

Before a Board of Inquiry
Transmission Gully
Notices of Requirement and Consents

under: the Resource Management Act 1991

in the matter of: Notices of requirement for designations and resource consent applications by the NZ Transport Agency, Porirua City Council and Transpower New Zealand Limited for the Transmission Gully Project

between: **NZ Transport Agency**
Requiring Authority and Applicant

and: **Porirua City Council**
Local Authority and Applicant

and: **Transpower New Zealand Limited**
Applicant

Statement of evidence of Timothy [Tim] Martin Kelly (Transportation) for the NZ Transport Agency and Porirua City Council

Dated: 15 November 2011

REFERENCE: John Hassan (john.hassan@chapmantripp.com)
Nicky McIndoe (nicky.mcindoe@chapmantripp.com)

**STATEMENT OF EVIDENCE OF TIMOTHY [TIM] MARTIN KELLY
FOR THE NZ TRANSPORT AGENCY AND PORIRUA CITY
COUNCIL**

QUALIFICATIONS AND EXPERIENCE

- 1 My full name is Timothy [Tim] Martin Kelly.
- 2 I hold a Bachelor of Arts degree in Geography, and a Master of Science degree in Traffic Engineering and Transportation Planning, both from the University of Sheffield in the United Kingdom. I am a member of the Institute of Professional Engineers New Zealand (*IPENZ*) Transportation Group, and the Chartered Institute of Logistics and Transport.
- 3 I have over 27 years experience in the transportation planning area, initially in the United Kingdom but for the last 16 years in New Zealand. Since 2000 I have operated my own consultancy business, providing advice on transportation matters to a variety of clients in the public and private sectors. Some of the more significant projects of relevance to the Transmission Gully Project assessment for which I have provided advice include:
 - 3.1 Porirua Transportation Strategy (development of a multi-modal strategy for the district, for Porirua City Council);
 - 3.2 Paraparaumu Airport Plan Change (transportation and traffic assessments of large-scale development, for Paraparaumu Airport Limited);
 - 3.3 Wellington Transport Strategy Model (*WTSM*) project management (management of the model development project, for Greater Wellington Regional Council (*GWRC*));
 - 3.4 Kapiti Western Link Road (transportation assessments of previously proposed roading project, for Kapiti Coast District Council);
 - 3.5 Wellington Inner City Bypass (transportation assessments, for Transit New Zealand); and
 - 3.6 Numerous peer reviews of strategic transportation projects (including the Mount Victoria – Cobham Drive upgrade, the Basin Reserve upgrade and the Taupo Eastern Arterial Road, mostly for the NZ Transport Agency).
- 4 My evidence is given in support of Notices of Requirement (*NoRs*) and applications for resource consent lodged with the Environmental Protection Authority (*EPA*) by the NZ Transport Agency (*NZTA*) and

Porirua City Council (*PCC*) on 15 August 2011 in relation to the Transmission Gully Proposal (*Proposal*).

- 5 The Proposal comprises three individual projects, being:
 - 5.1 The 'NZTA Project', which refers to the construction, operation and maintenance of the Main Alignment and the Kenepuru Link Road by the NZTA; and
 - 5.2 The 'PCC Project' which refers to the construction, operation and maintenance of the Porirua Link Roads by PCC¹; and
 - 5.3 The 'Transpower Project' which refers to the relocation of parts of the PKK-TKR A 110kV electricity transmission line between MacKays Crossing and Pauatahanui Substation by Transpower.
- 6 My evidence relates to the NZTA and PCC Projects (which I collectively refer to as the *TG Project* or *Project*), and not to the Transpower Project.
- 7 Having lived in Plimmerton for 13 years, I am very familiar with the area that the Project covers and the State highway and local road network in the vicinity of the Project.
- 8 I am responsible for the preparation of the Assessment of Traffic and Transportation Effects technical report (*ATTE*) which formed part of the Assessment of Environmental Effects (*AEE*) lodged in support of the Project².
- 9 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2011), and I agree to comply with it as if this Inquiry were before the Environment Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

- 10 My evidence will deal with the following:
 - 10.1 Background and role;
 - 10.2 Summary of assessment of transport effects (operational);

¹ The Porirua Link Roads are the Whitby Link Road and the Waitangirua Link Road.

² Technical Report 4, Volume 3.

- 10.3 Land use and transport integration;
- 10.4 Transport effects during construction;
- 10.5 Response to submissions;
- 10.6 Proposed conditions; and
- 10.7 Conclusions.

SUMMARY OF EVIDENCE

- 11 My evidence describes how assessments of the Project have identified wide-ranging positive effects at a number of levels.
- 12 Users of the Project will experience travel times which are significantly reduced and subject to less variability, and a safer road environment. Those using existing roads will see generally reduced traffic volumes, congestion and crash frequencies. Residents of communities along the existing SH1 and at Pauatahanui will experience lower levels of severance and improved accessibility. Walkers, cyclists and bus users will benefit from traffic reductions. More efficient freight transportation will be beneficial for businesses, and the wider Wellington region will benefit from the improved accessibility and route security provided by the Project.
- 13 I will describe how these assessments have followed accepted industry practice, describing conditions for a future year without the Project, and with the Project in place. This has allowed the effects of the Project upon the operation of the transportation network to be identified.
- 14 A multi-tiered modelling approach is described, based upon the application of the regional multi-modal model and a traffic model, both of which have been validated and subject to peer review. Where appropriate, more detailed simulations have been undertaken of individual intersections.
- 15 I will explain how uncertainty has been addressed through a range of sensitivity tests, which conclude that the assessed positive effects remain robust even when changes are made to some of the core assumptions in the assessments.
- 16 My evidence describes the package of controls for the construction phase of the Project to manage the effects of the Project on the safety and efficiency of the roading network, and on the amenity of residents. Conditions are proposed which will require compliance with these controls.

BACKGROUND AND ROLE

- 17 The NZTA retained SKM and my company (Tim Kelly Transportation Planning Ltd) to assess and report the effects of the Project upon the transportation network. Whilst SKM has been responsible for the running of the transportation models and analysis, my specific roles have been to:
- 17.1 Identify the overall form of the assessments and the modelling analyses required;
 - 17.2 Interpret and critique the model outputs;
 - 17.3 Prepare the content of the technical reports which describe the assessments; and
 - 17.4 Attend a Project Expo at Pataka in October 2010, present information regarding the Project and answer queries from the public.
- 18 Evidence relating to transportation aspects of the Project has also been prepared by **Mr. McCombs**. Whilst his evidence relates to the wider need for the Project within the regional context, and the consistency of the Project with the policy background, my evidence is focussed upon the detailed analysis of the effects of the Project upon the transportation network.

