

Consultation by Waka Kotahi on the future of the section of SH59 that includes Paremata Road, Mana Esplanade and St Andrews Road

Formal Response from the Paremata Residents Association

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Summary of Key Points

a) Ownership & control of the Work – Paremata Road, Mana Esplanade, St Andrews Road

- Ideally, PCC would have responsibility for both SH59 and SH58 (Paremata Road) as they are primarily local roads, however we support PCC in not wanting to assume responsibility for them, essentially for resourcing reasons. Both roads are very vulnerable to slips, flooding, and expensive maintenance.
- This Association supports the preparation of a strategic plan for SH59 by Waka Kotahi, PCC and the affected communities – but this should not be allowed to delay sensible measures that should be taken immediately.
- NZTA’s intention to retain SH59 for resilience purposes does not mean that SH59 needs to maintain its current carrying capacity and road format, and resilience should not be given priority over SH59’s important community functions.
- The road corridor through Mana Esplanade is below standard width for a road of its type passing through a residential area. As a consequence, footpaths are narrow, traffic lanes and separation are compromised, and there is no safe provision for cyclists or other non-vehicle users. Effectively this road is not fit for purpose and needs to be fixed, whoever owns the road corridor.
- SH58 currently has no adequate provision for pedestrians and cyclists and also is not fit for purpose, regardless of its status and ownership. Making it fit for purpose will require improvements to the footpath from Paremata Bridge to Browns Bay and providing a safe walking and cycling path between the road and the Inlet from there to Pauatahanui – something that should have been provided decades ago.
- If Waka Kotahi retains ownership of the roads, we believe that the local communities and the PCC should also have a much stronger say in how they are controlled and developed, because of their community importance. We suggest that this is formalized in a Memorandum of Understanding or some similar agreement.

b) Options relating to the future of the original Paremata Bridge

- When the new bridge at Paremata was built, it was to replace the original ageing bridge as soon as TGM opened, therefore the impact of the bridges’ piers on tidal flows to/from the Pauatahanui inlet was not a consenting issue.
- A formal commitment was made at the time to remove the original bridge in conjunction with the opening of TGM but, as that has not been done, an assessment of its impact on the

tidal flow and flushing of the inlet is essential. Confirmation of its structural integrity is also necessary, before informed decisions can be made.

- It is likely at present that most residents would prefer to retain the old bridge providing it could be shown that it is not having a significant adverse impact on the harbour and/or any adverse effects could be offset by compensatory measures.

c) The continuation of four laning of St Andrews Rd between Acheron Rd and James Street

- Our current view is that both Mana Esplanade and the stretch of road around Goat Point (at least between Acheron Road and Pope Street, but possibly as far as the Plimmerton Roundabout) should be reduced to one traffic lane in each direction.
- A footpath should be constructed to provide access for pedestrians and cyclists to get around Goat Point safely on the eastern side of the road.
- Parking spaces should be provided on the western side of the road around Goat Point to enable passing motorists to park and enjoy the magnificent views from this location.

d) Measures (to the extent that they are legally available) to restrict or discourage heavy vehicle movements through Paremata Rd, Mana Esplanade and St Andrews Rd

- Steps should be taken immediately to reduce the number of heavy vehicles using SH59. These should include closing off the kerbside lanes through Paremata and Plimmerton as traffic lanes and further discouraging heavy vehicle use by, for instance, changing the phasing of existing lights, installing new lights (e.g. at Pukerua Bay and Paekakariki), reducing and enforcing speed limits, using road design techniques to make manoeuvring slower, examining weight limits and even considering tolls for heavy vehicles using SH59.
- If the clearways remain open, an enforceable bylaw with compliance monitoring (e.g. cameras) should be put in place, and heavy vehicles should be required to use the centre lanes at all times for the full distance between the Paremata and Plimmerton roundabouts.
- More prominent signs instructing trucks not to use engine braking are also needed.

e) Other measures required to ensure an adequate level of service for the traffic volumes and traffic type expected to use the Paremata Rd, Mana Esplanade and St Andrews Rd

- Analysis of traffic data shows that only two traffic lanes are needed through Mana at present to cope with existing daily and peak volumes. Closing the kerbside lanes to through traffic (except for the distance necessary while turning off) and reserving them (at least initially) for parking and cycling should happen immediately.
- Close monitoring will enable confirmation of capacity needs and identify other measures or compromises that should be taken.
- SH59 should also be de-tuned to make it suitable for a secondary traffic route through coastal communities and to further avoid adverse outcomes from having excess capacity.
- Reducing the speed limit on SH58 to a safe limit suitable for the condition of the road should also be considered in conjunction with improving walking and cycling facilities.

f) Provision of arrangements for cyclists

- With no cycling lane and narrow footpaths, SH59 from Plimmerton to south of Paremata roundabout is unattractive and dangerous for cyclists. The cycling facilities on, around and south of the Paremata bridges are particularly unsafe, confusing and discourage cycling between Porirua and the coastal communities. The walking/cycling tracks west of the railway and adjacent to the Inlet have restricted access/exit, are either unpaved or mostly gravelled, and do not cater for cyclists who currently use the road or footpaths.

- Closure of the clearways now will provide more room for safer cycling and provide valuable information to assist decisions on how cycling facilities should be developed. Alternatives might include, for instance, either dedicated cycle lanes on each side of the Esplanade or one multi-directional cycle lane forming part of a shared and much wider footpath and connecting with the proposed cycleway to Porirua.
- SH58 is widely regarded as a no-go area due to lack of cycling space on the road and needs to be made fit for purpose by completing the Inlet pathway from Pauatahanui to Paremata.

g) Alteration of footpath widths

- The current footpath width along Mana Esplanade is 2.5 metres (but reduces significantly in places, particularly at intersections and on the old bridge) and no shoulder width. NZTA design criteria are 4.5 metres plus at least 1 metre shoulder. The width and uneven surfaces make the footpaths unsafe for pedestrians and totally inadequate when other non-vehicular transport is included.
- Closure of the clearway lanes would make use of the footpaths safer and less stressful and allow consideration of options similar to the Esplanade concept plan shown in the Porirua Growth Strategy.

h) Removal of traffic lights

- At this stage existing traffic lights at all intersections must be retained to provide safe access to/from side roads, allow pedestrians/cyclists to cross safely and allow access opportunities to/from residential properties, retail and business premises.
- Phasing of the lights should be adjusted to improve side road access, particularly at Pascoe Ave, Mana View Rd and Dolly Varden Crescent for commuter parking and sporting activities on the Domain.
- The ability to adjust phasing to reduce the tendency for traffic to travel in waves (and potentially compromise road capacity) should also be assessed.
- The problem of vehicles running red lights on this stretch of road needs to be addressed and speed limits should be more closely monitored (including with speed cameras) and rigidly enforced. During the period from 1 April to 30 November 2022, recordings of vehicles heading north at Goat Point showed 18,487 travelling at 60 kph or over, 162 at 100 kph or over, and 6 were recorded between 130 and 142 kph. Figures for southbound traffic are not known.

