided by Airways NZ and is used to confirm the curfew requirements are met.
 - Quality checks to ensure that the noise monitors are calibrating appropriately.
- 5.15** In addition to this, each year the Airport prepares an Annual Aircraft Noise Contour which demonstrates compliance with the 65 dB Ldn limit. The 2023 Annual Noise Contour is **attached as Appendix C**.
- 5.16** This monitoring system clearly indicates that the Airport comfortably complies with the aircraft operations noise limit. The Airport’s newly certified ANMP outlines how the Airport manages other noise, such as construction noise and other land-based noise. This is outlined further in Mr Humpheson’s evidence so I will not repeat it here.

5.17 WIAL accepts that for the most part it has the burden of ensuring compliance with noise related conditions by its airline operators especially in terms of aircraft operations noise measured at the ANB which cannot be assessed on an individual aircraft basis for non-compliance. I note that this was one of the reasons for obtaining the recent Designation for the Main Site Area in order to make that responsibility clearer than the ODP.

Noise Complaints

5.18 It is well documented that aircraft noise can have a detrimental effect on amenity, by causing annoyance and, in some cases, sleep disturbance which in turn can cause health and wellbeing effects in some individuals. The effects of aircraft noise, by their very nature extend beyond the boundary of the Airport and cannot be internalised or fully mitigated (particularly in relation to any outdoor spaces).

5.19 The Airport is currently operating at approximately 95% of pre-covid domestic passenger numbers and 70% of pre-covid international passenger numbers. It is of note that after the silence of little to no aircraft during the Covid-19 travel restrictions and lock downs, the number of noise complaints increased as aircraft operations started to revert back to normal (albeit still less than prior to Covid).

5.20 Given the forecasted passenger growth noted in para. 4.3 above, the level of aircraft noise now is not the level that will be experienced in 10, 20, or 30 years' time. This will likely result in a decrease in amenity (and a corresponding increase in annoyance) leading to an increase in noise complaints. Without adequate safeguards to restrict urban development within areas affected by predicted aircraft noise, this could likely result in the occupants of new urban developments being subject to adverse effects and then seek to further restrict the operation of the Airport through complaints.

5.21 As opposed to complaining about noise directly to WIAL, it is noted that members of the community often comment on noise annoyance through submissions and other feedback mechanisms (for example, during the community consultation on

the ANMP review, the 2040 Masterplan, and during the Notice of Requirement for designation process).

- 5.22** Other common noise complaints received by the airport relate to overflying aircraft and are usually from further afield (ie outside the Operative District Plan and PDP noise boundaries/overlays). These are usually with respect to smaller aircraft ie the Aeroclub or private aircraft flying over Miramar Peninsula or Roseneath.
- 5.23** Noise generated by overflying aircraft is not within the responsibility of the Airport itself, nor controlled by the Resource Management Act 1991. Airways NZ is the body responsible for managing air navigation across NZ and adherence to the relevant Civil Aviation rules. Although outside the Airports control, when complaints are made regarding overflying aircraft, the Airport checks whether the pilot was flying in accordance with the Civil Aviation Authority (CAA) rules with respect to minimum heights and locations, and any non-compliance is reported to the CAA.
- 5.24** I note that complaints about overflying aircraft further intensified this year since Airways NZ implemented an alteration to the departure flight path over the city's northern suburbs (Khandallah/Broadmeadows area). As awareness of the flight path change has increased (especially through the use of social media forums), the annoyance to some people has intensified, and the number of complaints with respect to overflying aircraft has increased substantially (100 complaints regarding the flight path change as of 1 July 2023). Some of these complaints have also related to overflying aircraft movements that have not changed with the new flight path (ie arrivals and medical emergency aircraft during the curfew period).
- 5.25** Overall, this indicates to me that noise complaints are on the rise and care needs to be taken to ensure that the Airport is protected from reverse sensitivity effects that may well result.

Wellington Airport Quieter Homes Programme

- 5.26** Wellington Airport has historically had a large number of houses in close proximity to the runway and therefore large numbers of houses are inside the current operative ANB. The Land Use Management and Insulation for Airport Noise Study (“**LUMINS**”) was carried out by the ANMC and was completed in 2009. The purpose of LUMINS was to determine the future management of land use and acoustic insulation for the properties within the ANB.
- 5.27** The study involved an in-depth assessment of the effects of aircraft noise on residents within the ANB. This led to consideration of mitigation options such as acoustic insulation for existing houses and more stringent land use controls for new noise sensitive activities within the ANB.
- 5.28** Recommendations from the study have been implemented through changes to the Operative District Plan to restrict intensification of noise sensitive activities inside the ANB, and the provision of an improved standard for noise insulation of new additions and alterations via Plan Changes 72 and 73 to the ODP (signed off by the Environment Court in 2012⁹).
- 5.29** Wellington Airport was also specifically identified as an affected party to any resource consent application for subdivision or residential activity within the ANB.¹⁰ The Airport actively engages with the WCC resource consents team on such applications and any enquiries with respect to residential activity (new or intensification) are forwarded to me.
- 5.30** Furthermore, in 2012 an acoustic mitigation programme “Quieter Homes” was subsequently implemented to retrofit acoustic insulation and ventilation to existing dwellings inside the ANB (built before 22 March 2012). This programme collects levies from airlines charged per passenger¹¹ specifically for the purpose of providing for the installation of noise attenuation to homes most affected by

⁹ ENV-2010-WGN-120

¹⁰ Refer non-notification clause Rule 5.3.10B.2, Rule 5.3.13.1, and Rule 5.4.7 of Operative District Plan for example

¹¹ Currently set at 32c per passenger

aircraft noise. 647 separate residential properties on 25 neighbouring residential roads currently benefit from this comprehensive programme.

- 5.31** Under this Programme, existing houses are insulated to an internal noise level of 45 dB Ldn. This internal level was specified in LUMINS recognising that it is difficult/complex to retrofit existing older houses to an internal noise level of 40 dB Ldn (which is the standard adopted under the ODP as a result of Plan Change 72 and 73 for new dwellings and/or extensions to habitable rooms within the ANB).
- 5.32** The pace of the roll-out for ‘Quieter Homes’ is heavily dependent on the voluntary uptake of the property owners that have been offered packages, and the level of work that is actually required in order to achieve the targeted internal noise level (45 dBA Ldn). Although the roll-out slowed down in 2020 – 2022 as a direct result of Covid-19, it is now progressing at a rate of one property every three weeks. It is expected that the roll-out will speed up as the programme progresses further away from the Airport. This is due to the fact that the noise attenuation required for these properties to achieve the targeted internal noise level will involve less work (ie properties may only require a mechanical ventilation system to bring fresh air from the outside, allowing property owners to keep their windows closed and the noise out).
- 5.33** To date, the Quieter Homes Programme has spent more than \$11 million and supported more than 100 homeowners. Feedback has been positive overall. For example, the owner of a property on Tirangi Road, who submitted on the Airports Notices of Requirement for designations, noted in her oral submission to the councils hearing panel that *“I am personally very happy with the work done on our house. The Quieter Homes team and all the tradies have worked hard to accommodate my requirements and I am very impressed with the results”*¹².
- 5.34** In addition to the Quieter Homes Programme, LUMINS also identified a total of 44 properties where the noise exposure exceeded 75dB Ldn (on Bridge Street, Cairns Street and Calabar Road). For these properties, effective insulation to an appropriate/healthy internal level for existing residential buildings is difficult to

¹² H Salisbury, Oral Submission for Airport Notice of Requirements Hearing, 19 May 2021

achieve. Any WIAL owned properties within this area were subsequently removed and the Airport's Fair Valuation and Purchase Programme has been offered to any private homeowners within this contour since 2009. There are nine of these properties that are still privately owned and remain in residential use. The remainder have been purchased and removed from residential use or demolished.

- 5.35** An update to the phased rollout of the Quieter Homes programme is provided at each ANMC meeting. The latest of these updates (as at end May 2023) is **attached in Appendix D** to this evidence for information purposes.