SUMMARY OF ASSESSMENT OF TRANSPORT EFFECTS (OPERATIONAL)

- 19 In this section of my evidence I will outline the methodology used and summarise the key points arising from the ATTE, focussing on the effects of the Project upon the wider transportation network.
- Summary of methodology**
- 20 The scale of the Project is significant, both in terms of its length and also the extent of its effects upon patterns and volumes of transportation demand.
- 21 With effects ranging from modal choice for longer distance movements through to detailed impacts upon specific intersections, assessment using a hierarchy of linked modelling tools was required, as shown by **Figure 1**. Such a hierarchical approach is common practice for the assessment of larger projects, both internationally and across New Zealand.

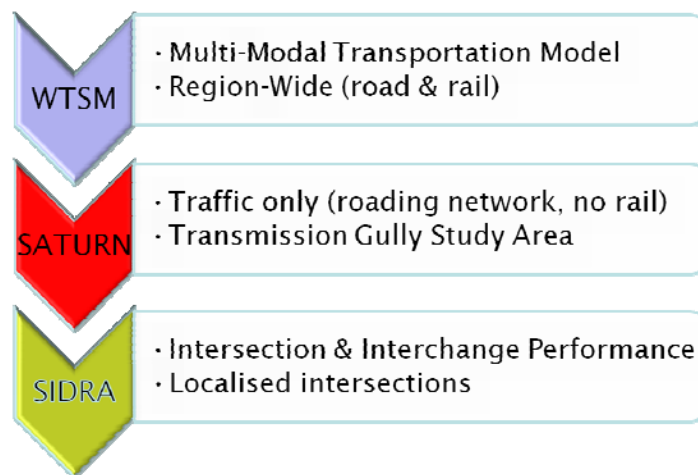


Figure 1: Hierarchical model structure

- 22 The first level of modelling utilises the WTSM, developed for and operated by GWRC. This is a multi-modal transportation model of the Wellington region which uses travel information derived from household interview surveys together with land-use and census data to estimate the number of trip movements by each of a number of travel modes.
- 23 The key inputs to WTSM are predicted future patterns of land-use (such as the location and type of households, employment and educational facilities), economic variables (such as the costs of travel), a description of the existing transportation network and assumptions regarding the future form of this network. WTSM then forecasts the number of trip movements by mode, origin / destination and time of day.
- 24 The second level of modelling involves the Project traffic assignment model, utilising SATURN³ software. Whilst covering the same wide geographic area as WTSM, this model considers only road-based travel by vehicles. By an iterative process of assigning traffic demands (from WTSM) to the road network and calculating travel times and distances on alternative routes, the model mimics the process used by drivers to select their route and in doing so provides detailed forecasts of traffic volumes by road section and time of day.
- 25 The third level of modelling involves the detailed simulation of the operational performance of individual intersections using the computer program SIDRA⁴. Using traffic forecasts from the SATURN model, this provides a more detailed operational assessment of the effects of changes in traffic demands at individual intersections than

³ SATURN: Simulation and Assignment of Traffic to Urban Road Networks.

⁴ SIDRA: Signalised and Un-signalised Intersection Design and Research Aid.

is possible using the SATURN suite alone.

- 26 The WTSM and SATURN models were created for a 2006 base-year scenario, as this is the latest year for which census information is available. The models were subject to a rigorous process of calibration and validation, in which the models are required to reproduce observed volumes and patterns of travel in 2006 within a level of tolerance specified by standard procedures.
- 27 Future year models were then created for the years 2026, 2031 and 2041, as these are the years for which forecast demographic and economic information is available. The assessments have been primarily focussed upon the year 2026, as this is a few years after the expected opening of the Project.
- 28 Separate scenarios were created for the 'Basecase' (without the Project) and 'Project' situations, with other aspects of the transportation network and land-use held constant. This meant that all of the key transport effects of the Project could be identified, from possible changes in travel patterns (including trip induction) or modes (WTSM), changes in traffic volumes and travel times (SATURN) to the detailed change in performance of individual intersections (SIDRA).
- 29 Uncertainty inherent in the forecasting process has been addressed through the use of sensitivity testing. This involved an assessment of the sensitivity of the assessed effects of the Project to changes in a number of the key variables and assumptions in the analysis.
- 30 The application of the models to the assessment of the Project has been the subject of multiple independent peer reviews, to ensure that the methodology used accords with best practice.
- 31 Using this methodology, the existing and future transport environment has been considered, both within the immediate Project area and across the wider region, where appropriate. This enables the positive and adverse effects of the Project to be fully assessed in the context of this transport environment.
- 32 It is important to acknowledge that the models, whilst complex and detailed, are nonetheless limited in terms of their ability to fully simulate the detail of thousands of individual travel decisions. This is true for all models of this type and for this reason, the appropriate role of such models is as tools to assist in the process of identifying the potential effects of the Project. Careful interpretation and review of their forecasts has not only allowed these effects to be quantified, but has also assisted in the identification of some more subtle effects of the Project.

33 The NZTA currently has no plans for the application of user tolls to the Project and hence the assessments have been undertaken on this basis. Issues associated with tolling are addressed in the evidence of **Mr. Nicholson**.

34 My work in relation to the project is an effects-based assessment only and I have not undertaken an evaluation of the economic performance of the Project. The evidence of **Mr. Nicholson** and **Mr. Copeland** discuss economic matters.

Summary of the effects of the Project

Effects upon total travel demand and mode of travel

35 As I have indicated, the scale of the Project means that it will affect the patterns and volumes of transportation demand in the SH1 corridor, and the balance of travel between the available modes.

36 The longer term rate of traffic growth on this section of SH1 is 1.6% per annum⁵. Without the Project, the frequency and severity of congestion in the SH1 corridor will continue to result in a deteriorating level of service and uncertain travel times. This will continue to lead to some suppression of vehicle trips and lower rates of traffic growth, especially at peak periods. This trip suppression represents a failure of the SH1 corridor to accommodate travellers' preferences.

37 With upgrades of the rail network largely complete, there will continue to be an increased use of this mode for those movements where a choice exists (especially commuter travel Kapiti/Wellington and Kapiti/Porirua).

38 However, for many movements, public transportation does not and cannot provide a convenient or realistic alternative to road travel. This is the case for the large volume of daily travel between the Kapiti and Hutt Valley areas. For these movements, the existing road access is indirect, slow and of a low standard.

39 Furthermore, the large and growing numbers of Heavy Commercial Vehicles (*HCVs*) are captive to the road network, and are subject to uncertain travel times and the use of indirect routes, increasing the costs of freight movement and those of businesses.

