Transmission Gully Impacts Meetings

7 & 9 June 2022

Present: Darren Utting (TG), Craig Nicholson (Waka Kotahi), Kylie Eltham (Waka Kotahi), Dr Stephen Chiles (Acoustic expert), 26 residents from Paekakariki Hill Road, Bradey Road & Mulhern Road, 20 residents from Flightys Road, members of PRA committee

The meetings were chaired by Darren Utting. A point was raised considering an integrity issue with this - Noted.

Residents attending the meetings were invited after their responses to the Residents Association SurveyMonkey on the impacts of Transmission Gully indicated that they were experiencing negative noise impacts.

Topics raised and concerns expressed therefore were primarily in relation to noise from the road that was above and beyond both expectations and what residents felt able to cope with.

They included

- Design changes with the highway being moved closer to some properties or built above some properties, increasing both noise and visual effects
- Road surface - chip seal versus low noise asphalt
- Engine braking
- Particularly the noise of trucks and motorbikes, accelerating and braking due to the road steepness
- Vehicles crossing rumble strips, most noticeable south of the SH58 interchange
- Bridge 8 - Battle Hill and Flightys Road underpass being particular sites of note

The effects on residents include

- Lack of sleep, stress and associated health effects
- Stress
- Inability to enjoy all of property
- Feelings of being misinformed and/or lied to with promises and expectations that have not been met.

Compliance

★ Has the Highway met all the consent conditions?

It has met all the safety compliance conditions. There are still some conditions e.g. environmental that need to be done. Others, such as noise, are still to be assessed against the modelled conditions, with a 3-9 month time frame given to allow for traffic patterns to settle.

- ★ How is compliance measured?

To determine whether the consent conditions meet compliance, they are measured to validate the noise model. If the conditions measured on completion of TG, validate the model, and other modelling checks are satisfied, then compliance is achieved. It is assumed at this stage that the modelling was robust enough that it is unlikely that any conditions will be found that do not match the model.

Concerns were expressed around the timing of the compliance measures. For example, school holidays will change traffic patterns and volumes, potentially providing readings that could reach compliance but are not accurate for the majority of the time.

Design Changes

The Board of Inquiry determined the original consent conditions in 2012 following the consultation and hearing processes.

An acoustic assessment report, dated July 2011, using geometric modelling and noise predictions, was provided to the Board of Inquiry and formed the basis for the consent conditions that were originally set out such as road surface, noise walls, bunds etc

There is always a provision for the contractor to make changes to the design once the project begins. The fact there would be changes was anticipated and required the contractor to remodel the conditions including further noise monitoring and modelling. This work was done in 2015. The design changes did not trigger any further or different mitigation measures.

With the completion of the road there is a requirement to rerun the modelling to ensure that the project as completed does not differ from the conditions set out in the modelling conducted at the design phase in 2015. This is the current stage that is being undertaken with the noise monitoring set for 6 months post-opening.

Noise Standards

As construction activities have concluded the emphasis of all discussion was on road traffic noise following the opening of the highway.

It was stressed that noise as it is perceived can be different to noise as it is measured. For the purposes of noise measuring and compliance monitoring, there are required standards which may not, and are not, capturing how residents are receiving the noise levels. It was also noted that some of this is associated with the significant change in characteristic of the predominant noises - from natural (cicadas, birds, trees) to traffic.

The noise levels are set in accordance with the NZ Standards NZS 6806:2010 - Road Traffic Noise.

The NZ Standard uses noise averaged over 24 hours. Different standards are used in other countries e.g. In Australia there are levels for 16 hours of day and 8 hours for night. In Europe there are different weightings given to day and night levels. While there are differences between countries, it was not considered that, should these be accepted in NZ, they would have brought a different outcome to the assessment.

The guideline level set for dwellings on properties in Pauatahanui was as Category A, that is, for a New Road setting the noise level at 57 dB. In the assessment presented to the Board of Inquiry predicted levels at some properties did not achieve 57 dB and were classed as Category B, which relates to noise levels up to 64 dB. Under NZS 6806, those Category B properties did not require further mitigation, but the decision of the Board of Inquiry was that these Category B properties (those between 57 dB and 64 dB) should be investigated for building treatment.

The level of 57dB is averaged over a 24 hour period and is, by the NZ Standard, considered to be a reasonable level of noise during the day, that is, a level that is not associated with negative health impacts. A night time level of 40 dB indoors is considered reasonable according to the NZ Standard.

- ★ Why an average? Why not consider the peaks of noise well above 57 dB?

It was acknowledged that a noise level of 57 dB does not capture change in periods of noise level or individual noises and that when averaged these outliers do not trigger a different category for mitigation purposes.