Proposed District Plan New Ventilation Requirements

- 5.36** The Councils proposed altered approach to insulation requirements within the Air Noise Overlay, and its potential challenges is outlined in Mr Humpheson's evidence.

- 5.37** I will therefore not repeat them here, however, I note that WIAL is surprised that the Council have proposed to change the way in which new noise sensitive activities and any additions and alterations to existing noise sensitive activities are insulated from aircraft noise without consulting with WIAL beforehand.

- 5.38** WIAL is not only concerned that this proposed new approach is inconsistent with the Airport's well established and effective Quieter Homes Programme (outlined above), but also that it will lead to adverse outcomes as noted in Mr Humpheson's evidence. WIAL is also uncomfortable about the Council using the Air Noise Overlay to impose what appears to be an unjustified expense (due to the overdesign element referred to in paragraphs 121 – 134 of Mr Humpheson's evidence) on property owners within these overlays/boundaries.

Designation Mediation Agreement Outcomes

- 5.39** The Wellington Airport Quieter Homes programme is based on co-existence with the Airport in its current layout and operative ANB.

5.40 Wellington Airport also understands that the introduction of apron/taxiway onto the East Side Area in the future (WIAL 5 Designation) will mean an altered noise environment for those closest residential properties, and as such agreed to a condition on the East Side Area designation¹³ to the effect that the most affected homes will be offered a ventilation package based on the expected noise in that area (and in line with the “Quieter Homes” a targeted internal noise level of 45 dBA Ldn).

5.41 In addition to this, WIAL and the appellants on the Airport’s Notices of Requirement for designations agreed to a settlement whereby the Airport agreed to alter the WIAL 4 (Main Site Area) and WIAL 5 (East Side Area) designations as soon as possible after the proposed new Air Noise Overlay (being the 65 dBA Ldn ANB and 60 dBA Noise boundary) becomes operative so that the designations specifically refer to the new ANB for aircraft noise compliance, and that acoustic mitigations in line with the “Quieter Homes” targeted internal noise insulation level of 45 dBA Ldn be extended within the 60 dB contour at a rate that accords with the growth of the contour over time.

5.42 There are no further requirements within this settlement agreement that are relevant to the District Plan review.

6. NATURAL AND COASTAL HAZARDS

6.1 Wellington Airport is located very close to the coast, and therefore obviously exposed to coastal hazards. Because of this the Airport is well versed in addressing the risks associated with the associated natural hazard risks such as coastal inundation and is currently addressing this risk through a project to upgrade/replace its sea defence walls, which protect not only the Airport, but also Council infrastructure including Moa Point Road, the regional wastewater interceptor pipeline and water supply reticulation (Wellington Water).

6.2 These existing coastal defence seawalls were established over 50 years ago and although various extensions, maintenance and upgrades have occurred over this

¹³ Condition 40-43 of WIAL 5 East Side Area Designation

time, WIAL's engineering advice has indicated that the area is subject to much larger waves than originally anticipated in the design of the existing structures. It is anticipated that the size and frequency of large wave events will also increase with increasing sea levels and climate change.

6.3 Consequently, the seawalls are subject to very frequent and ongoing costly maintenance with the risk of disruption and failure. The Airport therefore needs to ensure that the PDP provisions do not compromise its ability to continue with the maintenance of these structures, and that they provide an appropriate consent pathway for their replacement.

6.4 Since the close of submissions, WIAL has met with Mr James Sirl (Wellington City Council Senior Planning Advisor and the Natural and Coastal Hazard section 42A report author) and Mr James Beban (Independent Planning Consultant for Wellington City Council) to discuss WIAL's submission further and its key concerns with respect to the natural and coastal hazard provisions. Mr Kyle, Ms O'Sullivan and I attended the meeting.

6.5 During that meeting, WIAL clarified that its primary concerns with respect the Natural and Coastal Hazard chapters primary relate to:

(a) The drafting of the provisions, as notified, requiring the use and development to "reduce or not increase" the risk of natural hazards to people and property. WIAL expressed that these provisions were of concern due to coverage of the natural hazard overlays of their land and lease holdings;

(b) The operational and functional requirements of the Airport necessitate some of WIAL's assets and infrastructure being located within high coastal hazard areas. Preserving WIAL's ability to utilise these areas for airport activities is therefore important for its ongoing operation and use; and

(c) WIAL is in the early investigative phase of a seawall renewal project. This project has been necessitated by the increasing frequency and severity of storm events, coupled with the need to plan for rising sea levels. As notified, the Proposed Plan presents a number of potentially significant consenting challenges, despite the work being necessary to support the ongoing operation and use of regionally significant infrastructure including Council assets.

7. On review of the section 42A report, substantial amendments have been made the Natural and Coastal Hazard chapters, of which WIAL generally supports. Ms O’Sullivan has outlined a detailed response to these changes in her evidence.

8. CONCLUSION

8.1 Wellington Airport is recognised as nationally and regionally significant infrastructure which should be protected from incompatible land uses such as increased residential density in close proximity to the Airport represented by the Air Noise Overlay in the Proposed District Plan.

8.2 Wellington Airport responsibly manages its noise effects on its neighbours to the best extent it practicably can.

8.3 The Airport is experienced in addressing the risks associated with coastal hazards. The ongoing maintenance and/or renewal of the southern seawalls should continue to be enabled through PDP provisions.

Dated 18 July 2023

Jo Lester

Planning Manager

Appendix A: Jenna Raeburn Hearing Stream 1 Evidence

Appendix B: 2013 AIRBIZ Alternatives Study

Appendix C: 2023 Annual Noise Contour

Appendix D: May 2023 Update on Quieter Homes Programme Rollout

**BEFORE AN INDEPENDENT HEARINGS PANEL OF
WELLINGTON CITY COUNCIL**

IN THE MATTER

of the Resource
Management Act
1991 (the **Act**)

AND

IN THE MATTER

of hearing of
submissions and
further submissions
on the Proposed
District Wellington
City District Plan
(**PDP**)

**STATEMENT OF EVIDENCE OF
JENNA RAEBURN
FOR WELLINGTON INTERNATIONAL AIRPORT LIMITED**

DATED: 16 February 2023

Amanda Dewar | Barrister

P: 021 2429175

Email: amanda@amandadewar.com

PO Box 7

Christchurch 8140

1. INTRODUCTION

Qualifications and Experience

1.1 My name is Jenna Raeburn.

1.2 I hold a Bachelor of Laws and Bachelor of Arts.

1.3 I have been employed by Wellington International Airport (WIAL) since 2018. My current role is General Manager Corporate Affairs, responsible for planning, resource management and sustainability.

2. SCOPE OF EVIDENCE

2.1 In preparing for the hearing, I have read the following:

- (a) WIAL's filed submissions and further submissions on the PDP.

2.2 My evidence sets the scene for WIAL's submissions that will be heard over a number of the hearing streams and includes discussion on:

- (a) how WIAL's operation supports the wellbeing of the region both economically and socially;
- (b) our plans to meet future travel demand including our 2040 Masterplan;
- (c) our designations which enable efficient and ongoing development in recognition of the airport's role as Regionally Significant Infrastructure;
- (d) the importance of District Plan provisions that enable the airport to appropriately manage growth and recognise the potential for reverse sensitivity effects from noise sensitive activities;
- (e) the importance of WIAL's role as a lifeline utility operator; and
- (f) our sustainability plans, including net zero emissions by 2030 and helping decarbonise aviation.