i) Changes to the operation of the clearways or High Occupancy Vehicle lanes

- There doesn't seem to be any capacity reasons to keep the clearways, and they could be closed quickly and inexpensively by using kerb extensions where required. Keeping the clearways will only prolong the current unsafe and unhealthy environment.
- Closing off the kerbside lanes as an initial step will enable safer parking and cycling as well as allowing adjustment of lane and footpath widths. It will also provide valuable data for assessing more extensive changes and informing strategic planning.
- There are a number of other roads in the region that handle similar traffic volumes with just 2 traffic lanes without the need for clearways.
- If the clearways are retained, their operating times need to be urgently reviewed, and a bylaw enacted and enforced to prevent the use of kerbside lanes as traffic lanes by heavy vehicles at all times and other vehicles when the clearways are not operating.

j) Alteration of arrangements in relation to capacity

- Potential extra traffic from planned residential growth north of Plimmerton will not become significant for many years (if ever) and retaining 4 lanes now to cater for possible extra traffic in the future is unnecessary and irresponsible.
- The best strategy at present is to reduce traffic volumes rather than cater for more. The potential need for extra capacity (and the possible need for extensive property purchases) in the future need to be recognised, however, and changes made now should be done in such a way as to allow modification if needed in the future.
- Closing the clearways will enable adjustment of lane widths, assessment of multi-modal transport options within the road corridor and de-tuning of the road to better meet the needs of the local community.

k) Any changes to be sought to any NZTA designation in relation to those matters

- If designation changes are necessary they need to be dealt with urgently.

Detailed Comments on Consultation Matters

(a) Ownership and Control of Paremata Rd, Mana Esplanade and St Andrews Rd

[Waka Kotahi's position: Waka Kotahi proposes to *retain SH59 (formerly SH1) as state highway* because it *provides inter-regional resilience should SH1/TGM close for planned and unplanned events*. No mention is made of SH58 (Paremata Road).]

While reducing community severance and improving inter-regional resilience were both major reasons for building TGM, resilience was never a stated objective for four-laning and installing clearways on the existing coastal road (now SH59). Instead, the clearways were installed to relieve existing congestion and enhance traffic capacity ***during the interim period pending construction of the Inland Highway route***. Once TGM was operating, the clearway lanes were to be removed and the road handed over to PCC and KDC to control as a local and scenic route. It is very important, therefore, that resilience - beyond that provided by an expected 2 traffic lanes - is not now afforded priority over SH59's important community roles.

The road corridor between the Paremata and Plimmerton roundabouts connects the local community to 3 railway stations, 3 primary schools 2 retail and professional service centres, 2 major sporting domains, several popular beaches, and 2 large churches. Its importance to the local community is immense.

At the time when the Environment Court approved interim four-laning through the area, the Court also recognised that the road corridor was not wide enough to meet the normal standards for four-laning and imposed numerous conditions (particularly some that required restrictions on the use of the kerbside lanes) to reflect that fact. A formal commitment was also made by Transit NZ promising the local community that the clearways would be removed and the road would revert to 2 traffic lanes in conjunction with the opening of TGM.

Expectations about SH59's primary role after TGM opened were subsequently confirmed by the Hearings Sub-committee that reviewed the Western Corridor Plan in 2006, whose report specifically stated:

The Sub-committee finds that, in the longer term, the status of the current SH1 alignment from Mackays Crossing to Linden should be reduced to meeting local traffic needs and providing a scenic route in which lower speeds and traffic volumes will prevail after the opening of TGM. The new environment would facilitate cycling along the route.

We believe, therefore, that SH59's functions in addressing community severance and determining the ways in which the coastal communities develop are more important than its part in bolstering resilience, should that ever be needed.

While the Paremata Residents Association thinks that, ideally, PCC would have responsibility for both SH59 and SH58 (Paremata Road) as they are primarily local roads, we actually support PCC in not wanting to assume responsibility for them, essentially for resourcing reasons. Both roads are very vulnerable to continual slips and flooding and require on-going expensive maintenance. Expecting Porirua ratepayers to pay a large share of that would be unreasonable, especially when both roads were developed as state highways, and heavy traffic continues to pass through.

Regardless of who has ownership and control, however, we believe Waka Kotahi (with PCC support, if needed) should be making both roads fit for purpose urgently. It should not be delaying such actions for years to prepare strategic plans.

In the case of SH59, this would involve, as a first step, trialing the removal of the four-laning and clearways through Paremata and Plimmerton immediately. This matter is discussed further under item (e) below.

In the case of SH58 it would involve making provision for walking and cycling on the route next to the Inlet – something that should have been provided decades ago. This is discussed in more detail under item (f) below.

If Waka Kotahi retains ownership of the roads, we believe that the local communities and the PCC should also have a much stronger say in how they are controlled and developed, because of their community importance. We suggest that this is formalized in a Memorandum of Understanding or some similar agreement.

(b) Options relating to the future of the original Paremata Bridge

[Waka Kotahi's position: Waka Kotahi proposes to retain the old bridge because *"retaining the current alignment allows Waka Kotahi and PCC to prepare a strategic plan for the full SH59 corridor which will consider future growth projects"*. How long that will take is not specified - simply that work will be done *"over the next few years"*.]

The Paremata Residents Association supports the preparation of a strategic plan for SH59 – in fact for the last 5 years we have been asking PCC in our Village Planning bids for support to produce such a strategy for our area, in anticipation of (and preparation for) this consultation exercise. However, we don't believe that the wish to develop a strategic plan should now be being used as an excuse to dishonour commitments or delay responsible trialing or modelling which will provide valuable information for strategic planning.

When the new bridge at Paremata was built, it was to replace the original ageing bridge as soon as TGM opened. In fact, Transit NZ made a formal commitment to the local community during the Environment Court hearing in 2000 ***"to demolish the existing Paremata Bridge and remove the Clearways through Mana in conjunction with the opening of TGM"*** – a commitment which Transit would ***"honour whether imposed as conditions of the requirement or not"*** and whose funding would be included in ***"the cost of construction of the Transmission Gully Project"***. [Transit NZ evidence to the Environment Court, 1 May 2000 – document ref. 0506976.01]

As far back as October 1996, the then Minister of Transport (Hon Maurice Williamson) described the existing Paremata Bridge as ***"nearing the end of its useful life and there is a distinct possibility that, in a moderate earthquake, it would become unusable"***. [Letter dated 16 October 1996 to the Transmission Gully Action Council.] Similarly, the Chairman of Transit NZ (R. Browne) wrote in November 1996 that ***"on the opening of the Transmission Gully motorway... it is likely that the current Paremata Inlet Bridge will have reached a condition where demolition will be desirable due to safety issues, excessive maintenance requirements and its increasing seismic vulnerability"***. [Letter dated 7 November 1996 to the Paremata Residents Association.]

