

BOARD OF INQUIRY

**Transmission Gully Notices
of Requirement and Consents**

Final Report and Decision of the Board of Inquiry into the Transmission Gully Proposal

Produced under Section 149R of the Resource Management Act 1991

Volume 1

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June 2012

**BEFORE THE BOARD OF INQUIRY CONCERNING REQUESTS FOR
NOTICES OF REQUIREMENT AND APPLICATIONS FOR RESOURCE
CONSENTS TO ALLOW THE TRANSMISSION GULLY PROJECT**

IN THE MATTER

of the Resource Management Act 1991 and the deliberations of a Board of Inquiry appointed under Section 149J of the Act to consider requests for notices of requirement and applications for resource consents by New Zealand Transport Agency, Porirua City Council and Transpower New Zealand Limited in respect of the Transmission Gully Project

HEARING AT:

Wellington commencing on 13 February 2012 and ending on 14 March 2012

REPRESENTATIONS:

See Section 10

Board: Environment Judge Brian Dwyer (Chairperson)
Environment Commissioner Russell Howie (Member)
David McMahon (Member)
David Mitchell (Member)
Glenice Paine (Member)

**FINAL DECISION AND REPORT OF BOARD OF INQUIRY UNDER
SECTION 149R OF THE ACT**

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1. INTRODUCTION

- [1] This report addresses applications by the New Zealand Transport Agency (NZTA), Porirua City Council (PCC) and Transpower New Zealand Limited (Transpower) (jointly - the Applicants) for Notices of Requirement (NoRs) and/or resource consents to allow what is known as the Transmission Gully Project (TGP/the Project). The report has been prepared by the Board of Inquiry (the Board) in accordance with section 149R(1) Resource Management Act 1991 (RMA).
- [2] In accordance with section 149R(3)(a)-(d) RMA this report states our decision and reasons for our decision, includes a statement of the principal issues that were in contention and the main findings on these issues.
- [3] TGP is a proposal to establish a new road in the Wellington region from Linden (in the south) to MacKays Crossing (in the north). We will outline the details of the proposal and why the Applicants wish to undertake it in the following section of this report.
- [4] The reason there are three Applicants is that all three have functions to undertake in establishing TGP. We will discuss those functions elsewhere in more detail in this report. Put briefly however:
 - NZTA is the national roading authority and most of the works are being undertaken by it as part of its function of managing the New Zealand state highway system. Some of the works proposed by NZTA will be undertaken pursuant to NoRs and some pursuant to resource consents;
 - PCC is the local roading authority at the southern end of TGP and is required to undertake works to link TGP to that local roading system. Some of the works will undertaken by PCC pursuant to NoRs and some pursuant to resource consents;
 - Transpower manages the national electricity grid which runs alongside the proposed TGP route in places. It is necessary for Transpower to relocate 24 transmission towers, strengthen 10 towers and remove one tower entirely for TGP to proceed. The works to be undertaken by Transpower are to be undertaken pursuant to resource consents.
- [5] Each Applicant has applied for the NoRs and consents for their respective components of the proposal separately, however, they are inextricably linked and have been lodged concurrently. On this basis we have largely considered the effects of each project as if they were one although we have undertaken a separate consideration of the Transpower applications in reaching our decision.

2. OUTLINE OF TGP PROPOSAL AND REASONS FOR IT

The applications for the construction, operation and maintenance of TGP

- [6] TGP is a proposed 27km inland road that will run between Linden and MacKays Crossing. The application documents describe the roading aspects of the proposal to be undertaken by NZTA and PCC in these terms¹:

1. Introduction

The Transmission Gully Project (the Project) consists of three components:

- *The Transmission Gully Main Alignment (the Main Alignment) involves the construction and operation of a State highway formed to expressway standard from Linden to MacKays Crossing. The NZ Transport Agency (NZTA) is responsible for the Main Alignment.*
- *The Kenepuru Link Road involves the construction and operation of a road connecting the Main Alignment to existing western Porirua road network. The NZTA is responsible for the Kenepuru Link Road.*
- *The Porirua Link Roads involve the construction and operation of two local roads connecting the Main Alignment to the existing eastern Porirua road network. Porirua City Council (PCC) is responsible for the Porirua Link Roads.*

1.1 Transmission Gully Main Alignment

The Main Alignment will provide an inland State highway between Wellington (Linden) and the Kapiti Coast (MacKays Crossing). Once completed, the Main Alignment will become part of State Highway 1 (SH1). The existing section of SH1 between Linden and MacKays Crossing will likely become a local road.

The Main Alignment is part of the Wellington Northern Corridor (Wellington to Levin) Road of National Significance (RoNS). The Wellington Northern Corridor is one of the seven RoNS that were announced as part of the Government Policy Statement on Land Transport Funding (GPS) in May 2009. The focus of the RoNS is on improved route security, freight movement and tourism routes.

The Main Alignment will be approximately 27 kilometres in length and will involve land in four districts: Wellington City, Porirua City, Upper Hutt City and Kapiti Coast District.

The key design features of the Main Alignment are:

¹ Application documents - Technical Report 4 (TR4).

- *Four lanes (two in each direction with continuous median barrier separation);*
- *Rigid access control;*
- *Grade separated interchanges;*
- *Minimum horizontal and vertical design speeds of 100 km/hr and 110 km/hr respectively; and*
- *Maximum gradient of 8%;*
- *Crawler lanes in some steep gradient sections to account for the significant speed differences between heavy and light vehicles.*

1.2 Kenepuru Link Road

The Kenepuru Link Road will connect the Main Alignment to western Porirua. The Kenepuru Link Road will provide access from Kenepuru Drive to the Kenepuru Interchange. This road will be a State highway designed to following standards:

- *Two lanes (one in each direction);*
- *Design speeds of 50 km/h;*
- *Maximum gradient of 10%; and*
- *Limited side access.*

1.3 Porirua Link Roads

The Porirua Link Roads will connect the Main Alignment to the eastern Porirua suburbs of Whitby (Whitby Link Road) and Waitangirua (Waitangirua Link Road). The Porirua Link Roads will be local roads designed to the following standards:

- *Two lanes (one in each direction);*
- *Design speeds of 50 km/h;*
- *Maximum gradient of 10%; and*
- *Some side access will be permitted.*

- [7] TGP is intended to provide an alternative route to the existing SH1. Much of SH1 presently runs along the shoreline of Porirua Harbour and the west coast of the Wellington region. For this reason many of the participants in our proceedings referred to it as the *coastal route* and we will similarly use that expression on occasions.
- [8] There are a number of identified problems with the coastal route. The application documents defined those problems and how they might be remedied by TGP in these terms²:

² Application documents - TR4.

Problem Definition & Benefits of the Transmission Gully Project

The problems experienced in the existing SH1 corridor are self-evident to regular travellers in this area. The use of models has assisted in quantifying these problems, the degree to which these will intensify in the future and the extent of benefits which will be provided by the Transmission Gully Project:

Congestion

- The corridor is currently subject to regular congestion during weekday peak periods. More severe congestion is experienced during holiday periods, or when incidents occur (such as crashes, slips etc).
- This results in increased travel times and a greater variability of travel times, making journey planning difficult for individuals and businesses (such as freight operators).
- A consequence of these conditions is that people change their travel behaviour to avoid expected congestion by travelling at other times, to alternative destinations, at lower frequencies or by other modes. Together, these changes result in inconvenience for travellers in the corridor and some suppression of traffic demand along the existing SH1 route.
- By the provision of a new four-lane route, the Transmission Gully Project will reduce travel times and allow journeys to be planned with a greater level of certainty around travel times. Whilst the risks of any temporary closures will be significantly reduced, the consequences in terms of potential delays will also be reduced. As a result, travellers will benefit through being able to travel at times and in a manner which is most convenient for them, with efficiency benefits for both individuals and businesses.

Accessibility

- Access between the Hutt Valley and SH1 to the north is currently poor, requiring the use of indirect routes by means of SH1 and SH2 via the Ngauranga Gorge, Grays Road or SH58 around the Pauatahanui Inlet.
- The Transmission Gully Project will provide a route between SH58 at Haywards and SH1 (north) which is significantly shorter and faster, resulting in an improved level of accessibility between these areas.
- Similarly, poor road conditions for north-south travel along SH1 and resulting in peak period congestion restricts accessibility between Kapiti/Horowhenua and areas to the south.
- The Transmission Gully Project will allow reduced and more certain travel times at all time periods, removing deterrents to travel in the corridor and improving accessibility and regional cohesiveness.

Use of Inappropriate Routes

- Routes such as the Paekakariki Hill Road, Grays Road and SH58 along the Pauatahanui Inlet suffer from poor geometry but are used

by significant volumes of traffic between the Porirua/Kapiti areas and the Hutt Valley.

- *The Transmission Gully Project will provide a high standard route for these traffic movements, resulting in significant benefits to the existing routes.*

Safety

- *Although some improvements have been achieved in recent years along the existing SH1 route, the ability to achieve further reductions in the frequency and severity of crashes is constrained by the geometry of the route. Similarly, high traffic volumes using the inappropriate routes (above) results in a poor crash record.*
- *The Transmission Gully Project will be constructed to appropriate design standards, with limited access, continuous overtaking opportunities and grade-separated intersections. As a result, the frequency of crashes will be significantly reduced. Furthermore, the diversion of traffic away from roads with poor geometric standards will provide benefits in terms of a reduction in the overall number of crashes.*

Severance

- *A number of existing communities in the corridor suffer severance and problems of accessibility arising from the barrier represented by high volumes of through traffic. In Paremata, Mana, Plimmerton and Paekakariki, community facilities are separated from residential areas by SH1. Crossing the route involves detours, delays and safety concerns. Pauatahanui village also experiences inappropriate volumes of through traffic with resulting severance and safety concerns, particularly for the movement of children to and from the primary school.*
- *With the removal of large volumes of extraneous traffic by the Transmission Gully Project, all of these communities will benefit from improved levels of connectivity, accessibility and safety.*

Vulnerable Road Users

- *Whilst the SH1 corridor has seen some improvements in pedestrian and cycle facilities in recent years, these road users can feel intimidated by the high volumes of traffic which affects the perceived safety and enjoyment of travel by these modes of transport.*
- *The much lower volumes of traffic along the existing SH1 route will create opportunities for the implementation of measures to encourage walking and cycling, more consistent with local function of the route.*

Route Security

- *The existing SH1 route is vulnerable to long-term closure after a major natural event such as an earthquake or tsunami.*
- *Although the Transmission Gully Project will itself be at some risk of closure, the availability of a secondary route will offer benefits in*

terms of a lower risk and duration of Wellington being isolated following such an event.

- [9] We have set out the definition of the problem and benefits above, from the application documents in full and verbatim. Although some parties to the proceedings challenged the extent to which TGP might remedy the problems, not one party challenged the identification of problems with the coastal route in any substantive evidence which we heard. The inadequacies of the coastal route are accordingly *givens* in our considerations. We will address the issue of benefits of TGP in more detail elsewhere in this report.

3. BACKGROUND, REFERENCE TO BOARD OF INQUIRY, AND MINISTER'S REASONS

- [10] On 15 August 2011, the NoRs and resource consent applications from the three Applicants were lodged with the Environmental Protection Agency (EPA) in accordance with s145 RMA. The NoRs and resource consent applications will hereafter be referred to collectively as *the applications*. The applications comprised NoRs for designations in the Kapiti Coast District, Upper Hutt City, Porirua City and the Wellington City District Plans, applications for resource consents under Wellington Regional Plans and applications under the National Environmental Standard for Electricity Transmission Activities.
- [11] When such applications are lodged with the EPA, s146 RMA requires the EPA to seek a direction from the Minister for the Environment (the Minister) under s147. On 24 August 2011, the EPA recommended to the Minister that the matters be referred to a board of inquiry for a decision.
- [12] On 13 September 2011, the Minister confirmed that the applications seek to allow works which form part of a proposal of national significance and directed that these matters be referred to a board of inquiry for determination under s171 RMA. In accordance with s149C, on 17 September 2011, the applications were publicly notified, calling for submissions. A correction notice was issued on 1, 4 or 6 October. Submissions closed on 31 October 2011.
- [13] Section 142(3) RMA sets out a number of matters the Minister may have regard to in determining whether or not a matter is, or is part of, a proposal of national significance. The Minister's reasons for directing the matters to the Board, in accordance with s142(3) were:

Matters lodged by NZTA

- a) **Has aroused widespread public concern or interest regarding its actual or likely effect on the environment (including the global environment).**

The Main Alignment and Kenepuru Link Road, being the 27km state highway inland alternative to the existing coastal route, have had a long history of media and public attention, part of which relates to the actual or potential effects of the proposal on the environment.

- b) **Involves or is likely to involve significant use of natural and physical resources**

The Main Alignment and Kenepuru Link Road involves the construction of a state highway 27km in length, which in turn requires forming new link roads and the relocation of transmission lines in order to proceed. Construction will involve approximately 6.3 million cubic metres of cut material and 5.8 million cubic metres of fill material. There are approximately 112 stream crossings, requiring culverts and bridges, and the permanent realignment of approximately 6.5km of streams. The proposal traverses mainly rural

land, with urban development at the northern end, at MacKays Crossing, and the southern end around Whitby, Linden, Waitangirua, Cannons Creek and other eastern suburbs of Porirua. Land within the proposal area is highly modified, comprising mostly pasture, with some areas of regenerating native bush and exotic forestry.

The proposal traverses nine hydrological catchments, which are part of four different watersheds. Five of the catchments (approximately 65% of the length of the proposal) drain into the Pauatahanui Inlet, which is considered to be relatively an extensive unmodified estuarine area in the southern part of the North Island.

Multiple areas of land will need to be acquired by NZTA for the Main Alignment and the Kenepuru Link Road. Hence the construction and subsequent occupation of land and water by TGP will involve significant use of natural and physical resources. The project is estimated to cost more than \$1 billion.

c) Affects or is likely to affect a structure, feature, place or area of national significance

The Main Alignment and Kenepuru Link Road are the primary components of the TGP. The PCC and Transpower matters are consequential to, and would not have been lodged without, the NZTA matters. The Main Alignment and Kenepuru Link Road are part of the Wellington Northern Corridor Road of National Significance (which runs between Wellington Airport and north of Levin), a roading route identified in the Government Policy Statement on Land Transport Funding as a route requiring significant investment to reduce congestion. The Main Alignment and Kenepuru Link Road are considered to be a key section of the NZTA Wellington Northern Corridor.

The national significance of the TGP is further enhanced by its intended status as the primary state highway linking with the greater North Island and the South Island via Wellington and through the Cook Strait.

The Pauatahanui Inlet, into which 65% of the length of the proposal drains, is identified in the Wellington Conservation Management Strategy as “a productive estuarine habitat, a site of national significance in the Sites of Special Wildlife Interest (SSWI) database and the only large area of salt marshes and seagrass in the Wellington Region.”

Construction of the Main Alignment requires relocation of transmission lines forming part of the national electricity grid, which is a structure of national significance.

e) Results or is likely to result in or contribute to significant or irreversible changes to the environment (including the global environment)

The Main Alignment and Kenepuru Link Road are likely to result in irreversible changes to the environment. The proposal will involve large scale earthworks (approximately 6.5 million cubic metres of cut material and 5.8 million cubic metres of fill material), diversion of approximately 6.5km of streams, culverting or bridging of approximately 112 streams, removal of exotic and regenerating native vegetation and changes to the hydrology within the catchments impacted.

h) Will assist the Crown in fulfilling its public health, welfare, security, or safety obligations or functions

The Main Alignment and Kenepuru Link Road are expected to provide an alternative route into and out of Wellington City. An alternate inland state highway route is intended to provide greater resilience to natural hazards, such as sea level rise, and provide an alternative route into and out of the western side of Wellington in the event of a natural disaster. Construction of the Main Alignment and associated link road is intended to improve travel times, reliability, reduce congestion within the western road corridor, and provide a safer driving environment. These provisions will assist the Crown in providing a safe and secure transport alternative, particularly in the event that the current State Highway 1 is impacted by unforeseen events.

The Kenepuru Link Road will help improve access to key regional and inter-regional destinations by linking the western Porirua road networks to the Main Alignment. The proposal to relocate parts of the transmission line to enable the construction and operation of the Main Alignment will ensure connection to the National Grid is maintained, thereby assisting the Crown in fulfilling its public health and welfare functions.

i) Affects or is likely to affect more than 1 region or district

The Main Alignment and Kenepuru Link Road traverse the jurisdictions of four territorial authorities (Wellington City Council, Porirua City Council, Upper Hutt City Council, and the Kapiti Coast District Council) and are within the jurisdiction of the Greater Wellington Regional Council.

j) Relates to a network utility operation that extends or is proposed to extend to more than 1 district or region

The network utility operation for the Main Alignment and Kenepuru Link Road components extends to the four territorial authorities (Wellington City Council, Porirua City Council, Upper Hutt City Council, and the Kapiti Coast District Council).

Matters lodged by PCC

- h) Will assist the Crown in fulfilling its public health, welfare, security, or safety obligations or functions.**

The Porirua Link Roads assist the Crown in meeting its security and safety functions and obligations because they will provide an alternative route into and out of Wellington City. Access to an alternate inland state highway route is intended to provide greater resilience to natural hazards, such as sea level rise impacting the coastal route (State Highway 1), and provide an alternative route into and out of the western side of Wellington in the event of a natural disaster. Construction of the Porirua Link Roads, which would provide access to the Main Alignment, is intended to also improve travel times, reliability, reduce congestion within the western road corridor and provide a safer driving environment.

Matters Lodged by Transpower

- c) Affects or is likely to affect a structure, feature, place or area of national significance**

The national electricity grid extends across New Zealand, including towers, poles, lines, cables and substations. It includes over 12,000km of high-voltage transmission lines and more than 170 substations. Both the transmission lines and the proposed Main Alignment are nationally significant structures. Without relocation of the Paekakariki-Takapu Road A transmission line, which is located within the proposed route of the Main Alignment, construction of the Wellington Airport to north of the Levin Road of National Significance would be affected, as the transmission lines run along the proposed route. Similarly, interruption to and removal of the transmission lines is not a viable option given the national significance of the national electricity grid of which the lines are a part.

- i) Affects or is likely to affect more than 1 region or district**

The national electricity grid is a strategic infrastructure link, providing electricity across New Zealand. The relocation works are located within the Kapiti Coast District, Porirua City and the jurisdiction of the Greater Wellington Regional Council.

3.1 TGP PLAN CHANGE TO THE WELLINGTON REGIONAL FRESHWATER PLAN AND EXISTING DESIGNATION

[14] For the sake of completeness we record that on 6 September 2010, NZTA had filed a request for changes to the Wellington Regional Freshwater Plan (the Freshwater Plan) with the EPA. The plan change request was intended to enable the consideration of future TGP resource consents under the Freshwater Plan. The change sought to insert one new policy and amend existing policies in the Freshwater Plan.

[15] That application was also referred to a Board of Inquiry. Following a submission and hearing process the Board of Inquiry approved the plan change which altered the wording of existing Policies 4.2.10, 7.2.1 and 7.2.2

and inserted a new Policy 4.2.33A into the Freshwater Plan. An appeal to the High Court against the Board's decision on the plan change was dismissed and the plan change became operative on 25 January 2012. The amended Freshwater Plan is a relevant consideration for this proposal.

- [16] Also for the sake of completeness we note that part of the TGP route subject to these applications is presently subject to a designation by NZTA approved in 2001. These current applications propose a different route to the existing designation although there is substantial overlap between the two.

4. CONDUCT OF THE INQUIRY AND MATTERS TO BE CONSIDERED UNDER SECTION 149P OF THE RMA

[17] This Board was appointed in accordance with sections 149J and 149K RMA. Section 149L RMA provides:

(1) A board of inquiry appointed to determine a matter under section 149J may, in conducting its inquiry, exercise any of the powers, rights and discretions of a consent authority under sections 92 to 92B and 99 to 100 as if –

(a) the matter were an application for a resource consent; and

(b) every reference in those sections to an application or an application for a resource consent were a reference to the matter.

[18] The Board must determine the applications in accordance with s149P of the Act which specifies the matters that we are required to consider in making our decision. Section 149P relevantly provides:

(1) A board of inquiry considering a matter must—

(a) have regard to the Minister's reasons for making a direction in relation to the matter; and

(b) consider any information provided to it by the EPA under section 149G; and

(c) act in accordance with subsection (2), (3), (4), (5), (6), (7), (8), or (9) as the case may be.

(2) A board of inquiry considering a matter that is an application for a resource consent must apply sections 104 to 112 and 138A as if it were a consent authority.