40 By reducing the costs (principally time) of travel and improving accessibility, the Project will itself influence patterns of transportation demand.

41 The additional road capacity provided by the Project will re-establish balance in the levels of service provided by the road and rail networks. The effects of this will be some release of road-based

⁵ Calculated trend growth for SH1 at Paekakariki 1983 – 2010.

trips which are otherwise suppressed and some transfer of trips from rail to road travel.

- 42 These effects are summarised by the results shown at **Appendix A** (which combine figures presented in Figures 4.2 and 4.11 of the ATTE technical report). In order that the split of travel between public and private transport can be shown, these figures relate to person-trips and exclude HCVs. The movements shown represent most of those which use the northern part of the SH1 corridor.
- 43 Without the Project, some contraction of private vehicle trips is expected in the corridor between 2006 and 2026, due to:
- 43.1 The full effects of the rail upgrade project during this period;
 - 43.2 Some suppression of travel by road due to congestion in the corridor;
 - 43.3 The impacts of GWRC policies to constrain growth in travel demands; and
 - 43.4 Some redistribution of trips away from this corridor, in response both to travel conditions and also rising fuel costs (which will lead to some substitution of longer-distance trips with shorter-distance trips).
- 44 HCV movements in the corridor would continue to grow over this period, by approximately 84%.
- 45 The effect of the additional road capacity provided by the Project would be an 18% increase in the number of person trips by road in 2026. The most significant growth would take place in the Kapiti / Hutt Valley movements, since these would experience the greatest improvements in accessibility as a result of the Project.
- 46 Whilst slightly over a quarter of this growth would be accounted for by a transfer of trips from rail to road, the number and proportion of total trips made by public transport would still be higher than that experienced in 2006.
- 47 The remaining increase in road travel is accounted for by a release of suppressed trips and a redistribution of travel from other areas as a result of the improved levels of accessibility in the SH1 corridor.

Effects on the road network

Traffic volumes

- 48 The most immediate and obvious effect of the Project will be a diversion of vehicle movements to the new route from the existing SH1, part of SH58 and the local road network. The resulting changes in weekday traffic volumes for the year 2026 are shown at **Appendix B**.
- 49 The Main Alignment will carry between 18,300 vehs/day (north of Linden) and 22,300 vehs/day (south of MacKays). The Kenepuru Link Road will carry approximately 13,000 vehs/day, with 3,300 and 3,400 vehs/day using the Waitangirua and Whitby Link Roads respectively.
- 50 The existing SH1 will experience large reductions in traffic volumes, ranging from 13,900 vehs/day (24%) between Linden and the Mungavin interchange to 19,800 vehs/day (86%) to the south of Paekakariki.
- 51 The Project will separate predominately longer distance traffic from those movements which have an origin and/or destination within the more local area. This will be of considerable benefit to the communities along the existing SH1, which will experience reduced severance and improvements in accessibility.
- 52 Traffic volumes on both sides of the Pauatahanui Inlet will be significantly reduced, by 25-30% on sections of SH58 and 49% on Grays Road (to the east of the SH1 intersection).
- 53 Traffic reductions on Grays Road, together with a large reduction in the use of the Paekakariki Hill Road will reduce traffic volumes through Pauatahanui Village by 47%. This will be beneficial for this community, especially parents and children walking to and from the primary school.
- 54 The Mungavin Bridge (Titahi Bay Road, to the west of the Mungavin interchange) will experience a 12% reduction in traffic volumes, with small reductions on Mungavin Avenue and the northern section of Kenepuru Drive. This will provide benefits through reductions in the congested conditions at the Kenepuru Drive / Titahi Bay Road intersection.
- 55 Some road sections will experience increases in traffic volumes as a result of the Project. These road sections are in the vicinity of the access points to the Project, with the increases being the result of drivers changing their route to benefit from the time savings and improved accessibility which the Project will provide. A consequence of this is that a number of existing road sections more distant from the Project will experience reductions in traffic volumes.

- 56 The section of Kenepuru Drive immediately to the south of the proposed Kenepuru Link Road intersection will experience a 49% increase in daily traffic volumes in 2026. This will arise primarily because traffic movements associated with the Kenepuru Hospital and the industrial / commercial area along Kenepuru Drive will change their route in response to the improved accessibility provided by the Link Road. Fewer vehicle movements will then use Main Road in Tawa, which will experience a reduction in daily vehicle movements of 13 – 14% in 2026.
- 57 Whilst Kenepuru Drive will be able to accommodate these increased traffic volumes, increased delays are likely to be experienced by vehicles wishing to turn to or from this section of Kenepuru Drive. For this reason, the NZTA and PCC have agreed that such issues are able to be addressed by a number of measures as and when appropriate, and this will ensure that the safety and efficiency of this important road connection is maintained.
- 58 The increase in traffic between SH1 (north) and the Hutt Valley which I have described will lead to an increase in daily volumes using SH58 between the Project and SH2 at Haywards of 18%. This increase is not sufficient to give rise to any significant deterioration in the efficiency or safety of this route. The NZTA has programmed a number of safety and capacity improvements to SH58, including the grade-separation of its intersection with SH2.
- 59 The sections of SH1 beyond the limits of the Project (to the north of MacKays Crossing and to the south of Linden) will see increases in daily traffic volumes of 10% and 8% respectively. This arises for a number of reasons, including the release of suppressed demand for road travel, some transfer of trips from the rail corridor and a reassignment of traffic from Tawa to the motorway.
- 60 Further afield, the effects of the Project are negligible, increasing volumes at Ngauranga Gorge by only 0.1% and with less effect on SH1/2 to the south of this point. To the north of the Project, traffic intensities are lower and the expected increases will be able to be accommodated without giving rise to congestion. In this regard, the planned SH1 MacKays – Peka Peka Expressway will improve capacity in this area.
- 61 All of the through HCV movements travelling between MacKays, Linden and SH58 (East) are expected to use the Project, since the road will offer faster and more certain travel times with uninterrupted travel, despite the greater ascent and descent required along the Main Alignment. However, some HCVs with a local origin and/or destination will remain on the coastal route.
- 62 The number of HCVs using the coastal route in 2026 will reduce significantly, by 71% at Paekakariki, 62% at Pukerua Bay and 46%

at Mana Esplanade. The section of SH58 between Paremata and Pauatahanui will see reductions of 34 – 35%. Such reductions will be beneficial for these communities and for other road users.

- 63 The Key Issues Report prepared for the Kapiti Coast District Council⁶ asked whether HCVs will use the Project route. For the reasons that I have described, I consider that all through movements will.