Since that time, maintenance to the old bridge has been carried out twice – firstly in the late 1990s and again in 2017. We understand that the work in both cases was primarily to treat rusting reinforcing steel and crumbling concrete. The latter repairs included installation of sacrificial zinc anodes and were estimated at the time to cost \$850,000. As far as we are aware, no work has been undertaken specifically to address the old bridge’s “*increasing seismic vulnerability*” (particularly the likelihood of liquefaction of its approaches), even though the Ohariu fault line goes right under the bridge.

Apart from the age of the bridge, a major reason to promise removal of the old bridge was an acknowledgement that restrictions at the channel entrance were likely to be having an influence on the rate of flushing and infilling of the Pauatahanui Inlet – see **Appendix 1** for further information. To our knowledge, however, and despite our requests, there has not been any specific modelling of the likely effects that the old bridge is having.

Because it was always intended to remove the old bridge, the new bridge was designed for an extra footpath to be added as soon as TGM was operating – the unused beams extend from the eastern side of the structure at present. Moreover, no effort was made in the design to align the piers on the new bridge with those on the existing bridge – **after all, it was argued, the 8 large rectangular piers under the old bridge would be replaced by just the 5 smaller circular piers under the new bridge as soon as TGM was completed.**

It is acknowledged that removal of the bridge is a contentious issue at present. Some residents argue that even if it were no longer used by traffic, the bridge would still have value for walking, cycling and other activities. Some are also afraid that demolition now could have environmental effects or would preclude the possibility of ever replacing the bridge in the future. Others, however, argue that removal of the old bridge and its large piers would not only improve the flushing ability and extend the useful life of the Inlet, but it would also improve boating access and free up a significant area of land and foreshore on both sides of the channel for other potential uses (extra parking, additional picnic areas, perhaps a jumping platform and slide, etc.).

At present we suspect that most local residents would prefer to retain the old bridge providing it could be shown that it is not having a significant adverse impact on the harbour – or providing the adverse effects could be offset adequately by undertaking compensatory measures. These might include measures aimed at restoring the tidal prism or increasing the flushing ability of the harbour, for example by:

- Creation or deepening of strategic channels,
- Dredging and disposal of sediments from the sub-tidal basins,
- Removal of existing reclamations, and
- Removal of other tidal restrictions

We believe that the possibility of reaching any informed consensus would be helped significantly if there were:

- **accepted and reasonably conclusive modelling of the effects of the old bridge on the harbour; and**
- **up-to-date information on the structural integrity, load carrying capacity, earthquake resilience and expected life of the bridge.**

We suggest that it would be most appropriate for GWRC to commission and oversee the required modelling but that the cost should be met by Waka Kotahi. We have been advised that the effects of the old bridge could be modelled relatively quickly and inexpensively, and that work

done for previous reports may well contain much of the data needed to create a suitable model for this exercise. We recommend that the studies should be carried out urgently. This would allow the matter to be considered as early as possible and become part of any strategic planning.

(c) The continuation of four laning of St Andrews Rd between Acheron Road and James Street

[Waka Kotahi's position: Waka Kotahi proposes to retain the existing 4 lanes of St Andrews Rd because *"retaining the current alignment allows Waka Kotahi and PCC to prepare a strategic plan for the full SH59 corridor over the next few years which will consider future growth projects"*.]

Obviously, the property owners adjoining St Andrews Road need to be fully consulted on this matter as vibration, noise, fumes, speeding vehicles and use of engine brakes are real problems for residents along this stretch of road. We understand that Ms Mescal Bradey, who lives next to the southbound lanes at Goat Point, will be providing feedback separately.

Our current view is that both Mana Esplanade and the stretch of road around Goat Pt (at least between Acheron Road and Pope Street but possibly as far as the Plimmerton roundabout) should be reduced to one traffic lane in each direction and that:

- A footpath should be constructed to provide access for pedestrians, mobility scooters, cyclists, etc. to get around Goat Point on the eastern side of the road. This would avoid the inconvenience of needing to cross the road at the Steyne Avenue lights or risking crossing without the safety of lights.
- Parking spaces should be provided on the western side of the road around Goat Point to enable passing motorists to enjoy the views from this location which take in Mana Island, outstanding sunsets, various water-based activities, etc. The opportunity should also be taken to negotiate some arrangement with the Z Service Station and McDonalds so that the views are not blocked by trees – and perhaps picnic areas are established on the triangular area of land north of McDonalds. The scenic potential from this stretch of road is immense. Porirua and the Wellington Region need to make the most of it.

We don't see any need for these measures to wait for the preparation of a strategic plan – trialling of such changes would cost a relatively small amount, could be reversed if necessary and would provide important information to assist with formulating a strategic plan. A reduction to two traffic lanes would provide greater accessibility and safety for everybody. Hopefully it would also improve driver behaviour, reduce speeding and discourage through traffic (including heavy vehicles) from using SH59 instead of TGM.

Exceeding speed limits and running red lights are both real problems on this stretch of highway and more attention to monitoring and enforcement measures is needed. See section (h) for more details.

(d) Measures (to the extent they are legally available) to restrict or discourage heavy vehicle movements through the Paremata Road, Mana Esplanade and St Andrews Road

[Waka Kotahi's position: *"Waka Kotahi proposes no additional measures at this point in time"* because: SH59 is an approved inter/intra-regional heavy vehicle route; the data indicates that 75% of heavy vehicle traffic is using TGM; no negative feedback on TGM has been received from heavy haulage companies; there remains a demand for heavy vehicles to continue to use this

route; and signalised intersections have been optimised to provide a higher level of service for side roads and pedestrian movements.]

It has always been clear that the Environment Court (and the parties involved) thought that heavy vehicles should be restricted or discouraged from using the existing road as soon as Transmission Gully was opened. This was seen to be important as the adverse impacts of heavy vehicles in terms of noise, vibration, fumes, speed and crashes was a particular concern for the coastal communities.

It was always expected that there would still be a number of heavy vehicles wanting to use the existing route through Paremata and Plimmerton after TGM opened, including those making regular deliveries to retail and commercial businesses, undertaking household removals, etc. However, it is clear that the route also still remains attractive to some truckies because of its shorter length of steep gradient and its greater opportunities to obtain food and fuel. Owners of motor homes and caravans are also attracted by the NZMCA facility at Plimmerton and the free overnight parking area at Ngati Toa Domain, while tourist coaches often use this route because of its scenic values.

Waka Kotahi's flyer indicates that *"overall, 75% of heavy vehicle traffic is using TGM when compared to pre-Transmission Gully"*, which seems to leave a disappointingly large proportion still using SH59. Many heavy vehicles using TGM do so because they join or turn off at the Pauatahanui intersection and go over the Haywards route. Feedback from other truckies, however, indicates that an increasing number are now deciding to use SH59 to avoid the extra fuel and maintenance costs caused by the steep gradients of TGM. This is certainly the impression gained by local residents who tell us that, despite the closures and delays on SH59 in recent months, numbers of heavy vehicles using SH59 seem to be steadily escalating. We will be interested to see if Waka Kotahi's traffic analysis confirms that trend.