(4) A board of inquiry considering a matter that is a notice of requirement for a designation or to alter a designation—

(a) must have regard to the matters set out in section 171(1) and comply with section 171(1A) as if it were a territorial authority; and

(b) may—

(i) cancel the requirement; or

(ii) confirm the requirement; or

(iii) confirm the requirement, but modify it or impose conditions on it as the board thinks fit; and

- (c) *may waive the requirement for an outline plan to be submitted under section 176A.*

5. MINUTES AND DIRECTIONS ISSUED

[19] In administering the inquiry process we issued 27 minutes, directions and memoranda in relation to the following topics:

- Hearing procedures and process;
- Sedimentation and planning conferencing, conditions and noise issues;
- Amended/late evidence and extended timeframes for some evidence exchange;
- Pre-hearing conferences;
- Consideration of late/non-complying/amended submissions;
- Response to Memorandum of Counsel;
- Hearing start date;
- Expert and officer conferencing.

[20] We will not describe the content of each minute here but will refer to the relevant minutes, directions and memoranda as necessary throughout this report.

6. PROCEDURES

6.1 SUBMISSIONS

- [21] Seventy submissions were received on the applications, 26 were in opposition, 33 were in support, three did not state a position of support or opposition and the other submissions were either neutral, or in partial support and partial opposition.
- [22] Six submissions were received after the close of the statutory submission period. We resolved to formally accept the late submissions³. In a Minute of the Board dated 30 November 2011 we also resolved to formally receive an amended Kapiti Coast District Council (KCDC) submission⁴.

6.2 PRE-HEARING CONFERENCES

- [23] Three pre-hearing conferences were held in the lead-up to the hearing. The first conference was held on Thursday 10 November 2011. The purpose of this conference was to outline procedures for the hearing, and to allow the Applicants and submitters to raise any issues they had with the draft hearing procedures and any other procedural matters. Directions from this pre-hearing conference were provided in a Minute of the Board dated 30 November 2011.
- [24] The second pre-hearing conference was held on Thursday 1 December 2012. The purpose of this conference was to discuss issues regarding site access. Directions from this pre-hearing conferencing were provided in a Minute of the Board dated 1 December 2011.
- [25] The final pre-hearing conference was held on Tuesday 17 January 2012. The purpose of this conference was to discuss ongoing access issues to a site at the northern end of the route. We also considered requests for waivers for supplementary evidence and late submitter evidence. Directions arising from this prehearing conference were provided in a Minute of the Board dated 18 January 2012.

6.3 GENERAL

- [26] Pursuant to s37(1)(a) RMA we extended the time between the close of the submission period and the commencement of the hearing from 40 working days to 69 working days ⁵.

³ Minute of the Board dated 9 November 2011 (also Minutes undated 10 November 2011 and 16 November 2011).

⁴ As per Memorandum Counsel for Kapiti Coast District Council of 17 November 2011 regarding the amendment to the Kapiti Coast District Council's submission (Submission Number 0023) by way of correction to the submission cover sheet.

⁵ Minute dated 10 November 2011.

- [27] We declined a request by Radio New Zealand (RNZ) to record the hearing. Facilities were available at the hearing for an RNZ reporter at the media bench and the reporter was able to take hand written notes. Copies of statements of evidence and transcripts were posted on the EPA website as they became available. We approved a request by Fairfax Media to take photographs at the hearing. However, we directed that no photographs may be taken of witnesses giving evidence or of Counsel during cross-examination of witnesses⁶.

6.4 EVIDENCE

- [28] The Applicants' evidence in chief (EiC) was received by the EPA by 18 November 2011. Expert evidence on behalf of the submitters was received on 21 December 2011. The Applicants provided rebuttal evidence to the EPA by 20 January 2012, with various further supplementary statements of evidence coming in up until 20 February 2012. Additionally, at the request of the Board, NZTA provided information (circulated to other parties) regarding possible covenanting of land for protection purposes after the conclusion of the hearing.
- [29] We agreed to a time extension for receiving the Applicants' rebuttal evidence in relation to sedimentation issues and this was received by the EPA on 27 January 2012.
- [30] We allowed submitters' experts to provide supplementary evidence in relation to the Te Puka Stream section of the route and updated proposed conditions. This was received by the EPA on 3 February 2012.
- [31] We also allowed submitters' planning experts to provide supplementary evidence with regard to updated proposed conditions and evidence from other experts. The EPA received this evidence on 9 February 2012.
- [32] We resolved⁷ to formally accept late evidence⁸ from submitters Rational Transport Society (RTS), Mana Cycle Group and Living Streets Wellington and an amendment of the evidence provided by the New Zealand Historic Places Trust (Pouhere Taonga).
- [33] We also accepted an extension of time for submission of rebuttal evidence from witnesses Fisher, Malcolm and De Luca⁹ for NZTA.

6.5 CONFERENCING

- [34] An active programme of expert witness conferencing was established by the Board. The purpose of this programme was to identify the substantive and determinative matters in dispute between the witnesses.
- [35] Additionally, we directed the three Applicants and the five local authorities (Wellington Regional Council, Wellington City Council, Porirua City Council,

⁶ Minute dated 9 February 2012.

⁷ In a Minute of the Board dated 17 January 2012.

⁸ By exercising powers under s37(1)(b) RMA.

⁹ In a Minute of the Board of 19 January 2012.

Kapiti Coast District Council and Upper Hutt City Council) to undertake on-going officer conferencing regarding conditions¹⁰.

- [36] There were 30 conferencing statements received. The various groups of experts participated constructively in conferencing, and produced helpful reports as to the facts and issues agreed, facts and issues unresolved, and (generally) reasons for the latter. We have considered these statements, along with other submitters' concerns, in our deliberations later in this report.

¹⁰ In a Minute and Directions of the Board dated 24 November 2011 we directed that these parties provide a joint status report on progress of the conferencing to the EPA by 21 December 2011.

7. OUTLINE OF PROPOSAL

7.1 INTRODUCTION TO THE PROPOSAL

- [37] We refer to our earlier description of the TGP proposal¹¹.
- [38] TGP is to form part of what is known as the Wellington Northern Corridor which is identified as one of seven projects described as Roads of National Significance (RoNS) in a Government Policy Statement prepared under the Land Transport Management Act 2003. In 2009, the Minister of Transport announced that TGP was the preferred option for that section of the Wellington Northern Corridor between Linden and MacKays Crossing.
- [39] For the purposes of description and administration, NZTA has divided the Main Alignment of TGP into 9 sections. We describe those sections from north to south to give some appreciation of the extent of the Project.

Section 1: MacKays Crossing

This section is approximately 3.5km long, and extends from the tie-in at the existing MacKays Crossing Interchange on SH1 to the lower part of Te Puka Stream valley.

Section 2: Wainui Saddle

Section 2 starts approximately 03500m¹² and climbs for about 2km to the top of the Wainui Saddle, approximately 262m above sea level (at about 05500m). This will be the highest point of the Main Alignment.

Section 3: Horokiri Stream

This section is approximately 3km long and extends from the southern end of the Wainui Saddle to the northern end of Battle Hill Forest Farm Park (BHFFP). For the entire length of this section, the Main Alignment will run generally parallel to the Horokiri Stream. From 06500m to approximately 08550m the Main Alignment will be to the west of the Horokiri Stream, while from 08550m to 09500m it will be to the east of the stream. As the Main Alignment runs parallel to the stream it will cross a number of its minor tributaries which generally run perpendicular to the Horokiri Stream and the Main Alignment.

Over this section, the Main Alignment will cross the Horokiri Stream once with a bridge at 08540m. The section finishes towards the northern boundary of the BHFFP at approximately 09500m.

Section 4: Battle Hill

This section is approximately 3km long and extends from the northern boundary of the BHFFP to the Pauatahanui Golf Course. Shortly after the

¹¹ Section 2, paras [7]-[9] above.

¹² Metric references are contained throughout this description. Starting point zero is the northern most point of TGP. Section 2 accordingly starts approximately 3.5km from that point.

Main Alignment enters the BHFFP from the north, it crosses over the Horokiri Stream with a bridge at approximately 09720m. Over the remainder of this section, heading south, the Main Alignment will follow the Horokiri Valley floor, which widens from north to south though the BHFFP.

At about 11750m it will cross an unnamed stream with a bridge. Access across the Main Alignment will be available underneath this bridge.

Section 5: Golf Course

This section is approximately 3km long, and extends from north to south through rural land adjacent to the Pauatahanui Golf Course and Flighty's Road. The Main Alignment will cross a small number of tributaries along this section but there will be no major stream crossings requiring bridges.

Section 6: State Highway 58

This section is approximately 3km long and starts at 15500m. The SH58/Pauatahanui Interchange will be located at approximately 17500m. At this interchange, the Main Alignment will be elevated above a roundabout which will provide access to and from the Main Alignment for traffic travelling in both directions on existing SH58. Immediately south of this interchange, at approximately 17660m, there will be a bridge across the Pauatahanui Stream.

Section 7: James Cook

This section starts just south of the State Highway 58/Pauatahanui Interchange, at approximately 18500m and climbs up to the James Cook Interchange at approximately 19500m. From James Cook Interchange, the Main Alignment continues southwards for a further 2km. This section finishes at approximately 21500m.

Section 8: Cannons Creek

This section begins at 21500m and is approximately 3.4km long. Throughout this section the Main Alignment will run along the eastern side of Duck Creek valley, and across an undulating weathered greywacke plateau between Duck and Cannons Creeks. There will be four bridges in this section.

Section 9: Linden

This southernmost section is approximately 2.8km long. From the start of the section at approximately 24900m, a third lane will be provided in the northbound carriageway heading uphill. There will be two bridges in this section.

- [40] TGP involves approximately 112 stream crossings by either bridges or culverts. The Project will require the permanent realignment of approximately 6.5km of streams. There will be approximately 6.3 million cubic metres of earthworks. Enabling works will involve works on the existing electricity transmission lines, the formation of construction access tracks and site compounds. The main site compound will be located next to the proposed SH58 interchange and will be accessed directly from SH58. This will contain a concrete batching plant. Construction of TGP is expected to take about six

years and will be staged with a number of crews working simultaneously on different fronts. It is expected that there will be up to 12 earthworks crews and eight bridge crews working during peak construction.

7.2 STATUTORY APPLICATIONS, AND APPROVALS NEEDED

- [41] Eight NoRs are required under s145(3) RMA, six by NZTA and two by PCC. NZTA applied for 16 resource consents, PCC applied for 4 resource consents and Transpower applied for 2 resource consents. The NZTA resource consents are for non-complying activities, the PCC resource consents are for discretionary activities and the Transpower consents are for restricted discretionary activities. We identify the consents below.

NZTA applications

- [42] Designation of land required for the construction, operation and maintenance of the Main Alignment in the following district plans:

- NoR 1 – Kapiti Coast;
- NoR 2 – Upper Hutt City;
- NoR 3 – Porirua City;
- NoR 4 – Wellington City.

- [43] Designation of land required for the construction, operation and maintenance of the Kenepuru Link Road in the following district plans:

- NoR 5 – Porirua City;
- NoR 6 – Wellington City.

- [44] Resource consent for bulk earthworks and construction, erosion and sediment control:

- RC1 – RC3.

- [45] Resource consent for crossing, occupation and realignment of streams:

- RC4 – RC14.

- [46] Resource consent for concrete batching:

- RC15 – RC16.

PCC applications

- [47] Designation of land in the Porirua City District Plan for the construction, operation and maintenance of:

- The Whitby Link Road (NoR 7);
- The Waitangirua Link Road (NoR 8).

[48] Resource consent for bulk earthworks and construction erosion and sediment control:

- RC17 – TC19.

[49] Resource consent for occupation of Duck Creek and its tributaries:

- RC20.

[50] Transpower applications

- Resource consent for the relocation of 6 towers in Kapiti Coast District;
- Resource consent for the relocation of 18 towers in Porirua City.

7.3 PROJECT DOCUMENTATION

[51] The project documentation comprised a suite of six volumes (a number of the identified volumes themselves included more than one volume) as follows:

1. Assessment of Environmental Effects Report (AEE);
2. RMA application forms;
3. Technical reports and supporting documents;
4. Plan set;
5. Draft management plans;
6. Transmission Lines Relocation Project – Application Documents.

[52] Twenty-three technical reports were included in volume three. These were:

1. Design philosophy statement: Road design;
2. Design philosophy statement: Bridges and retaining walls;
3. Geotechnical engineering assessment;
4. Assessment of traffic and transportation effects;
5. Assessment of landscape and visual effects;
6. Terrestrial vegetation and habitats: Description and values;
7. Herpetofauna and terrestrial macro-invertebrates: Description and values;
8. Avifauna and bats: Description and values;
9. Freshwater habitat and species: Description and values;
10. Estuarine habitat and species: Description and values;
11. Ecological impact assessment;
12. Assessment of acoustic effects;

13. Assessment of air quality effects;
14. Assessment of hydrology and stormwater effects;
15. Assessment of water quality effects;
16. Contaminated land assessment;
17. Social impact assessment;
18. Cultural impact assessment;
19. Assessment of built heritage effects;
20. Assessment of archaeological effects;
21. Statutory provisions report;
22. Consultation summary report;
23. Urban design and landscape framework.

For the rest of this report we will refer to the Technical Reports by their abbreviated reference. For example, Technical Report 1 will be TR1.

[53] The following draft management plans were included in volume five:

- Construction environmental management plan;
- Construction noise and vibration management plan;
- Construction air quality management plan;
- Construction traffic management plan;
- Contaminated land management plan;
- Ecological mitigation and monitoring plan;
- Te Puka site specific environmental management plan;
- Upper Horokiri site specific environmental management plan;
- SH58/Pauatahanui site specific environmental management plan;
- Waitangirua site specific environmental management plan;
- Duck Creek site specific environmental management plan;
- Kenepuru/Linden site specific environmental management plan.

[54] The Transmission Lines Relocation Project was contained in volume six and consisted of the following documents:

- Assessment of Environmental Effects report;
- RMA forms;

- Addendum to TR5: Assessment of ecological effects;
- Addendum to TR11: Assessment of landscape and visual effects;
- Addendum to TR16: Contaminated land assessment;
- Addendum to TR17: Assessment of social impacts;
- Addendum to TR19: Assessment of built heritage effects;
- Addendum to TR20: Assessment of archaeological effects.

7.4 PROJECT HISTORY

[55] The concept of an alternative inland route for SH1 in this vicinity has been discussed for many decades. The AEE detailed key events in the development of TGP. These can be summarised as follows:

- 1919: First talk of an inland state highway between Wellington and Kapiti;
- 1981-1989: Western Corridor Study (GATS) – inland state highway selected as preferred option;
- 1990: Parliamentary Commissioner for the Environment audit and verification of Environmental Impact Report Findings;
- 1996 - 2003: Inland corridor designated;
- 2006: Western Corridor Plan confirmed inland route;
- 2007- 2008: Phase 1: Scheme assessment;
- 2009 – 2011: Phase 2: Preliminary design – Engineering and environmental assessment.

8. STATUTORY FRAMEWORK FOR DELIBERATIONS

- [56] RMA provides the framework for our deliberations. Of particular relevance are provisions detailing the jurisdiction of the Board and the process regarding NoRs and resource consent applications. The statutory framework is explained in the balance of this section. An analysis of the proposal against this framework is provided later in this report.

8.1 JURISDICTION OF THE BOARD OF INQUIRY

- [57] Section 140 RMA outlines the purpose of Part 6AA which addresses Proposals of National Significance. Section 149P identifies the matters that must be considered by the Board in determining such applications. We must have regard to the Minister's reasons for making a direction in relation to the matter, and consider any information provided by the EPA.

8.2 NOTICES OF REQUIREMENT FOR DESIGNATION

- [58] A NoR for a designation may only be issued by a requiring authority. Section 166 defines a requiring authority as:

(a) A Minister of the Crown; or

(b) A local authority; or

(c) A network utility operator approved as a requiring authority under s167.

- [59] NZTA is the requiring authority for the Main Alignment and Kenepuru Link Road. NZTA was approved under s167(3) RMA as a requiring authority by Resource Management (Approval of Transit New Zealand as Requiring Authority) Notice 1994, which was notified in the Gazette on 3 March 1994. PCC is a requiring authority in accordance with s166(b) RMA, and is the requiring authority for the Porirua Link Roads.

- [60] In determining a matter that is a NoR for a designation, in accordance with s149P(4)(a), the Board must have regard to the matters set out in s171(1) RMA and comply with s171(1A) as if it were the territorial authority. We will address those matters in due course.

8.3 APPLICATIONS FOR RESOURCE CONSENTS

- [61] In the case of a resource consent application, under s149P(2) RMA, the Board must apply sections 104 to 112 and 138A RMA as if it were a consent authority.
- [62] Prior to determining applications for non-complying activities, the decision maker must determine whether the applications satisfy at least one of the limbs of the s104D threshold test. Again we will address those matters in due course.

[63] In addition to consideration under s104D, there are further considerations for particular classes of activities:

- Discretionary and non complying, under section 104B;
- Restricted discretionary, under section 104C;
- Discharge permits under sections 105 and 107.

[64] All of the relevant statutory considerations are subject to Part 2 RMA.

8.4 NATIONAL ENVIRONMENTAL STANDARD FOR ELECTRICITY TRANSMISSION ACTIVITIES (NESETA)

[65] Sections 43A, 43B, 43D RMA apply to the consideration of resource consents under National Environmental Standards. NESETA came into effect on 14 January 2010 and sets out a national framework of permissions and consent requirements for activities that relate to existing transmission lines which were operational (or able to be operational) on 14 January 2010.

[66] Regulation 4(1) of NESETA identifies the activities which are covered by the Standard and specifically provides for the relocation of an existing transmission line including activities which relate to that activity, construction, use of land and an activity relating to access tracks to an existing transmission line.

[67] Restricted discretionary land use consent is required for the relocation of towers in accordance with Regulation 16(1)(a) and 16(1)(b). The matters for discretion are set out in Regulation 16(4).

9. REPORTS TO THE BOARD

9.1 S149G RMA

- [68] Section 149G requires the EPA to commission a report from the relevant local authorities on the *key issues* in relation to the matter. The EPA commissioned reports from the Wellington Regional Council (the Regional Council), Wellington City Council (WCC), PCC, Kapiti Coast District Council (KCDC) and Upper Hutt City Council (UHCC) which were provided to us for our consideration.
- [69] Each of these reports responded to a Statement of Work from the EPA which defined the scope of the reports to identify the key issues arising from TGP. The Statement of Work specified that the reports should address the following:
- a) *Any relevant provisions of a national policy statement, a New Zealand coastal policy statement, a regional policy statement or proposed regional policy statement, and a plan or proposed plan; and*
 - b) *A statement on whether all required resource consents in relation to the proposal to which the matter relates have been applied for; and*
 - c) *If applicable, the activity status of all proposed activities in relation to the matter;*
 - d) *Confirmation of the status and weighting, if proposed, of any relevant regional policy statement, and or relevant plan; and*
 - e) *Details of the permitted baseline and existing environment for the resource consents applied for within the jurisdiction. This will include:*
 - *The permitted baseline and details of any relevant consents held in the areas that form the existing environment within your authorities' jurisdiction;*
 - *Comment on whether the proposed consents applied for within your authorities' jurisdiction will affect any relevant existing consent holder's ability to implement their existing consents should the proposed consents be granted.*
 - f) *Identify any sensitive land use: in relation to Transpower consents in your jurisdiction as defined in the National Environmental Standards for Electricity Transmission Activities.*
 - g) *Any other matter which is relevant to the key issues associated with the applications.*

9.2 REPORT FROM THE WELLINGTON REGIONAL COUNCIL

- [70] The report from the Regional Council identified a number of objectives and policies that the Applicants either had not identified which the Regional Council considered were relevant or had identified that are not relevant.
- [71] This report noted that the Applicants appeared to have applied for all necessary resource consent applications for the proposal, with 3 possible exceptions and detailed areas where further information may be necessary.
- [72] The Regional Council concurred that the activity status list for the proposed activities was correctly identified by the Applicants but noted that further consents may be required.
- [73] The report identified other key issues relating to construction discharges (earthworks), ecological impact, mitigation, offsetting and uncertainty with regard to conditions and management and monitoring plans.

9.3 REPORT FROM KAPITI COAST DISTRICT COUNCIL

- [74] The KCDC report agreed with the objectives and policies identified in the AEE, that all necessary consents have been applied for, and that the appropriate activity statuses have been identified.
- [75] The other key issues identified by KCDC related to character/amenity, landscape, future status/treatment of the current section of SH1, KCDC's water supplies, noise, heritage, and conditions/mitigation.