Travel times

- 64 Although vehicles travelling between Linden and MacKays Crossing will travel slightly further (600m) using the Project, the effect upon travel times will be more than offset by the higher speeds possible, especially at peak periods. For example, southbound in the weekday morning peak period in 2026, the travel time will be reduced by 9.5 minutes (36%). Similarly, northbound in the evening peak period, the saving will be 18.6 minutes (52%).
- 65 Vehicles travelling between SH2 at Haywards and SH1 at MacKays Crossing will benefit from a route which is both more direct and faster. Forecast peak period travel time savings in 2026 vary depending upon the existing route used, the direction of travel and time of day, but lie in the range 7.8 minutes (29%) – 22.8 minutes (54%).
- 66 By the removal of congestion and at-grade intersections along SH1, the Project will virtually eliminate travel time variability for travel between Linden and MacKays Crossing. This is of particular importance for those movements where the arrival time is critical, for example 'just-in-time' freight deliveries, or trips to the port or airport (Wellington or Kapiti). This represents a significant benefit of the Project.

Route Security

- 67 The Project will improve the security and resilience of the region's State highway network by the provision of a second route between Wellington and the north which is less susceptible to closure than the existing coastal route in the event of a natural disaster. Furthermore, disruptions arising from route closures after major crashes will be reduced, both through improved safety and the availability of an alternative route. These issues are addressed in more detail at Chapter 2.4.1 of the Assessment of Environmental Effects report.

Safety

- 68 The transfer of vehicle movements to a new road constructed with grade-separated intersections, continuous overtaking opportunities and a median barrier will result in a large reduction in the frequency of crashes.

⁶ Page 20.

- 69 The number of crashes occurring between intersections along the existing SH1 and the Project combined is expected to reduce from 31 to 18 per annum in 2026, a reduction of 42%. Significant reductions will also be experienced at all of the intersections along the existing SH1, and across most of the local road network where reductions in traffic volumes occur.

Effects on the public transport network

- 70 I have described how the Project will lead to a transfer of some person trips from the rail network.
- 71 Such an outcome was anticipated by the Western Corridor Transportation Study, and arises as a consequence of the implementation of a balanced package of improvements across both main modes of transportation within the corridor. The 2005 Consultation Document⁷ stated that:

Passenger transport infrastructure and Travel Demand Management strategies should be introduced before building new highway infrastructure. Making improvements to rail before the road infrastructure would encourage people to switch to rail and provide increased capacity for the shift from private to public transport that could be expected during any future roading improvements.

An improved rail service would also retain a greater proportion of the shift to public transport following roading improvements, which would help achieve less traffic on the highway for longer.

- 72 Hence, improvements to public transport and the Project should not be seen as alternatives, but as complementary to each other. This was recognised in the 2006 report of the RLTC sub-committee hearing submissions relating to the proposed Western Corridor Plan⁸:

Commuters in the Region already show strong usage of public transport. Although further modal shift from private motor vehicles to public transport is desirable, this, in itself, will not replace the need for substantial upgrade of the roading infrastructure in the Western Corridor.

- 73 For these reasons, I do not consider that the transfer of some people from the rail network should be regarded as an adverse effect of the Project. Also, by enabling travel arrangements which are more convenient, the Project will give rise to benefits for those

⁷ Proposed Western Corridor Plan. Consultation Document (page 14). Greater Wellington Regional Council / Transit New Zealand, October 2005.

⁸ Proposed Western Corridor Plan. Hearing Sub-Committee's Report. Greater Wellington Regional Council / Transit New Zealand, March 2006.

individuals who make the transfer (and may also provide some relief of peak period over-crowding on the rail network⁹).

- 74 Whilst the Project is not expected to affect levels of bus patronage, reduced congestion on parts of the road network used by buses will lead to benefits in terms of improved time-keeping. For example, buses are currently subject to delays exiting the Paremata railway station, traversing the Kenepuru Drive / Titahi Bay Road intersection and turning right into Whitford-Brown Avenue. Traffic reductions in all of these areas will reduce delays and improve service reliability, which itself may encourage some increases in patronage.

Effects on walking and cycling

- 75 The removal of large volumes of traffic from the existing SH1 and SH58 (between SH1 and the Project) routes will create opportunities for the provision of improved and safer walking and cycling facilities. Additional facilities for crossing the road and a less intimidating environment will be beneficial for the promotion of these modes of transport for local movements within and between all of the communities along the coastal route (and also Pauatahanui).
- 76 The safety and amenity of cycle and pedestrian movements at the tie-in points of the Project has been a key design principle. At MacKays, a segregated cycle path will be created between the existing SH1 and the Queen Elizabeth Park entry, allowing the regional cycling network to be extended to and beyond this point. The design of the SH58 intersection incorporates an off-road pedestrian and cycle route, and suitable shoulders on the road for use by sports cyclists. The replacement of the Collins Avenue bridge at Linden will enable the provision of a future additional pedestrian route on the north side of the road and the formalisation of a pedestrian access route from the end of Raroa Terrace.
- 77 The selection of traffic signal control for the Waitangirua Link Road / Warspite Avenue intersection was largely on the basis of ensuring that pedestrian and cycle movements could be safely accommodated, despite a roundabout offering a higher level of service for vehicle movements.
- 78 Similarly, care has been taken to ensure that the needs of pedestrian and cycle movements along Kenepuru Drive could be accommodated by the design of the Link Road roundabout.

⁹ The WTSM model assumes that the railway network has an unlimited capacity to accommodate additional passengers (unlike the capacity constraint effects which are applied to the road network).

Sensitivity testing

- 79 The core assessment of the Project is necessarily reliant on a number of assumptions regarding the future form of the transportation network and background demographic factors.
- 80 A range of tests were undertaken to assess the sensitivity of the assessed benefits of the Project to variability in a number of key assumptions. These assumptions relate to such aspects as the completion of the Waitangirua / Whitby link roads, the implementation of a package of measures to the coastal route (including additional traffic signal controls at intersections, retiming of existing traffic signals and speed limit reductions), the completion of other roading projects and fuel prices.
- 81 The results of these tests indicate that whilst the detail of the forecast traffic volumes varied, the fundamental positive impacts of the Project arising from significant reductions in traffic volumes along the existing SH1 and other routes remain unchanged and hence robust.

Weekend and holiday periods

- 82 The assessments I have described relate to representative weekday periods. The traffic delays experienced on the existing SH1 route can be magnified at weekends and holiday periods when traffic demands are much higher, though this is subject to a significant degree of variability. Such variability means that reliable models of conditions in these periods cannot be developed. This issue is not unique to the assessment of the Project and for this reason it is common practice to assess weekday periods only.
- 83 I consider that the assessment of the Project that I have described is conservative, since the benefits attributable to the Project for weekend and holiday time periods, whilst not quantified, will without doubt be significant.