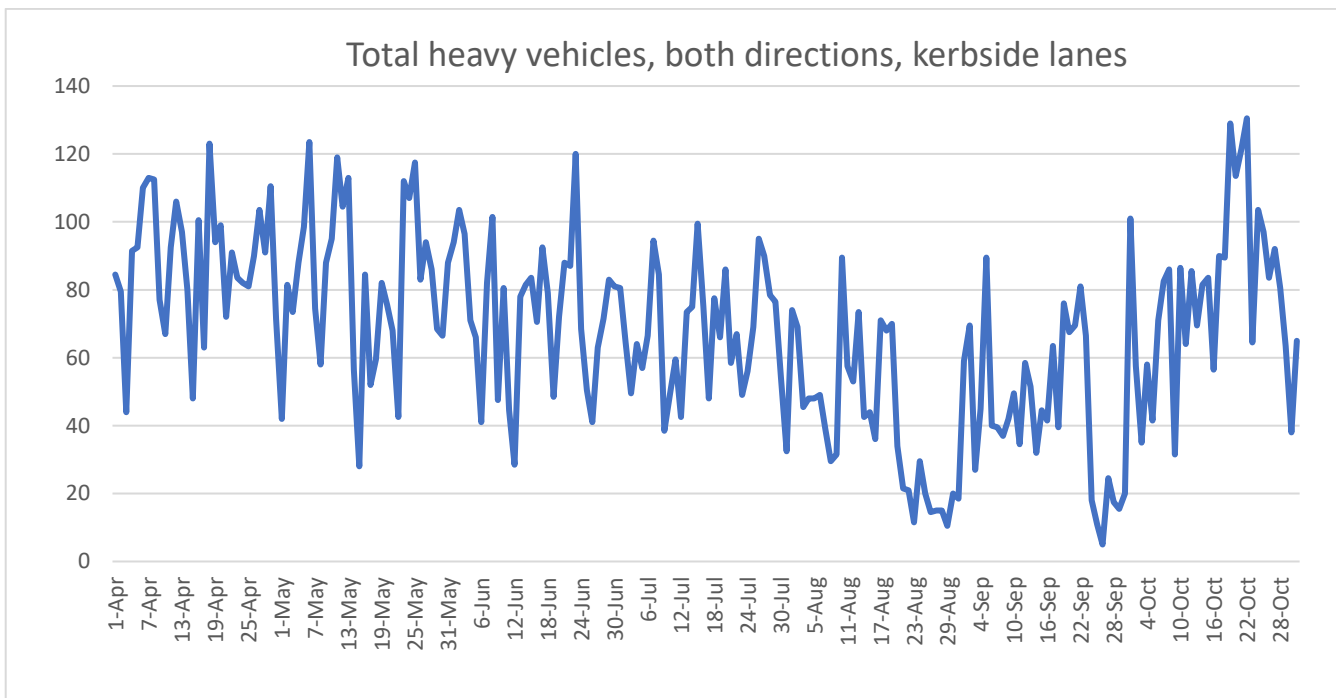
Waka Kotahi's flyer also refers to an average of 443 heavy vehicles per day on Mana Esplanade. Our early manual counts at Mana and analysis of the Waka Kotahi data suggest that volumes of heavy vehicles vary quite markedly on a daily and hourly basis, so averages can be misleading. Certainly it is not unusual for residents to be confronted by significant numbers of heavy vehicles (perhaps with some in the kerbside lanes) when walking or riding to and from the shops.

Perhaps the most concerning factor, however, is the number of heavy vehicles that are using the kerbside lanes at Mana in defiance of signs instructing them at all times to stay right. It is mainly the large trucks that terrify people using the footpaths. It is trucks that cause the biggest vibrations that rattle the houses and crack the garden walls in adjacent properties. It is trucks that make the most noise and ignore the engine-braking requests as they pass though the residential areas. And it is trucks that have always been involved in so many incidents or smashes when changing lanes with cars that are in their blind spot.

It is imperative, therefore, that strategies are developed to discourage heavy vehicles from using SH59. Apart from the promised removal of the clearways through Mana, an indicative package of other possible measures identified by SKM (in consultation with NZTA and PCC) for the Board of Inquiry in 2012 included such things as: changes to the phasing of the lights at Whitford Brown, Mana and Plimmerton; installation of additional sets of lights at Pukerua Bay and Paekakariki; and reduction in speed limits both south and north of Pukerua Bay. Other measures could include making alternative provision for food and fuel stops that are convenient for users of the Transmission Gully route, using road design techniques to make it slower for large trucks to

manoeuvre through the coastal communities, looking at weight limits, or even imposing tolls on trucks using SH59.

The chart below shows the volumes of heavy vehicles that used the northbound and southbound **kerbside** lanes at Mana during the period 1 April to 31 October 2022. The alarming thing is that both of the kerbside lanes should have been recording zero as all heavy vehicles are instructed to keep right at all times.



(NB There is no northbound data for the periods 23 - 31 August and 24 - 30 Sept, for either light or heavy vehicles. This distorts the trend and the totals.)

The reality is that there is currently no legal power to enforce the instructions and if the clearway lanes are not closed off to traffic, trucks will continue to use them in defiance or ignorance of the instructions. This makes it imperative that, if the clearways lanes remain open, an enforceable bylaw is put in place and, in the case of heavy vehicles, they are required to use the centre lanes (except for the distance necessary when turning off) for the full distance between the Paremata and Plimmerton roundabouts at all times.

There are also still an annoying number of truck drivers who ignore the signs and persist in using their engine brakes within the residential areas. The signs need to be made much more prominent than at present.

(e) Other measures required to ensure an adequate level of service for the traffic volumes and traffic type expected to use the Paremata Road, Mana Esplanade and St Andrews Road

[Waka Kotahi’s position: “Waka Kotahi is not proposing any specific road interventions or measures at this point in time. However, this matter will be reconsidered and investigated further as part of the strategic plan/safe system assessment review”.]

One of our greatest difficulties since TGM opened has been in getting useful information on traffic trends, lane use and vehicle speeds, so that we could provide more informed feedback. Although we have belatedly received a jumble of raw data, it has been provided in different

formats with no accompanying analysis. It has been particularly annoying that, after being advised by Waka Kotahi on 1 November that Waka Kotahi was undertaking traffic safety audits for both SH59 and Paremata Road and that ***“It’s important that this work is done before consultation as it will provide safety information relating to the things we are consulting on...”***, we have been denied access to even an interim summary of the reports that we were told would be shared with us ***“when it is available to us on the 21 December 2022”***.