9.4 REPORT FROM PORIRUA CITY COUNCIL

- [76] The report identified a potential conflict due to PCC being a requiring authority for two of the subject NoRs. PCC provided a comprehensive assessment of the relevant provisions of the operative Porirua City District Plan.
- [77] The report noted that there could be some further consents required, but these could be applied for at a later stage. The report identified that there are residential buildings approximately 850m from Transpower Tower 20, and one at 60m and 3 approximately 150m – 200m from a line between Towers 30 - 33A.
- [78] This report also detailed the permitted baseline, the existing resource consents on the subject land (none current), existing resource consents on land adjoining subject sites, the underlying zoning and results of an analysis of aerial photographs.
- [79] Other key issues identified by PCC included plan changes, non-statutory documents (Porirua Development Framework, Draft Porirua Harbour Catchment Strategy and Action Plan, Inventory of Ecological Sites in Porirua City), the designation boundary and conditions.

9.5 REPORT FROM UPPER HUTT CITY COUNCIL

- [80] The report from UHCC identified relevant objectives and policies from the operative Upper Hutt City Plan and defined activities that require consent and

the appropriate activity status of proposed activities. This report also provided a brief explanation of the permitted baseline and existing environment. Other key issues raised in this report related to earthworks, rural and visual amenity, biodiversity and construction.

9.6 REPORT FROM WELLINGTON CITY COUNCIL

- [81] The WCC report identified relevant objectives and policies. WCC noted that consideration of the activity status was not relevant to this report as no resource consents are presently required within WCC's jurisdiction, but noted that the operational District Plan and Plan Change 72 are relevant. This report did not provide detail on the existing environment. Other key issues raised in this report were noise, rural character, visual, conditions and mitigation.

9.7 S42A RMA

- [82] Section 42A RMA allows a local authority (or the Board) to require a local authority officer, a consultant or any other person to prepare a report.
- [83] We commissioned Mitchell Partnerships Limited (Mitchell Partnerships) to prepare a s42A report. Mr J Kyle was the primary author of this report. This report comprised an independent planning report. Part 1 of the s42A report was received by the EPA in November 2011 and identified relevant statutory matters, provided an initial assessment of the applications in terms of adequacy of information provided from a planning perspective, summarised submissions and provided an initial review of the conditions proposed by the Applicants.
- [84] A second part of the report was prepared following the review of evidence that had been prepared by the Applicants and submitters and receipt of additional material which the Board had commissioned. Part 2 provided a more evaluative assessment of the Project against the statutory considerations and in terms of issues raised by submitters. The Part 2 report was received by the EPA in February 2012.
- [85] We commissioned an independent peer review of sediment generation modelling used by the Applicants in preparation of their applications. This was prepared by Dr D M Hicks of the National Institute of Water & Atmospheric Research Ltd (NIWA) and was received by the EPA in January 2012. Dr Hicks provided an addendum to this paper.
- [86] We also commissioned an independent peer review of sediment control and reduction measures. This was prepared by SouthernSkies Environmental Limited (Mr G McLean) and was also received by the EPA in January 2012.
- [87] On 6 December 2011, the Regional Council requested that the Board consider appointing a s42A author in the area of mitigation/compensation in relation to the effects arising from the diversion and reclamation works. The Board decided that such a report was not appropriate at that time as adequate evidence was expected from parties on that topic¹³.

¹³ Minute of the Board dated 19 December 2011.

- [88] In a Minute dated 9 February 2012 the Board resolved to instruct Mr N Lloyd of Acousafe Consulting and Engineering to prepare a report about operational noise. This report was received by the EPA in February 2012 and expressed Mr Lloyd's opinion as to the interpretation of NZS 6806:2010. Supplementary evidence was received from NZTA in response to the issues raised in this report.
- [89] The s42A reports were circulated to all parties and supplemented by additional evidence. Each of the authors was available for questioning at the hearing.
- [90] Additionally, the Board had the benefit of legal advice on a number of issues from Mr P Milne (Barrister), Counsel to the Board.
- [91] The Board was greatly assisted by the contribution of all of the above persons.

10. SPECIFIC ISSUES

[92] The 70 submissions received on the TGP applications contained (in summary) 14 issues which were commonly raised by submitters in one form or another. These were as follows:

Opposition

- Impacts of the proposed works on neighbouring properties;
- Criticism of the process and application;
- Ecological effects;
- Inadequate conditions and management plans;
- Unnecessary and/or inappropriate proposal;
- Adverse impacts on the towns, communities and utilities;
- Relevant planning documents;
- Concern about funding.

Support

- Concern about transport efficiency;
- Benefits in case of natural disaster/road closure;
- Economic benefits;
- Social and/or community benefits.

Suggestions

- To enhance the proposal or further mitigate effects;
- For minor/partial route realignments.

[93] Many of these issues were discussed in further detail by submitters and experts on their behalf at the hearing. We confirm that we have considered the content of each submission received. The issues raised by submitters are addressed in our following assessment.

[94] The following parties presented evidence and submissions at the hearing:

Applicants

PCC and **NZTA** (represented by Mr J Hassan, Ms N McIndoe and Ms J Meech), and **Transpower** (represented by Mr M Slyfield and Mr I Gordon) provided evidence from:

- Mr P A Bailey regarding the PCC Link Roads. Mr Bailey is General Manager, Asset Manager and Operations, PCC.

- Mr I A Bowman regarding built heritage. Mr Bowman has almost 30 years' experience and is a principal in his own practice. His qualifications include a Bachelor of Arts in History and Economic History, a Bachelor of Architecture and a Master of Arts in Conservation Studies. Mr Bowman is a Fellow of the New Zealand Institute of Architects. Mr Bowman is an elected member of ICOMOS and the International Scientific Committee on the Conservation of Earthen Architectural Heritage, a member of the New Zealand National Committee of ICOMOS, and a member of the New Zealand Conservators of Cultural Material
- Mr P Brabhakaran regarding geology and geotechnical engineering. Mr Brabhakaran is Technical Principal (Geotechnical Engineering and Risk) and a partner with Opus International Consultants Ltd with 29 years' experience in geotechnical, earthquake and civil engineering and risk management. He holds a Bachelor of Science of Engineering (Hons) in Civil Engineering, a Master of Science of Engineering in Foundation Engineering and a Master of Business Administration.
- Dr L S Bull regarding avifauna. Dr Bull is an Associate Principal and Senior Ecologist with Boffa Miskell Ltd (BML) and has worked as an ecologist for nine years. Dr Bull holds a Bachelor of Science (Zoology), Master of Science with Honours (Ecology) and PhD (Ecology) and is a Certified Environmental Practitioner with the Environment Institute of Australia and New Zealand.
- Dr S G Chiles regarding acoustics assessment. Dr Chiles is a Principal Acoustics Engineer with URS New Zealand. He holds a Bachelor of Engineering and Doctor of Philosophy in Acoustics. Dr Chiles is a Chartered Professional Engineer and is a Fellow of the UK Institute of Acoustics and is accredited as a commissioner.
- Mr M C Copeland regarding economics. Mr Copeland is the Managing Director of Brown, Copeland and Company Ltd and has over 35 years of experience in the application of economics including transport economics and resource management. He holds a Bachelor of Science in Mathematics and a Master of Commerce in Economics.
- Dr S B De Luca regarding marine ecology. Dr De Luca is a Principal Ecologist with BML. Dr De Luca holds a Bachelor of Science (Zoology) and Doctor of Philosophy (Environmental and Marine Science). She is a registered member of The Royal Society of New Zealand, the New Zealand Marine Sciences Society and the New Zealand Coastal Society. Dr De Luca is a Certified Environmental Practitioner with the Environment Institute of Australia and New Zealand and has nine years' experience as an environmental scientist.
- Mr M A Edwards regarding project design and construction. Mr Edwards is a Team Leader with Opus Road Design Team and a partner with Opus International Consultants. He has 24 years' experience in the planning, design and management of road design projects and holds a BTEC Higher National Certificate in Civil Engineering.

- Mr G W Fisher regarding air quality. Mr Fisher is a consultant with Endpoint Ltd. He holds a Master of Science in Physics and has 32 years' experience in atmospheric science and 21 years' experience in air pollution modelling, transport effects and meteorology.
- Dr T S R Fisher regarding water quality and erosion and sediment control. Dr Fisher is Senior Water Engineer and Director at Tonkin and Taylor Limited. Dr Fisher holds a Bachelor of Civil Engineering (1st Class Hons) and Master of Civil Engineering (Distinction) from the University of Canterbury and a PhD in Civil Engineering from the University of British Columbia, Canada, specialising in environmental hydraulics. He holds a Diploma in engineering management. He has 17 years of experience in engineering research and consulting, spanning the transport, mining, hydropower, land development, urban water infrastructure and river management sectors. He is a member of the Institute of Professional Engineers New Zealand and is a Chartered Professional Engineer.
- Mr S A Fuller regarding terrestrial ecology. Mr Fuller is an Associate Director and Principal Ecologist with BML. Mr Fuller holds a Bachelor of Science in Zoology and Botany, and a Diploma of Applied Science in Ecology. He is also a Certified Environmental Practitioner with the Environment Institute of Australia and New Zealand and has worked as an ecologist over much of the last 28 years. Mr Fuller is a member of the New Zealand Ecological Society.
- Mr A Gough regarding erosion and sediment control. Mr Gough is a Senior Project Manager and Civil Engineer with Sinclair, Knight Merz Ltd (SKM) and is the Leader of the Urban Infrastructure Team in SKM's Auckland office. Mr Gough holds a Bachelor of Engineering (Engineering Science) (Hons) and a Master of Engineering (Engineering Science). He is also a Chartered Professional Engineer on the International Professional Engineers' Register and a member of the Institution of Professional Engineers of NZ.
- Ms L R Hancock regarding urban design. Ms Hancock is a Technical Director Urban Design at Beca Pty Ltd with 16 years' experience as a planner working in both the private and public sectors. She holds a postgraduate Bachelor of Architecture Degree (Hons), a Bachelor of Arts in Architecture, a Bachelor of Arts (Hons) in English Literature, a Diploma in Management Studies and a Master in Philosophy.
- Ms L A Hopkins regarding planning: transmission line design and resource consent applications. Ms Hopkins is a planning Associate with Beca Carter Hollings & Ferner Ltd and has 11 years' experience. She holds a Bachelor of Planning (Honours) and a Post-Graduate Diploma in Development Studies.
- Mr R S James. Mr James is NZTA's Regional State Highway Manager and has 15 years' experience in the management and direction of major projects. He holds a Bachelor of Engineering (Hons) in Civil Engineering and a Master of Business Administration.

- Dr V F Keesing regarding freshwater ecology. Dr Keesing is currently a Principal and Senior Ecologist of BML in Christchurch. He has worked for BML as a practising ecologist for the last 13 years. Dr Keesing holds a PhD in Ecology and a Bachelor of Science with First Class Honours in Zoology and is a member of the Ecological Society of New Zealand.
- Mr T M Kelly regarding transportation and traffic. Mr Kelly has over 27 years in the transportation planning area and has been operating his own consultancy business since 2000. Mr Kelly holds a Bachelor of Arts degree in Geography and a Master of Science degree in Traffic Engineering and Transportation Planning.
- Ms M A Lawler regarding community development. Ms Lawler is General Manager Strategy and Planning, PCC and has 25 years' experience in community development, local economic development social and economic policy and strategic planning in New Zealand. Her qualifications include a Master of Public Policy.
- Mr G C Lister regarding landscape and visual. Mr Lister is a director of Isthmus and has a Bachelor of Arts, a Post-Graduate Diploma in Landscape Architecture and a Master of Urban Design. Mr Lister has twenty-three years' experience as a landscape architect and is a registered member and a Fellow of the New Zealand Institute of Landscape Architects.
- Ms T A Maize regarding contaminated land. Ms Maize is a Senior Environmental Engineer with Aurecon New Zealand Ltd, and an Energy and Sustainability Engineer with Spotless Company New Zealand Ltd. Ms Maize holds a Bachelor of Science degree in Civil/Environmental Engineering and has 28 years of experience in environmental management. Ms Maize is a member of the Waste Management Institute of New Zealand and a member of the Contaminated Land Steering Committee within that organisation.
- Ms M K Malcolm regarding water quality. Ms Malcolm is a Senior Environmental Consultant at SKM. She has 15 years' experience working in urban catchment management, stormwater treatment, water quality effects assessments and flood risk assessment. Ms Malcolm has a Bachelor of Science (Hons) (Physical Geography) and is a Certified Environmental Practitioner with the Environment Institute of Australia and New Zealand.
- Mr C M Martell regarding hydrology. Mr Martell is a Senior Associate with SKM. He has 15 years' experience in the analysis of peak flows (hydrological modelling) and assessing hydraulic impacts (hydraulic modelling). Mr Martell holds a Bachelor of Science (Hons), Master of Science (hydrology) and is a member of the NZ Water and Waste Association.
- Mr J F Mason regarding transmission line construction. Mr Mason is a Project Manager with Transpower and has 30 years of experience in the

construction industry. He holds a Diploma in Project Management and a Certificate in Civil Engineering.

- Mr P T McCombs regarding strategic transport issues. Mr McCombs is the Director of Traffic Design Group Ltd and is possibly New Zealand's most experienced traffic engineer. He is a chartered professional engineer and holds a Bachelor of Civil Engineering and a post-graduate qualification in traffic engineering and transportation planning.
- Mr C S Nicholson regarding NZTA NoRs and applications for resource consent lodged with the EPA. Mr Nicholson is the Principal Project Manager – Transmission Gully and has 19 years of experience in traffic engineering, road safety engineering, transportation planning and project management. He holds a Master of Civil Engineering and Bachelor (Hons) of Civil Engineering.
- Ms M P O'Keeffe regarding archaeology. Ms O'Keeffe is a consultant archaeologist, and has managed her own consultancy (Heritage Solutions) for the last 15 years. Ms O'Keeffe holds a Bachelor of Arts, a Post-Graduate Diploma in Anthropology, and a Master of Literature in Anthropology. She is the current secretary and past president of ICOMOS in New Zealand, a member of the New Zealand Archaeological Association, a member and previous New Zealand Councillor for the Australasian Institute of Maritime Archaeology and the NZAA representative on the Royal Society's Social Science Committee.
- Ms M L W Pomare regarding cultural effects. Ms Pomare is currently self-employed as a consultant specialising in the areas of Maori resource management and the Treaty settlement process. Ms Pomare is an accredited Hearing Commissioner with almost 10 years' experience.
- Mr G M Rae regarding social effects. Mr Rae is currently the Director of Incite. Mr Rae is a resource management planner with 27 years' experience; he holds a Bachelor of Science, a Diploma in Town Planning and is a full Member of the New Zealand Planning Institute (NZPI), and Chair of the Nelson/Marlborough Branch of the NZPI.
- Ms A J Rickard regarding planning, NoRs, resource consent applications and AEE preparation. Ms Rickard is the Technical Director of Planning at Beca Carter Hollings and Ferner Ltd and has 16 years of planning experience. She holds a Bachelor of Arts in Geography and Planning (Hons).
- Mr C J Roberts regarding Porirua harbour modelling. Mr Roberts is currently the Managing Director of DHI New Zealand. He has over 20 years' experience in hydraulic engineering and modelling. Mr Roberts holds a Bachelor of Engineering majoring in Civil Engineering (Distinction) and a Master of Science in Hydraulic Engineering.
- Dr D A Sim regarding probability of coincident rainfall and wind event during construction. Dr Sim is a statistical consultant at the Victoria University of Wellington School of Mathematics, Statistics and Operations Research. She has over 10 years' experience collaborating with

researchers in various biological and medical fields, providing statistical consultation. Dr Sim has a Bachelor of Arts in Mathematics, Master of Philosophy (1st class) in mathematics and has a PhD in Biostatistics.

- Ms H L Yorke regarding transmission line engineering. Ms Yorke is a Technical Director specialising in High Voltage transmission lines for Beca Carter Hollings & Ferner Ltd and has 20 years of experience. She holds a Bachelor of Engineering (Hons) Civil Engineering.

Parties with representation and or expert witnesses

Director General of Conservation (the Director General) (represented by Ms S Bradley and Mr J Hardy) provided evidence from:

- Ms L K Adams regarding terrestrial ecology (bats & lizards). Ms Adams holds a Bachelor of Science and Master of Science in Biological Sciences and has 19 years of experience. Ms Adams has worked for the Department of Conservation (DoC) for 16 years. Ms Adams currently leads the NZ Lizard Technical Advisory Group and is a member of the Ornithological Society of NZ and Society of Research on Amphibians and Reptiles of NZ.
- Dr M J Baber regarding terrestrial ecology & avifauna. Dr Baber is a Senior Ecologist at Tonkin & Taylor Limited and holds a Bachelor of Science in Zoology, Master of Science (Hons) in Conservation Ecology and PhD in Ecology. Dr Baber is a member of the NZ Ecological Society; a DoC permitted herpetologist, and an Affiliate Assistant Professor at the University of New Hampshire.
- Dr L R Basher regarding sediment generation. Dr Basher is a Senior Scientist and Research Programme Leader for Landcare Research and has a PhD in soil science and 34 years' experience in erosion research and consultancy with Landcare Research. Dr Basher is a member of the NZ Society of Soil Science, NZ Hydrological Society, NZ Association of Resource Management and NZ Society of Geosciences.
- Mr B A Handyside regarding sediment management. Mr Handyside is a Director of Erosion Management Ltd, and holds a Bachelor of Agricultural Science. He is also a member of the NZ Association of Resource Management. Mr Handyside has over 30 years' applied erosion and sediment control experience.
- Ms H A Kettles regarding coastal ecology. Ms Kettles is a Technical Support Officer at the Wellington-Hawke's Bay Conservancy of DoC. She holds a Bachelor of Science and Master of Science (First Class Hons), both in the Biological Sciences.
- Dr B G Ogilvie regarding freshwater ecology. Dr Ogilvie is a Senior Environmental Scientist and Director of Tonkin & Taylor Limited and has 20 years' experience in environmental research and consulting. Dr Ogilvie holds a Bachelor of Science (Zoology), Master of Science (Hons) (Zoology – Limnology) and Doctor of Philosophy (Environmental Biology). Dr Ogilvie will graduate in April 2012 with a Bachelor of Arts in

Environmental & Natural Resource Economics. He is a Chartered Biologist and Member of the Society of Biology (UK), a Member of the Chartered Institute of Water and Environmental Management (UK) and a Member of the NZ Freshwater Sciences Society. Dr Ogilvie is an Honorary Lecturer in Biological Sciences at the University of Waikato and is a certified Hearing Commissioner.

- Dr L D Solly regarding planning. Dr Solly has a Bachelor of Arts (Hons) in Natural Sciences and a PhD in Botany. He is a Community Relations Officer in the Nelson Marlborough Conservancy of DoC specialising in resource management planning.

The Director General supported the proposal in part and opposed in part.

KCDC (represented by Mr M Conway) provided evidence from:

- Dr M K Joy regarding freshwater ecology. Dr Joy holds a BSc, MSc (First Class Hons) and a PhD in Ecology. For the last 17 years he has been a researcher in freshwater ecology, especially native fish distribution and freshwater bioassessment. Dr Joy has been employed at Massey University, Palmerston North since 2003 as a lecturer (now Senior Lecturer) in Ecology and Environmental Science. He is a member of the New Zealand Freshwater Sciences Society, the New Zealand Ecological Society, the Australian Society of Fish Biology and the New Zealand Royal Society.
- Ms S C Myers regarding terrestrial ecology. Ms Myers holds a Bachelor of Science and Master of Science (Hons) (ecology and botany). She has 27 years' experience as an ecologist in regional and central government agencies, and more recently in private consultancy. Ms Myers is a Senior Ecologist and Manager of the Auckland Office of Wildland Consultants Ltd and is currently the secretary of the New Zealand Ecological Society, a past-President of that Society, and a current board member of the International Association for Ecology.
- Ms S B Peake regarding landscape and visual issues. Ms Peake is a landscape architect and Principal of Peake Design Limited. She has over 30 years' experience in design, assessment, and preparation of landscape analysis and development projects. Ms Peake holds a Diploma in Landscape Architecture, Diploma in Urban Design, and holds a Master of Architecture. She is a Fellow and Registered member of the NZILA, is Vice-President of the NZILA, and a committee member of the Auckland Branch of the NZILA. Ms Peake is also a member of the Resource Management Law Association and Urban Design Forum (Auckland), as well as panellist on the Auckland City Urban Design Panel.
- Ms E J Thomson regarding planning and heritage. Ms Thomson is a Senior Policy Planner at KCDC and has held this position since October 2004. Ms Thomson holds a Bachelor of Landscape Architecture (Hons) and a Bachelor of Science. Ms Thomson is in the process of completing her thesis for a Master of Resource and Environmental Planning. She has nine years' experience in local government resource management.