In a rural setting the distance considered potentially affected, and therefore subject to noise monitoring, is within 200m of a highway. This distance is 100m in an urban zone. Given the potential for significant change within the noise environment resulting from the operation of TG, the 200m was not rigidly adhered to, with assessment made for some dwellings further than 200m from TG.

Some additional properties were also added to the noise monitoring and considerations in response to the design changes.

Noise modelling is only accurate to a distance in the order of 300m. Beyond 300m other factors such as weather conditions mean that the modelling accuracy reduces. However, noise levels diminish with distance and do not approach the criteria at greater distances.

- ★ What about noise outdoors, especially as rural residents spend more time outdoors?

The standards apply only to the location of a dwelling. It was acknowledged that no road in a rural zone would meet the standard if outdoor measurements at any point on a neighbouring property were part of the standard.

Mitigation options are primarily the length and height of barriers and the road surface. At an individual property level, mitigation can include window seals, acoustic glazing, ventilation

Barriers are effective if the dwelling or person is positioned immediately behind the barrier. The further from a barrier the listener is positioned the less effective the barrier is at reducing the noise as the noise travels up and over the barrier. The lessening factor becomes the distance from the noise source.

There can be some reflections off terrain.

There can be noticeable differences in noise levels depending on weather. Residents observed these are worse when there are northerly winds (the predominant wind direction in this area) and less noticeable in a southerly.

- ★ A cold night exacerbates the noise levels. Why?

Temperature inversion, associated with cold nights and a layer of warmer air above the cold ground, "bends noise back down. This does not change the noise levels for houses close to the noise source but the noise can travel further and can change in the order of 10 dB for houses further away.

Road Surface

The choice of road surface is a combination of engineering requirements, noise mitigation requirements and cost-benefit analysis.

The noise modelling done for TG assumed chip seal of a 2/4 grade. 2 or 3 grade chip seal will produce a similar noise level.

The difference in noise levels between chip seal and asphaltic surfaces is typically a reduction of 5 dB. As well as the reduction in noise level is a noticeable change in the character of the sound. This is the same for old versus new chip seal with a change in the noise characteristics rather than any significant reduction in noise levels.

The completion test for the road surface roughness, not related to noise, has not been passed yet and some areas may need to be resurfaced. This could result in some changes made to the road surface (with the potential to change from chip seal to asphalt) but these changes will be done to meet the contractual requirements associated with the road surface and not in response to noise complaints. Changes that bring a reduction in noise levels will be an "unintended consequence".

Noise walls & bunds

- ★ Why are the noise walls different at Flightys Road compared to Linden?

"Whole of life" costs are a consideration but generally concrete structures are preferred in the urban (Linden) setting but are considered "out of place" in the rural setting where fences are chosen. There should not be a difference in the quality of noise mitigation.

A bund was going to be used at Flightys Road but, with the underpass installed, it was changed to a fence 2.5m high at one end.

As noted previously, the best noise mitigation from a wall or fence is directly behind it. Noise will travel over the top, affecting properties further back from and/or above the wall.

★ Can the angle of the wall be changed to redirect the noise?

In some situations (not TG) the wall will be angled or the top curved to redirect the noise although full enclosure in a tunnel is the only theoretical option to completely remove noise.

Engine Braking

★ What modelling was done for engine braking?

Trucks using Haywards Hill were measured for the Board of Inquiry assessment.

★ What about installing "No Engine Braking" signs?

Engine braking can only be prohibited when the speed limit is below 70kph. Previous investigations have shown engine braking signs to be mostly ineffective.

Newer trucks and European trucks tend to have quieter braking systems. Loud engine braking tends to be older trucks of US design and/or trucks that have been modified to produce a louder noise. With newer trucks on the road with better braking systems, over time, the noise of engine braking should reduce.

In other parts of the country (Auckland, Tauranga) better effect has been achieved by working with the trucking industry.

Police can take action against identified individual drivers as it is illegal to operate a vehicle causing excessive noise, subject to considerations specified in Land Transport Rules. However this is difficult to action given other demands on police resources.

- Waka Kotahi will use their noise monitoring (not associated with compliance) to gather more information on vehicles creating greater noise disturbance - trucks using engine braking and motorbikes

Rumble Strip

The rumble strip on the merging lanes immediately south of the SH58 interchange is causing noise problems for Bradey Road residents. These appear to be worse with trucks "sitting on" the strips longer than smaller vehicles.

- Waka Kotahi and TG will have a closer look at this area.
- Residents using this section of road can stay in the left lane longer to avoid crossing the rumble strip

Trees and Plantings

The planting of trees does not make a substantial difference to the noise levels. A dense planting across 20-30 metres deep might bring some reduction in measured levels but not a significant drop.

There can be a perceived difference with the noise from trees masking the traffic noise. There can also be a perceived difference as when the source of noise is not visible, it can reduce the perceived level of sound but this would be negligible in terms of exact noise measurements.