2.3 WIAL will provide more detailed evidence at later hearings as is appropriate to the individual topic being heard.

3. WELLINGTON AIRPORT CONTEXT

Facilitator of Economic Growth and Wellbeing

- 3.1** Wellington Airport connects people and goods around New Zealand and the world, making a vital contribution to wellbeing. It is the primary arrival and departure port for many visitors to the region.
- 3.2** It fulfils a critical role as essential transport infrastructure for the city, region and country. In the most recent year (ended March 2022) 3.5 million travellers used the airport, but this is expected to reach pre-Covid levels of over 6 million by 2025.
- 3.3** Air travel is vital for Wellington's connectivity, given it is the capital city and geographically isolated from other main centres (Auckland at least eight hours drive and Christchurch separated by Cook Strait).
- 3.4** The resilience of Wellington's air travel market is a strong indicator of the necessity of air travel to the lives of Wellington residents and its visitors. Domestic traffic volumes at the airport have already materially recovered to their pre-Covid levels and connectivity to the trans-Tasman network has been restored. The pandemic has interrupted the growth profile of the airport, but WIAL's analysis, evidence of the recovery and industry expertise indicates that this impact is temporary.
- 3.5** Wellington Airport makes a very substantial contribution to the Wellington region's economy. An economic impact assessment (EIA) undertaken by Business and Economic Research Limited (BERL) as part of the 2040 Master planning found that in 2018 the airport generated economic output of \$2.3 billion and close to 11,000 jobs in the local economy.¹ The economic wellbeing enabled by Wellington Airport includes inbound tourism, business connectivity, improved productivity, and increased competition.
- 3.6** Pre-Covid growth projections indicated this would double to \$4.3 billion per year by 2040 and facilitating more than 22,500 jobs.²

¹ Wellington Airport Annual Review, 2020.

² Wellington Airport 2040 Masterplan.

- 3.7** The ongoing operation and development of the Airport is therefore of significant importance to employment, growth and the economic wellbeing of the community.

Lifeline Utility Operator

- 3.8** The airport is recognised as a lifeline utility in the Civil Defence and Emergency Management Act 2002 (CDEM Act 2022) and is a member of the Wellington Lifelines Group (WeLG). In the event of a significant earthquake or other hazard event, the airport is recognised as potentially the only link between the city and the rest of the country given the vulnerability of the road and rail network and the potential for the port and harbour access to be affected by liquefaction.
- 3.9** The airport participates in national emergency exercises and is a key player in local civil defence planning with deep emergency response expertise and equipment enabling land and sea rescue activity in the Eastern suburbs, South Coast and Wellington Harbour.

Significant Infrastructure Provider

- 3.10** WIAL is an Airport Authority, and as such must be operated or managed as a commercial undertaking (Section 4(3) of the Airport Authorities Act).
- 3.11** As an Airport Authority, WIAL is responsible for planning the development of the airport to ensure that it can meet the needs of the population it serves. It is well known that Wellington Airport operates on a constrained site and WIAL continuously works to determine how best to provide for future airport requirements.³
- 3.12** The airport is an intergenerational asset. Some of the facilities required can take a matter of years to design, fund and build and they remain in place for 50 years or longer in many cases. In other cases, WIAL needs to be particularly agile in the way that it provides infrastructure, as aviation demands can change rapidly.
- 3.13** The function of the airport should be seen within the context of various city and regional plans that are currently under development or review. The Wellington Regional Growth Framework (July 2021) is being

³ Wellington Airport operates on just 110 hectares, compared to Auckland Airport on 1500 hectares and Christchurch Airport on 750 hectares.

developed to look at how the Wellington-Horowhenua region can cater for up to 250,000 more residents in 30 years' time; a 43% increase over current (June 2021) estimated population. Further, this Framework anticipates the generation of an additional 100,000 jobs over the same timeframe. Other plans, such as the Wellington City Economic Wellbeing Strategy are consistent with facilitating the growth of population and employment within the Wellington City area. Wellington Airport will need to change and expand to cater for the anticipated growth in population and employment and will be a key enabler to generate this growth.

- 3.14** Were the airport not able to cater for this growth in population, we expect airfares to and from Wellington would increase significantly with demand outstripping supply. This would result in a city and region comparatively expensive to travel to, reserving air travel for the privileged while creating large barriers for business and government.

Social and cultural wellbeing

- 3.15** Wellington Airport is an important contributor to social and cultural wellbeing. In addition to supporting the employment of tens of thousands of Wellingtonians, the Airport connects people with loved ones, events and cultures across the globe, and provides substantial support to the local and regional community.
- 3.16** Prior to Covid-19, Wellington Airport invested around \$2.5 million per annum in the community through sponsorships, the Wellington Airport Regional Community Awards, and home acoustic mitigation. These programmes have been reduced during the pandemic but are being scaled back up as passenger numbers return to normal.
- 3.17** Key event sponsorships include World of Wearable Art, Wellington on a Plate and Beervana, CubaDupa, Wellington Fringe Festival, Te Papa exhibits and the New Zealand Festival of the Arts. The Airport also supports Wellington's art and culture, hospitality, sport and events through pop-up showcases of local artists and festivals, sponsored advertising, installations for exhibits, and by reflecting Wellington's film and creative industry and food and beverage offerings in the terminal.
- 3.18** The Airport supports a large number of charitable organisations through the Wellington Regional Community Awards, which are organised in

collaboration with the region's councils and recognise the work of volunteer groups in the areas of Arts and Culture, Education and Child/Youth Development, Health and Wellbeing, Heritage and Environment and Sport and Leisure. The Airport also sponsors Cystic Fibrosis New Zealand through its annual Christmas tree festival, supports the Life Flight Trust, and supports local community groups through donations and neighbourhood working bees.

- 3.19** As a result of the Airport designation proceedings through Environment Court mediation in 2022. The Airport agreed to establish a Community and Environment Fund for the benefit of the local community located near the airport (in particular within the 65 dB Air Noise Boundary and any new 60dB Ldn contour) for the purpose of education, promotion and advancement of community, and the mitigation of any adverse effects association with the operation of the airport and environmental interests⁴. WIAL is currently working with the mediation parties to set up the Trust to administer this fund.
- 3.20** The Airport's location close to the CBD is ideal for reducing travel time and land-based emissions, as well as supporting productivity and connectivity; however, Wellington Airport is conscious of its proximity to neighbours and its unusually constrained site. The Airport operates a Noise Management Committee comprised of resident representatives, airlines, air traffic control and other airport operators. This Committee oversees the management of noise at the Airport, and the Airport Noise Management Plan has recently been reviewed and submitted to WCC for certification.
- 3.21** WIAL also invests in noise mitigation (insulation and ventilation) for the existing homes nearest the airport. To date, this programme has spent more than \$10 million and supported 100 homeowners.
- 3.22** The Airport is unable to internalise the noise effects of aircraft operations within its land boundaries. Given that residential activity is a noise sensitive activity, it is not a compatible land use adjacent to an airport. Once such activities are established, noise complaints can have the potential to result in constraints on an airport's operation. Wellington

⁴ Condition 39 of the Main Site Area Designation (WIAL 4 in the WCC PDP and G5 in the Operative DP)

Airport is already subject to operational constraints through the imposition of a night-time curfew (and other noise conditions),

- 3.23** The most appropriate planning tool to manage and control the establishment of incompatible activities (such as intensified residential development) within the vicinity of existing airports is through District Plan provisions, which are recognised and provided for in the New Zealand Planning Standards as Noise Control Boundary Overlays. It is important that these noise control boundary overlays are considered as Qualifying Matters to ensure that the Council can make residential development less permissive than the limits set out in the National Policy Statement for Urban Development, so that more people are not exposed to aircraft noise and any adverse amenity effects related to this over time.
- 4.** It is also useful to note that the Noise Control Boundary Overlays in the PDP depict a point of compliance or a “maximum” level of aircraft noise that can be generated over time. It does not reflect the current level of aircraft noise that is generated at Wellington Airport.