- Mr D R Wignall regarding road design and local resilience. Mr Wignall is a transport planner contracted to KCDC. His qualifications are a Master of Science (Transportation and Traffic Planning) and Master of Civic Design (Town Planning). Mr Wignall is a member of the Chartered Institute of Logistics and Transport and of the Royal Town Planning Institute. Mr Wignall is principal of Transport Futures Limited, and has eight years' experience of professional transport planning work in New Zealand.
- Mr T M Wood regarding water supply. Mr Wood is the Water and Wastewater Asset Manager for the KCDC. Mr Wood holds a Bachelor of Civil Engineering, a New Zealand Certificate in Engineering (Civil) and is a Chartered Professional Engineer. His practice areas are Civil and Environmental Engineering. Mr Wood is a Member of the Institution of Professional Engineers NZ, and of Water New Zealand with 18 years' experience in local government and private water engineering practice.
- Mr D J Yorke regarding stormwater and runoff. Mr Yorke is a Chartered Professional Engineer and holds a New Zealand Certificate in Engineering (Civil). His practice areas are Civil and Environmental Engineering and he is a Member of the Institution of Professional Engineers NZ, the Association of Local Government Engineers NZ and of the New Zealand Water and Wastes Association. Mr Yorke has in excess of 30 years' engineering experience.

KCDC supported the proposal in part.

Living Streets Wellington represented itself at the hearing (Ms E Blake spoke on its behalf) and provided evidence from:

- Ms E S Thomas regarding pedestrian issues. Ms Thomas worked as executive director of Living Streets Aotearoa for five years. She is trained in street audit methodologies and has undertaken pedestrian audits for the NZTA. Ms Thomas was previously a local body councillor for Golden Bay County Council and the Wellington City Council.

Living Streets Wellington opposed the proposal.

Mana Cycle Group represented itself at the hearing (Mr A Hulme-Moir spoke on its behalf), and provided evidence from:

- Mr K W Gywnn regarding mountain biking issues. Mr Gywnn has been an active mountain biker for 10 years. Mr Gywnn has knowledge of cycling in the Wellington Region and of the regional track network, specifically the Mana region. Mr Gywnn holds a Bachelor of Engineering.
- Mr P Morgan regarding cycling transport issues. Mr Morgan is employed as a Project Manager at Cycling Advocates Network, also known as CAN.

Mana Cycle Group opposed the proposal.

New Zealand Historic Places Trust (NZHPT) (represented by Ms G Baumann) provided evidence from:

- Ms S Walters regarding heritage architecture and heritage planning. Ms Walters currently works for NZHPT as a Planning Heritage Adviser. Ms Walters holds a post graduate degree in Marine Studies and a Bachelor of Resource Management.

NZHPT supported the proposal in part.

Powerco Limited (Powerco) (represented by Mr T Anderson) provided evidence from:

- Ms G B McPherson regarding planning. Ms McPherson is a Senior Planner with Burton Planning Consultants Limited. Ms McPherson holds a Bachelor of Resource and Environmental Planning.

Powerco was neutral in its position on the proposal.

Rational Transport Society Inc (RTS) (represented by Mr T Bennion) provided evidence from:

- Mr P E Bruce regarding meteorology. Mr Bruce is a Class 1 Meteorologist (WMO qualification), having 35 years' experience mostly as a Lead Weather Forecaster at MetService NZ Ltd. Mr Bruce holds a Bachelor of Science (Physics) (Hons).
- Dr R B Chapman regarding climate change, economics and related matters. Dr Chapman is the Director of the Graduate Programme in Environmental Studies and an Associate Professor at Victoria University of Wellington. Dr Chapman holds a Bachelor of Engineering (Hons), a Master in Public Affairs and a PhD in Economics.
- Mr J C Horne regarding recreation issues. Mr Horne has extensive experience in undertaking and managing recreational activities for walkers and runners in the area. Mr Horne is involved with the Tararua Tramping Club and the Wellington Botanical Society.
- Dr S Krumdieck regarding transport demand. Dr Krumdieck is an Associate Professor in Mechanical Engineering at the University of Canterbury. Since 2003 she has led a sustained and focused research programme focused on energy and transportation. She is a former member of the Royal Society of New Zealand Energy Panel (2005 - 2007) and is a principal investigator and steering committee member for the New Zealand Centre for Sustainable Cities (2009 - present). Dr Krumdieck holds a Master in Energy Systems Engineering.
- Mr M J Mellor regarding transport planning in Wellington region. Mr Mellor has been the Environmental Sustainability representative on the Wellington Regional Transport Committee since 2005, and has worked in transport and related industries for 35 years. He is a Chartered Member of the Chartered Institute of Logistics and Transport in New Zealand, and is a member of the Institute of Transport Administration, the NZ

Automobile Association, Living Streets Wellington, the NZ Historic Places Trust (NZHPT) and Public Transport Voice. Mr Mellor holds a Bachelor of Arts (hons) in Economics.

- Dr M T O'Sullivan regarding health issues. Dr O'Sullivan is a lecturer in public health at the Wellington School of Medicine, University of Otago. Dr O'Sullivan holds a PhD in psychology.
- Mr J G Vannisselroy regarding rail service (levels and infrastructure). Mr Vannisselroy has 39 years' experience in the rail industry including design, construction and operation of railway vehicles.
- Ms P G Warren regarding ecology and policy issues. Ms Warren is currently employed as a Principal Policy Analyst in the Department of Conservation. She presented evidence in a private capacity, not as an employee of the Department. Ms Warren has 24 years' professional experience as a central government policy analyst, primarily working on legislation and systems reforms for conservation and environmental management. Ms Warren holds a Bachelor of Science (botany and ecology).
- Mr K M Wood regarding traffic trends. Mr Wood is a retired engineer and a member of the Institute of Professional Engineers NZ since 1971. Mr Wood has practiced as a consulting engineer in sustainable transport, his last job before retiring was a Senior Adviser with the Ministry of Transport, 2005 – 10. Mr Wood holds a Master in Transportation Studies.

RTS opposed the proposal.

Wellington Regional Council (represented by Ms K Anderson and Mr A Cornor) provided evidence from:

- Ms T J Grant regarding planning. Ms Grant is a Team Leader at the Regional Council's Environment Regulation Department. Ms Grant holds a Master of Science (Hons) (Geography) and a Bachelor of Science (Geography).
- Ms N Hayes regarding transport planning. Ms Hayes is the Senior Transport Planner in the Regional Council's Strategy and Community Engagement Department. Ms Hayes holds a Bachelor of Resource and Environmental Planning.
- Mr M D Kennedy regarding site access. Mr Kennedy is the General Manager for the Regional Council's Development Group. Mr Kennedy holds a Bachelor of Engineering (Civil) and a Master in Business Administration; he is also a chartered professional engineer.
- Mr A J McCarthy regarding bulk water supply. Mr McCarthy is Project Manager in the Development Group of the Regional Council. He has over 40 years' experience in infrastructure engineering, 25 of which have been with water supply and irrigation. Mr McCarthy holds a Bachelor of Engineering (Civil).

The Regional Council supported the proposal in part.

Mrs N Senadeera represented her husband and herself at the hearing and provided evidence from:

- Ms M J Grinlinton-Hancock regarding planning issues. Ms Grinlinton-Hancock is a Senior Resource Management Planner with Cuttriss Consultants Limited. She has 12 years' experience working as a planner in New Zealand. Ms Grinlinton-Hancock holds a Bachelor of Resource and Environmental Planning (Hons).

The Senadeeras opposed the proposal in part.

Parties who represented themselves and did not call evidence

Mr D & Mrs C Christensen represented themselves at the hearing and Mr Christensen, spoke on their behalf. The Christensens opposed the proposal in part.

Mr G Corleison represented himself at the hearing. Mr Corleison supported the proposal.

Mr E Deuss represented himself at the hearing. Mr Deuss opposed the proposal in part.

Mr M Faulls represented himself at the hearing. Mr Faulls both supported and opposed the proposal in part.

Paremata Residents Association, represented itself at the hearing and its Vice-President, Mr R Morrison spoke on its behalf. The Association supported the proposal in part.

Pauatahanui Inlet Community Trust and Guardians of Pauatahanui Inlet represented themselves at the hearing and Dr J McKoy spoke on their behalf. The Trust and the Guardians supported the proposal in part.

Poppe Family Trust represented itself at the hearing and Mr P Poppe spoke on its behalf. The Poppe Family Trust opposed the proposal in part.

Public Transport Voice represented itself at the hearing and Mr G Bodnar, spoke on its behalf. Public Transport Voice opposed the proposal.

Pukerua Bay Residents Association represented itself at the hearing and their Chairperson, Mr I MacLean, spoke on its behalf. The Pukerua Bay Residents Association was neutral in its position on the proposal.

Mr P Skrzynski represented himself at the hearing. Mr Skrzynski opposed the proposal.

The Coastal Highway Group, represented itself at the hearing and Mr R Jessup spoke on its behalf, and provided a technical paper in support of its position. The Coastal Highway Group opposed the proposal.

Transmission Gully Action Group represented itself at the hearing and their Chairperson, Ms G Osvald, spoke on its behalf. The Transmission Gully Action Group supported the proposal.

Wellington District of the Automobile Association represented itself at the hearing and its Chairperson, Mr M Gross, and fellow council member, Mr A Gray, spoke on its behalf. The Automobile Association supported the proposal.

Whitby Coastal Estates Ltd (WCEL) represented itself at the hearing and its managing director, Mr D Bradford, spoke on its behalf. WCEL opposed the proposal in part.

Parties who appeared for the Board

As we have noted previously, the authors of s42A reports to the Board appeared at the hearing. They spoke to their reports and were questioned on them. For the sake of completeness, we set out their experience and qualifications.

- Dr Hicks is a principal scientist at NIWA and has 34 years' experience. He holds a Bachelor of Science (Hons)(Geology), a Bachelor of Engineering (Hons)(civil engineering) and a PhD (coastal processes).
- Mr Kyle is a partner at Mitchell Partnerships, and has 24 years of planning and resource management experience. He holds a Bachelor of Regional Planning (Hons).
- Mr Lloyd is an acoustic consultant at Acousafe Consulting and Engineering Ltd and has over 30 years' experience in noise control and acoustical related work. He holds a Bachelor of Mechanical Engineering.
- Mr McLean is a director of Southern Skies Environmental Limited and has over 15 years' experience in environmental management. He holds a Bachelor of Arts (Geography, Environmental Planning), and Post Graduate Diploma in Resource Management

11. LEGAL ISSUES

[95] It became apparent to the Board early on in this process that the outcome of these applications and NoRs would largely depend on an assessment of their effects. There were however a number of legal issues which arose during the process which we are required to address. They are as follows:

- The objectives of the requiring authority;
- Consideration of alternatives;
- Greenhouse gas emissions;
- The existing designation for TGP;
- Additional consents;
- Revocation of existing state highway status;
- Section 107 RMA;
- Adaptive management;
- Approval/certification of management plans.

11.1 OBJECTIVES OF THE REQUIRING AUTHORITY

[96] Section 171(1)(c)RMA provides that when considering a notice of requirement a territorial authority (in this case the Board) must have particular regard to -

(c) *whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought.*

[97] The objectives of NZTA and PCC in issuing their requirements for TGP were identified in the AEE provided with the application¹⁴. Those objectives were:

NZTA

- To provide an alternative strategic link for Wellington that improves regional network security;
- To assist in remedying the safety concerns of, and projected capacity problems on, the existing SH1 by providing a safe and reliable route between Linden and MacKays Crossing in an environmentally sustainable manner;
- To assist in enabling wider national economic development by providing a cost-optimised route that better provides for the through movement of freight and people; and

¹⁴ Volume 1, Folder 1, pg 39.

- To assist integration of the land transport system by enabling the existing SH1 to be developed into a safe multi-functional alternative to the proposed strategic link.

PCC

- To provide more efficient, safer and more reliable road access between eastern Porirua suburbs and the Hutt Valley, Wellington City and Kapiti Coast;
- To improve amenity values and the quality of the environment in Porirua by encouraging the use of Transmission Gully for regional and inter-regional trips as opposed to the existing coastal route through Mana, Plimmerton, Pukerua Bay and Paekakariki;
- To reduce the adverse effects of traffic on the environment in Porirua by encouraging the use of Transmission Gully for regional and inter-regional trips, as opposed to roads directly adjacent to the Pauatahanui and Onepoto Inlets of the Porirua Harbour;
- To provide alternative arterial routes and connectivity within eastern Porirua suburbs to support an integrated approach to regional and local land transport and development; and
- To support the development and revitalisation of Waitangirua Village Centre as a focus for activity within the community by improving connectivity.

[98] We briefly consider whether the objectives identified by NZTA and PCC fall within the statutory mandate of those bodies, as in our view they must, in order to be appropriate objectives.

[99] In the case of NZTA, its objective and functions are set out in the Land Transport Management Act 2003 (LTMA). In particular:

- Section 94 LTMA provides:

94 Objective of Agency

The objective of the Agency is to undertake its functions in a way that contributes to an affordable, integrated, safe, responsive, and sustainable land transport system.

- Section 95 LTMA relevantly provides:

95 Functions of Agency

(1) *The Agency has the following functions:*

- (a) *to promote an affordable, integrated, safe, responsive, and sustainable land transport system;*
- (c) *to manage the State highway system, including planning, funding, design, supervision, construction, and maintenance and operations, in accordance with this Act and the Government Roadway Powers Act 1989.*

[100] Insofar as PCC is concerned, it is a local authority in terms of the Local Government Act 2002 (LGA). Section 10 LGA provides that the purpose of local government is (inter alia):

(b) *to promote the social, economic, environmental, and cultural well-being of communities, in the present and for the future.*

[101] Section 11 LGA provides in turn that the role of a local authority is to give effect to the purpose contained in s10. Section 11A then provides:

11A Core services to be considered in performing role

In performing its role, a local authority must have particular regard to the contribution that the following core services make to its communities:

(a) *network infrastructure;*

(b) *public transport services:*

[102] We do not think that it can be disputed that the objectives identified by NZTA and PCC are objectives which have been set or identified to enable them to undertake their statutory functions or roles. In our view they are appropriate objectives for NZTA and PCC to have identified.

[103] Section 171(1)(c) requires the Board to consider if the work and designation are *reasonably necessary* for achieving the objectives of NZTA and PCC. In common usage the word *necessary* implies that something is essential, however the word can have a wider meaning in RMA terms. In *Countdown Properties (Northlands) Limited v Dunedin City Council*¹⁵ the High Court concurred with a finding of the Planning Tribunal that the word *necessary* should be interpreted in relation to achieving the purpose of the Act and the functions of local authorities identified in s32(2) RMA (now amended). The High Court held that the word had a meaning similar to *expedient or desirable rather than essential*¹⁶.

[104] We propose to adopt a similar meaning of the word *necessary* in these proceedings. The context in which s171(1)(c) is to be interpreted is that of two authorities seeking to undertake their statutory functions and exercising judgement and discretion in doing so. Use of the term *reasonably necessary* (our emphasis) in s171(1)(c) indicates that something less than absolute necessity or essentiality is contemplated in application of the provision. In any event, the evidence of NZTA and PCC satisfied us that the construction of TGP was essential to achieve the objectives of the two authorities in this case and so would satisfy any higher test if we were found to be mistaken in our interpretation of the term *reasonably necessary*. We will return to s171(1)(c) in our ultimate determination on the NoRs.

11.2 ALTERNATIVES

[105] The Board must consider the issue of alternatives for two reasons:

¹⁵ [1994] NZRMA 145 (HC).

¹⁶ At 179.

- Firstly, s88(2)(b) RMA requires that applications for resource consent include an AEE in accordance with Schedule 4 RMA. Clause 1(b) Schedule 4 requires that where it is likely that an activity will result in any significant adverse effect on the environment (as it is conceded that TGP will) an AEE should include *...a description of any possible alternative locations or methods for undertaking the activity;*
- Secondly, s171(1)(b) RMA requires the Board to have particular regard to:
 - (b) whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if -*
 - (i) the requiring authority does not have an interest in the land sufficient for undertaking the work; or*
 - (ii) it is likely that the work will have a significant adverse effect on the environment.*

The question of alternatives is accordingly a live issue for the Board.

[106] Part E of the AEE was a consideration of the alternatives which had been considered in developing the proposed TGP route. It contained a comprehensive description of the option evaluation and design process undertaken by NZTA and PCC in fixing the proposed route. Part E was detailed in its assessment and contained the following Overview which was a summary of the assessment of alternatives. It stated:

A consideration of alternatives in [sic] required in two contexts for the Project; in relation to the NoRs and in relation to some aspects of the activities for which resource consent is sought.

An extensive option evaluation exercise was undertaken during the scheme assessment phase and this resulted in some fundamental alignment decisions that provide environmental (particularly ecological) benefits over the existing designated alignment. In particular, through the Te Puka and Horokiri valleys and Battle Hill, the road alignment was shifted to the west to reduce the impact on streams and terrestrial habitat. During the scheme assessment, the location of the interchange to connect to eastern Porirua (via the Porirua Link Roads) was also moved to enable an additional local road connection from Whitby (rather than just from Waitangirua).

During the more recent E&EA phase, further design refinements have been made. Relatively minor alignment changes have resulted in avoiding the loss of some features, such as a significant area of native bush through the Wainui Saddle and a heritage feature at the bottom of the Te Puka Valley.

[107] We consider that the above Overview is an accurate description of the process undertaken by NZTA and PCC. We do not describe the alternatives to the proposed TGP route in any greater detail than above as (with two exceptions), we understood that all parties to the proceedings accepted that if TGP was to proceed through Transmission Gully, the route chosen was the

best alternative. Even RTS which maintained a position of unbending opposition to TGP conceded that the shifting of the presently designated road alignment to the west through the Te Puka and Horokiri Valleys and Battle Hill was a significant improvement on the previously designated route.

[108] There are two exceptions to those observations and they relate to route alternatives at Takapu Road and MacKays Crossing. These will be considered in more detail in our Traffic and Transport evaluation. Overall, however, we are satisfied that the route alignment proposed is the best alternative for TGP and has been fixed having regard to issues raised in consultation and after detailed environmental and engineering investigations.

[109] In addition to the consideration of alternatives for the TGP route itself, we have also had regard to wider alternatives. There were a number of alternative proposals including routes and methods advanced to the Board which some parties contended were preferable to TGP. Those alternatives can be summarised as:

- Upgrade of the coastal route. This was the preferred alternative of the Coastal Highway Group and had for some years been the preferred option of NZTA;
- The status quo with some improvements. This was (as we understood it) the ultimate position of RTS and was to be combined with public transport improvements;
- A two lane (i.e. one lane in each direction) road along the proposed TGP route. This was the *fallback* position of RTS and Public Transport Voice;
- An alternative route through the use of existing roads such as the Akatarawa Road which was an alternative suggested by submitters such as Public Transport Voice.

[110] None of the alternatives above were supported by evidence of sufficient detail or reliability to enable us to assess whether they were achievable, viable alternatives to TGP. Ultimately, the evidence of NZTA explaining why TGP was preferable to any of the suggested routes, although challenged by some parties, was not seriously controverted. We accept that evidence.

[111] Part A (Chapter 2) of the AEE set out the background to the Project and contained a detailed description of the various considerations undertaken by NZTA in determining to proceed with TGP as opposed to the most obvious alternative of upgrading the existing coastal route. We will discuss a number of the relevant issues in our consideration of transport and traffic matters. In particular, we will consider the state of the existing coastal route and its vulnerability to natural hazards in the form of earthquakes or tsunamis.

[112] In addition to those matters, however, it became apparent during the course of the hearing that there would be substantial hurdles to be overcome by any proposal to obtain NoRs and resource consents for an upgrade of the coastal route. Such a proposal was likely to be opposed strongly by a number of groups representing residents along that route such as the Transmission Gully Action Group for whom Ms Osvald made a succinct but compelling

representation. Ms Pomare was very clear in her view on behalf of Ngati Toa that *...from a cultural perspective the coastal route simply isn't sustainable*¹⁷. Additionally, we are aware that the 1990 report of the Parliamentary Commissioner for the Environment expressed strong opposition to any proposal to develop the coastal route¹⁸. Setting aside the likely degree of opposition, upgrade of the coastal route must encounter major issues relating to sea level rise and route security in the case of tsunami and earthquake, which TGP avoids.