Any planting that has been done along the highway corridor is for environmental and landscape purposes and not for noise mitigation.

Traffic Patterns

The reason for the 6 month delay before checks against the consent conditions is to allow for traffic patterns to settle. For example, the number of heavy vehicles using TG has reduced from 87% using TG with 13% using SH59 (the old SH1) to 80% using TG.

To date, approximately 7% of the road users are heavy vehicles.

Variable Speeds

- ★ Would variable speed limits change the noise levels?

While reducing tyre/road noise, these might increase the noise problems, for example, more engine braking to slow down.

Traffic Growth

The consent conditions allowed for traffic growth to 2031 levels. It was acknowledged that the current levels are close to those predicted for 2031.

- ★ Would knowing this have changed the Board of Inquiry decisions related to noise?

The traffic volumes and forecasts will be reviewed by specialists as part of the post-construction validation of the noise model. This is unlikely to have a material effect as “noise predictions are relatively insensitive to traffic volumes” with only small changes in the modelling.

It was acknowledged that had the Grenada-Petone Link Road gone ahead traffic growth and patterns on SH58 may have been different.

PCC District Plan

- ★ Has any thought been given to the fact that under the Proposed District Plan, currently going through hearings, there is likely to be subdivision down to smaller lot sizes with an increase in the population of the area? The presence of the highway could also limit the attractiveness of the rural environment through loss of amenity.

This is not something that Waka Kotahi or the Board of Inquiry considered.

Current Noise Measuring

Currently Waka Kotahi has installed 3 noise monitors - at the Toomey site, Flights Road and Bradey Road. These are not part of the monitoring of consent conditions but are to give Waka Kotahi some data around traffic-noise patterns. If particular times or vehicles can be identified this may lead to some actions. If it is particular vehicles then the drivers can be approached for change of behaviour. If it is particular times, for example, following the arrival of a ferry, then a group of drivers can be approached for a change of behaviour.

Vehicle noise standards/compliance

NZ is considered to have reasonable lenient noise requirements for new vehicles and under the current Warrant of Fitness, Certificate of Fitness.

Council role

PCC is the regulatory authority with respect to the designation for the highway, under the RMA. Therefore, monitoring of compliance with noise designation conditions is PCC's responsibility.

Police role

Excessive noise from individual vehicles (subject to the considerations in the Land Transport Rules), if they can be identified, can be reported to the police as an illegal activity.

What Next?

What will Waka Kotahi do?

- Take the levels of concern and the sentiments expressed back to the organisation
- Will look at their noise monitoring data to see if there is any correlation to trucks and motorbikes
- Will be happy to respond to emails asking for technical information. These can be sent to Craig.Nicholson@nzta.govt.nz or kylie.eltham@nzta.govt.nz

What will CPB-HEB / TG do?

- Check the end of the noise wall at Flightys Road
- Continue to work towards full compliance with the designation conditions

What can the residents do?

- Lobby MPs as government funding determines Waka Kotahi's budget
- Report non-compliance to PCC

Other Issues

Local Roads

- ★ When will the damage done by TG vehicles to Paekakariki Hill Road and Flightys Road be fixed?
- ★ Why are TG vehicles still using the local roads?

Stage 1 was completed with the opening of the road.

Stage 2 is 12-18 months of ongoing work to complete the project.

This means that TG vehicles will still be using local roads including Paekakariki Hill Road with the Toomey site consented as a spoil site, available for the dumping of clean fill.

It was noted that the large trucks are less of a problem for local road users than the utes and smaller vehicles where speed is often the issue. TG is still monitoring driver behaviour and concerns can be reported to info@tg.co.nz

- ★ Why don't TG / CPB-HEB fix the current state of the roads with dangerous potholes a particular concern?

TG/CPB-HEB are not allowed to do repairs on the local roads. This work is undertaken by PCC's contractors with the cost passed back to TG. All potholes and other road concerns need to be reported to PCC.

Recreational Track

- ★ What is happening about the recreational track from Battle Hill to Flightys Road?

This, along with other similar work, is part of the Stage 2 work still to be done. It was noted that the path will be for walking and cycling but will not cater for horses.

SH58

With the opening of the TG highway there has been a significant increase in traffic volumes using SH58. As a result the intersections of the local roads with SH58, especially the Flightys-Murphys Road intersection, are considered by residents to be exceedingly dangerous.

- ★ When will this section of SH58 get upgraded?

The upgrade to the section of road from Moonshine to TG is expected to start in September 2023.

Washing of houses, cleaning of water tanks and filters

Residents affected by the effect of construction dust on their houses and water supplies are still waiting to have these addressed. It was acknowledged that there has been a delay in contacting residents regarding this due to staff being unwell. Those waiting for this can contact info@tg.co.nz

Diane Strugnell
Secretary
Pāuatahanui Residents Association