LAND USE AND TRANSPORT INTEGRATION

- 84 Transportation demand and patterns of land-use are inextricably linked. Whilst patterns of land-use are the primary driver of transportation demand, it is also true that the resulting conditions on the transportation network influence patterns of land-use.
- 85 I undertook a review of the validity of the land-use assumptions implicit in the WTSM transportation model, since some of these might have been superseded by events in the period between the development of the model by GWRC and its application for the assessment of the Project.
- 86 I concluded that future transportation demands are correctly based upon committed development (being that permitted under existing

district plan controls), rather than 'aspirational' development (the summation of which might over-estimate transportation demand). Although there are some areas where the status of planned development had changed between the development of the WTSM model and the Project assessments, these were of little or no overall consequence to the assessed benefits.

- 87 The opening of the Project will give rise to changes in absolute and relative accessibility, which can be expected to affect the longer term locational decisions of businesses and households, with a consequential impact upon land-use and volumes of transportation demand.
- 88 Increases in traffic activity arising from these accessibility improvements are a function of the additional road capacity provided by the Project. By definition, this additional capacity means that this increased traffic activity can be accommodated without giving rise to problems of congestion.
- 89 Although the Project will give rise to some development pressure, such development can only occur if already permitted by the controls specified in District Plans. Where a consent or plan change is required, development will only proceed after a thorough assessment of the potential effects. For these reasons, the Project will not generate development which is either inappropriate or which could generate adverse effects.
- 90 Overall, the Project is considered likely to generate minor but positive land-use outcomes by encouraging growth in areas with better accessibility and in general facilitating economic and population growth both locally and across the region.

TRANSPORT EFFECTS DURING CONSTRUCTION

- 91 The scale of the Project means that construction is expected to take place over a period of 5 - 6 years.
- 92 Whilst the construction of the Project will take place largely away from existing roads, construction activity has a potential to create adverse effects through disruption at tie-in and crossing points, additional construction traffic vehicle movements on the road network and the use of access routes to and from the alignment.
- 93 An indicative methodology for the construction of the Project has been used to develop a package of measures to control effects on the road network and is described in the evidence of **Mr. Edwards**. Whilst the final construction methodology adopted by the appointed contractor may differ, the scale of the effects is not expected to change to any significant degree.

- 94 A draft Construction Traffic Management Plan (*CTMP*) has been prepared¹⁰ to identify a set of procedures that any contractors will be required to meet and is included in Volume 5 of the Assessment of Environmental Effects. The *CTMP* outlines the procedures and objectives required for the preparation of more detailed Site Specific Traffic Management Plans (*SSTMPs*), which are a requirement of the proposed conditions on the designation.
- 95 Together, these documents define a range of procedures to ensure the implementation of Temporary Traffic Management (*TTM*) to industry standards, and detail the means by which:
- 95.1 Public safety will be protected;
 - 95.2 Disruption will be kept to a minimum;
 - 95.3 The number of construction vehicle movements will be minimised;
 - 95.4 Impacts upon vulnerable road users (pedestrians and cyclists) will be minimised;
 - 95.5 The effects of construction traffic upon local roads used for access will be minimised; and
 - 95.6 Residents and other stakeholders will be consulted and kept informed.
- 96 The key locations where construction activities are likely to affect operating conditions on existing roads have been identified as:
- 96.1 Linden;
 - 96.2 Takapu Road;
 - 96.3 Kenepuru Drive and surrounding roads;
 - 96.4 Waitangirua Link Road (Warspite Avenue);
 - 96.5 Whitby Link Road (James Cook Drive);
 - 96.6 SH58 Interchange;
 - 96.7 Paekakariki Hill Road (in the vicinity of Battle Hill Forest Farm Park); and

¹⁰ The draft *CTMP* was prepared by SKM. I have reviewed this document and support it as being appropriate for managing the construction traffic effects of the Project.

96.8 MacKays Crossing.

- 97 For each location, consideration has been given to the requirements for temporary lane closures, speed restrictions and diversions. Where road closures are required, these will be timed to coincide with periods of lowest traffic demands in order to minimise disruption to road users.
- 98 The NZTA has committed to safety improvements on the Paekakariki Hill Road and Takapu Road to improve access for construction vehicles. These improvements will be beneficial for all users of these roads.
- 99 In addition, it is envisaged that major site offices and compounds will be established at the following locations:
- 99.1 548 Paekakariki Hill Road (south of Battle Hill Farm Forest Park);
- 99.2 SH58 Interchange; and
- 99.3 Kenepuru Interchange.
- 100 Other satellite offices may be required, dependent upon the specific methodology adopted by the contractor. For each location, a SSTMP will be required, which details how the effects of the associated traffic movements are to be managed and effects mitigated.
- 101 The number of vehicle movements associated with construction activity may be logically reduced by the use of minibuses to transport workers to and from each site. Such a measure has not been presumed in the assessment of effects as this would be dependent upon the logistical arrangements of individual contractors. For this reason, the assessment may be regarded as conservative in this respect.
- 102 Together, these controls will ensure that the overall effects of construction activity will be acceptable.
- 103 The Key Issues Reports for the GWRC¹¹ and Porirua City Council¹² both sought further clarification regarding forestry removal to be carried out as enabling works for the Project. In my assessment the removal of this forestry will not add to the number of construction vehicle movements on local roads as I understand that the harvested logs will be stored on-site until access is available onto SH1.

¹¹ Page 16.

¹² Paragraph 4.46.

RESPONSE TO SUBMISSIONS

- 104 I have reviewed issues relating to traffic and transportation matters raised in submissions.

Pedestrian safety

- 105 **Submission 15** is concerned with the effects of an additional 7,000 vehicles per week through Waitangirua and Cannons Creek, and additional risks to pedestrian traffic along Warspite Avenue.
- 106 The connection of the Waitangirua Link Road will result in some increase in traffic movements on Warspite Avenue to either side of the new intersection, of approximately 310 and 460 vehicles/day to the north and south respectively, significantly less than the figure quoted by the submission. The selection of traffic signals for this intersection was intentional to provide for the safe movement of pedestrians and cyclists across the road in this area.
- 107 The traffic increases in this immediate area will occur because drivers will find the Link Road a convenient route to use. The resulting changes in vehicle routing will lead to traffic reductions on other roads. For example, traffic volumes are forecast to reduce on Mungavin Avenue and Omapere Street.
- 108 **Submission 25** raises concerns regarding the safety of the existing pedestrian crossing on Warspite Avenue (to the north of Corinna Street) with increased traffic volumes attributable to the Project.
- 109 As I have described, the need to provide safe pedestrian crossing facilities in this area was pivotal in the selection of traffic signal control at the Waitangirua Link Road intersection. I understand that the Council will monitor the use of the existing pedestrian crossing referred to in the submission and any changes identified will be discussed with the local community.