THE WELLINGTON AIRPORT MASTERPLAN

- 4.1** WIAL, as the guardian of the Airport, is obliged to take a long-term approach and commit resources towards planning and protecting for the future of the Airport. Care must be taken to ensure decisions are carefully considered and trade-offs understood.
- 4.2** Master planning is an important component of this approach. Accordingly, WIAL updated its 2010 Masterplan (known as 2030 Masterplan) during 2019 (the update being known as the 2040 Masterplan). Wellington Airport recently obtained designations over its existing site, and proposed expansion site to the East, to enable the efficient and ongoing development of the Airport in line with the Masterplan, and these have now been confirmed in the District Plan.
- 4.3** These designations recognise the Airport’s status as Significant Regional Infrastructure, and underpin future development.
- 4.4** The 2040 Masterplan included an aviation forecast detailing:
- (a) the aircraft types and air routes currently operating,
 - (b) the anticipated growth in passenger demand,

- (c) the aircraft types expected to be utilised to meet that demand, and
- (d) the airport facilities required during peak times to accommodate the required aircraft movements over the planning period.

4.5 The forecasts, derived by leading industry forecasters Intervistas, with input from the carriers serving Wellington Airport, indicate that a gradual up-gauging of aircraft (airlines moving to larger aircraft) over the planning period should be provided for, specifically on high volume routes such as the route connecting Wellington with Auckland. This up-gauging is expected to result in widebody aircraft such as the Boeing 787 being required to service the main trunk domestic routes at peak times, 68 seat turbo-prop aircraft replacing 50 seat variants and so on. While Covid-19 has had a major impact since these forecasts were completed, Wellington Airport continues to expect growth in demand and up-gauging of aircraft going forward.

4.6 Accommodating larger aircraft types requires additional apron area for compliant aircraft parking and circulation. Wellington Airport has hosted scheduled services from widebody (Code E) aircraft in the past, but only at low frequency. The regular hosting of multiple Code E aircraft at peak times is a significant change in the way aircraft are managed on the ground at Wellington Airport. Aircraft such as the Boeing 787 and Airbus 350 are classified as Code E aircraft, requiring larger parking spaces, wider taxiway separation and larger ground handling equipment.

4.7 The extent of additional apron space now required was not anticipated in the earlier 2030 Masterplan when it was published in 2010; at the time, traffic volumes were expected to utilise a higher proportion of Code C aircraft. Hosting the types and volumes of aircraft now expected will also require additional terminal space. This is a good reminder of how airports need to be flexible and adaptable to changing technologies.

4.8 Similarly, the introduction of next-generation low- or zero-emission aircraft will require flexibility and adaptation. For example, electric aircraft may be smaller and more numerous (conversely to up-gauging of larger aircraft), which also requires apron expansion and changes to terminal layout. The 2040 Masterplan is a snapshot of the future, providing

guidance for airport growth, but any expansion will be staged in a way that takes account of developments as they occur.

4.9 Wellington Airport is currently reviewing its capital expenditure plans to determine the next steps for a new international terminal, expanded apron space, and seawall renewal (which is reaching the end of design life, and under-designed by today's standards, requiring frequent maintenance) and is mostly beyond the boundaries of the Airport's designation), among other major projects. The next five years of capital expenditure will be consulted on with airlines (as required by the Airport Authorities Act⁵) in 2023, and finalised in early 2024.

4.10 It is important to WIAL that District Plan provisions do not unnecessarily or inadvertently constrain the proper operation and development of the Airport and its seawall both now and in the future.

5. SUSTAINABILITY AND THE TRANSITION TO NET ZERO

Wellington Airport operational emissions

5.1 WIAL is strongly committed to playing our part in reducing emissions and improving our sustainability. We aim to reach net zero emissions for our own operations by 2030, involving substantial, permanent reductions and then offsetting remaining emissions. By 2050 we are aiming for absolute zero emissions (no carbon output at all).

5.2 Some of our milestones to achieving these goals include:

- (a) Achieving Level 2 Certification from the Airport Carbon Accreditation programme, which runs independent assessments of airports around the world. This recognises we have comprehensive emissions profile mapping and reductions in place.
- (b) Scoring highly against Environment, Social and Governance benchmarks (3rd in the world for participating airports) in an independent global assessment by GRESB.

⁵ Shortly to be replaced by the Civil Aviation Bill.

(c) Improving the energy efficiency of buildings and infrastructure.

(d) Progressively replacing our operational vehicle fleet with electric vehicles (with the exception of fire service vehicles), with a third completed so far.

5.3 Our next steps include replacing our gas boiler and further reducing operational emissions.

5.4 This progress so far and work underway should provide the panel with a very high degree of comfort that the ongoing provision of infrastructure at Wellington Airport is consistent with a net zero emissions future.

Airline emissions

5.5 While the transition of aircraft technology to lower emissions is out of our direct control, we are working hard to lead and support airlines in this vital work.

5.6 For example, we are leading a technical group with other New Zealand airports and airlines looking at the requirements to support electric flights, and we have partnered with electric aircraft manufacturer Heart Aerospace to support the development of their ES-30 aircraft. In November 2021 we hosted the first electric flight to cross Cook Strait.

5.7 We are also supporting the roll-out of sustainable aviation fuels (SAF), with a target of 2023-4 for the first SAF-powered commercial flights.

5.8 It is worth noting Air New Zealand's stated goal to reach net zero emissions in their operations by 2050, and of Sounds Air to be operating commercial electric flights before the end of the decade.

5.9 The Climate Change Commission recognises that aviation is essential to New Zealand's way of life and therefore provided for in all scenarios and pathways to meet New Zealand's 2030 and 2050 emissions targets.

5.10 Te Atakura – First to Zero (which is WCC's blueprint to make Wellington City a zero carbon capital (net zero emissions) by 2050) also identifies the critical role of the airport in a connected city. The WCC submission to the Climate Change Commission (aligned to the delivery of Te

Atakura) confirmed the importance of air travel for tourism, and our reliance on air travel to stay connected to each other.

- 5.11** The Commission has also recognised that technology advancement is expected to provide a range of meaningful solutions to reduce emissions from the aviation sector over the medium term. Along with the electrification of short-distance commercial flights and SAF, there has been further investment into more efficient next generation aircraft. This is a continuation of a long-term sector trend with aviation CO2 emissions today being 56% less per passenger kilometre than in 1990.
- 5.12** Given all of these industry-wide efforts, it is certain that aircraft technology will change over the next 20 years. This means that airports, including Wellington Airport, will need the flexibility to accommodate these changes.
- 5.13** It is important to Wellington's economic and social wellbeing that a "net zero emissions future" is not perceived as a future where aviation growth is restricted. As noted above, domestic aviation has grown significantly since the 1990s with no substantial growth in emissions due to changing aircraft types and greater efficiency.
- 5.14** More air travel in and out of Wellington could reduce global emissions, if direct flights replaced more indirect routes. For example, a direct connection from Wellington to South-east Asia or North America would remove the need for a connection through Auckland, reducing journey time and the significant fuel burn during take-off and landing procedures.
- 5.15** Simply limiting aviation would likely result in inequitably high prices for airfares. The better pathway to net zero emissions is to support the development of new technology and allow reasonable time for this to occur.

6. CONCLUSION

- 6.1** Wellington Airport is essential for the wellbeing of the region both economically and socially.
- 6.2** The Airport is a key emergency response facility and is recognised as Regionally Significant Infrastructure.

- 6.3** WIAL has undertaken extensive Master Planning exercises over many years so that it is in a position operationally to meet future travel demand in a way that appropriately mitigates effects on the surrounding environment.
- 6.4** Designations are now in place which enable the operation and expansion of the Airport, but resource consents will inevitably be required for activities beyond the boundaries of its designations or with respect to any non-airport activity.
- 6.5** Wellington Airport should be protected from incompatible land uses such as increased residential density in close proximity to the Airport.
- 6.6** WIAL is actively involved in reducing its operational emissions and improving its sustainability, including reaching net zero emissions by 2030 and supporting decarbonisation of the wider aviation sector.