Waka Kotahi’s reluctance to share information with us in time for this consultation has hindered our ability to provide informed feedback and reinforces the feeling that this consultation exercise may be no more than a pretence. We have attempted, however, to base our views as much as possible on our analysis of data we have been able to obtain (mainly under the Official Information Act) and observations of local residents.

Waka Kotahi’s flyer records that *“between April to July 2022, traffic volumes through Mana Esplanade averaged approximately 16,574 per day”*. Our analysis of some data procured under the OIA shows that between 1 April and 31 October 2022 there were actually 22 days when total volumes exceeded 19,000 vpd and 11 of those days were in the month of October. This tends to support local impressions that there is a trend towards both truck drivers and other motorists moving back to SH59 in more recent months despite the closures and delays on SH59 at Pukerua Bay.

Some of that trend can be attributed to people returning to their offices after having worked from home, but we also know of many who have returned to SH59 because at present it is the more attractive option (more interesting, better cell tower coverage, more places to get fuel or food, cheaper vehicle running and maintenance costs, and minimal differences in travel times).

Another thing that Waka Kotahi’s flyer seems to show is that since TGM opened, average daily traffic volumes (up to 30 November) on Mana Esplanade reduced by 52.9% on pre-TGM volumes. This means that volumes will need to build again by about 100% to reach the previous levels – which would normally be expected to take many years.

Most importantly, however, data for the period between 1 April 2022 and 22 January 2023 shows that the highest **hourly** traffic count was 1,168 vph (on 8 December). In fact, there were just 12 occasions when the hourly volumes exceeded 1,100 vph, 8 were during the month of November and almost all were northbound between 4pm and 6pm on weekdays. The highest normal southbound count was 1,026 vph (on 18 Oct) and there were only 13 occasions when the southbound counts exceeded 1,000 vph, all between 8am and 9am on weekdays.

These hourly counts are well below what we understand is the usually accepted minimum figure of 1,400 vph for such a road to need more than 2 traffic lanes. **This reinforces our strong belief that (as originally promised by Transit NZ) the clearways should be removed, and the road should revert to just two traffic lanes (one in each direction) immediately.**

Nonetheless, there is a tendency at Mana now for traffic to arrive in waves, which may affect the ease of merging into single lanes and makes it difficult to assess the practical carrying capacity of a single lane in this circumstance. There are also some questions in people’s minds about possible side effects from compressing through traffic into 2 lanes and using the kerbside lanes for parking and cycling. These include, for instance, the potential effects on vehicle numbers having to stop and start at the traffic lights; lengths of waits for vehicles entering or exiting properties; sight

lines for drivers, cyclists, scooters and pedestrians; the efficiency of rubbish collections; access to adjacent shops or businesses; and performance of emergency services.

For these reasons, we believe that closure of the clearways and removal of the four lanes should probably be carried out on a trial basis initially, with close monitoring for an appropriate trial period. And while the need for more substantial changes will almost certainly become apparent within a short time, it may be prudent initially that the changes are restricted to:

- Closing off the kerbside lanes through Mana and around Goat Point (or further, if wished) with the use of kerb extensions, leaving two (hopefully wider) traffic lanes - one in each direction - and a slightly wider central median than at present between them for vehicles turning into or out of adjacent properties.
- Parking spaces along the kerbs on each side between the kerb extensions where room and access requirements allow.
- Room for cycling between the kerb extensions/parked vehicles and the traffic lanes on each side.

Close monitoring of this arrangement would allow assessment of how the 2 traffic lanes are coping and provide some indication of the demand for parking and cycling in a changed environment. It should also enable the testing of traffic light phasing adjustments to, for instance, reduce the tendency for traffic to travel in waves (and potentially compromise road capacity) and provide shorter wait times at some intersections.

Because of the narrowness of the road corridor, it is inevitable that compromises will need to be made at some stage. It is likely for instance, that in order to enable widening of the traffic lanes, central waiting lane and footpaths plus the installation of dedicated cycle lanes, options like reducing parking to just one side of the road will need to be considered at an early stage. And while closure of the clearways now will create more room for safer cycling, decisions will be needed sooner rather than later on whether to stick with dedicated cycle lanes on each side of the road or to create a wider two-direction dedicated lane on only one side of the road.

Residents would appreciate being involved in those considerations.

NZTA's position in the past has been to *"recognize that additional traffic capacity is not desirable in the community once TGM is completed"* [ref. Transit evidence to Environment Court in 2000], essentially because it could:

- encourage through traffic to continue using the existing road instead of Transmission Gully;
- encourage local commuters to change their patterns of travel and increase peak flows; and
- induce people to move from public transport into cars.

It should also be noted that the Porirua Growth Strategy 2048, published in February 2019 after extensive consultation with the community, directs the Council to, amongst other things, *"change the function of the former SH1 and SH58 (below Whitby) through the revocation process"* and *"improve safety for pedestrians and cyclists as well as other transport network users"*. The Strategy expected there to be just 2 lanes through Mana after TGM opened and included an *"artists impression of Mana Esplanade post revocation"* showing a very wide pedestrian plaza with extensive seating and trees.

Removing the clearways would also be consistent with:

- The Wellington Regional Land Transport Plan 2021-31 which requires the region to meet a target of 40% mode shift from cars to public transport, walking and cycling by 2030, and

- The Government’s “Transport Choices Package” announced in the 2022 budget and its “Reshaping Streets Programme” announced by the Minister of Transport in August last year, designed to make it easier for Councils to transform streets and better support public transport, active forms of travel and improved urban spaces.

It is acknowledged that there are strong fears within the community that two lanes through Paremata and Plimmerton will not provide sufficient capacity to meet future traffic needs as developments north of Plimmerton take place. It is understood, however, that those developments will take something like 20 to 40 years to make significant progress. By that time, many forecasters are predicting that car use will have reduced significantly, and public transport services should have developed as demand grows - although we cannot be sure of that at this time.

Retaining 4 lanes now to cater for possible extra traffic in the future is both unnecessary and irresponsible. By doing so, Waka Kotahi is ignoring previous concerns about the dangers of providing excess capacity on SH59 and:

- doing nothing to disincentivise vehicles (especially heavy vehicles) from using SH59
- prolonging a more dangerous and less healthy environment for motorists, pedestrians, mobility scooters, residents and visitors.
- failing to enforce compliance with conditions imposed by the Environment Court, and
- continuing to dishonour formal commitments made to the community.

It is important that we create a situation of just two lanes as soon as possible and that we allow travel patterns and demand to adjust to that capacity. And although it is important that planning at this stage should acknowledge the possibility of future traffic congestion, it should also recognise that any need to permanently four-lane Mana Esplanade in the future is likely to require extensive property purchases to meet existing roading standards. **We should therefore be acting now to avoid the need for four-laning at all costs if possible – starting with the closure of the clearways.**

Other measures to “de-tune” both SH58 and SH59 should also be looked at and put into effect now – not just to encourage use of TGM but also for safety reasons. This should include consideration of a reduced speed limit on SH58 to a level suitable for the condition of the road.