Construction traffic effects

- 110 **Submission 18** is concerned with the effects of construction traffic activity on a property in Tremewan Street in Linden.
- 111 Any additional traffic activity on Tremewan Street will be that associated with the possible use of houses (on the opposite side of the street) by contractors, which would involve a small number of light vehicle movements. In this respect, I understand that no decisions have been made regarding the retention or removal of these houses.
- 112 **Submission 44** raises concerns with regard to the potential effects of construction traffic on the Paekakariki Hill Road.

- 113 Construction traffic will not use the section of the Paekakariki Hill Road to the north of Battle Hill, as this has a poor geometric standard.
- 114 As indicated by Section 7.2.1 of the ATTE, the number of additional vehicle movements associated with construction activity will be well within the capacity of the southern section of the Paekakariki Hill Road. Effects are expected to be minor and are capable of being controlled through appropriate traffic management. A Site Specific Traffic Management Plan (*SSTMP*) will be prepared which details vehicular access arrangements and the mitigation of effects on local roads. This will require the approval of PCC.
- 115 **Submissions 31, 36, 51, 52, 62 and 63** raise the same issues regarding construction traffic activity in the Rangatira Road area of Linden. It is suggested that there will be safety impacts upon Rangatira Road itself, in addition to problems at the Collins Avenue intersection and in the vicinity of schools in the area.
- 116 Rangatira Road is approximately 6.2m in width. Whilst I acknowledge that there are no footpaths, this width combined with the low volumes of existing traffic activity means that some additional construction traffic can be accommodated without any significant risk to pedestrians or other road users.
- 117 In this respect, Section 7.2.8 of the ATTE indicates that construction traffic would typically comprise 30 light and 5 heavy vehicles each day, over a period of 12 months. The maximum activity on any day is expected to be 40 light and 45 heavy vehicles. Sight distances at the Collins Avenue intersection are good, and a 50 km/hr speed restriction applies. Construction traffic movements would be subject to controls through a SSTMP with temporary traffic management used as and when required. For these reasons, I am confident that the impacts of construction vehicle movements in this area will be minimal and appropriately managed.
- 118 **Submission 47** requests that the use of minivans by contractors for the transportation of staff be made a condition, in order to reduce the number of construction-related vehicle movements.
- 119 Whilst the use of minivans is recommended, it remains the responsibility of the contractor to determine the logistics of transportation to and from each site. In this case, the number of light vehicle movements is low, even if minivans were not to be used.

Submission by Kapiti Coast District Council

- 120 **Submissions 23 and 28**¹³ suggest that the lack of an alternative local route between Paekakariki and MacKays Crossing would undermine the resilience of the Project without providing for pedestrians and cyclists.
- 121 The resilience of the Project would only be affected by the risk of a closure of the short section where no alternative road route is available, which would be very low.
- 122 Pedestrians and cyclists between Paekakariki and MacKays Crossing will be able to use a separate facility parallel to the northbound traffic lane on the Expressway.
- 123 **Submission 23** states that the detail of the treatment of the bypassed sections of SH1 has not been provided.
- 124 Section 1.6.2.2 of the ATTE describes a package of indicative measures assumed to be applied to the coastal route. The detail of the measures will be defined by the relevant Road Controlling Authority (*RCA*).
- 125 **Submission 23** suggests that forecast traffic growth on SH1 at Paekakariki in the ATTE (2.7% between 2006 and 2026) is inconsistent with forecasts quoted in the Economic Evaluation Manual (EEM) for the Wellington region (2% per annum).
- 126 Section 3.5.2 of the ATTE gave reasons for this low rate of growth. These are principally the impacts of the rail upgrade, assumptions around the effects of travel demand management and trip suppression without the Project in place. The EEM figures are generic and apply to the region as a whole, rather than a specific route or corridor.
- 127 **Submission 23** suggests that the forecast 86% reduction in traffic volumes at Paekakariki appears very high, and if incorrect, the resultant mitigation may be inappropriate.
- 128 With all through traffic expected to use the Project and the coastal route being used only by local traffic, this figure appears intuitively correct. Further, it is based upon modelling which has been validated to accepted standards and subject to peer review.
- 129 **Submission 23** suggests that the sensitivity testing of fuel cost assumptions does not adequately simulate the potential effects of very major and sudden fuel cost increases.

¹³ By Kapiti Grey Power Association Inc.

- 130 The model is based upon longer term trends rather than short-term fluctuations. The default fuel cost assumptions are consistent with those developed by GWRC and applied for the assessment of all projects in the RLTS.

Project staging

- 131 **Submission 24** suggests that the construction of the Project should be split into sections, starting at the south, with the construction of the northern section only when other sections are operational. Further, it is suggested that the road only be constructed to two lanes initially, with provision for duplication.
- 132 Such measures would severely compromise the ability of the Project to meet its objectives. Completion of the whole route is necessary to secure the benefits of diverting north-south movements, whilst the completion of the northern section is crucial to the diversion of traffic from SH1, Grays Road and Pauatahanui village. When compared to the Project, construction to only two lanes would result in reduced travel time savings, greater travel time variability, higher residual volumes on the coastal route and increased crashes.

Public transport and induced traffic

- 133 **Submissions 38 and 49** suggest that the Project will not provide for the accessibility needs of those without access to a private car, that it will induce traffic and result in modal shift from rail.
- 134 The Project is part of a package of transportation improvements for the corridor which has included significant investment in the rail infrastructure. As a whole, this package does address the accessibility needs of those without a car. As identified by the ATTE, the Project will result in some traffic induction, including some transfer from rail. Again, this needs to be viewed in the context of a package, which has the overall effect of improving rail patronage whilst road conditions are improved.
- 135 It is unrealistic to assume that all vehicle users are potential users of public transport. Many of the travel movements in the corridor (for example, those between Kapiti and the Hutt Valley) cannot be efficiently serviced by public transport. For others, the need for flexibility in their travel dictates the use of a private vehicle, and most freight movements cannot be serviced by the rail network.

Alternatives

- 136 **Submission 38** suggests that there are alternatives which may be more consistent with the Regional Policy Statement, including a route through the Akatarawa or a modest route through the gully.
- 137 Neither of these are practical alternatives. A route through the Akatarawa would be likely to have major adverse effects and would not be efficient in terms of meeting patterns of travel demand.

Constructing the Project to only two-lanes would not meet its objectives, for the reasons I have already described.