[113] Part A (Chapter 2) contained an Overview which was a summary of that chapter. It stated:

The Project has a long history with the concept of an inland alternative route for SH1 being discussed over many decades. A number of strategic studies and investigations have concluded that an inland alternative for SH1 between Wellington City and the Kapiti Coast is preferable to an upgrade of the existing SH1 as it will provide greater benefits in terms of route security, travel time savings and safety. It will also substantially reduce the levels of severance currently experienced by communities along existing SH1.

The evidence which we heard led us to the view that the Overview was substantially correct.

11.3 GREENHOUSE GAS EMISSIONS

[114] The issue of greenhouse gas emissions and how they might be affected by TGP was raised by RTS. That was primarily through the evidence of Dr Chapman who argued that the cost of carbon emissions and the cost of climate change were material to consideration of the benefit cost ratio (BCR) analysis of TGP. The Applicants had not addressed these issues in their AEE.

[115] Counsel for the Applicants contended that the emission of greenhouse gases resulting from construction or operation of TGP is not a relevant consideration under RMA because:

- No consents are sought for the discharge of greenhouse gases. The Regional Air Quality Management Plan (provision 5.1.1) explicitly states that discharges to air from vehicles are not controlled by the Plan;
- Section 104E RMA precludes consent authorities considering applications for discharge permits pursuant to ss15 and 15B from having regard to the effects of such discharges on climate change, except to the extent that the use of renewable energy enables a reduction in the discharge of greenhouse gases. The Board is bound by that provision;
- Designations do not authorise discharges to air, but only land use. The Applicants submitted that it would be nonsensical to prohibit consideration of the effects of climate change when determining discharge applications

¹⁷ Notes of Evidence (NoE), pg 139.

¹⁸ Parliamentary Commissioner for the Environment *Audit of the "Future State Highway Number One Route" Environmental Impact Report* (March 1990).

under ss15 and 15B and yet allow their consideration in relation to notices of requirements for designations;

- Carbon emissions are regulated at the national level by the Government's Emissions Trading Scheme (ETS) introduced through the Climate Change Response Act 2002 and to endeavour to also regulate them on a project by project basis through land use consent authorisations would constitute double regulation which would not assist in promoting the purpose of RMA.

[116] The issue of greenhouse gases is addressed in the Regional Air Quality Plan which notes *...central government's primary responsibility for negotiating and implementing national responses to global air quality problems...*¹⁹ but acknowledges that there may be appropriate regulatory responses at a regional level having regard to the effects of activities on the environment.

[117] Objective 4.1.2 specifically seeks to avoid, remedy or mitigate adverse effects of discharges to air on *the global atmosphere*.

[118] Policy 4.2.23 of the Plan is:

To promote improved air quality in the Region through regional and district transport planning practices which:

- (1) encourage the development of an efficient and effective public transport system;*
- (2) promote the use of non-motorised forms of transport such as walking and cycling; and*
- (3) aim to reduce growth in motor vehicle numbers and motor vehicle congestion in urban centres.*

[119] Policy 4.2.25 is:

To support and promote, as appropriate, central government initiatives to control and minimise greenhouse gas emissions.

[120] The commentary to this policy again notes the primary responsibility of central government for co-ordinating a reduction of greenhouse gas emissions but also acknowledges that emissions from motor vehicles are significant sources of greenhouse gases.

[121] Notwithstanding those very specific objectives and policies, Provision 5.1.1 of the Plan provides that the regional rules as to discharges to air *...do not apply to discharges from mobile transport sources...and no resource consents are required for such discharges*.

[122] We consider that there was some merit in the submissions for NZTA and PCC. Those submissions appear to be founded on and are consistent with

¹⁹ Issue 2.4.1.

the findings of the Court of Appeal in *Genesis Power Ltd v Greenpeace New Zealand Inc*²⁰.

[123] In any event, the information received by us did not identify what the net effect in greenhouse gas emissions would be of the operation of TGP. We are uncertain whether or not it is possible to calculate that. It appears to us that any such calculations would need to include factors such as the present greenhouse gas effects of congestion, time delay and inefficiency and the increases in those effects from projected increases in traffic volumes without TGP. Those factors would then need to be measured against greenhouse gases generated by use of TGP (having regard to factors such as improvements in technology, improved traffic flows, removal of congestion, shorter journey times and the like) including induced travel.

[124] In his second s42A report to the Board Mr Kyle observed²¹ that the net outcome of greenhouse gas emissions as the result of TGP may be a reduction. We accept that is a possibility but the evidence which we heard does not enable us to determine that one way or the other. We note that Dr Chapman's comments were made in the specific context of a benefit cost ratio (BCR) analysis of TGP rather than in a wider environmental context and we will address that BCR issue elsewhere in this report. We will not otherwise assess the benefits or dis-benefits of TGP in terms of greenhouse gases.

11.4 THE EXISTING DESIGNATION FOR TRANSMISSION GULLY

[125] We have previously noted that a substantial part of the proposed TGP route is already subject to designations granted in 2001. On the face of it, construction and operation of a highway on that designated route is an activity whose adverse effects are permitted by a district plan and which we had a discretion to take into account in our considerations. However, the Applicants conceded that effect could not be given to the existing designation without obtaining further regional resource consents. Accordingly, they did not contend that effects authorised by the currently proposed designations are part of the existing baseline.

[126] The Applicants did submit that the existing designations were relevant to our considerations in the following respects:

- They are evidence that a state highway along the general route of the TGP has previously been found to be acceptable;
- Since the designations were confirmed in 2001 they have influenced land uses and people's expectations have developed to accommodate the proposed TGP and its likely effects;
- Residents and others affected by the existing SH1 have considered the designations as signalling the first step in development of TGP and a consequent reduction in traffic effects on the coastal route.

²⁰ [2008] NZLR 803.

²¹ Para 2.1.19.

We concur with that submission although we do not consider that those matters are factors of great weight in our considerations.

11.5 ADDITIONAL CONSENTS

- [127] The NZTA and PCC applications are comprehensive in their extent. The notices of requirement and applications for resource consent are intended to include all of the activities which were anticipated to be required for TGP at the time the applications were lodged. However, Ms Rickard explained that because of the scale of TGP and its complexity it is highly likely that further resource consents will be required in due course as detailed design is progressed and exact construction methods are developed²².
- [128] Transpower sought consents to relocate five sections of its line involving 24 tower relocations. The detail presently available in the NZTA and PCC applications enabled Transpower to complete a design process broadly identifying the relocation requirements of the line. The Transpower applications identified sites for its proposed new towers within a tolerance of 20m (with 4 identified exceptions). Further design of line realignment is dependent on final alignment and construction methodology for TGP. Once that has been completed, Transpower will design site specific tower foundations and access tracks for construction and maintenance of its lines.
- [129] Until relocation design evolves to the final level of detail, Transpower cannot identify with any precision the extent of earthworks necessary to enable relocation and accordingly cannot apply for earthworks consents for tower sites and access tracks. It acknowledged that there will be a need for consents at that stage. It also anticipated that the possible use of helicopters during construction may require resource consent.
- [130] It is a long established principle that all resource consents required for a proposed activity should be applied for at the same time²³. Section 91 RMA provides that a consent authority may determine not to proceed with notification or hearing of an application for resource consent if it considers that other consents will also be required and it is appropriate for applications for those other consents to be made at that time.
- [131] Although the principle identified in *Affco* is one which is commonly applied in administration of resource consent applications, it is not a rule which is *set in stone* and must be applied in context. It is significant in that regard that the power to defer an application until a receipt of further applications contained in s91, is expressed on a discretionary basis. Even if a consent authority does determine that further consents are required for a proposal it is not obliged to defer their consideration pending receipt of those consents. It has a wide discretion in that regard.
- [132] In this instance we consider that the approach taken by all three Applicants is reasonable and appropriate. In the case of NZTA and PCC their evaluation of TGP has been exhaustive and the notices of requirement and consents applied for encompass all of the consents which were identifiable as being

²² Evidence in Chief (EiC), (first statement), para 25.

²³ *AFFCO NZ Ltd v Far North District Council (No 2)* [1994] NZRMA 224 (PT).

required at the time the applications were lodged. Although it is possible that further consents might be required once more detailed design work is completed, those consents cannot presently be identified.

[133] In the case of Transpower, it acknowledged that further consents (particularly for earthworks for access tracks, culverts and site works) are almost certain to be required but the extent of those consents cannot be ascertained until such time as the final NZTA and PCC works are designed. We understand that in calculating the extent of earthworks required for TGP overall, NZTA has made an allowance for earthworks likely to be necessary as part of Transpower's aspect of the proposal.

[134] We consider that the applications which have been made enabled people to fully understand the effects which TGP and Transpower's line realignments would have on them. It is difficult to see how NZTA and PCC can be criticised for not applying for consents which have not as yet been identified as being required or Transpower for delaying final design of its line relocations until precise details of such relocations are known.

[135] We do not consider that there is any reason for us to delay determining the applications before us, notwithstanding the acknowledged likelihood of further resource consents being required.

11.6 REVOCATION OF STATE HIGHWAY STATUS

[136] The Applicants calculate that if TGP proceeds, traffic on the existing SH1 coastal route will drop to approximately 5,900 vehicles per day (vpd) at the southern end of Pukerua Bay and 3,100vpd along the coast north of Pukerua Bay. It is anticipated that at that time substantial sections of the existing SH1 will no longer be required as state highway and their state highway classification will be revoked. In that case the sections of road whose status has been revoked will vest in either PCC or KCDC being the adjoining territorial authorities.

[137] The process for revocation of state highway classification is found in s103 LTMA. In summary, s103 provides that:

- On the recommendation of NZTA, the Secretary for Transport may revoke a state highway classification²⁴;
- Before making a recommendation to revoke state highway classification, NZTA must consult with any affected regional council or territorial authority²⁵;
- Revocation of a state highway constitutes the road as a *local road* (which is therefore vested in the relevant territorial authority)²⁶.

[138] In its opening submissions, KCDC expressed concerns about revocation of the state highway status in these terms:

²⁴ Section 103(1) and (4) LTMA.

²⁵ Section 103(8) LTMA.

²⁶ Section 103(5) LTMA.

At sometime in the future, State Highway status may be revoked and the Council may be given part of the old State Highway. The Council wants to know that the road will be safe and fit for its new purpose, not a road that the Council has to reconfigure in order for it to be safe and functional²⁷.

[139] KCDC sought the imposition of a condition on the notices of requirement in these terms:

- (a) *As part of the detailed design of the Project, and in consultation with KCDC and PCC, the Requiring Authority shall assess the need for treatment measures for the bypassed sections of SH1 to ensure that those sections will be fit for purpose and operate safely once Transmission Gully main alignment is open to traffic.*
- (b) *The requiring Authority shall provide a report to KCDC and PCC setting out recommended treatment measures, and including a clear explanation of any requests from KCDC and PCC that have not been included in the treatment measures and explain why.*
- (c) *The Requiring Authority shall implement the report's recommendations prior to the opening of the Transmission Gully main alignment to traffic²⁸.*

[140] KCDC was not the only submitter seeking conditions pertinent to existing sections of SH1 and their future treatment.

[141] RTS proposed a series of conditions at the behest of various submitters with interests in cycling and walking facilities. The proposed conditions required NZTA to (inter alia):

- Provide an off-road cycling and walking facility from Paremata Railway Station to Porirua CBD to be in operation by 2015;
- Provide unspecified dollar amounts to PCC and KCDC to improve various identified cycling access routes;
- Ensure that walking and cycling travel between Paekakariki and MacKays Crossing is safe²⁹.

[142] Paremata Residents Association raised the issue of previous commitments to demolish the existing Paremata Bridge and remove clearways through Mana in conjunction with the opening of TGP. The Paremata Bridge comprises two parallel bridges located within a few metres of each other, one carrying 2 lanes of north-bound traffic and one 2 lanes of south-bound traffic. The bridge is situated at the entrance to Pauatahanui Inlet.

[143] The Residents Association contended that the presence of two sets of bridge foundations at this point has an influence on flushing and siltation of the Inlet and sought removal of one of the bridge structures on the opening of TGP and the consequent anticipated decrease of traffic on the bridges. If that was to

²⁷ Para 4.12 opening submissions for KCDC.

²⁸ Exhibit 25.

²⁹ RTS and the groups concerned sought an imposition of a series of other conditions relating to cycling and walking matters. We will address those matters elsewhere.

occur the road at this point would reduce to one lane in each direction over a single bridge. The Residents Association sought inclusion of a condition in our decision requiring NZTA to *...undertake all the steps necessary to allow demolition of the old Paremata Bridge and removal of the clearways at Mana by no later than 6 months after the TGP route is open, and to take such other actions as are necessary to restore the Highway between Paremata and Plimmerton to a local road.*

[144] Insofar as the KCDC condition is concerned, Mr Nicholson gave evidence as to the process to be undertaken by NZTA to ensure that any portions of road handed over to the Council were fit for purpose. Mr Nicholson expressed the view that it was unnecessary to have a condition requiring consultation as sought by KCDC as that was the process undertaken by NZTA in any event. For that reason he conceded that such a condition would not be offensive although he thought it was unnecessary.

[145] Counsel for NZTA contended however, that there was a legal issue with imposition of such condition. Counsel submitted that in deciding whether to make a recommendation that state highway status be revoked, NZTA was exercising a statutory right or power under s103 LTMA and that it would be unlawful for the Board to impose a condition which sought to constrain when or how such statutory right or power could be exercised.

[146] We did not understand NZTA to suggest that the possible revocation of state highway status of parts of the existing coastal route was not an effect of granting consent to TGP. The revocation is a foreseeable outcome of the establishment of the TGP route. Its occurrence is dependent upon NZTA recommending to the Secretary for Transport that state highway status be revoked and the Secretary accepting that recommendation. However, it was implicit in the evidence of Mr Nicholson for NZTA and Mr Bailey for PCC that such revocation was likely to occur. One of the beneficial effects of TGP which was identified by NZTA was the likely upgrade and improvements to the coastal route which could occur once TGP was in place and the roads in question were vested in PCC and KCDC. We consider that revocation of SH1 falls within the definition of effect contained in s3(e) RMA *...any potential effect of high probability.*

[147] We do not accept NZTA's contention that we cannot impose a condition requiring works to be carried out on portions of the coastal route whose state highway status might be revoked as a consequence of TGP. A consent authority is entitled to impose conditions on confirmation of a notice of requirement or grant of a resource consent. To be valid, those conditions must satisfy the *Newbury* tests³⁰ and be in accordance with s108 RMA (in the case of resource consents - s108 does not apply to designations). NZTA's obligation to comply with such a condition (if one was imposed) arises out of its status as a requiring authority or consent holder whose designation or consent is subject to conditions. That condition may have a constraining effect on how NZTA might exercise rights and powers under its empowering legislation but that cannot limit a consent authority's (or the Board's) powers to impose valid conditions under RMA.

³⁰ *Newbury District Council v Secretary of State for the Environment* [1981] AC 578 (HL).

[148] That said, we do not consider that it is appropriate to impose a condition of the type sought by KCDC in this case. There are three reasons for that:

- Firstly, we had no evidence before us enabling us to identify the outcomes which might be required to make sections of state highway fit for purpose as a local road at such future time as their status might be revoked. From the evidence which we heard, that time could be as much as two to three years after opening of TGP, allowing an appropriate period of observation of its effects on the existing road network. Only at that time will it be known precisely what treatments (if any) the road will require prior to its vesting in the territorial authorities. KCDC's suggestion that such assessment be made before the opening of TGP seems to disconnect treatment measures from actual effects of TGP;
- Secondly, we consider that the suggestion that NZTA be required to make the revoked highway fit for purpose at the time of transfer to KCDC may require works which extend beyond remedying effects of TGP and may require the remedy of existing inadequacies of the road;
- Thirdly, the condition proposed by KCDC appears to create no greater obligation on NZTA than the statutory obligation it presently has under s103(8) LTMA in any event. The statutory obligation to consult contained in s103(8) requires real consultation and the consideration of other parties' views³¹. However, there can be no guarantee of outcome (in terms of having its views accepted) for KCDC under either its proposed condition or s103(8) LTMA. It appears to us that KCDC is seeking to set up a parallel process to that contained in s103(8) under the conditions of the NoRs and that appears neither necessary nor desirable.

[149] Accordingly, although we consider that we have power to impose a condition directing works to be undertaken on the present coastal route when the need for such works arises as an effect of TGP, we decline to impose the condition sought by KCDC. We do however have a concern about operation of the coastal route in the period between operation of TGP and revocation of state highway status (if that occurs). We will return to that matter elsewhere in this report.

[150] Insofar as the conditions advanced by RTS are concerned, NZTA submitted that these conditions are either ultra vires or seek to use the RMA to intrude into the statutory responsibilities of NZTA for the operation and control of the state highway network. NZTA contended that the request of payment of unspecified sums of money is a form of financial contribution not authorised by RMA. It submitted that there is nothing in s149P(4) or 171(2) RMA which empowers consent authorities to impose conditions on designations requiring payment of a sum of money. It also contended that the proposed RTS conditions cut across the statutory responsibilities of NZTA under the Government Rounding Powers Act 1989 and the LTMA as they sought to impose conditions on operation and control of the rounding network.

³¹ *Wellington International Airport Ltd v Air New Zealand* [1993] 1 NZLR 671 (CA).

[151] The provisions of s108 RMA which authorise the imposition of conditions on resource consents and which enable the imposition of financial contributions, do not apply to notices of requirement for designations. In this case the Board's power to impose conditions is contained in s149P(4) RMA which relevantly provides:

(1) A board of inquiry considering a matter that is a notice of requirement for a designation or to alter a designation-

(b) may-

(iii) confirm the requirement, but modify it or impose conditions on it as the board thinks fit (our emphasis).

It is clear that the Board's power to impose conditions is very wide. It is not, however, unconstrained. The Board is obliged to act reasonably and as we have previously noted, specifically in accordance with the requirements of *Newbury*.

[152] In this instance, we see no connection between the conditions suggested by RTS and the adverse effects of TGP which the proposed conditions supposedly address. The alleged shortcomings in walking and cycling facilities, which the conditions seek to rectify, exist now. There was no substantive evidence that they would be made any worse should TGP proceed. We accept that there is no guarantee such shortcomings will be overcome should TGP proceed, however that does not mean that NZTA should be required to meet the costs of remedying those existing failures. The proposed conditions seem like an opportunistic attempt to obtain funds from a body seen as having deep pockets.

[153] It appears to us that possible revocation of state highway status (if it occurs) will create the potential for NZTA and the territorial authorities to greatly enhance walking and cycling facilities on the existing road. That is a positive effect of TGP, not one which requires the imposition of a financial contribution on NZTA.

[154] Similar comments to those which we have made in respect of the KCDC submission and contained in para's [146] to [149] (above), apply to the submission of Paremata Residents Association. However, we are not prepared to impose a condition requiring removal of part of the Paremata Bridge at this time. It appears to us that the need for removal of the bridge is something which must be considered once TGP is operating and traffic patterns on the old section of state highway have been established with sufficient certainty to identify what the requirements for efficient operation of that road are. However, the Association's position is understandable.

[155] Removal of part of the bridge if TGP went ahead was previously considered by the Environment Court in 2000 when approving Transit New Zealand's notice of requirement for an upgrade of the Urban Section of SH1 from

Plimmerton to Paremata³². A condition was imposed on the designation for that work in the following terms:

59. *Prior to the completion of the construction of Transmission Gully Motorway Transit shall:*

59.1 *Consult with PCC, WRC, Paremata Residents Association Inc, Plimmerton Residents Association Inc, and Ngati Toa Rangitira in relation to its proposals for the Work following the construction of the Transmission Gully Motorway, including the following matters:*

- (a) Ownership and control of the Work;*
- (b) Options relating to the future of the existing Paremata Bridge;*
- (c) The continuation of four laning of St Andrews Road between Acheron Road and James Street;*
- (d) Measures (to the extent that they are legally available) to restrict or discourage heavy vehicle movements through the Work;*
- (e) Other measures required to ensure an adequate level of service for the traffic volumes and traffic type expected to use the Work;*
- (f) Provision of arrangements for cyclists;*
- (g) Alteration of footpath widths;*
- (h) Removal of traffic lights;*
- (i) Changes to the operation of the clearway or HOV lanes;*
- (j) Alteration of arrangements in relation to capacity;*
- (k) Any changes to be sought to the designation in relation to those matters; and*

59.2 *Report on the outcomes of that consultation to PCC and WRC for the purposes of ensuring that PCC and WRC are fully informed of the views of the public and those bodies, and of Transit's intended response to that consultation.*

[156] The condition clearly did not impose an obligation on NZTA to remove part of the bridge should TGP proceed but rather to consult with the identified bodies regarding future options. It appears to us that in the event of revocation of state highway status for this portion of SH1, the designation under RMA may also be revoked and the conditions imposed by the Environment Court in 2000 would no longer apply.