Dated 16 February 2023

Jenna Raeburn

GM. Corporate Affairs

Technical Report 12

AirBIZ – Alternatives Airport Sites Investigation



WELLINGTON INTERNATIONAL AIRPORT ALTERNATIVE SITES

Master Plan 2035
Deliverable D5 Report

20 August 2013



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01. INTRODUCTION

WELLINGTON INTERNATIONAL AIRPORT LTD

DRAFT MASTER PLAN
ENVIRONMENTAL EFFECTS
ASSESSMENT



ALTERNATIVE AIRPORT
LOCATIONS STUDY

WORKS
Consultancy Services

Works Consultancy Services Limited

Wellington International Airport Limited (WIAL) is preparing a new Master Plan for the airport, to a horizon of 2035. WIAL has engaged Airbiz as the principal planning consultant to carry out the major aspects for the Master Plan and Airbiz has, in turn, engaged Beca and TDG to assist in areas of specialist disciplines.

A comprehensive assessment has previously been undertaken of potential for alternative airport sites within the Wellington region. The Works Consultancy Services 1992 Alternative Airport Locations Study (the “1992 Study”) encompassed the establishment of selection criteria for feasible airport sites, a search for such sites within the Wellington region, and an economic evaluation of candidate locations. Seven sites were identified following review of the region’s topography to find the best candidates. The conclusions of the Study supported retention of Wellington Airport (the “Airport”) at its current location.

The 1992 Study has been reconsidered for the purposes of this Master Plan process in terms of any new factors or changing circumstances that might suggest another location that could be seriously considered and to determine whether any additional information or assessment is required.

This report forms Deliverable *D5 Alternative Sites* - it focuses on the 1992 Study and provides the considerations and results of the review by the consultant team.

02. REVIEW OF PREVIOUS STUDY

1. THE SITES

The sites evaluated in the 1992 Study are listed as follows:

- Wellington International Airport (WIA)
- Ohariu
- Horokiwi
- Mana Island (a)
- Mana Island (b)
- Paraparaumu
- Te Horo
- Wairarapa
- Pencarrow

A map of the sites is provided in Figure 1.

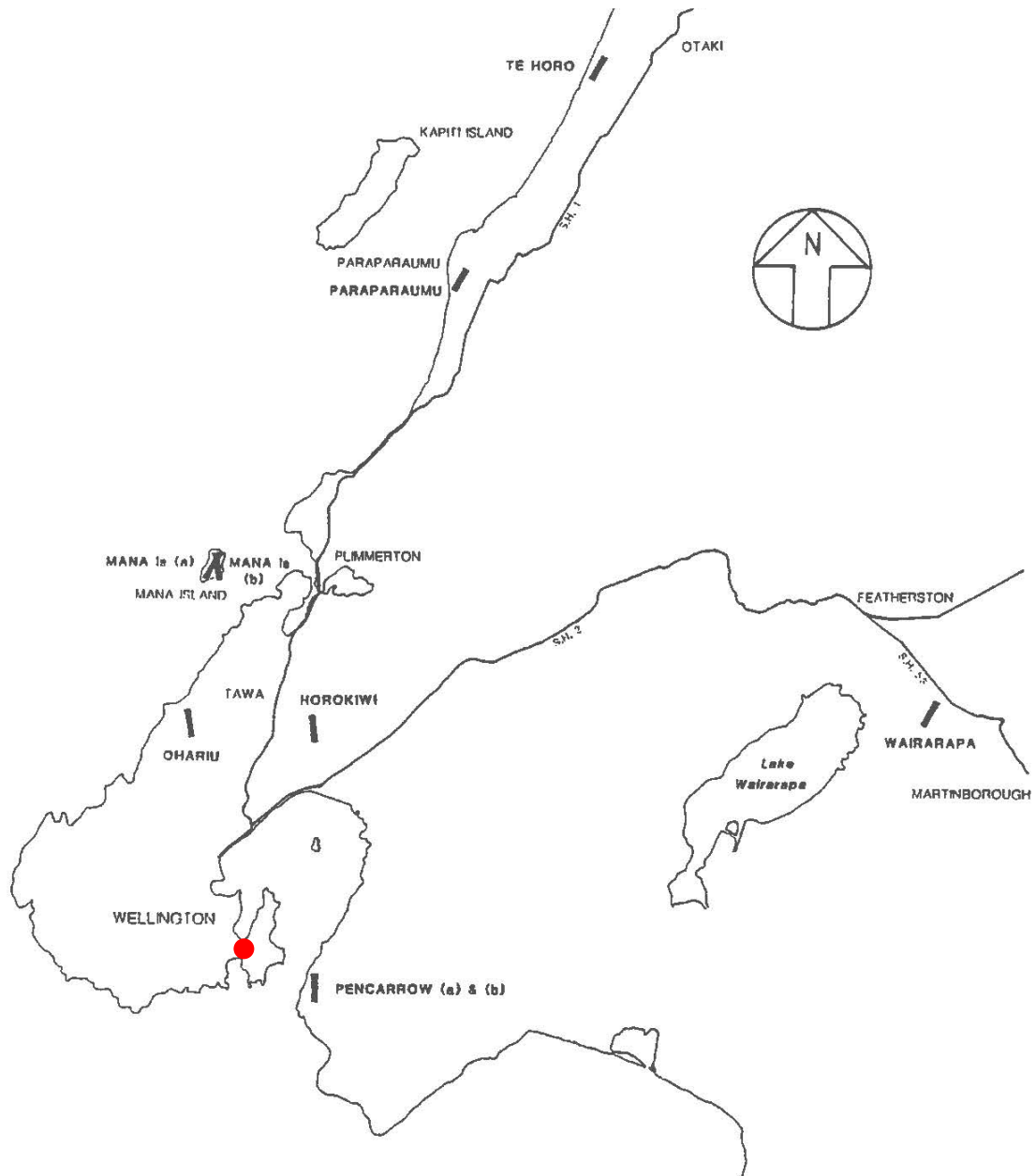


Figure 1 Alternative Sites from Works Consultancy Report (1992)

2. KEY INPUTS/ISSUES

Matters raised in this section are those that were considered in the 1992 Study. Inputs and issues discussed remain valid today although airfield configuration would need to be addressed in regards to the most recent regulatory requirements, namely the need for Runway-End Safety Areas which would increase the overall length of the airfield.

GENERAL

A summary and brief discussion on the key Study inputs considered for each site is provided as follows:

A. Airport size

- An equivalent size domestic/international airport would be required to that planned in the 1991 WIA Master Plan.
- The Study sought to accommodate a domestic/international airport (termed a Level 3 Airport in the 1991 WIA Master Plan). The design aircraft as provided in that Master Plan was a Code E aircraft which included B747, B777, A330 and A340 aircraft types;
- The size of the Study airport was based on the 1991 WIA Master Plan comprising a 3,000m runway length which resulted in a site area allowance of 100 hectares for the runway area and an allowance of 50 hectares for the terminal and airport facilities. A total site area of 200 hectares was included in the costs associated with each site;
- The 1992 Study reflected a suitable design aircraft (Code E), a suitable runway length of 3,000m for short and long haul destinations and with suitable provision for terminal and associated airport facilities, the size of the airport in the Study was therefore well considered. This is further addressed below in the section titled 'AIRFIELD CONFIGURATION'

B. Obstacle Limitation Surfaces (OLS).

- The 1992 Study considered the OLS impacts and the associated flight paths including the approach and take-off surfaces for a Code 4E airport. It did not however consider the airspace procedures associated with a typical instrument approach. An explanation is provided in the following section titled 'AIRSPACE CONSIDERATIONS'.

C. Key operational requirements, namely wind, turbulence, cloud base, etc.

- The meteorological conditions evaluated as part of the Study in comparison to today's environment are practically unchanged. Therefore meteorological conditions were well considered in the Study and they would provide the same outcome if conducted in today's environment.