- 138 **Submission 60** suggests modifications to the alignment of the Whitby link road and allowing more frequent accesses.
- 139 I do not believe that either of these changes would materially affect the assessed performance of this road or the expected traffic volumes.
- 140 **Submission 2** suggests the proposed Kenepuru Interchange should include facilities to turn between SH1 (North) and the Project.
- 141 Vehicle movements between Porirua (east) and the Project will be able to utilise the Waitangirua Link Road, whilst those between areas to the west of the existing SH1 and the Project will be appropriately accommodated by the Kenepuru Link Road. As such, the additional benefits provided the connections suggested would be small.

Impacts for Pukerua Bay

- 142 **Submissions 46 and 64** suggest that residual traffic volumes in Pukerua Bay will be 17,000 vehicles/day (in 2021).
- 143 This figure has been taken from a submission made by PCC to the Western Corridor hearings in 2005. Whilst I understand that this was derived from information supplied by GWRC at the time, I have not been able to establish the basis of this figure, which appears high (particularly as the corresponding figure for the northern section of the Project is shown as 26,000 vehicles/day in 2021). Regardless, this figure has been superseded by the forecasts which I have described. As identified by Figures 4.6 and 4.13 of the ATTE, traffic volumes in 2026 are expected to reduce from 24,100 to 5,930 vehicles/day.
- 144 **Submission 46** requests that a package of measures identified in the Neighbourhood Accessibility Plan should be implemented, and prior to the opening of the Project.
- 145 The detailed package of measures to apply to the coastal route, including Pukerua Bay, will be determined by the RCA(s) responsible for the route, in consultation with the communities affected. As many of the measures will be predicated upon much lower traffic volumes, it would not be appropriate for these to be introduced prior to the removal of traffic by the Project.
- 146 **Submission 64** raises a number of concerns with regard to the treatment of the coastal route through Pukerua Bay with the completion of the Project. Specifically, that traffic signals would necessitate four-laning, a 'downgrade' of the road would

compromise safety, and a bypass of Pukerua Bay should be constructed at the same time as the Project. Further, the submission suggests that HCVs will continue to route through Pukerua Bay as the most energy efficient option.

- 147 These comments are largely predicated upon an erroneous view of the residual traffic volumes once the Project opens, as I have described.
- 148 Also as I have described, the detail of the package of measures applied to the coastal route will be defined by the relevant RCA(s), but will not involve any four-laning. This package will improve safety, by the likely inclusion of measures to reduce vehicle speeds, increase pedestrian crossing opportunities and improvements in accessibility to and from side roads.
- 149 The low residual traffic volumes would mean that there would be no justification for a bypass of Pukerua Bay once the Project is open. As I have described, for most HCV operators the Project will be a preferable route, as this will offer uninterrupted travel with less variable travel times.
- 150 **Submission 34** suggests a need for a study of the residual traffic using the coastal route, since this will remain the most convenient route for traffic travelling north from the western areas of Porirua and from Paremata and Plimmerton. The submission also contends that the coastal route will continue to appeal to those not in a hurry.
- 151 The forecasts of residual traffic volumes which I have described are largely accounted for by movements between points to the north of Porirua centre and SH1 to the north of MacKays Crossing. Inevitably, a small number of people will choose to remain on the coastal route (perhaps for the views) when the modelling suggests they would use the Project. Similarly, some will use the Project when modelling suggests they would remain on the coastal route. Such effects are small in the context of the wider assessment and are likely to largely cancel one another out.

Implications for land use development

- 152 **Submission 49** suggests that the Project is likely to encourage dispersed development.
- 153 The changes in accessibility resulting from the Project are likely to have some impact upon patterns of development. The same argument applies to the upgrades of the rail network, where improvements to the services provided (for example, an extension of the suburban services to Waikanae) is likely to have affected the locational decisions of some residents.

Impacts on cyclists and pedestrians

- 154 **Submission 50** considers that the reductions in traffic volumes on the coastal route will not be sufficient to remove barriers to safe and efficient cycle travel between Wellington and Kapiti, especially as no separate provision is made for cyclists.
- 155 The existing Ara Harakeke pathway provides a mainly off-road route for cyclists between Kenepuru and Paekakariki and this will remain, albeit with much reduced volumes of traffic on the parallel road route. As someone who has cycled in this area, I am firmly of the view that a large reduction in traffic volumes will result in a more pleasant cycling environment, which can only encourage this as a mode of transport.
- 156 **Submission 50** suggests that the Project will destroy existing mountain biking opportunities and facilities.
- 157 The submission does not provide any specific information regarding routes or locations. The design of the Project has been careful to ensure that connectivity will be maintained for all existing cycle and walking routes.
- 158 **Submission 58** considers that the reductions in traffic volumes on the coastal route will not be sufficient to achieve claimed benefits of reduced community severance, with both traffic volumes and speeds being too high. It is suggested that the capacity / width / speeds of the coastal route should be reduced, separate cycleways and wide footpaths should be provided, and intersections should be changed to facilitate local traffic movement.
- 159 The coastal route will continue to provide vital connectivity for a significant residential catchment and this is reflected in the forecast residual traffic volumes. Despite this, the large reductions in traffic volumes will reduce the degree of severance experienced by communities along this route.
- 160 As I have noted, the existing Ara Harakeke pathway will remain, and as described at Section 1.6.2.2 of the ATTE, it is expected that changes will be made to intersections to facilitate local access.

Heavy vehicles

- 161 **Submission 58** suggests that heavy vehicles should be banned from the coastal route.
- 162 Any such ban would be the decision of the RCA(s) responsible for the route, in consultation with communities and users. For this reason, it was not considered to be reasonable for the assessments to presume that such a ban would be implemented.

- 163 **Submission 34** suggests that the coastal route will continue to be the logical route for heavy vehicles carrying goods to and from Porirua, and also for heavy vehicles from further south because of the climbs involved.
- 164 Heavy vehicles between the north and the northern / central parts of Porirua are likely to remain on the coastal route, subject to there being no prohibition in place on this route (and this is reflected by the modelling). However, through heavy vehicles movements between SH1 North, SH1 South and SH58 East will use the Project because of the benefits it will offer in terms of smoother travel and more certain travel times.

Submissions in support

- 165 It is important to note that many submissions are supportive of the Project. For example, **Submission 28** states that *'in Kapiti we are hostages to the road in times of accidents and long delays on the current SH1 to Wellington'*. **Submission 66** reports that three surveys undertaken of members of the Automobile Association have all shown overwhelming support for the early construction of the Project.