[157] We are conscious of our earlier comments regarding s103(8) LTMA but we see the situation regarding the Paremata Bridge somewhat differently to the matter raised by KCDC. The Environment Court saw fit to impose

³² *Porirua City Council v Transit New Zealand* Decision W52/2001.

requirements requiring consultation with identified parties on a specific series of issues relating to road usage at Mana in the event of a Transmission Gully road proceeding. The consultation required by the conditions goes beyond that required by LTMA in terms of who must be consulted and parties to that decision are entitled to rely on those conditions. For that reason we will impose a similar but appropriately amended condition on the designation in this case. We will not go to the extent sought by the Residents Association of directing removal of part of the bridge. The evidence which we heard did not enable us to determine whether removal is appropriate or not. That must be determined in light of traffic requirements once TGP is operational. The Residents Association will be participants to any discussions in that regard. Any obligation imposed on NZTA by such a condition is no more onerous than its existing obligation.

11.7 SECTION 107 RMA

[158] RTS advanced the proposition that s107 RMA precluded the grant of consent to TGP. Section 107 relevantly provides:

Restriction on grant of certain discharge permits

(1) *Except as provided in subsection (2), a consent authority shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing-*

- (a) *The discharge of a contaminant or water into water; or*
- (b) *A discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or*
- (ba) *The dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant,-*

if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

- (c) *The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:*
- (d) *Any conspicuous change in the colour or visual clarity:*
- (e) *Any emission of objectionable odour:*
- (f) *The rendering of fresh water unsuitable for consumption by farm animals:*
- (g) *Any significant adverse effects on aquatic life.*

(2) *A consent authority may grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A that may allow any of the effects described in subsection (1) if it is satisfied-*

(a) *That exceptional circumstances justify the granting of the permit;*
or

(b) *That the discharge is of a temporary nature; or*

(c) *That the discharge is associated with necessary maintenance work-*

and that it is consistent with the purpose of this Act to do so.

[159] As we understood the RTS submission, it contended that the discharge of sediment laden runoff water from TGP works into the streams on the TGP route would contravene the provisions of s107(1)(a), (c), (d) and (g). RTS contended that none of the exceptions contained in s107(2) applied to the discharges in this case. It was the position of RTS that these provisions precluded the grant of the discharge consents sought by NZTA.

[160] NZTA rejected those propositions. It appeared to accept that discharges of sediment laden runoff water into streams on the TGP route might not be in accordance with the provisions of s107(1)(d) and (g) and it appeared to us that a breach of (c) is also possible. NZTA's position, however, was that such discharges fell within two of the three exceptions provided in s107(2), namely that:

- Exceptional circumstances justified the granting of the permit;
- Any discharge would be of a temporary nature.

[161] NZTA identified what it considered were exceptional circumstances in this case:

- That TGP is the largest earthworks project to be proposed for the Wellington region and its sheer size and community importance make it *out of the ordinary*³³.
- Any discharges which might breach the receiving water standards would not be intentional but would occur despite the best efforts of NZTA and PCC to prevent them;
- It is not possible to build TGP in a way that would completely avoid the possibility of such effects occurring;
- The Applicants had explored all options for preventing a discharge and have suggested conditions and work practices designed to reduce the risk of such events occurring but ultimately the determining factor is the weather;

³³ *Te Rangatiratanga O Ngati Rangitahi Inc v Bay of Plenty Regional Council* (2010) 16 ELRNZ 312 (HC) at [73].

- Sediment laden discharge is an inevitable result when heavy rainfall events occur during construction earthworks;
- Other options to control the risk of sediment discharge such as damming would have worse ecological effects than the proposals for which consent is sought;
- TGP is anticipated by a number of national, regional and territorial planning instruments.

[162] NZTA further submitted that the term temporary could mean *not permanent* and that another alternative meaning was for a *short period of time*. It further contended that any discharges would be temporary because they would only occur during the construction period and were predicted to occur only during specific periods of high rainfall, wind from particular directions and peak earthworks being underway in a catchment, all occurring simultaneously.

[163] We note the observation of Wylie J in *Te Rangatiratanga O Ngati Rangitahi Inc v Bay of Plenty Regional Council*³⁴ that whether or not exceptional circumstances exist is essentially an issue of fact. In our view there are certainly exceptional circumstances in this case:

- The first and most obvious of these is the nature of the Project itself. TGP is part of a RoNS which has been identified in the Government Policy Statement on Land Transport Funding as a route requiring significant investment to reduce congestion. TGP is an essential section of that RoNS;
- TGP is intended to be the primary state highway linking North and South Islands via Wellington and through Cook Strait;
- Construction of TGP requires relocation of transmission lines forming part of the national electricity grid which is a structure of national significance;
- TGP is intended to provide an alternative route into and out of Wellington City which will provide greater resilience to natural hazards such as sea level rise, tsunami and earthquake;
- TGP is being built to overcome an existing situation of excessive travel times, unreliability, congestion and poor safety record on the existing SH1.

[164] We do not consider that s107(2)(a) requires that in order to be exceptional, circumstances must be unique, although the combination of factors described above may well put TGP into that category even when considered in relation to other RoNS. We take the word exceptional to mean *unusual or not typical*³⁵ and in our view very few projects indeed could point to the above combination of features. Accordingly we have no hesitation in holding that TGP fits within the exception contained in s107(2)(a).

³⁴ (2010) 16 ELRNZ 312 (HC).

³⁵ J Pearsall (ed) *Concise English Oxford Dictionary* (10th ed revised, Oxford University Press, Oxford, 2002).

[165] Insofar as the question of whether or not the discharges are temporary is concerned, we understand the normal meaning of the word temporary to be *for a limited period of time or not permanent*³⁶. Whether or not a discharge is permanent, must be considered in context. In this case, that context is that the maximum duration of any discharge permit is 35 years from the date of grant³⁷. Taken literally, no discharge could be regarded as permanent in the sense that it would continue indefinitely, and accordingly no discharge would ever be permanent. That cannot be the case.

[166] In determining whether or not any discharges are temporary in this case we have considered the following factors:

- Any such discharges will be intermittent and limited in duration, depending on a specific combination of rain, wind and construction conditions which may or may not occur during construction;
- Any such discharges will be limited to the life of construction of TGP (six or so years). Although that period is not insubstantial, it too must be considered in the context that proposed conditions of consent limit the area of earthworks which are to be open at any given time thereby creating a combination of both temporal and spatial controls that limit the extent of any possible discharges.

[167] Having regard to all of the above factors, we determine that the discharges in question are temporary in nature and also fall within the second exception contained in s107(2)(b).

[168] We conclude that discharges from TGP are not excluded from the grant of consent pursuant to s107 RMA as they fall within the exceptions contained in ss107(2)(a) and (b).

11.8 ADAPTIVE MANAGEMENT

[169] At the heart of the NZTA and PCC applications is a system of avoiding, remedying or mitigating adverse effects of TGP through the use of adaptive management techniques.

[170] Put briefly, adaptive management is a system for managing the effects of (generally) large projects where the nature and extent of those effects is uncertain and the outcome of methods proposed to avoid, remedy or mitigate them is similarly uncertain. Adaptive management regimes are commonly established through conditions of consent incorporating management plans which seek to manage the effects of any given activity in a flexible and responsive manner.

[171] Mr Kyle described that process in these terms³⁸ *...my preference is for conditions and management plans to be light on their feet, so to speak, such*

³⁶ J Pearsall (ed) *Concise English Oxford Dictionary* (10th ed revised, Oxford University Press, Oxford, 2002) and *Collins Concise Dictionary* (Revised 3rd ed, HarperCollins Publishers, 1995).

³⁷ Section 123(d) RMA

³⁸ NoE pg 1870.

that effects that might be incurred and that are unforeseen or more adverse than expected, are dealt with on the hoof as it were.

[172] In his s42A report to the Board, Mr McLean made the following helpful observations³⁹:

Adaptive management plans are to enable an adaptive management approach whereby environmental management of a particular activity, or effect can evolve and adapt in response to measured data or best management practices.

Adaptive management enables a 'plan-do-check-act' approach to be undertaken whereby the on-going monitoring and reporting that is proposed creates a continuous feedback loop from the effects being created, allowing for the most appropriate solution to be utilised or change of method made for any particular environmental effect, however adaptive management must not be used as a substitute for industry best solutions to mitigate a potential adverse effect.

[173] For the sake of completeness we refer to the definition of adaptive management contained in the New Zealand Biodiversity Strategy⁴⁰ (although it does not greatly enhance our understanding):

Adaptive Management: An experimental approach to management, or "structured learning by doing". It is based on developing dynamic models that attempt to make predictions or hypotheses about the impact of alternative management policies. Management learning then proceeds by systematic testing of these models, rather than by random trial and error. Adaptive management is most useful where large complex ecological systems are being managed and management decisions cannot wait for final research results.

[174] However adaptive management might be defined, an essential part of adaptive management regimes is the use of management plans which set out in a structured fashion how a consent holder proposes to deal with various identified aspects of the environment affected by a development. We have previously identified that 12 draft management plans dealing with a range of effects generated by TGP were included in Volume 5 of the application documents⁴¹. The management plans for TGP will not be confined to those contained in Volume 5. A more detailed description of the management plan structure for TGP will be provided later in this report.

[175] There are however two *overarching* management plans which between them define the overall management plan process. Those are:

- An outline plan prepared by NZTA and PCC pursuant to 176A RMA;
- A Construction Environmental Management Plan (CEMP).

³⁹ McLeans report, pg 4.

⁴⁰ New Zealand Government "New Zealand Biodiversity Strategy" (February 2000) www.biodiversity.govt.nz Glossary.

⁴¹ Para 7.3 above.

[176] The outline plan pursuant to s176A is not a management plan in the usual understanding of that term. Section 176A obligates a requiring authority to provide an outline plan to relevant territorial authorities. It provides:

176A Outline plan

- (1) *Subject to subsection (2), an outline plan of the public work, project, or work to be constructed on designated land must be submitted by the requiring authority to the territorial authority to allow the territorial authority to request changes before construction is commenced.*
- (2) *An outline plan need not be submitted to the territorial authority if—*
 - (a) *The proposed public work, project, or work has been otherwise approved under this Act; or*
 - (b) *The details of the proposed public work, project, or work, as referred to in subsection (3), are incorporated into the designation; or*
 - (c) *The territorial authority waives the requirement for an outline plan.*
- (3) *An outline plan must show—*
 - (a) *The height, shape, and bulk of the public work, project, or work; and*
 - (b) *The location on the site of the public work, project, or work; and*
 - (c) *The likely finished contour of the site; and*
 - (d) *The vehicular access, circulation, and the provision for parking; and*
 - (e) *The landscaping proposed; and*
 - (f) *Any other matters to avoid, remedy, or mitigate any adverse effects on the environment.*
- (4) *Within 20 working days after receiving the outline plan, the territorial authority may request the requiring authority to make changes to the outline plan.*
- (5) *If the requiring authority decides not to make the changes requested under subsection (4), the territorial authority may, within 15 working days after being notified of the requiring authority's decision, appeal against the decision to the Environment Court.*
- (6) *In determining any such appeal, the Environment Court must consider whether the changes requested by the territorial authority will give effect to the purpose of this Act.*
- (7) *This section applies, with all necessary modifications, to public works, projects, or works to be constructed on designated land by a territorial authority.*

[177] In this instance NZTA and PCC advised that they do not seek to avoid submitting an outline plan pursuant to s176A(2). They further advised that the outline plan will incorporate the following individual management plans:

- Landscape and Urban Design Management Plan (LUDMP);
- Construction Air Quality Management Plan (CAQMP);
- Construction Noise and Vibration Management Plan (CNVMP);
- Construction Traffic Management Plan (CTMP);
- Heritage Management Plan (HMP).

We consider that the incorporation of these management plans into the outline plan is authorised by the provisions of s176A(3)(f).

[178] The draft CEMP was included in Volume 5 of the application documents. It defines its purpose in these terms:

1.1 Purpose of the CEMP

The purpose of this CEMP is to describe the environmental management and monitoring procedures to be implemented during the Project's construction phase to manage compliance with all of the conditions of consent and designations. The CEMP provides a methodology and framework of management plans and protocols for implementing the environmental controls specified in relevant consent and designation conditions. The final CEMP submitted by the Contractor will outline all details required to enable the NZTA, PCC and the Contractor to construct the Project with the least adverse environmental effects. Overall, the implementation of the CEMP will manage:

- *Compliance with the conditions of resource consents and designations;*
- *Compliance with environmental legislation;*
- *The requirements of Section 176A (outline plan) for construction of the Project;*
- *Adherence to the NZTA's and PCC's environmental objectives; and*
- *Environmental risks associated with the Project are properly managed.*

[179] The CEMP identifies a number of lower level management plans (i.e below the CEMP) and site specific environmental management plans which will flow from its operation. We will discuss the structure and relationship of the various management plans and the conditions of consent later in this report. The issues for determination in this section of the report are:

- Whether or not use of adaptive management regimes is an appropriate means of managing environmental effects;

- What are the essential features of such regimes.

[180] Insofar as the first issue is concerned, the answer is clearly yes. The essential test of any method of managing effects under RMA is whether or not it achieves the purpose of the Act set out in s5(2). There is no reason why an adaptive management regime cannot achieve that purpose. The Environment Court has previously accepted the use of adaptive management regimes in decisions such as *Clifford Bay Marine Farms Limited v Marlborough District Council*⁴², *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council*⁴³ and *Crest Energy Kaipara Limited v Northland Regional Council*⁴⁴. Whether or not any particular proposal for use of an adaptive management regime achieves the purpose of RMA is a matter to be determined by the relevant consent authority in any given instance.

[181] In this instance, the planning witnesses who appeared before us reached agreement in these terms⁴⁵:

8. *All agree that management plans are an appropriate tool for managing effects in a project of this nature and scale.*
9. *All agree that tying the consents down to specific construction methodologies and techniques is not appropriate, and that it is more desirable to allow for flexibility where it meets the intent/purpose of the management plan.*
10. *All agree that the conditions should clearly specify the outcome that is intended from the management plans. In this regard, all agree that 'what' needs to be achieved is best specified in the conditions, with 'how' it is to be achieved being set out in a management plan.*
11. *All agree that the broad issues and topics that need to be addressed are covered by the conditions.*

[182] The Board's planning advisor, Mr Kyle, agreed that an adaptive management regime was the most appropriate way to deal with complex effects in this case⁴⁶.

[183] We received evidence, submissions and advice from witnesses, counsel and the Board's own legal and planning advisors as to the necessary components of adaptive management regimes. In his legal advice to the Board, Mr Milne identified not less than 17 *key components* of the management plan process⁴⁷.

[184] It appeared to us that there was very little difference in principle in the views of all those who commented on this issue to us although there were differences of emphasis. In their opening submissions, Counsel for NZTA and PCC

⁴² Decision C131/2003.

⁴³ Decision C80/2009.

⁴⁴ Decision A132/2009.

⁴⁵ Witness Conference Statement dated 12 December 2011.

⁴⁶ Para 3.3.1.2, pg 48, Section 42A Report - February 2012.

⁴⁷ Para 2.5 - Legal Advice to the Board - 6 March 2012.

described the key elements of the adaptive management regime proposed by the Applicants in these terms (footnotes excluded)⁴⁸:

- 121.1 *The setting of objectives in the consent conditions to provide focused management plan development. The consent conditions also contain performance criteria which operate as directly enforceable 'bottom lines' as this was the preference of the Regional Council;*
- 121.2 *A requirement to design and plan for management of the Project. The proposed resource consent conditions require each management plan to be finalised prior to construction commencing. In addition Condition G.15E requires the Applicant to consult with DoC, Ngati Toa and the Regional Council in relation to the updating and finalisation of the Ecological Management and Monitoring Plan (EMMP);*
- 121.3 *Management of construction in accordance with the management plans and conditions;*
- 121.4 *Monitoring and evaluation as required by the management plans and conditions (including pre-construction monitoring). Monitoring is required by the draft EMMP and by many proposed conditions. A new condition requiring the provision of an annual report on all monitoring, is suggested in Ms Rickards' rebuttal evidence;*
- 121.5 *Review of monitoring results, by the Applicants and their expert advisors, by the Regional Council, and in some instances by stakeholders and a peer review panel. This monitoring will occur regularly to help ensure that, where relevant, steps can be taken before any significant adverse effects occur;*
- 121.6 *Refinement of management plans and programmes in response to such review.*

[185] We agree that the matters identified above constitute key elements of an effective adaptive management regime although we may have placed greater emphasis on some elements of that regime.

[186] Although the Applicants' submission referred to the need for pre-construction monitoring as part of monitoring and evaluation, we would have separately identified pre-construction monitoring to emphasise that it is a fundamental component of the monitoring regime. Detailed pre-construction monitoring is vital to establish the existing state of the environment at the time of commencement of any project. That must be established to provide a base line against which environmental effects of works might be identified and measured. We note, in this instance, that there has been extensive monitoring already undertaken by the Applicants in respect of many of the components of the environment likely to be effected by TGP.

[187] We also emphasise the importance of conditions of consent if adaptive management regimes are to operate properly. In his advice to the Board,

⁴⁸ Opening submissions, para 121, pgs 30-31.

Mr Milne identified the need for conditions to be clear, certain and enforceable. Conditions need to contain quantifiable standards and performance criteria against which proposed management plans can be assessed and subsequent operation of the management plans measured. The Board considered that the conditions proposed by the Applicants at the conclusion of the hearing generally achieved those objectives.

11.9 APPROVAL/CERTIFICATION

[188] Those comments bring us to address issues relating to approval/certification of management plans by Council Officers. A feature of the initial conditions and draft management plans provided to the Board was that a number of them required either approval or certification of the management plans by various Council Officers. The Board had two concerns regarding these matters:

- Firstly, the extent to which the Board might be delegating its functions through the process of certification and/or approval of management plans by Council Officers;
- Secondly, the issue of just what it was that Council Officers were being directed to certify or approve.

[189] Insofar as the first matter is concerned, the powers to approve resource consents and impose conditions and to cancel or confirm the notices of requirement or impose conditions on them, lie with the Board. Those powers may not be delegated to a third party, either in principle or in practice.

[190] The Board was initially concerned that the extensive use of management plans which were to be approved or certified by Council Officers rather than the Board, might mean that we were in effect delegating our decision making obligations. Ultimately, we determined that was not the case, provided the conditions of consent imposed contained clear objectives to provide focus to management plan provisions and performance criteria which operate as bottom lines which the management plans must achieve. In other words, the conditions imposed by the Board would identify the performance standards which had to be met and the management plans would identify how those standards were to be met.

[191] The second issue which the Board considered related to the nature of certification/approval of management plans and what was being certified or approved.

[192] Insofar as certification or approval is concerned, we understood there to be a distinction between the two terms. Use of the word *certify* or *certification* suggests that the role of any certifying person is simply to check and ensure that requirements contained in conditions have been met. On the other hand we understand the term *approval* to require the exercise of discretionary powers and judgment to determine whether or not a proposed management plan is satisfactory. However, it became apparent to us that the words are in fact used interchangeably. We shall use the word *certify*.

[193] The Board received very helpful evidence, submissions and advice on this issue from a number of parties including the Regional Council, territorial

authority regulatory officers, the Applicants and Messrs Kyle and Milne. Ultimately, we refer to Mr Milne's advice to the Board in these terms⁴⁹:

- 2.10 *The other aspect of management plans that has moved on from earlier case law is the principle relating to certification versus approval. It is now more common (particularly for large and lengthy infrastructure projects) for the applicant/requiring authority to agree to the consent authority or independent reviewer having somewhat more than a certification role (although it is often still called such). In particular the consent authority needs to have the ability to direct changes to draft and final management plans (other than objectives).*
- 2.11 *Management Plans are a key component of large projects. In essence they allow matters of detail (often very important details) to be left until after the approval process. They provide desirable if not essential flexibility for both the consent holder and the consent authority.*
- 2.12 *The quid pro quo for obtaining this flexibility is that applicants must accept that the consent authority needs to have the ability to reject inadequate management plans, or more usually to require changes to the plans other than by way of review of conditions. The review process will usually be too time consuming to ensure necessary changes (adaptive management) occur before unacceptable risks arise or adverse effects occur.*
- 2.13 *In summary, an applicant cannot expect the flexibility of relying on adaptive management without also accepting that the consent authority officers will need to have a right to require changes to management plans when they are being finalised and if changes are required later, but not embraced voluntarily by the consent holder.*
- 2.14 *This can either be achieved by the applicant agreeing to the council approving the management plan (utilising the Augier Principle) or by decision maker ensuring that a very robust 'certification' and adaptation process.*
- 2.15 *The latter approach as a minimum requires:*
- *Clear objectives for the certifier to check the plan against.*
 - *The ability for the certifier to withhold certification until he/she is satisfied that the plan will achieve those objectives.*
 - *The ability for the consent authority to be able to require changes to operating management plans or to be able to halt works until changes are made.*
 - *Minimum environmental standards so that if breached the consent authority can request or require changes to the management plan and/or take enforcement action.*

⁴⁹ Advice from Counsel – 6 March 2012.