D. Key site issues including site acquisition, earthworks, land costs and access;

- The 1992 Study evaluated the viability of acquiring each site, the earthworks associated with the development of a Level 3 airport (equivalent to an ICAO Code 4E airport), the land costs and requirements for access to each site.
- Key environmental and social issues which might affect the ability to obtain statutory approvals such as aircraft noise and disruption caused by construction of the new site.
- The Study utilised the aircraft noise footprint from the 1991 WIA Master Plan (using the 55 & 65dBA LDN contours) and developed a typical noise boundary envelope of 1,000m in width and 10,000m in length. This envelope was overlaid over each site to gain an appreciation on the number of properties affected at each site and the general impact of aircraft noise across each and the impact caused by disruption during construction of a new airport. An assessment of the environmental and social issues is provided in the following section titled 'ENVIRONMENT, ECONOMIC AND SOCIAL IMPACTS'.

All the above inputs provided a fair and substantial investigation of the key requirements to be considered when assessing the suitability of a new airport site.

As mentioned however, the Study did not assess airspace implications for each site. Accordingly, an assessment has now been carried out, described in the following section titled 'AIRSPACE CONSIDERATIONS'.

3. AIRFIELD CONFIGURATION

As the basis for evaluating construction costs at the alternative sites, the 1992 Study considered an airport footprint and airfield geometry that is generally consistent with what would be considered if this exercise were undertaken today. However the evaluation, if conducted today, would consider an increased runway length to allow for regulatory requirements and best practices such as those associated with Runway End Safety Areas (RESAs) and land allowances beyond the ends of runways for Runway Protection Zones (RPZs).

An increased runway length at the existing airport site and proposed sites such as Pencarrow would come at a cost premium due to the terrain (at Pencarrow) and at the existing site due to the necessity to extend into the Coastal Marine Area. However, given the scale of construction cost differentials exhibited in the 1992 Study between the current and candidate sites, it is not considered that a new cost premium would change the outcome of the comparative site evaluation.

4. AIRSPACE CONSIDERATIONS

The dimensions of airspace circling areas are a function of runway length and the performance category of operating aircraft. Faster flying aircraft require more manoeuvring room and thus larger circling areas are defined. There are five (5) alpha performance categories defined to capture the characteristics of like type performing aircraft. They are:

Aircraft Performance Category: Approach Speed Range:

- Cat A Speeds up to 90 Knots (i.e. Cessna 172)
- Cat B 91 Knots to 120 Knots (i.e. Twin Otter)
- Cat C 121 Knots to 140 Knots (i.e. ATR72, B737, A320)
- Cat D 141 Knots to 165 Knots (i.e. B767, A330, B777, B747)
- Cat E 166 Knots to 210 Knots (i.e. A380)

The dimensions of the circling and missed approach areas and the safe flying altitudes established as part of the approach and departure procedures will vary depending on the category of aircraft and the obstacle environment.

The airspace surrounding an airport is identified as Prescribed Airspace and is defined as airspace where, in the interests of the safety, efficiency or regularity of current or future operations of the airport the airspace is protected. Prescribed Airspace is made up of the Obstacle Limitation Surfaces (OLS) and the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces.

The OLS is a number of imaginary reference surfaces in airspace which determine when an object may become an obstacle to aircraft manoeuvring in the vicinity of an Airport or during landing or take-off. Requirements for Obstacle Limitation Surfaces are defined in Chapter 4 of NZCAA's advisory circular AC39-6 and Chapter 4 of ICAO Annex 14 Volume 1. In some circumstances the OLS can be infringed however it is desirable to avoid all penetrations.

The PANS-OPS surfaces are a second set of imaginary surfaces determined by aircraft flight operations under instrument conditions that form an envelope over the existing obstacle environment. These surfaces are established by the instrument procedure designer to ensure that an aircraft will have a specified minimum clearance above any accountable obstacle in situations where the pilot is relying entirely on the information derived from cockpit instruments and may have no external visual reference to the ground, to obstacles or to other aircraft. As a result, PANS-OPS surfaces cannot be infringed in any circumstances.

The objective of the prescribed airspace is to ensure that the airport is not adversely affected by the building of

structures or other activities in the area used by aircraft arriving or departing from the proposed site.

In review of the 1992 Study, and based on a Category D aircraft i.e. B747, A330, B777 type as this was the aircraft type adopted for each site, the area of terrain potentially affecting PANS-OPS is separate to that considered for the OLS as it will be based on the safe altitudes adopted for the approach and departure procedures. This will include the circling and missed approach areas as developed by the procedure designer and this is based on the obstacle environment at each site.

The 1992 study considered the OLS but not the PANS-OPS surfaces and therefore this could therefore play a significant role in the viability of each site as the PANS-OPS procedures may determine an approach or departure procedure which is not practical for a particular site. This may therefore require further investigation to evaluate each site.

5. ACCESS CONSIDERATIONS

Since 1992, commitments have been made by the New Zealand Transport Agency (NZTA) and Wellington City Council (WCC) for investments into major transport route upgrading based on retention of Wellington Airport at its current location. The Mt Victoria Tunnel to Airport upgrade and Basin Reserve projects have begun with NZTA having made major property purchases to date, and the projects estimated at over \$100m.

6. AIRCRAFT NOISE CONSIDERATIONS

Aircraft noise is a significant issue for most airports and the approach used in the Study for the evaluation of aircraft noise involved taking the Wellington Airport aircraft noise contours (1992) and overlaying them at each of the proposed sites as a means of obtaining a preliminary view on noise impacts for each option.

While noise contours will have changed over time in light of the best available information in regards to movement projections, fleet mix, time of operations and other operational considerations, for an initial site assessment this approach, using 1992 data remains an appropriate method, as due to these changes, the 1992 data represents a 'worst case' scenario that allows scope for growth in future aircraft movements.

7. OTHER POTENTIAL SITES

No investigation has been undertaken on any other sites as the comprehensiveness of previous investigations is considered satisfactory in terms of: identification of viable topography; distance from Wellington; order of magnitude cost differentials between options.

8. CONCLUSIONS

As identified in Section 2 of this report, a preliminary investigation of the PANS-OPS procedures may be required to further validate the viability of each site, if they were to be seriously reconsidered.

Based on the information provided in the Study and on review in terms of today's environment, of the seven candidate sites, in summary:

In 1992, Paraparaumu provided a site which could be developed at lower cost compared to other sites and which provided some operational advantages in relation to high runway usability and frequency of low cloud base and turbulence. However the site has obstructions in the take-off and approach paths which would require a new runway orientation to overcome the restrictions. Given the site has experienced major urban growth, the level of constraint for this option has significantly increased (i.e. cost, noise, urban form etc.) While road travel between Wellington and Kapiti will become more efficient in the next ten years, with the construction of the Transmission Gully Motorway and the Mackays to Peka Peka portion of the Wellington Road of National Significance (RONS), Paraparaumu is still distant from Wellington, located 50kms from the city centre.

The Te Horo site could have also been developed in 1992 at lower cost compared to others and again provided some operational advantages in relation to high runway usability and frequency of low cloud base and turbulence. However this location is considered to also face an increased level of constraint due to long travel distance and total travel cost, being some 65kms from the Wellington city centre. This will not be fully offset even with forecast travel time and trip reliability improvements following the construction of the Transmission Gully Motorway and the Mackays to Peka Peka Expressway.

Since 1992 understanding has improved as to the site's flooding risks and, strong community aspirations have emerged to retain its rural character. There would also need to be a significant upgrade of the local roading network should this location be pursued.

A Horokiwi option would potentially have merit in terms of location on a range of measures (travel accessibility advantages, visual and noise), however suffers from a high frequency of low cloud / visibility to such an extent as to exclude it from further consideration.

The Mana Island options involve significant cost to build a causeway to connect Mana Island to the mainland. The time to construct the airport on Mana Island would be significantly longer given the causeway would need to be built before the airport. The reliance of such a causeway as the sole access passage for the airport is a disadvantage.