PROPOSED CONDITIONS

- 166 Proposed designation conditions NZTA.32 – NZTA.42 and PCC.20 – PCC.26 relate to the construction phase of the Project and require the preparation of a CTMP¹⁴ and SSTMPs, stipulating the content of these documents. These documents are also required to be consistent with the NZTA Code of Practice for Temporary Traffic Management. The proposed conditions also relate to traffic associated with forestry clearance required for the Project, and the repair of footpaths and carriageways damaged during construction.
- 167 In my view, such conditions are an appropriate means of ensuring that a framework of controls will be in place to control effects associated with the construction of the Project, as I have described.

CONCLUSIONS

- 168 The Project will generate positive effects for:
- 168.1 Users of the Project, who will experience reductions in travel times and the variability of their travel times, and a safer road environment;
- 168.2 Users of the existing SH1 route and other local roads, which will see general reductions in traffic activity, congestion and crash frequencies;

¹⁴ A draft CTMP is included in Volume 5 of the AEE.

- 168.3 Residents of the communities along the existing SH1 and Pauatahanui, where severance will be reduced and accessibility improved by the removal of through traffic, especially HCVs;
- 168.4 Walkers and cyclists, for whom the environment will be improved along the existing SH1 route with easier access across the route, whilst connectivity across the Project alignment will be maintained;
- 168.5 The users of bus services, for which delays on parts of the road network will be reduced, allowing service reliability to be improved;
- 168.6 Businesses in the immediate and wider areas, for which the costs associated with the transportation of goods will be reduced; and
- 168.7 The wider Wellington area, through improved accessibility between the capital and the north, with a reduced likelihood that the city will be isolated following a major natural event.
- 169 The assessment of these benefits has been based upon typical weekday conditions, and understates the additional benefits which will accrue during weekend and holiday periods, when traffic demands and the existing problems along the SH1 route can be magnified.
- 170 Sensitivity testing has demonstrated that the fundamental benefits of the Project remain robust when subject to variance in the key assumptions inherent in the analysis.
- 171 Whilst the Project will result in increased traffic activity in some areas, such increases will be localised and can be appropriately managed.
- 172 During the construction phase of the Project, a range of controls is proposed to ensure that potential effects associated with disruption, safety and amenity for road users and residents are largely mitigated.

- 173 The conclusions of this assessment reinforce those of a number of previous evaluations of the Project undertaken over several years, and also confirm the sentiments of the local communities in the corridor, expressed during consultation exercises held for the Project.



Timothy [Tim] Martin Kelly
15 November 2011

APPENDIX A: CHANGES IN DISTRIBUTION OF PERSON TRIPS BY ORIGIN/DESTINATION AND MODE OF TRAVEL

Movement	Without Project (2006)			
	Private Vehicle	Public Transport	Total	% Public Transport
Kapiti / Wellington	7,790	3,250	11,040	29%
Kapiti / Hutt Valley	6,540	400	6,940	6%
Kapiti / Porirua	9,700	950	10,650	9%
ALL	24,030	4,600	28,630	16%

Movement	Without Project (2026)				With Project (2026)				Effect of Project (2026)			
	Private Vehicle	Public Transport	Total	% Public Transport	Private Vehicle	Public Transport	Total	% Public Transport	Private Vehicle	Public Transport	Total	% Public Transport
Kapiti / Wellington	6,750	5,250	12,000	44%	7,540	4,400	11,940	37%	790	-850	-60	-7%
Kapiti / Hutt Valley	5,560	560	6,120	9%	8,140	470	8,610	5%	2,580	-90	2,490	-4%
Kapiti / Porirua	8,760	1,060	9,820	11%	9,240	970	10,210	10%	480	-90	390	-1%
ALL	21,070	6,870	27,940	25%	24,920	5,840	30,760	19%	3,850	-1,030	2,820	-6%

Notes.

1. *Figures relate to two-way person trips for a typical weekday period in the year shown.*
2. *Figures exclude HCV movements.*
3. *Figures exclude some movements between points north of the Kapiti District and the Wellington region.*

APPENDIX B: CHANGES IN TRAFFIC VOLUMES ATTRIBUTABLE TO THE PROJECT

(Figures are Vehicles/day in 2026)

Transmission Gully Project

Road	Section	Weekday Traffic Volume, 2026		Change, 2026	
		Basecase (without Project)	With Project	Absolute	%
Project	MacKays – SH58	n/a	22,300	+22,300	n/a
	SH58 – Link Roads	n/a	20,000	+20,000	n/a
	Link Roads – Kenepuru Link	n/a	19,000	+19,000	n/a
	Kenepuru Link – Linden	n/a	18,300	+18,300	n/a
	Kenepuru Link Road	n/a	13,000	+13,000	n/a
	Waitangirua Link Road	n/a	3,300	+3,300	n/a
	Whitby Link Road	n/a	3,400	+3,400	n/a

State Highway 1 (existing)

Road	Section	Weekday Traffic Volume, 2026		Change, 2026	
		Basecase (without Project)	With Project	Absolute	%
State Highway 1	North of MacKays	23,800	26,100	+2,300	+10%
	South of Paekakariki	22,900	3,100	-19,800	-86%
	South of Pukerua Bay	24,100	5,900	-18,200	-76%
	Mana Esplanade	35,000	20,500	-14,500	-41%
	South of Paremata	43,700	26,800	-16,900	-39%
	South of Whitford Brown	60,600	44,100	-16,500	-27%
	South of Mungavin	58,100	44,200	-13,900	-24%
	South of Linden	58,100	62,500	+4,400	+8%

Other Major Local Routes

Road	Section	Weekday Traffic Volume, 2026		Change, 2026	
		Basecase (without Project)	With Project	Absolute	%
State Highway 58	East of Paremata	16,800	12,600	-4,200	-25%
	West of Project	12,500	8,700	-3,800	-30%
	East of Project	12,500	14,700	+2,200	+18%
Grays Road	East of State Highway 1 ¹⁵	5,500	2,800	-2,700	-49%
Paekakariki Hill Road	Pauatahanui Village ¹⁶	6,600	3,500	-3,100	-47%
Kenepuru Drive	North of Kenepuru Link	15,500	15,100	-400	-3%
	South of Kenepuru Link	15,500	23,100	+7,600	+49%
Mungavin Avenue	East of State Highway 1	28,900	28,400	-500	-2%

¹⁵ Differs from figures shown in AEE (which relates to that section of Grays Road closer to Pauatahanui village)

¹⁶ Differs from figures shown in AEE (which relates to that section of the Paekakariki Hill Road to the north of the Grays Road intersection)

Other Major Local Routes

Road	Section	Weekday Traffic Volume, 2026		Change, 2026	
		Basecase (without Project)	With Project	Absolute	%
Titahi Bay Road	West of State Highway 1 (Mungavin bridge)	48,300	42,600	-5,700	-12%