[194] We concur with and adopt Mr Milne's advice on this matter. In particular we emphasise the need for conditions to contain *clear objectives* against which the certifier must check management plans. Conditions imposed by the Board will identify the standards that activities must meet. The certifier will ensure that the proposed management plans achieve those standards.

[195] Counsel for the Applicants described the process undertaken by Council Officers as being one of *certification* whilst at the same time acknowledging that the certification required the exercise of a degree of discretion and therefore (effectively) approval.

[196] Mr Cornor for the Regional Council made the point that the certifying authority needs the ability to say yes or no at times during the adaptive management process and that the task goes beyond a bare assessment of whether a particular matter is addressed or a certain item is provided. The authority is required to consider the effectiveness of the methods proposed but it is not the role of the authority to *reinvent or second guess* objectives and benchmarks set out in consent conditions. Mr Cornor submitted that the proposed conditions as finally put to the Board were consistent with those principles.

[197] We consider that the process for certification of management plans in this case requires the following determinations:

- Does the management plan generally accord with draft management plans submitted with the application or provided in evidence to the Board. In that respect, we note that not all proposed management plans, particularly site specific environmental management plans, will have been previously submitted. However such plans must be consistent with the provisions of the *higher order* management plans which form part of the application documents;
- Has the management plan in question been prepared in accordance with the relevant conditions of consent;
- Has consultation been carried out in accordance with the relevant conditions of consent;
- Does the management plan meet the objectives or standards prescribed by the relevant conditions of consent. In making that determination the certifying authority will (indeed must) exercise judgement and apply expertise. Where it is determined that a management plan does not meet the objectives prescribed by conditions, the authority may direct changes to the management plan which satisfy it that the objectives are met.

We will return to the matter of conditions later in this decision but we observe that the final conditions proposed by the Applicants at the conclusion of our hearing have been drafted generally in accordance with the requirements we have identified.

[198] The final matter which we consider under this head is the question of which authority must certify management plans where that is required. That question arose in the context of the CEMP which largely (but not exclusively) relates to effects arising under Regional Council consents. The Applicants

sought that any management plans for approval under the CEMP *umbrella* ought be certified only by the appropriate officer of the Regional Council, even if that management plan traversed some issues within the jurisdiction of a territorial authority. We understood that the Applicants took that position because they were concerned about costs, delay, uncertainty and potential conflict which could result if more than one local authority was responsible for certification of a management plan. We understand their concern but ultimately disagree.

[199] We accept that it may be appropriate for the Regional Council to have certifying power in relation to management plans which have a territorial component, if the effects which the management plan seeks to address arise out of the operation of regional consents. We consider that the provisions of s30(1)(a) RMA and the interconnected nature of mitigation measures involving mitigatory works which cross over regional and territorial functions in this case, mean that there will frequently be an integrated approach required to the operation of management plans.

[200] However we do not accept that territorial authorities can be excluded from the certification of management plans which impinge upon territorial functions under s31 RMA. Territorial authorities have the statutory functions of implementing methods to achieve integrated management of the effects of use of land⁵⁰ and the control of effects of development of land⁵¹.

[201] In our view, a requirement for certification of management plans which have regional and territorial components by both regional and territorial authorities is an example of a method to achieve integrated management of the natural and physical resources of the region or district.

[202] We also concur with the advice given to the Board by Mr Milne⁵² that enforcement of district plan requirements is a matter for district councils and that it would be inappropriate for the authority certifying a management plan provision to be different to that enforcing it.

[203] For the above reasons we require that where management plans which are to be certified impinge on both regional and territorial functions, then they are to be certified by the regional and territorial authorities (each as to their respective jurisdictions). The conditions of consent and notices of requirement adopted by the Board for the NZTA/PCC projects reflect that requirement. The management plans whose parts require certification by the respective regional and territorial authorities are:

- Construction Environmental Management Plan (CEMP);
- Ecological Management and Monitoring Plan (EMMP);
- Landscape and Urban Design Management Plan (LUDMP);
- Site Specific Environmental Management Plans (SSEMPs).

⁵⁰ Section 31(1)(a) RMA.

⁵¹ Section 31(1)(b) RMA.

⁵² Legal advice to Board - 6 March 2012.

(The conditions applying to certification of the various management plans (or their parts) are incorporated in the consents or Notices of Requirement requiring preparation of those management plans. These conditions require certification by territorial authorities of aspects of plans imposed pursuant to regional consents and by the regional authority of aspects of plans imposed by territorial authorities pursuant to Notices of Requirement. It was suggested in comments from one party on our draft report and decision that it was not open for us to do so and that it was necessary to impose corresponding conditions as part of either regional or territorial consents. In our view any condition must be included in the appropriate consent or Notice of Requirement, but may require action (in this case certification) by a third party.)

12. REGIONAL AND PROJECT-WIDE EFFECTS

12.1 INTRODUCTION

[204] The AEEs and Technical Reports lodged by the Applicants provided a comprehensive assessment of a wide range of identified effects. In this section of the report we address what we consider to be the determinative regional and project wide effects of TGP. These effects constitute the *principal issues* which the Board is obliged to identify pursuant to s149Q(2)(c) RMA. We summarise those effects as follows:

- Traffic and Transport effects;
- Effects of sediment generation and discharge;
- Hydrological effects;
- Effects on terrestrial ecology;
- Effects on freshwater ecology;
- Effects on marine ecology;
- Effects of noise and vibration;
- Air quality and related health effects;
- Effects on Tangata Whenua
- Effects on archaeology and built heritage;
- Social effects;
- Landscape and visual effects;
- Direct property effects.

We consider this range of effects in the context of the overall TGP projects. We will carry out a separate appraisal of some aspects of the Transpower application.

12.2 TRAFFIC AND TRANSPORT

Issues Identified

[205] Around 44 separate submissions raised various transportation issues. These can be summarised under the following heads:

- Road design;
- Route resilience;
- Travel demand management;
- Construction traffic;

- Operational effects;
- Economic analysis;
- Forest removal;
- Rail infrastructure;
- Treatment of the existing state highway (coastal route);
- During operation – travel times;
- Pedestrian/cycle issues;
- Local road from Paekakariki to MacKays Crossing;
- Public transport.

Road Design

[206] Mr Edwards outlined the road design standards to be used for TGP. The design is based on expressway standards, although the road would initially be designated as a motorway. Mr Edwards⁵³ said that the key difference between an expressway and motorway is that no direct side access is permitted on a motorway. For a motorway, all interchanges are grade separated whereas there can be at-grade intersections (i.e. traffic signals or a roundabout) on an expressway. The design provides for a four lane highway with additional crawler lanes where required on steeper uphill and downhill sections. Pull-off shoulder areas and a central median with barriers are proposed, in accordance with design best practice. The fundamental geometric design criteria for the proposed road were not challenged by any party to these proceedings.

[207] Mr Edwards noted that a key design philosophy for the road is that it does not collapse and that limited access can be restored quickly in the event of a major earthquake. Crossing fault lines on embankments rather than bridges has therefore been preferred, as even if there is movement or rupture, embankments can be reinstated in days to weeks and significantly faster than the time needed to reinstate a bridge. Mr Edwards advised that a series of independent road safety audits considering a number of design options were conducted on the Project. A more detailed audit was then undertaken on the preferred alignment. Changes to the design were made as a result of this second audit, particularly around the northern tie-in area near MacKays Crossing.

[208] Ms Warren for RTS had suggested that the road should be constructed with only one lane in each direction. Mr Nicholson⁵⁴ carried out a fundamental capacity analysis which showed that the assessed capacity of a possible two lane road was significantly less than the predicted traffic volumes on the TGP route. Mr Edwards testified that because of the topography of the route, the volume of earthworks required for a two lane option would be only 10 - 15%

⁵³ EIC, para 20.

⁵⁴ Rebuttal evidence.

less than for the proposed four lane design⁵⁵. In other words such a proposal would have most of the adverse earthwork and related effects (and cost) of the current proposal without addressing existing capacity problems. NZTA considered that this option was not practicable and we accept that.

- [209] Mr Faulls supported the proposal in part but said that early planning for the TGP route had the southern termination at Takapu Road and not at Linden. He contended that the change to a Linden tie-in was driven by local politics and should be revisited.
- [210] Mr Nicholson referred to concerns expressed when an environmental impact report for TGP was audited by the Parliamentary Commissioner for the Environment in 1990. At that time, the proposed TGP route traversed the Takapu Valley, with the southern connection to SH1 being via the existing Takapu Road interchange at the southern end of Tawa. After the Parliamentary Commissioner's audit, but before the existing TGP route designations were lodged in 1996, the proposed route was altered from Transpower's Takapu Road substation, to traverse the hills above Cannons Creek and Ranui Heights, with the southern connection to SH1 being via a new interchange at Linden. This was in response to concerns about the impact of the proposal on Takapu Road. Our site visit indicated that such concerns were well founded.
- [211] Mr McCombs and Mr Edwards testified that several options were modelled which resulted in relocation of the southern terminal at Linden. This route was found to be more cost effective in better serving the Porirua East and Whitby communities and relieving traffic pressures on the Mungavin Avenue Interchange, but also better provided for the Kenepuru Link by incorporating it as an integral component of the overall plan. We accept their views in that regard.
- [212] Mr I Rowe (Submitter 002 who did not appear before the Board and who otherwise supported TGP) recommended a full motorway-to-motorway interchange at the southern end of TGP (allowing southbound traffic on the TGP route to turn onto SH1 northbound and SH1 southbound to turn onto the TGP route northbound) instead of the proposed motorway-Y junction (merge and diverge movements only) with a link to Kenepuru Drive. This option was considered and evaluated during the Phase 1 investigations, but it was found to provide poorer network flexibility and greater social environmental effects than other options in that section of the route. NZTA concluded that this was not the preferred option for this section of the route and we accept that conclusion.

Route Resilience

- [213] A significant purpose of NZTA's Project objectives was to provide a route which has greater resilience to natural occurrences (tsunami, earthquakes, etc) than the existing coastal route.

⁵⁵ EIC, para 131.2.

- [214] Mr Edwards⁵⁶ identified that the TGP route is wider than the existing highway. It will provide four lanes of sealed road which, for most part, is elevated above the existing ground. This would provide greater resilience if there is a significant event on the highway compared with alternatives at ground level. He considered that the proposed option provides better route resilience than the existing SH1.
- [215] Mr Brabhakaran provided a detailed brief of evidence dealing with route security issues. He is a highly experienced geotechnical engineer with earthquake expertise. He identified the vulnerability of the coastal route to landslides, liquefaction and lateral spreading from a large earthquake⁵⁷. In the event of a characteristic Richter Magnitude 7.5 earthquake on the Wellington fault, current road access into Wellington is likely to be closed for between three and six months. It is also vulnerable to tsunami.
- [216] Mr Brabhakaran acknowledged that in the event of a large local earthquake, parts of TGP could also be closed, although most sections would remain open for access. The use of earth embankments to cross the Ohariu fault line and where the alignment is close to fault lines would enable quick reinstatement. He considered that most sections of the route would be re-opened in two weeks. The most difficult section would be north of Battle Hill Farm Forest Park where a closure could extend for between two weeks and three months. In other small to moderate earthquakes, events, storms or tsunamis which might close the coastal route, TGP will remain open.
- [217] Mr Brabhakaran's evidence was unchallenged by any credible contrary evidence. We accept that TGP will provide a resilient alternative route to the vulnerable coastal route and will improve regional route security.

Travel Demand Management

- [218] RTS contended that a travel demand management (TDM) condition should be included in any consents, to manage travel demand and encourage public transport usage. That proposition was based on the evidence of Dr Krumdieck and Mr Vannisselroy who noted that a TDM condition would not be as effective without a high quality public transport system.
- [219] Mr Bennion⁵⁸ submitted that the Board had jurisdiction to impose conditions relating to TDM and cited two examples, an Environment Court consent order for an indoor sports and recreation centre in Kilbirnie (*Mellor v Wellington City Council*, 2009) and the Board of Inquiry decision for Waterview. He noted that this particular example made it apparent that conditions can extend well beyond the designation footprint.
- [220] Ms Hayes noted that a relevant policy under the PRPS was Policy 9, Promoting Travel Demand Management. The explanation under Policy 9 describes mechanisms such as travel behaviour change programmes, road pricing, and network efficiency improvements to achieve this policy. It also

⁵⁶ EiC, para 118.

⁵⁷ EiC, paras 46-49.

⁵⁸ RTS Counsel Closing Submission, para 2.14-2.15.

recognises the role of planning for new development in locations with good access to public transport and good transport options.

[221] In closing, Mr Hassan for NZTA submitted that the decisions cited by Mr Bennion were based on the particular circumstances of those cases which were materially different from the TGP situation. We agree.

[222] We do not propose to impose a condition of the type sought by RTS. TGP is part of an integrated upgrade of regional transport facilities, including upgrade of rail facilities which have largely been completed. TGP comprises the roading component of those upgrades and ought be completed if the full benefits of the Western Corridor Plan are to be achieved.

Construction Traffic

[223] The AEE identified the following construction traffic effects:

- Actual and potential effects on local roads;
- Site offices and longer term construction access locations.

[224] A number of submitters raised concerns about construction related traffic effects including effects on individual properties and on local road networks. Mr Kelly considered these issues for the Applicants and referred to a range of controls to ensure that effects on road users and residents during construction would be largely mitigated⁵⁹.

[225] NZTA had identified a number of key locations where construction activities are likely to affect operating conditions on existing roads. Mr Kelly explained the proposed mitigation to minimise traffic disruptions, including the use of a Construction Traffic Management Plan (CTMP) and Site Specific Traffic Management Plans (SSTMP)⁶⁰. For areas of key concern, consideration has been given to requirements for temporary lane closures, speed restrictions and diversions.

[226] Mr Kelly clarified that Condition NZTA.35 (as it was referenced at that time – now NZTA.28) requires site specific traffic management plans which provide for the safe and efficient movement of construction vehicles to and from construction sites. In his view that sufficiently encapsulated the effect of additional movements on both Paekakariki Hill Road and Takapu Road⁶¹.

[227] Construction traffic management needs to be carefully considered through the life of the Project. In an essentially *greenfields* project, the main impact arises from workers' vehicles and materials being brought onto the site through various access points. The cartage of aggregate and water were identified as two possible major contributors in this regard. The Board is satisfied that the conditions proposed by way of management plans provide an effective way of managing and controlling construction traffic.

⁵⁹ EiC, para 172.

⁶⁰ EiC, para 94.

⁶¹ NoE, pg 180.

Operational Effects

[228] A number of submitters contended that TGP was unnecessary or inappropriate⁶². Issues were raised about the costs compared to the benefits of the proposal. Submitters suggested that there are better alternatives and that the proposal will adversely affect the transport system, including working against the modal shift to public and active modes of transport.

[229] The AEE identified (in summary) the following operational traffic and transport effects of TGP:

- Changes in traffic volumes;
- Effects on total travel demand and mode of travel;
- Effects on the road network;
- Effects on freight movements;
- Effects on route security;
- Effects on intersection performance;
- Traffic safety effects;
- Wider (regional) effects;
- Effects on public transport.

[230] Forecast changes to traffic volumes resulting from construction of TGP were outlined in TR4 and discussed primarily in the evidence of Mr Kelly. The existing Wellington SH1 corridor presently carries approximately 23,500vpd north of Plimmerton, increasing to 32,600vpd along the Mana Esplanade and 52,000vpd between the Whitford Brown intersection and Porirua ramp bridges. These volumes are predicted to increase (without TGP) to 24,100vpd, 35,100vpd and, 60,600vpd respectively between a base year of 2006 and 2026. Mr Kelly testified that this growth would lead to an increase in the frequency and severity of congestion on the SH1 corridor with a deteriorating level of service and uncertain travel times⁶³. He observed that over this 20-year period there is forecast to be an 84% increase in heavy vehicle movements on the northern part of the corridor⁶⁴.

[231] The result of providing an alternative strategic route is that an estimated 20,000vpd (between 18,300vpd north of Linden, and 22,300vpd south of Paekakariki), (based on the 2026 prediction), would use the new TGP. Predicted volumes of traffic on the coastal route would then drop to 20,470vpd on the Mana Esplanade, 5,930vpd south of Pukerua Bay and 3,090vpd south of Paekakariki.

[232] Ms Lawler referred to the Porirua Development Framework which identifies future growth areas throughout the city, including areas adjacent to the

⁶² Mitchell Partnerships Section 42A Report, Part 1, pg 67, para (f).

⁶³ EiC, para 36.

⁶⁴ EiC, para 44 and NoE, pg 177.

existing SH1 which would have traffic volumes reduced with implementation of TGP. In cross-examination she agreed that if the coastal route is left unchanged, in those areas where there might be significant urban growth and intensification, increased development might produce more people wanting to use the road infrastructure⁶⁵. The areas from Paremata through to Mana/Plimmerton/Camborne in particular have been identified as areas for possible future expansion.

[233] Dr Krumdieck discussed the global economic situation and speculated that peak congestion in Wellington may have already occurred. She concluded that TGP was at considerable risk of not providing long term benefit to the city⁶⁶. Dr Krumdieck suggested that it was negligent for traffic planners to continue to plan on the basis of historic growth rates which will not be applicable into the future⁶⁷.

[234] Mr Wood⁶⁸ contended that the traffic growth rate had been declining since at least 1997 which is consistent with overseas trends. Mr Wignall for KCDC also raised concerns regarding traffic growth estimates and the substantial difference between the figures adopted by NZTA and those identified in the NZTA's Economic Evaluation Manual (EEM1 and EEM2). He noted that while some of the reasons referred to by Mr Kelly were valid, they were not quantified and could not account for the large variance in traffic growth.

[235] Although Mr Kelly's predictions as to increases in traffic volumes were subject to attack in cross examination they were not seriously shaken. His prediction as to an increase in vehicle movements was based not just on an extrapolation of historical growth but included consideration of economic development and demographic factors which are the underlying factors behind traffic demand⁶⁹. His prediction as to the extent of increase in heavy vehicle movements was explained and justified in a supplementary statement of evidence which he supplied at the request of the Board and which we accept.

[236] What the evidence of all the various witnesses on this topic demonstrated is that traffic growth may be influenced by a wide range of economic, social, demographic and other factors and that these factors and their relative significance may change from time to time. We accept that there is an element of uncertainty involved in the predictions either way but we consider that it is proper for NZTA to proceed on the basis of the growth projections which it has presented. Time will tell who is right. What is apparent is that if Mr Kelly's predictions are correct, NZTA will be seen to have neglected its statutory obligations if it had not moved to provide the necessary roading capacity.

[237] In any event, arguments about the rate of traffic growth seem to ignore the existing inadequacies of SH1 on its present route. We have accepted that

⁶⁵ NoE, pg 224.

⁶⁶ EiC, para 17.

⁶⁷ NoE, pg 1196.

⁶⁸ NoE, pg 1196.

⁶⁹ NoE, pgs 172-173.

there are real capacity problems with the road at present which require remedy. Any increases in volume will exacerbate those problems.