There are also significant environmental, social and cultural issues with Mana Island which would render conversion to airport problematic. It has scientific reserve status and is held as conservation estate. It is a bird habitat, is significant to Ngati Toa and other Iwi and has heritage associations due to its early colonial use (whaling and an early Wellington landing location for passengers from Australia) which would further complicate such a conversion.

Of the remaining locations (Ohariu, Wairarapa, Pencarrow) the various combinations of operational viability constraints (e.g. crosswinds), development and / or high transport travel costs and environmental values remain valid as justification for favouring retaining the Airport at its current location.

Table 1 below provides a simple multi-criteria table prepared to illustrate an updated status of key site selection factors used in the 1992 Study with indicative cost adjustments for construction costs. The criteria are grouped into operational and non-operational factors, and for each of these the principal matters that are considered more likely to be a factor for each site are given. However, it should be noted that the identification of these factors has been made by high level judgement rather than specific analysis.

In terms of potential alternative sites for Wellington Airport (excluding the additional impact that a PANS-OPS assessment would have on each site) the conclusion is therefore that the current location remains appropriate when the identified factors are taken into account.

Airport Location	Principal non-operational factors	Construction Costs		Principal operational factors (primary impediment noted)	Total Discounted Travel Costs relative to WIAL site
		1992 Cost (\$M)	2013 Cost (\$M) Ref Note 1		
Existing site	Coastal Regional consents. District Consents – noise, land use	133	247	Good on most factors except turbulence	0%
Ohariu	Significant earthworks, access	437	813	Crosswind, Low cloud / visibility	10%
Horokiwi	Noise, community issues and access	411	765	Low cloud / visibility	-12%
Mana Island (a)	DoC Estate, bird sanctuary, lwi issues	501	932	Crosswind, Low cloud / visibility	19%
Mana Island (b)	DoC Estate, bird sanctuary, lwi issues	549	549	Low cloud / visibility	19%
Paraparaumu	Urban development and noise	340	633	Superior	48%
Te Horo	Flood, ecological and community issues	339	631	Superior	73%
Wairarapa	Impacts on rural communities and activity	339	631	Not assessed	66%
Pencarrow	Regionally significant landscape, access	534 to 972	993 to 1808	Low cloud / visibility	9-21%

Note 1: Adjusted by Construction Cost Index annual rise per annum of circa 3% (21 years x 3%)

KEY	Statutory approval risk	Development Cost (\$M 2013)	Operational factors	Travel Costs
	Straightforward	<250	Excellent	5% to 15% saving
	Low to Moderate risk	250-500	Good	Neutral (plus/minus 5%)
	Moderate risk	500-750	Adequate	Plus 5% to 10%
	Moderate to high risk	750-1B	Marginal	Plus 10% to 20%
	High risk	1B+	Not viable	20% plus

Table 1 Multi Criteria Table

03. DRIVERS FOR RE-CONSIDERATION OF POSSIBLE RELOCATION

1. INTRODUCTION

The useful life of Wellington Airport as a facility operating on its current site will primarily depend on its ability to grow to meet demand.

The key drivers which will influence a future need to consider a possible move to a new airport site or to develop a second major commercial airport for the Wellington region include the following:

- The capacity of the current single runway;
- The ability to expand the site to meet demand; and
- A catastrophic event at the current site rendering remediation impossible.

This section addresses each of these issues in order to understand the triggers to potentially consider relocation. It is observed that the range of issues has not changed significantly from when the 1992 Study was undertaken.

2. CURRENT AIRPORT SITE CAPACITY

The current hourly capacity of runway 16-34 at Wellington Airport is 25 – 40 aircraft movements per hour depending on the runway in use and prevailing weather conditions. The primary reasons for the restrictions on current runway capacity include but are not limited to:

- Delays to aircraft movements (as reported in the Runway Capacity Study undertaken by Airways in 2007);
- Restrictions on aircraft exiting the runway quickly;
- Restrictions on some aircraft when the parallel taxiway is occupied;
- Wellington terrain i.e. having to wait for a departure to climb to a safe altitude before turning;
- Sequencing of aircraft types as it affects aircraft separation requirements;
- Differing arrival and departure sequencing patterns;
- The mix of aircraft types using the runway, including differing speeds and wake turbulence generations and tolerance;
- Differing departure procedures for each runway; and
- Night curfew

The maximum theoretical hourly capacity of a single runway without many or any of these restrictive influences,

may be around 50 movements per hour.

The daily capacity of the runway is determined by the available operational hours. In Wellington the daily capacity is therefore limited by the nightly curfew. Annual capacity is significantly influenced by underlying patterns of seasonality in demand.

A Runway Capacity Study undertaken by Airways in 2007 provided recommended opportunities for improving runway capacity at the Airport. These included:

- Reducing Runway Occupancy Times (ROT);
- Amended departures procedures particularly for Runway 16 operations to allow pilots to turn early; and
- Introducing a passing bay.

These are suggestions based on the current runway configuration. However there are other ways including longer term capital improvements which could have a significant impact on runway capacity. These include:

- Building a new parallel taxiway that meets the regulatory separation distance to allow holding of one or more aircraft at each end for immediate departures and allowing simultaneous unrestricted operations of aircraft on runway whilst the parallel taxiway is in use;
- Progressive up-gauging to larger capacity aircraft generally;
- Increasing load factors on aircraft;
- Adjusting schedule timing to smooth hourly demand patterns;
- Influencing demand seasonality to that more activity occurs in low and shoulder seasons; and
- Harnessing new technology to enable more aircraft movements in poor weather conditions

If such improvements were made to reduce runway restrictions and boost runway capacity, then there is sufficient scope to increase passenger throughput without the need for a second runway/site over the next 30 years or more.

The current Wellington Airport master plan (2030) forecasts 10.5 million annual passengers which represents almost a doubling of the current annual passenger numbers.

Table 2 provides examples of other major single runway airports which have a greater annual passenger throughput than Wellington.

Airport	Annual passengers (million)
Chengdu Shuangliu International Airport	31.6
San Diego International Airport	17.2
Auckland International Airport	14
Wellington International Airport	5.2

Table 2 Single Runway Capacity Examples

Auckland Airport currently handles some 14 million passengers and this will increase to approximately 18-19 million before a new runway is opened. The hourly passenger throughput is founded on their movement area configuration, infrastructure, support facilities, operational procedures etc. and this allows a runway capacity in excess of 40 movements per hour.

The progressive implementation of runway capacity improvements with commensurate expansion of terminal and apron areas provides reassurance that an alternative airport site (as a second airport) would not be justified as the current airport can cater for demand beyond 2035 using a single runway.

This provides further reassurance that an alternative site is not justified in the “lifetime” of the Master Plan 2035 for reasons of capacity constraints.

3. LOSS OF AIRPORT THROUGH CATASTROPHE

Another consideration which could force a move to an alternative site would be in the event of a significant catastrophe (such as earthquake, cyclone, tsunami) in which remediation of the airport on the current site may not be feasible. It is noted that such a catastrophe may also have significant impact on potential alternative sites.

4. TRANSPORT ACCESS

Another primary driver to relocate the airport could be to mitigate access constraints (existing and future) perhaps by relocating the airport to a site within proximity to a motorway/railway corridor.

Currently there are challenges associated with access to the existing airport site, the majority of which are actively being addressed by NZTA and WCC through the Roads of National Significance programme. These relate to safety, reliability, customer experience and quality, which will impact on the Airport's future growth and contingency, including:

- Existing access is constrained by having only one fit for purpose road route at the northern boundary of the airport. This is in response to significant topographic constraints and due to the runway location.
- Access also being constrained along the length of the main access route to and from the city centre and motorway links, where there exists a combination of road tunnels, large at-grade intersections, limited bus priority, and complex way-finding. The NZTA has a plan for improving the corridor, but it is important to realise that the route is not only an airport road; it fulfils multiple functions and has competing demands for the same road capacity, with the Airport effectively "at the end of the line".
- Within the Airport site, there are conflicting and competing demands especially within the parking precinct and terminal forecourt areas. Most airport traffic currently passes through the same entry and exit points, where access reliability, travel choice and priority is dampened

The existing Airport site and this Master Plan process presents opportunities to improve access, demonstrating that the existing site can be relied on to meet future needs to 2035 and beyond.