(f) Provision of arrangements for cyclists

[Waka Kotahi’s position: “No further cyclist facilities are proposed at this point in time. Waka Kotahi and PCC strongly continue to encourage the use of the existing walking and cycling facilities adjacent to the west of Mana Esplanade (Te Araroa) and the east of Mana Esplanade (Camborne Walkway) as dedicated walking and cycling facilities. This proposal is in line with the network operating framework.”]

With no cycling lane and narrow footpaths, SH59 from Plimmerton to south of Paremata roundabout is uninviting and dangerous for cyclists. The current cycling facilities on, around and south of the Paremata bridges are unsafe, confusing and discourage cycling between Porirua and the coastal communities. The whole area is a barrier to cycling connectivity.

Both the walking/cycling tracks west of the railway line and through the foreshore reserve on the east of side of Mana Esplanade suffer from restricted access and exit and do not cater for the sort of cyclists who currently use the road or footpaths. The Association is not privy to the contents of any network operating framework.

SH58 is avoided by cyclists because of the lack of cycling space on the road. Our local cycling advocacy group, the Mana Cycle Group, describes the current situation as follows:

Cycling connectivity between Porirua and Plimmerton (and points north and south) is seriously compromised by confusion, complexity and poor safety in the Paremata area, including the SH 59 road bridges, the roundabouts, the railway station, SH 58 and Paremata Cres.

This has led to a situation that prevents, or at least discourages, cyclists from using the bridges to ride to points south and north of Paremata. We note also that Porirua City Council has received funding for a cycleway on Papakowhai Rd, which will further highlight the disconnect at Paremata, compound cyclists' frustrations and undercut benefits of this addition to the region's cycle network.

Specific concerns include:

- *Confusing, not cyclist friendly approaches to the bridges from the north and south*
- *The narrowness of bridge pathways*
- *Haphazard signage throughout the area*
- *The expectation that cyclists, wanting to make journeys north and south, will take the frustrating option of using the Paremata railway station underpass (after dismounting) and the southern overbridge*
- *On the SH 59 southbound bridge, the lack of cycle space (and the disconcerting height of the pathway) pushes cyclists into the traffic lane*
- *The entry to the SH59 Paremata roundabout from the north is narrow and dangerous*
- *Cyclists face further danger where SH58 traffic merges with SH59 south of the roundabout*
- *Among cyclists, SH58 is widely regarded as a 'no go' area because of a dangerous lack of cycling space on the road, including the stretch between the Paremata bridge and Postgate.*

Some of these concerns will be shared by those on foot.

All add up to a situation where the bridges, and the Paremata area generally, represent a disconnect between the existing cycleway north of the bridges and the planned cycleway to the south. The area is not safe, accessible and attractive for cyclists and as such stands as a barrier in the Porirua region's most important cycling route.

This situation has developed because of compromises (in favour of motorists) and a haphazard approach to developing cycling and pedestrian infrastructure. There is no easy fix. It will require a pedestrian/cyclist-centric planning.

The Association believes that closure of the clearways now would provide some reduction of danger for cyclists by providing a strip for cycling alongside parked vehicles and would also provide valuable information to assist decisions on how the road should be developed with better cycling facilities. Alternatives might include, for instance, either dedicated cycle lanes on each side of the road or one multi-directional cycle lane forming part of a shared and much wider footpath and connecting with the proposed cycleway to Porirua.

Early consideration should also be given to the desirability of closing off the kerbside lanes on the bridges and removing the southbound turn-off onto SH58 at the southern end of the bridge.

There is considerable scope for further developing the area just north of the bridge as a “hub” for village activities when the traffic is reduced to two lanes, whether or not the old bridge is demolished. The Paremata Boating Club at one stage had tentative plans to replace the Reid boatsheds possibly with a restaurant on top, while other thoughts have included jumping/diving platforms (perhaps accessed from the bridge) and slides or swings into the channel. Land freed up on the southern side of the channel could also be used profitably, possibly as parking for events at the Boating Club, for overflow of rail commuters and/or for cars & trailers left by persons launching boats in the area – much needed at present.

In respect of SH58 (Paremata Road), the need for a walkway/cycleway around the Inlet was identified as the number 1 priority in PCC’s Strategic Walkway Proposal in 2000. At around the same time Transit NZ had applied to construct rock protection walls along stretches the SH58 coastline and agreed *“to design the walls so as not to exclude a walkway along the top of those structures”*.

Since then, the Plimmerton Rotary and PCC have constructed a large section of the planned Inlet walkway/cycleway adjacent to Grays Road as far as Pauatahanui - but NZTA has continued to ignore its statutory responsibility to make SH58 a safe and efficient highway. Regardless of status and ownership, this stretch of road will never be fit for purpose without safer cycling and pedestrian provision. We ask, therefore, that **the Inlet pathway is extended from Pauatahanui as a matter of priority**.

We expect that much of the pathway will need to be built on cantilevered or piled structures, but we believe this is relatively common these days – even at places like Lake Dunstan. The most difficult section (where compromises will be needed) will be between Browns Bay and the Paremata bridge.

(g) Alteration of footpath widths

[Waka Kotahi’s position: “Waka Kotahi proposes no change to the existing footpath widths. We will be doing further strategic work to investigate this road over the next few years. However, based on our current information we are not proposing significant further changes to the corridor at this point in time..”]

The current footpath width along Mana Esplanade is 2.5 metres (but reduces significantly in places, particularly at intersections and where there are sign posts or developers have erected security fencing) and no shoulder width. The eastern footpath on the Paremata bridge is just 1.9 metres wide with a very high kerb. NZTA design criteria recommend 4.5 metres plus at least 1 metre shoulder for this type of road. The current situation is unsafe for pedestrians and totally inadequate when other non-vehicular transport is included.

It is not just the width that makes using the footpaths unattractive and unsafe. Because the footpaths are so narrow with no verge, the vehicle crossings into properties are steeper than normal and that makes the footpaths very uneven. The large number of manhole and other covers providing access to underground services make the footpaths even more uncomfortable to use, particularly for people using scooters, bikes, skateboards, walking frames, mobility

scooters, pushchairs or wheelchairs. Children especially often feel they are in danger of being sucked under fast-moving trucks in the kerbside lanes and, if it has been raining, most locals avoid using the footpaths for fear of being sprayed with dirty water by vehicles speeding through the pools along the kerbside (particularly bad on the southbound bridge).

Closure of the kerbside lanes to moving traffic will make use of the footpaths much safer and less stressful, even in their current state, and will enable consideration of further options, including something similar to the Esplanade concept plan shown in the Porirua Growth Strategy. The limited corridor width may prevent any significant widening of the footpaths themselves but upgrading as much as possible should take place at an early stage. If it can be done without causing delays, it would be sensible to carry out any upgrading at the same time as any other planned works (e.g. for wastewater or stormwater pipes) within the road reserve.

