

PROPOSED PORIRUA DISTRICT PLAN

SUMMARY OF STATEMENT OF EVIDENCE

STEPHEN CHILES – NOISE AND VIBRATION

SUBMITTERS: WAKA KOTAHI [82] AND KIWI RAIL [86]

14 FEBRUARY 2022

1. My full name is Dr Stephen Gordon Chiles. I have prepared separate statements of evidence for Waka Kotahi and KiwiRail, both dated 21 January 2022. I have the qualifications and experience outlined in my primary statements of evidence. I reaffirm that I have read and continue to abide by the Code of Conduct for Expert Witnesses (2014). I have also participated in conferencing with Mr Styles and Mr Lloyd, and we prepared a Joint Witness Statement (“**JWS**”) dated 1 February 2022. Given the cross over in my evidence for rail and road, I will briefly summarise key points from my evidence and the JWS for both Waka Kotahi and KiwiRail.
2. Existing road and railway networks generate sound and vibration that cannot be fully internalised. In my experience, even with maintenance and other methods to manage sound and vibration implemented by the transport operator, adverse effects will extend beyond the boundaries of the rail or road corridor. Robust international evidence shows that this sound and vibration causes adverse health effects for the surrounding community.
3. Road and railway noise and vibration exposure of people in existing buildings is an international problem without simple solutions. However, there are straight-forward approaches to controlling the establishment of new and altered buildings to protect the health of people who will occupy those buildings.
4. In my opinion, land use planning controls are critical to ensure new and altered buildings are sited, designed and constructed, to manage adverse health effects from road and rail sound and vibration.
5. The notified version of the Proposed District Plan (“**PDP**”) includes controls on new and altered buildings near state highways and railways which I generally support. There are several areas where I consider the notified provisions should be modified to appropriately manage both health and amenity effects, and reverse sensitivity effects.

6. Of the issues I have raised with respect to the provisions in the PDP, there are two matters where there is a significant difference of opinion recorded in the JWS: road traffic vibration and ventilation.
7. In paragraphs 24 and 25 of the JWS there is a difference of opinion recorded with respect to road traffic vibration. While I consider road vibration controls to be necessary, Mr Styles and Mr Lloyd consider there is insufficient evidence justifying controls. In paragraphs 13.5 to 13.26 of his evidence in chief Mr Styles discusses road vibration. There are two fundamental areas where I disagree with Mr Styles, which appear to contribute to our differing opinions on the need for controls in the PDP in relation to roads:
 - a. Mr Styles quotes extensively in his evidence from vibration assessments for new roads. In my experience vibration from new state highways is different to and not representative of existing state highways. New state highways, rarely have service covers and any buried services are appropriately placed and constructed, and do have uniformly constructed pavement layers. Existing state highways often have buried services, often having been installed by trenching, and commonly have pavements that have been disturbed numerous times, generating inconsistencies that contribute to vibration.
 - b. Mr Styles appears to be of the opinion that vibration issues relate to surface condition which could be managed through normal maintenance. In my experience investigating vibration complaints on the state highway network, issues often arise from buried services (usually installed after highway construction) and underlying pavement or ground conditions. Such matters cannot be resolved through general maintenance.
8. While all experts agree that ventilation would be required where windows and doors need to be closed, there is a difference between the experts in the JWS on the level of specifications for ventilation (paragraphs 32 and 33 of the JWS). With the notified version of NOISE-S3, residents would either have thermal discomfort with windows closed, or excessive noise with windows open. Based on my previous investigations, in order to provide an appropriate level of thermal comfort, I consider that a system requiring air flow above Building Code requirements, and thermal controls is appropriate. I note that while I support

thermal comfort controls, KiwiRail has in fact submitted in support of the notified provisions.

9. With respect to railway vibration, in my opinion sensitive development could be allowed near railways if subject to a vibration limit in buildings. Mr Lloyd has recommended a more restrictive approach. As I understand Mr Lloyd's position, this is essentially to avoid wasted resources pursuing development plans where it is likely that achieving a reasonable vibration criterion would exceed an intended budget or require change to site layout or building design. Mr Lloyd does not appear to have made any recommendations to allow developments subject to a less stringent vibration criterion. However, Mr Smeaton has recommended provisions for railway vibration that do not set a maximum vibration limit. As agreed in paragraph 27 of the JWS, it will often be found that meeting an appropriate vibration limit will be complex and costly. When resource consents are being considered under Mr Smeaton's proposed provisions, it is therefore likely there will commonly be pressure to compromise healthy vibration conditions. In my opinion such a compromise would not be appropriate, and I understand from his evidence that Mr Lloyd is not suggesting that outcome. To resolve this issue, I recommend that a railway vibration limit be retained in the provisions.
10. In his evidence Mr Styles has included extensive discussion of noise and vibration from existing road and rail networks. There are numerous parts of Mr Styles' evidence where I hold different opinions on these issues. However, I do not consider them relevant to address because these matters do not directly relate to controls for new and altered buildings in the PDP that the Panel is required to consider.