These include:

- Providing not only car-based access capacity and parking, though this is important. Recent NZTA and WCC studies provide a basis to inform consideration of options for this.
- Seizing the opportunity for access growth presented by the balanced promotion and prioritisation of bus and taxi access, perhaps through a mode hierarchy based on need and value, to guide decision making.
- Collaborating with NZTA and WCC on airport access and ways to deliver measures to improve reliability, choice and quality of access, within a context of growth.
- Develop a Sustainable Airport Access Strategy (travellers, other customers and staff), to help extract the best value from existing and proposed access infrastructure, again to release capacity for access growth.
- Improve internal site access to resolve pinch points, to provide better parking, circulation and forecourt offerings, to introduce taxi management systems and to pay careful attention to pedestrians.

These access opportunities are based on the current access context and define the principles to help unlock

growth based on the existing Airport site. They are examined further in subsequent stages of the study.

04. SUMMARY

The previous study completed by Works Consultancy Services Ltd in 1992 addressed the critical aviation issues associated with each candidate site sufficiently to provide a good level of confidence that the current site is the optimal site for the airport. However the potential influence of PANS-OPS procedures (not addressed in the 1992 Study) and an up to date aircraft noise evaluation are aspects of assessment of alternative sites that were not addressed in the 1992 Study (PANS-OPS). At this time, without investigating these in greater detail (further study), it is very unlikely that these factors would swing the preferred site away from the current site.

Of importance also is that upon re-evaluation, most of the alternative sites in the Study are less practicable and viable. Also relevant is that there is significant current public commitment underway with investment in the state highway network in Wellington (the Roads of National Significance Northern Corridor projects) which in large part is in recognition of, and seeking to reinforce, the functionality of Wellington Airport at its current location as a regional 'gateway'.

It is the view of the Consultant team that the airport on its current site has latent aeronautical capacity, capability and surface access capacity for significant growth and improvement to runway capacity and airside and landside facilities to support a much greater passenger throughput, though to and beyond 2035.

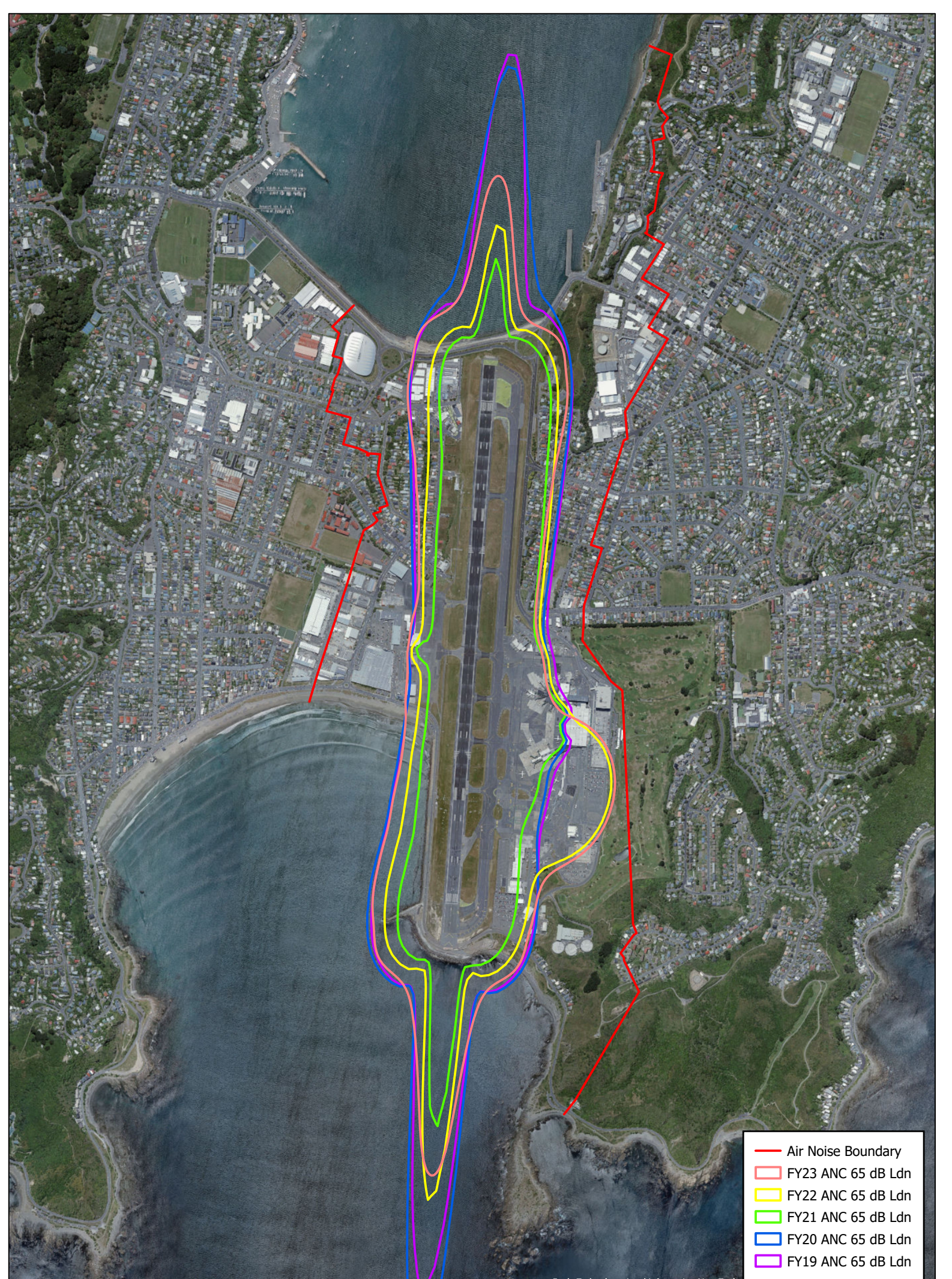
Wellington Airport Noise Treatment (WANT) Update

Quieter Homes Program (as at 31 May 2023)

NB: Updates to numbers in orange

	Streets within Area (refer Rollout map on website)	Offers made	Application forms received	Site inspections undertaken	Acoustic design prepared	Legal agreements signed	Acoustic treatment installed	Acoustic treatment works underway	Current Status of Area
Area 1	Bridge St, Pt of Wexford Rd	38 (2016)	37	37	37	34	34	0	Complete.
Area 2	Calabar Rd, Caledonia St, Pt of Wexford Rd	33 (2017)	30	35*	35	35	35	0	Complete
Area 3	Tirangi Rd, Coutts St	48 (2018)	41	39	37	28	28	0	Due for completion in 2023. There is 1 active offer.
Area 4	Miro St, Caledonia St, Kedah St, Pt of Tirangi Rd	48 (2021)	33	33	31	7	6	1	Area 4 Underway.
Area 5	Wexford Road, Tirangi Rd, Lonsdale Cres, Rongotai Road	77 (2023)							Currently scheduled to be offered in 2023
Area 6	Lonsdale Cres, Coutts St, Miro St, Kauri St, Hobart St, Caledonia St, Moa Point Rd, Kekerenga St, Maupuia Rd, Aranui St, Zaida Way, Akaroa Drive	383 (2024)							Currently scheduled to be offered in 2024
Totals		167	141	109	140	104	103	1	

* Includes 5 WIAL owned properties (where application forms not required).



- Air Noise Boundary
- FY23 ANC 65 dB Ldn
- FY22 ANC 65 dB Ldn
- FY20 ANC 65 dB Ldn
- FY19 ANC 65 dB Ldn

Eagle Technology, Land Information New Zealand, Imagery, Cartography, Design, Communications

**Figure 2: Wellington Airport FY19 to FY23
Annual Noise Contour**