(h) Removal of traffic lights

[Waka Kotahi's position – *“Waka Kotahi propose no change at this point in time... Waka Kotahi will review the safe system assessment recommendations related to traffic signalised intersections.”*]

At this stage existing traffic lights at all intersections must be retained to provide safe access to/from side roads, allow pedestrians and cyclists to cross the highway safely and provide opportunities to enter and exit residential properties, retail and business premises.

The phasing of the lights should be adjusted to improve side road access, particularly at Pascoe Ave, Mana View Rd and Dolly Varden Crescent for commuter parking and sporting activities on the Domain. All phasing should allow adequate additional time when pedestrians cross.

The Paremata Residents Association also supports the Plimmerton Residents Association in the need for a review into appropriate phasing of the traffic lights at Steyne Avenue to improve access and exit from Plimmerton Village.

The ability to adjust phasing to reduce the tendency for traffic to travel in waves (and potentially compromise road capacity) should also be assessed. The possible use of roundabouts instead of lights in some places could be assessed in the future but would probably not be a practical or better answer.

While the traffic lights should remain at present, there is also a need to address the problems caused by vehicles driving through red lights at intersections. It appears that installation of extra cameras at intersections to identify offending vehicles may be needed.

And at the same time, the installation of speed cameras and appropriate enforcement measures need to be considered for this stretch of road. The only speed data that we have been provided is for northbound vehicles recorded just south of Goat Point (north of Acheron Road) during the period 1 April to 30 November 2022.

If we have understood the data correctly for this 50kph road, it shows over the 8-month period:

- 76% of the vehicles recorded heading north were travelling over the 50 kph speed limit,
- There were 18,487 occasions on which vehicles were recorded travelling at over 60 kph,
- On 162 occasions vehicles were travelling at more than 100 kph,
- 3 vehicles were recorded travelling at between 130 and 139 kph, and
- A further 3 vehicles were recorded at between 140 and 142 kph.

Figures for southbound traffic do not appear to be available but clearly, more effective monitoring and enforcement of speed restrictions is needed.

(i) Changes to the operation of the clearways or High Occupancy Vehicle lanes

[Waka Kotahi's position: *"Waka Kotahi proposes no change to the existing clearways but may review and/or change the clearway operating hours subject to demand... We consider retaining the clearways will not increase safety risk to the travelling public."*]

The clearways are currently not safe for the travelling public, pedestrians or residents, and never have been. The issue is not about "will not increase the safety risk" but about reducing it. Keeping the clearways will only continue the current unsafe, unhealthy environment caused by vehicles too close to pedestrians and residents.

As explained elsewhere, analysis of traffic data shows that only two traffic lanes should be needed through Paremata and Plimmerton at present to cope with existing daily and peak volumes. There doesn't seem to be any capacity reasons to retain the clearways, and they could be closed quickly and inexpensively by using kerb extensions where required.

Closing off the kerbside lanes as an initial step will enable safer parking and cycling as well as allowing adjustment of lane and footpath widths. It would also provide valuable data for assessing more extensive changes and informing strategic planning.

It's probably worth pointing out that the situation through Paremata and Plimmerton is unique – to our knowledge, nowhere else in New Zealand are heavy vehicles required (at least theoretically) to use only the right-hand lane at all times. This contributes to much of the confusion, anxiety and danger on this stretch of road.

It's also worth noting that there are a significant number of other Porirua and Wellington roads that handle similar or greater daily traffic volumes, with just two traffic lanes and without any need for clearways.

Examples of such roads are shown in the table on the next page.

Region	Road	Daily average	Actual peak
Porirua	Kenepuru Drive	20157	1603
	Warspite Avenue	17824	1621
	Titahi Bay Road	19375	1687
Wellington	Tawa (Wall Pl to Rembrandt) Main Road	19756	1754
	Tawa (Redwood) Main Road	19808	1722
	Miramar Avenue (Shelly Bay Road)	20651	1646
	Crawford Road (Newtown to Kilbirnie)	19337	1557
	Glenmore Street (Karori Tunnel)	19443	1627

These compare with Waka Kotahi’s daily average on Mana Esplanade of 16,574 vpd between April and July 2022 and no more than 1,168 vehicles in any hour between 1 April 2022 and 22 January 2023.

(j) Alteration of arrangements in relation to capacity

[Waka Kotahi’s position – “Waka Kotahi proposes no alteration of arrangement in relation to capacity ... We consider it is necessary to retain the available alignment for future movement of people. No decision on future modal priority of the corridor width has been made.”]

Capacity has always been an issue at Paremata and Plimmerton. Unless there is a willingness to make massive property purchases, the width of the road corridor will always restrict its realistic capacity. However, as the road is primarily a local one and community severance needs to be avoided as much as possible, the best strategy at present requires measures to reduce traffic volumes rather than cater for more.

In other words, while the planned growth of residential development in the future needs to be recognised, and planning now should not ignore the possibility that more capacity may be needed in the future, that possibility should not delay taking sensible measures to avoid excess capacity now.

Potential extra traffic from planned residential growth north of Plimmerton will not become significant for many years (if ever) and retaining 4 lanes now to cater for possible extra traffic in the future is unnecessary and irresponsible.

Closing the clearways should enable reducing the road to one traffic lane of at least minimum design standard width in each direction. It should also allow informed assessment of multi-modal transport options within the road corridor and de-tuning of the road to better meet the needs of the local community.

Although it may be possible to design works now so that the capacity of the road can be extended in the event of emergencies, we believe that anything that unduly compromises the everyday community use of the road should be resisted.

(k) Any changes to be sought to any NZTA designation in relation to those matters

[Waka Kotahi's position: "We consider our proposals on these matters will not trigger any need for designation condition changes."]

The Paremata and Plimmerton communities have already had to put up with the health hazards, dangers, and inconvenience of four lanes and clearways for much longer than ever envisaged by the Environment Court. As expected and acknowledged, the situation improved immensely as soon as TGM opened - which was why we fought so hard to get the new route over so many years. There now seems no reason that NZTA should not belatedly honour its commitment to remove the clearways.

While Waka Kotahi's "do nothing now" proposals may not trigger any need for designation changes, we are not clear what (if any) designation changes might be needed if any of our requests or recommendations are accepted as part of this consultation exercise.

We hope that our proposals can be actioned without undue designation changes or other legal measures but, if not, we expect the needed changes to be afforded urgency and not be used as a reason for delaying things even more. Indeed, we have been pressing for a long time for Waka Kotahi to take all the necessary steps (including designation changes) to allow closure of the clearways without delay.

Additional Comments

We mentioned earlier our concerns about the lack of data analysis and safety information provided in time for this consultation exercise. We are also concerned that, after being given between 6 and 12 months after the opening of TGM to consult with the parties, Waka Kotahi chose to leave it so late, leaving insufficient time to get informed feedback from our community.

