

MEMO

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<b>Subject:</b>	Trans-Tasman Bubble - Noise Impact				

**Introduction**

Auckland International Airport Ltd has engaged Marshall Day Acoustics to prepare a brief note on the potential increases in noise levels resulting from the ‘Trans-Tasman bubble’ (due to an increase in flights) and the corresponding potential noise impact on the community.

**Noise Levels - Present and Past**

Figure 1 graphs the monthly  $L_{dn}$  noise level at the Prices Road noise monitor, along with monthly aircraft movements for the two year period April 2019 to March 2021. The  $L_{dn}$  is the average A-weighted noise level over the month with a 10 decibel penalty applied to the night-time (10pm – 7am). The Prices Road monitor in Wiri was chosen for this analysis as it has complete data for the two year period. As decibels use a log scale, we’ve plotted aircraft movements on a log scale as well to better show the general alignment between the two values.

**Figure 1: Monthly  $L_{dn}$  noise level at Prices Rd monitor vs aircraft movements**

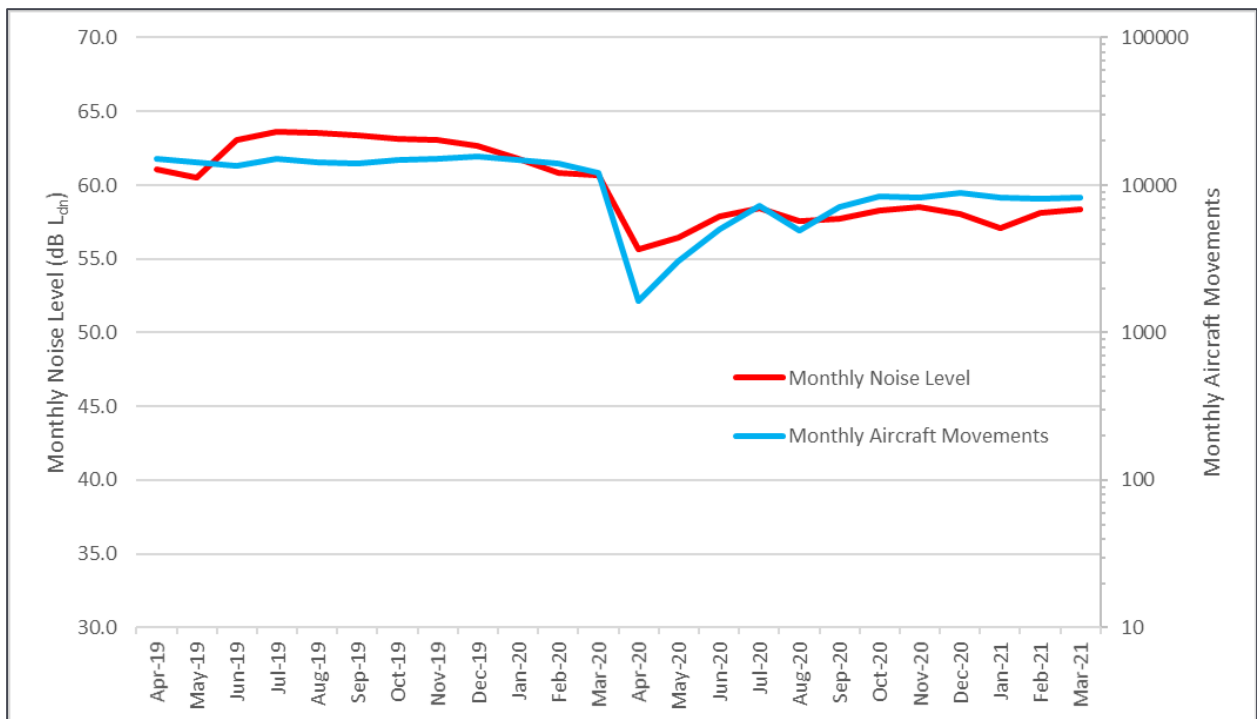


Figure 1 shows the number of flights and noise levels correlate reasonably well as expected. The current noise level is around 58 dB  $L_{dn}$ , with around 9,000 movements per month. This is a reduction of around 5 decibels from the pre-pandemic levels of approximately 63 dB  $L_{dn}$ , and would have subjectively been a ‘noticeable’ change for those in the area. For reference, Table 1 provides the typical subjective response from a change in noise level.

**Table 1: Change in noise level vs subjective response**

Change in Noise Level (dBA)	Subjective Reaction
> 12	More than a doubling of loudness
9 - 11	Doubling of loudness
5 - 8	Noticeable - Appreciable change
3 - 4	Just perceptible - Discernible change
0 - 2	Imperceptible change

### Noise Levels - Near Future

With the Trans-Tasman bubble implemented, we understand AIAL expects movements to return to around 11,000 per month. Based on Figure 1, we expect this to correlate with a monthly noise level of approximately 60 dB L<sub>dn</sub>. More importantly, this would mean an increase of around 2 decibels over the present levels, which we expect is representative of the increase at the other airport noise monitors as well. Per Table 1, this increase would subjectively be an ‘imperceptible’ change in overall noise level, however residents may notice a different character of noise (e.g. due to a change in flight timing or frequency, or aircraft).

### Noise Levels – Far Future

As noted, the increase in noise levels due to the implementation of the Trans-Tasman bubble is predicted to be approximately 2 decibels above the present levels. We also expect a further increase in noise levels as travel restrictions ease and international flight return to normal. We predict that this further increase in noise level would be around 3 decibels if we assume a return to pre-pandemic movement numbers. This increase would subjectively be considered ‘just perceptible’ as per Table 1.

However, there is also the possibility that the return to pre-pandemic flight numbers happens in further stages (with stage 1 being the Trans-Tasman bubble, and subsequent stages being a bubble with more and more countries) with each stage lasting for a reasonable duration. This may mean the change in overall noise level between each stage would be ‘imperceptible’, but the ultimate change in overall noise level to return to pre-pandemic levels from present levels would still be ‘noticeable’.

Given the above, we expect a series of small increases in noise level to have less impact than a larger step increase, even when the ultimate change is the same.

### Changes in Different Areas of Auckland

For this analysis we have looked at the Prices Road noise monitor which provides an indication of how noise levels may change in areas close to the airport where people are most impacted by aircraft noise. However, these trends may vary throughout Auckland depending on the tracks that overfly each area.

For the Trans-Tasman bubble, the traffic will be coming from the West and will thus use the conventional track over LOSGA most of the time with flights from northern/southern Australia using tracks from the NW/SW.

Residents living in areas of Auckland that are under these NW/SW tracks will likely experience an increase in noise level whilst those residing in areas that are usually trafficked by aircraft flying to other destinations (Asia/Americas etc) may experience little change until flights from those regions recommence.

These residents under the NW/SW tracks are well outside the 55 dB L<sub>dn</sub> contour (general threshold for aircraft noise effects) but are sometimes concerned about changes to flight paths and frequency of movements (as during the 2013 RNP trials). This may occur again with these changes in usage of particular tracks over the coming months.