

Dr Stephen Chiles for QLDC – Summary of Evidence, 7 October 2016**Residential Chapters - Hearing Stream 06**

1. Residential zones receive sound from a range of sources. For significant sound sources such as land and air transport, which cannot practicably internalise their sound emissions, there can be adverse effects on residential amenity, and sleep disturbance causing corresponding health effects. These effects are already widespread, but for new and altered buildings there is an opportunity to avoid compounding this legacy issue, and to progressively make improvements.
2. It is common for district plans to include land-use controls that require buildings for sensitive activities, that are locating in areas significantly affected by air and land transport sound, to be designed to result in reasonable internal sound levels. While this is not a perfect solution as there remain issues of external amenity, in my opinion it is an appropriate method that allows broader planning issues to be taken into account, as opposed to simply prohibiting houses from large areas around all infrastructure. I consider that criteria for land-use controls should be taken from New Zealand Standards NZS 6805 (airports) and NZS 6806 (roads). The New Zealand Building Code does not currently address this issue.
3. The rules in the notified versions of Chapters 7 and 8 included land-use controls for buildings in the low and medium density residential zones, affected by airport and road-traffic sound respectively. These acoustic treatment controls included sound insulation and ventilation requirements, so that windows can be kept closed to reduce sound entering buildings. A case study by the NZ Transport Agency (**NZTA**) showed the costs of such treatment to be in the order of \$10,000 extra on the cost of a new build three-bedroom house.
4. The controls proposed for airport sound in the Low Density Residential Zone (Chapter 7) are generally in accordance with NZS 6805 and Plan Change 35 to the Operative District Plan (**ODP**). I consider these controls to be appropriate to protect internal residential amenity.
5. The notified controls proposed for road-traffic sound are limited to a specific area in the Medium Density Residential Zone (Chapter 8). The NZTA (719) submitted for the controls to be amended and extended across other residential areas.
6. In accordance with NZS 6806, I recommend that controls in residential zones should reduce road-traffic sound inside new and altered buildings containing noise sensitive activities to no more than 40 dB $L_{Aeq(24h)}$. Such controls could be

required for a significant distance from many state highways in the District. However, the NZTA submission only sought for controls to be applied within 80 metres of state highways, which targets the most affected area. I consider this distance to be appropriate, except for three discrete areas where a shorter distance would be adequate as follows:

- (a) Makarora-Lake Hawea Road (SH6), 40 metres;
- (b) Wanaka-Luggate Highway (SH84) between Anderson Road and Ardmore Street, 60 metres; and
- (c) Shortcut Road and Luggate-Tarras Road (SH8A), 60 metres.

7. The Jandel Trust (717) and FII Holdings (847)¹ also sought for acoustic treatment to be required for noise sensitive activities in the Frankton Medium Density Residential Zone (within Chapter 8), to mitigate sound from existing commercial and industrial sites. These acoustic treatment requirements would largely overlap with controls for road-traffic sound. Regardless of this overlap, I consider the commercial and industrial activities should be required to comply with the receiving zone noise limits (from Chapter 36), so acoustic treatment to buildings in the Medium Density Residential Zone should not be needed for that purpose. An exception is that acoustic treatment might be appropriate for buildings in the Medium Density Residential Zone near the designated Transpower Frankton Substation; but further information about the transformer sound levels would be needed to determine the appropriate extent of controls if they were to be applied.

¹ I note for completeness that I have read the evidence of Mr Kyle (QAC, 433), Mr MacColl (NZTA, 719), Mr Beckett and Mr Morgan (both BARNZ, 271). No evidence from an acoustic engineer has been filed.