We are aware that some residents will have views that conflict with this response, but readers should know that in October 2020 the Association prepared a paper containing our "Initial Thoughts" on the matters covered in this document. That paper was discussed at the Association's AGM and put on our website, and all households in our area were invited to send us their feedback on it. Those that responded with feedback almost unanimously supported our proposed stance. This gave us confidence that residents in our area generally supported the removal of the clearways.

To get more detailed and recent feedback, however, in November 2021 the Association canvassed (by way of a letterbox drop) the views of residents adjoining Mana Esplanade. Replies representing approximately 50 households were received, and all but one indicated support for closure of the clearways in conjunction with the opening of TGM. Many of the respondents outlined their experience and observation of the dangers, anxieties, hostility, and inconvenience associated with the clearway operations. [Their comments – with names and addresses removed for privacy reasons – can be found on our website at www.paremataresidents.co.nz.]

Although the situation has improved significantly with TGM open, it is understandable that most residents would not support Waka Kotahi's present plan to continue with clearways for at least "the next few years", particularly when they are not needed and when every day they remain is to the detriment of the community as more and more traffic shifts onto SH59 in preference to TGM.

Appendix 1

References pertaining to the possible effects of tidal restrictions at the Pauatahanui Inlet entrance

There is considerable analytical and anecdotal evidence to suggest that the cross-sectional area of the channel entrance - currently determined by the length of the existing Paremata Bridges, the size of their piers and the presence of other adjacent restrictions affecting the tidal flow - has a significant influence on the rate of infilling of the Inlet. **The extent of that influence, however, is unclear at present.**

This was recognised in Transit's application in 1998 for the resource consents to build the new road bridge. The application was supported by an AEE which stated [Vol 1, p.180]:

Reclamation of the margins of the channel, to allow construction of earlier bridges, has narrowed the channel with some impact on tidal flows. In the long term, this may potentially impact on the flushing of the inlet and may increase the rate of in-filling by sediment. For this reason, no additional narrowing of the channel is proposed for this project.

The importance of this was also recognised by Transit's experts. For instance, the Statement of Evidence of Dr David Arnold Papps [para 7.3.3] when discussing pedestrian accessways under the bridges, stated:

These will be designed such that they do not impede the flow of water through the inlet, possibly with the use of a raised boardwalk structure on the north shore.

Evidence from Rob Robson (Wellington Regional Council) pointed out that:

Wynne, 1981 suggested that between 30 and 43 tonnes of suspended sediment pass in and out of the Pauatahanui Inlet on each ebb and flood tide... The area is a critical entrance channel on which the physical and biological well-being of the nationally significant Pauatahanui Inlet depends.

Transit's AEE also pointed out that:

The existing road bridge is not perpendicular to the direction of water flow, and its wall-type piers and pile caps create localised currents and eddies.

Further recognition of the potential adverse effects came during the Environment Court hearings in 2002 with Transit's commitment "to demolish the existing Paremata Bridge ...in conjunction with the opening of TGM...". The understanding that the old bridge would be demolished was also given as a reason for not making any effort to align the piers on the new bridge with those on the existing bridge – after all, it was argued, the eight large rectangular piers would be replaced by just 5 smaller circular piers as soon as TGM was completed.

Subsequently, during construction of the second bridge, NZTA was eventually persuaded to replace the gabion baskets with piles to hold the walkway under the northern end of the bridges, in order to minimize the adverse effect on tidal flows.

Soon after the consents for the new bridge had been granted, correspondence was received from a former Paremata resident (Brian Warburton) who had attempted to quantify the effects of the new bridge. Using equations derived from research elsewhere (Hume and Herdendorf, 1985), he suggested that, over time, the extra piers alone would lead to a significant reduction in the Inlet's tidal prism – under one scenario, equivalent to reclamation of 14.5 hectares to a depth of 2 metres. [Copies of Mr Warburton's correspondence can be provided, if wanted.]

This analysis was discussed with Transit, WRC and other experts (including Dr Terry Hume) but no consensus was forthcoming. Although Dr Humes' initial advice was that his early equations may not be appropriate for the Pauatahanui Inlet, he later conceded that Brian Warburton's analysis might have substance and that a proper study was required to make any confident predictions.

As the resource consents for the bridge had not been appealed, issues relating to the bridge design could not be raised at the Environment Court hearings in 2002 and no action was taken on subsequent requests for modelling to be carried out in relation to this issue.

The adverse effects of restricting the harbour mouth were again alluded to in NZTA's AEE [Chapter 32, page 577] for the Board of Inquiry hearings in 2012 which stated:

"Historically, works at the Harbour mouth such as the construction of the railway line, and reclamations, have affected natural flushing processes meaning sediment is not washed away as quickly as it would have been in an unmodified environment.... For the most part, effects from construction are temporary, short term and unlikely to have any lasting adverse effect on the coastal environment because natural tidal processes will flush sediment away."

The need for a model to test the effects of tidal restrictions around the Inlet's entrance has arisen on many occasions. For instance, the need was discussed in correspondence with Richard Reinen-Hamill (a coastal engineer with Tonkin & Taylor Ltd) when PCC was seeking consents for protection works in Ivey Bay in 2007. He wrote:

I understand the concern of the potential reduction in tidal prism and effects on sedimentation of the inlet. However the main drivers of sedimentation in this area would be any significant change to the inlets cross-sectional area and catchment induced sediment inflow from poor land use management.

The reduction in cross-section of the inlet would create a situation which could limit the exchange of tidal flows, creating a sedimentation potential within the inlet, as the area of the throat is a function of the volume of the tidal inlet (called the tidal prism or the volume of water between high and low water). With a reduced throat there would be less volume of water entering as well as changing hydrodynamics, typically strong flows concentrated at the construction, reducing in strength away from the constriction. It is typically these large order modifications to systems that can result in more significant ongoing changes that can extend over decades until the system adjusts to a new equilibrium.

The 2015 revision of the Te Awarua-o-Porirua Harbour and Catchment Strategy and Action Plan made provision for two projects which could be relevant (to "develop and implement a harbour sediment management programme" and to "investigate options to reduce or compensate for the effects of harbour structures on harbour dynamics"). Both were categorised as "medium term" projects, scheduled to be carried out within 4-10 years.

Finally and most recently, the report "Managing our Estuaries" released by the Parliamentary Commissioner for the Environment in August 2020, had this to say on the issue:

"Successive road and rail construction, as well as reclamation, has affected the hydrology of both arms of the estuary, resulting in coastal erosion in some places and increased sedimentation in others. For example, bridges at Paremata carrying State Highway 1 and the railway have constrained the tidal flow, reduced ebb-flow variation and probably changed the velocity of flushing." [Page 156, Appendix 4: Te Awarua-o-Porirua Harbour]