Economic Analysis

- [238] Mr Nicholson discussed the overall economic analysis of TGP and confirmed an updated benefit cost ratio (BCR) of 0.82, calculated in accordance with NZTA's Economic Evaluation Manual. When considered as part of the wider RoNS package, the BCR including agglomeration benefits was 1.2, evaluated in late 2009. The BCR for TGP calculated in 2009 was 0.6.
- [239] Mr Nicholson discussed the criteria which NZTA uses to determine whether or not a project is eligible for funding⁷⁰. These include strategic fit, effectiveness and economic efficiency (i.e. the BCR). Each of these is assessed as being; high (H), medium (M) or low (L) and then combined to form an assessment profile for the activity. The Wellington Northern Corridor package, of which TGP is a part, has been evaluated as having an HHL profile. That is high strategic fit, high effectiveness and low economic efficiency. The HHL profile for TGP is the third highest out of 11 possible priority rankings.
- [240] Mr Copeland said that a BCR for a project of less than 1.0 indicates that the rate of return is less than 8%. In the case of TGP, Mr Copeland estimated that the rate of return could be 6 - 7%. He referred to the relationship between economic efficiency (s7(b) RMA) and the provisions of s5(2) RMA which seek to enable people and communities to provide for their economic wellbeing.
- [241] Possible tolling of the route was raised by several submitters. Mr Nicholson discussed the issue of tolling TGP⁷¹ and confirmed that NZTA does not currently propose to do so. Drivers' willingness to pay a toll could influence the volume of traffic which might transfer from the existing (untolled) route. We assume that a significant reduction in estimated numbers using TGP might affect NZTA's BCR calculations but we have not factored the effect of tolling into our considerations and had some difficulty in identifying its relevance to us.
- [242] Ms Lawler outlined the reasons for PCC's support of TGP. She agreed with Mr Copeland that the project is likely to result in increased levels of economic activity in the city and would support various Council strategies in this regard.
- [243] Dr Chapman discussed the uncertainty of TGP and the effect the low L (efficiency) score had on the overall Project ranking. He concluded that it might be wise to defer the project as the benefits could be overstated. Several other submitters questioned the wisdom of proceeding with the Project in light of the low BCR, with concerns similar to those expressed by Dr Chapman. Mr Copeland disagreed with suggestions that the Project should be deferred to eliminate uncertainty, citing the overall HHL assessment process as establishing a high priority for TGP.
- [244] Mr Nicholson contended that issues related to funding are not relevant to the Board as it is up to NZTA to decide whether or when TGP is funded, in

⁷⁰ EIC, paras 97-104.

⁷¹ EIC, para 112 – 115 and Rebuttal para 33-41.

accordance with NZTA's statutory function under LTMA. He was correct that the allocation of funding to TGP is a function for NZTA. However, while it is not for the Board to tell NZTA how to spend its money, the efficient use of natural and physical resources is a matter to which the Board is required to have particular regard pursuant to s7(b) RMA. That particular regard extends to issues of economic efficiency.

[245] However, we did not understand TGP to be driven primarily by economic imperatives but rather by the need to address the existing problems with SH1 and to provide a secure alternative. We accept that remedying these problems has economic benefits and may be quantified in economic terms. We accept the evidence of Mr Nicholson that the BCR for TGP, even considered in isolation, is better than that for upgrading the coastal route. To the extent that it is relevant, we consider that the BCR for TGP ought be assessed on the basis that it is part of the wider Western Corridor upgrade, of which it is an integral part.

[246] We accept the evidence of Messrs Copeland and Nicholson in general terms. We note that in NZTA's evaluative terms TGP has high strategic fit and high effectiveness. Ultimately it appears to us that how to weight TGP's economic efficiency in determining whether or not to proceed with the Project is a matter for NZTA to decide in undertaking its statutory duty of managing the road transport system. Factors relating to the present inadequacies of the coastal route and the provision of a secure alternative route appear to us to be of substantial weight in any such consideration.

Forest Removal

[247] Approximately 10ha of existing pine forest will be removed to enable construction activities. Ms Grant noted that forest removal in the Wellington region typically requires construction of access tracks, skid sites, and stream crossings. Effects during forestry removal can include sediment discharge, vegetative matter in streams, forestry trucks fording streams and/or culverts. She suggested that a condition was required to produce a Forest Harvest Plan to manage the potential effects from forestry operations and removing logs from the sites. She considered that approval of the management plan by the Regional Council was appropriate.

[248] Mr Edwards⁷² supported Ms Grant's proposed condition for inclusion of a Forest Harvest Plan because it will ensure that forest removal is managed and carried out using best management practices.

[249] A condition to this effect will be imposed if consent is granted, as proposed by NZTA in E.27.

Rail Infrastructure

[250] Mr Vannisselroy gave evidence for RTS. He outlined various improvements which could be made to rail service delivery on the Kapiti line. These could reduce factors adversely affecting service and potentially counteract induced traffic effects of TGP. He identified existing structural and service limitations

⁷² Rebuttal evidence, para 13.

and how they could be remedied to create a rail system which would attract more users.

[251] Mr Kelly considered that rail could not realistically meet the needs of many movements including freight. He said that each mode of transport had an important role to play and that improvements to the rail network would not replace the need for upgrades of the road network.

[252] Mr Nicholson⁷³ referred to the Western Corridor Transportation Study undertaken by the Regional Council and NZTA in 2004 and the subsequent adoption of the Western Corridor Plan in 2006. The Western Corridor Plan sought an improved road and rail corridor with investment in both. TGP was the preferred roading component.

[253] Improvements to the rail system and services have been undertaken, although there was no challenge to Mr Vannisselroy's evidence that there could be further improvements. Mr Vannisselroy did not suggest that rail could replace the need for a more reliable road corridor notwithstanding RTS's apparent preference for modes of transport other than by private car. The evidence which we heard was that with the rail improvements and TGP in place there was predicted to be an increase in real numbers using rail.

[254] None of the evidence which we heard led us to the view that operation of TGP would have an adverse effect on rail services or that rail could replace the need to upgrade the road transport system identified in the Western Corridor Plan.

Treatment of the Existing State Highway (Coastal Route)

[255] Much of the discussion regarding the coastal route, centred around the form and function of the coastal route following opening of TGP. We consider that there are two aspects of that issue which warrant consideration.

[256] The first is the treatment of sections of the coastal route which have ceased to be state highway and which are to be vested in the adjoining local authority. We have discussed that matter in the Legal Issues section of this report and take it no further here.

[257] The second aspect is what treatment may be required on the coastal route following the opening of TGP, irrespective of whether or not state highway status is revoked. There will be an intervening period of (possibly) two years or so between opening of TGP and revocation of state highway status, indeed that status may ultimately not be revoked at all, although all parties anticipate that it will be.

[258] In his rebuttal evidence, Mr Nicholson accepted that the coastal route will need to be treated or modified to ensure that it operates safely with the lower traffic volumes that are anticipated on the road after the opening of TGP⁷⁴. Mr Wignall stated that as a result of TGP implementation, a range of treatment

⁷³ EiC, paras 33 - 39.

⁷⁴ Rebuttal evidence, para 31.

and management measures on the existing SH1 are required⁷⁵. Mr McCombs considered that treatment and management measures are not required because the road will be capable of carrying the lower volumes, but rather that management measures would produce a better outcome for the community⁷⁶.

[259] Ms Blake identified works that she considered need to be undertaken on the coastal route⁷⁷. In closing, Mr Conway submitted that the conditions need to include a requirement to consider and implement treatment measures before TGP opens⁷⁸. Mr MacLean⁷⁹ considered that safety measures should be implemented now and not following construction and identified the pedestrian bridge at Pukerua Bay as a particular concern.

[260] Mr Nicholson explained that treatment of the existing coastal route is not intended to comprise part of TGP. However, he accepted that maintenance issues and safety implications that may arise as a direct result of the revocation of the state highway status should be considered as part of TGP⁸⁰. We consider that principle should apply irrespective of revocation and that the effects on the coastal road of TGP (such as reduction in traffic numbers) should be appropriately assessed.

[261] During expert witness conferencing the experts agreed that a *...package of measures to address such conditions for all road users including aspects such as speed, safety, capacity, amenity, should be applied to the existing SH1 coastal route. This should be appropriately linked with the development of the project*⁸¹. At the hearing Mr McCombs stated that it is his view that it should be *appropriately linked* in terms of timing⁸². We shall return to this issue in the Conditions section of this report.

During Operation - Travel Times

[262] Mr Kelly stated that users of TGP will experience significant reductions in travel times between Linden and MacKays crossing. By 2026 weekday morning peak southbound travel times are predicted to reduce by 9.5 minutes (36%) and the weekday evening peak northbound by 18.6 minutes (52%), if TGP proceeds. Mr Kelly also said that there would be much greater travel time savings for motorists travelling between the Hutt and SH1 so that time saving benefits extended substantially beyond just commuters between Kapiti and Wellington⁸³. Additionally, motorists on these routes would be subject to less variability of journey time and experience a safer road environment.

⁷⁵ EiC, para 5.3.

⁷⁶ NoE, pg 158.

⁷⁷ NoE, pgs 1277-1279.

⁷⁸ Concluding Comments on Conditions on Behalf of Kapiti Coast District Council, 13 March 2012, pg 5.

⁷⁹ Pukerua Residents Association – Submission 0046.

⁸⁰ NoE, pgs 123, 129 and 130.

⁸¹ Expert Conferencing Joint Report to the Board of Inquiry (Second Meeting of Experts) Traffic and Transport, 19 December 2011, pg 3 para 6.

⁸² NoE, pg 156.

⁸³ NoE,pg 171.

- [263] As noted previously, Mr Kelly testified that the main alignment of TGP will carry between 18,300vpd north of Linden, and 22,300vpd south of Paekakariki. He acknowledged however, that some sections of existing roads will experience increases in traffic volumes as a result of TGP. These sections are in the vicinity of the access points to TGP, including the section of Kenepuru Drive immediately to the south of the proposed Kenepuru Link Road intersection. Mr Kelly considered that this area will be able to accommodate increased traffic volumes although users of those routes may experience increased delays⁸⁴. NZTA and PCC submitted that such issues are able to be addressed as part of their normal roading functions as and when appropriate.
- [264] Mr Kyle⁸⁵ considered that a monitoring programme would ensure appropriate action is undertaken should an adverse effect be detected. Minor and consequential effects and downstream changes to the network will undoubtedly happen as a result of TGP. These would be managed as part of normal Council roading operations and may not require any physical changes to the network.
- [265] Other areas which may experience increased traffic volumes include the area between SH1 (north) and the Hutt Valley from vehicles using SH58 between TGP and SH2. NZTA has programmed a number of safety and capacity improvements to SH58, and Mr Kelly concluded that these will be sufficient to manage the proposed increase in traffic volume⁸⁶.
- [266] We accept that operation of TGP will bring about substantial improvements in terms of journey time reduction, variability of journey time and safety compared to the existing SH1 system. Those improvements will apply to motorists using both the Wellington - Kapiti and Hutt - Kapiti routes. Consequential effects on the local roading network can be adequately dealt with by roading authorities managing the network in accordance with their normal functions.

Pedestrian/Cycle Issues

- [267] There are two different aspects of pedestrian and cycle connectivity to consider for the Board, on-road and off-road. On road relates to commuter and recreational use of local roads and the coastal route while off-road relates to recreational and mountain bike use in and around TGP using cycle trails.
- [268] On-road issues were addressed by Mr Kelly⁸⁷. He noted that the removal of vehicular traffic from the existing SH1 and SH58 will create opportunities for the provision of improved and safer walking and cycling facilities. Mr Kelly said that the safety and amenity of cycle and pedestrian movements at the tie-in points of the Project had been a key design principle⁸⁸. At MacKays Crossing, a segregated cycle path will be created between the existing SH1

⁸⁴ EiC, para 57.

⁸⁵ MPL Section 42A report, Part 2, pg 8.

⁸⁶ EiC, paras 59.

⁸⁷ Including Mana Cycle Group and RTS.

⁸⁸ EiC, para 76.

and the Queen Elizabeth Park entry, allowing the regional cycling network to be extended to and beyond this point.

[269] Mr Morgan for the Mana Cycle Group contended that creating opportunities is not the same as actually delivering a better level of service⁸⁹. He claimed that it is not clear how people riding bikes will benefit from TGP unless improvements are made to current cycling facilities and that the level of service along this route is poor for walkers as well as cyclists⁹⁰. Mr Morgan considered that the increase in daily traffic volumes on the section of Kenepuru Drive immediately south of the link road is likely to have a major negative impact on people riding bikes who have no option but to use this route⁹¹. He also testified that TGP will not contribute to increasing the modal share of cyclists. He said that the provision of additional cycle lanes on the existing SH1 route would make cycling easier, providing traffic speeds are controlled⁹².

[270] In closing, NZTA accepted that a proposed condition in relation to the joint pedestrian and cycle path under the SH58 junction should be altered to include additional consultation so that the best practicable option was used in the design.

[271] Mr Kelly noted that an off-road cycle route is already available between Paremata and Paekakariki⁹³, but Mr Morgan claimed that the level of service of this section is very low and that TGP will result in no improvement, regardless of any decline in traffic numbers along the route⁹⁴.

[272] Ms Hayes stated that *...it is important that this project be considered as part of the western corridor package of improvements which is including rail, walking, cycling, demand management projects, and also in the scheme of the regional and transport programme as a whole*⁹⁵.

[273] Ms Blake was concerned that the impacts on pedestrians in Wellington City do not appear to have been analysed and that TGP will re-route traffic through urban areas that already struggle to adequately provide for pedestrians and other transport users (SH58 and Kenepuru) or previously unaffected areas (Waitangirua and Whitby)⁹⁶.

[274] With regards to an increase in heavy vehicle movements, Mr Kelly stated that *any change in traffic volumes in theory has some potential impact on cycle movements where those share the same road space but in this corridor, there is a separate space available for cyclists for most of its length*⁹⁷.

⁸⁹ NoE, pg 1295.

⁹⁰ NoE, pg1293.

⁹¹ NoE, pg1293.

⁹² EiC, para 28.

⁹³ Rebuttal Evidence, para 70.

⁹⁴ NoE, pg 1294.

⁹⁵ NoE, pg 863.

⁹⁶ NoE, pg1279.

⁹⁷ NoE, pg 911.

- [275] Ms Thomas for Living Streets Aotearoa contended that to realise the benefits anticipated by TGP, some measures to improve pedestrian amenity on existing roads would have to be undertaken. She noted that there are currently severance issues affecting the existing coastal communities which are not addressed by the current proposals.
- [276] We do not consider that TGP of itself makes the existing unsatisfactory situation for pedestrian or cycle users of the coastal route better or worse. What TGP does is create the potential for substantial improvements to the existing situation once TGP is constructed and the roading authorities have had the opportunity to assess volumes of use and driver behaviour on the coastal route. That is the time to develop appropriate pedestrian and cycling facilities. It is not possible for us to predict what those might be or impose conditions about those matters at this time.
- [277] Off road issues relate to movements along and across the route itself associated with recreational usage, in particular use of Battle Hill Farm Forest Park and Belmont Regional Park. We analyse the evidence and submissions in that regard in the Conditions section of this report where we address these issues in conjunction with consideration of the relevant management plans.
- [278] For the record, we note that as TGP will be designated as motorway⁹⁸, there will be no cyclist or pedestrian access to the road itself. At the northern end of the route between Paekakariki and Queen Elizabeth Park, there will be a cycle path created, but this is one of only two new specific on-road cycling or walking facilities proposed as part of TGP (together with investigation of a cycleway associated with the SH58 interchange). NZTA has confirmed that no other upgrades are proposed as part of TGP and that any future upgrades to existing roads would be the subject of discussions with local authorities and community groups as part of the state highway revocation process which is discussed separately.

Local Road from Paekakariki to MacKays Crossing

- [279] KCDC sought the construction of a local link road at Paekakariki as a possible addition/alternative to on and off-ramps proposed to connect the existing SH1 to the TGP route. The current design would require vehicles travelling between Paekakariki and MacKays Crossing (in either direction) to use the TGP route for a short section of some 500m between on and off-ramps. The road proposed by KCDC would provide a connection from what is known as Sang Sue Corner to the MacKays interchange. Mr Wignall gave evidence on this proposal for KCDC. He considered that this connection was required *...for reasons of resilience, safety and local convenience, and for the development of a continuous local route through the district*⁹⁹.
- [280] Mr Wignall provided an indicative plan showing the possible route. More detailed plans were subsequently provided by Mr Edwards from NZTA¹⁰⁰. Counsel for NZTA advised that Mr Edwards' plans resulted from questions raised by the Board in relation to the practicality of the design and did not

⁹⁸ AEE, Section 1.2.1.

⁹⁹ EiC, para 3.2.

¹⁰⁰ Exhibits 12 and 13.

represent the views of NZTA. The fact that NZTA had to prepare plans for a KCDC proposal says something about the somewhat undeveloped nature of that proposal.

[281] The specific issues raised by Mr Wignall were:

- Resilience is a key principle of KCDC's Sustainable Transport Strategy and if no alternative route is provided between Paekakariki and MacKays crossing, this would be the only section without an alternative road between Wellington and Levin;
- He did not consider that the current road design adequately addressed safety issues involving a weaving section of the proposed TGP alignment;
- The continuous local route would increase accessibility to economic activity and better integrate the wider Kapiti community.

[282] Mr Nicholson commented on the local road in his rebuttal evidence¹⁰¹. He questioned why KCDC first raised this issue during our inquiry, particularly given KCDC's participation in a 2008 options assessment workshop and agreements that were made at that time which did not include any mention of an additional link road. Mr Nicholson stated that NZTA was *...happy to discuss the feasibility of a local road with KCDC during the detailed design phase of the TGP and to make available any land within the designation that is not required for the main TGP alignment or the on and off-ramps*¹⁰².

[283] Mr Edwards¹⁰³ commented that the safety issues raised by Mr Wignall had been appropriately considered and addressed. Following two independent safety audits¹⁰⁴, specific design changes were made to address auxiliary lane lengths, weaving considerations and local connections.

[284] Mr McCombs testified that the proposed local route provided little practical gain as there would be little demand for a local connection between Paekakariki and MacKays Crossing. Mr McCombs confirmed that no BCR analysis had been produced on this option but that he had considered the proposal and considered the link described by Mr Wignall was *...a convoluted way of solving a relatively simple problem*¹⁰⁵. We found it surprising that KCDC which was promoting the local road should suggest that NZTA was responsible to undertake the BCR analysis on that proposal.

[285] The Board has considered the local road in terms of the issues raised by Mr Wignall; resilience, safety and local accessibility, as well as the NZTA Project objectives.

[286] In terms of resilience, the Board notes that the NZTA objectives include providing an alternative strategic link which addresses safety and capacity issues on the existing SH1. It is clear that the proposed TGP alignment will achieve NZTA objectives. We accept that providing a parallel road in addition

¹⁰¹ Rebuttal Evidence, paras 10-26.

¹⁰² Rebuttal Evidence, para 26.

¹⁰³ Rebuttal Evidence, paras 28-39.

¹⁰⁴ Exhibits 4 and 5.

¹⁰⁵ NoE, pg 155.

to the proposed TGP alignment would further improve the resilience of the roading system in this vicinity albeit over a quite short distance. However we accept Mr McCombs' reservations about the limited value of the parallel road in this instance. In terms of the objectives for the Project, the Board considers that the NZTA proposal will achieve its stated objectives, and an additional road (be it state highway or local road) is not required in this respect.

[287] Turning to the issue of safety, NZTA has conducted two separate safety audits throughout the design process and made changes to address significant issues raised. The safety audit process did highlight the merging and weaving section between MacKays Crossing and the existing SH1. NZTA made amendments to the design in line with the recommendations. The design changes appear to address issues raised by Mr Wignall and the weight of evidence is that the design of this section of TGP is appropriate.

[288] We consider that there may be something of a *disconnect* between the NZTA aim of moving traffic on the wider strategic network and the more locally focused access and accessibility issue raised by KCDC. There are clearly some options to achieve both aims which may be achievable by discussion between the parties, as highlighted by Mr Nicholson.

[289] We find that the TGP design advanced by NZTA is a safe and efficient method of providing for local and regional traffic needs in this vicinity and we accept the adequacy of the designation in that regard. Ultimately if KCDC wants an alternative local route it is not precluded from advancing such a proposal in its own capacity as a roading authority.

Public Transport

[290] Mr McCombs stated that a net outcome for TGP is promotion of a positive shift to public transport¹⁰⁶. He acknowledged that TGP will divert some trips from rail to road, but will result in overall improvement in public transport use¹⁰⁷.

[291] Ms Hayes stated that based on the modelling undertaken by Mr Kelly there will be an increase in public transport mode share between 2006 and 2026, with or without TGP in place¹⁰⁸.

[292] At the hearing Mr Vannisselroy suggested that off-peak services may not be sustainable without considerably more growth than is indicated¹⁰⁹¹¹⁰. Mr Bodnar, on behalf of Public Transport Voice, raised a concern with the expected induced traffic¹¹¹.

[293] Mr Mellor contended that, without TGP, the peak period mode share of rail would be higher¹¹². He discussed the impact of TGP on public transport

¹⁰⁶ NoE, pg 161.

¹⁰⁷ NoE, pg 171.

¹⁰⁸ NoE, pg 863.

¹⁰⁹ NoE, pg 1192.

¹¹⁰ Table 2 of the Expert Conferencing Joint Report to the Board of Inquiry (Second Meeting of Experts) Traffic and Transport, 19 December 2011.

¹¹¹ NoE, pg 1324.

¹¹² NoE, pg 1214.

usage, using figures from Mr Kelly's¹¹³ evidence suggesting that construction of the road would result in a reduction in public transport usage. Mr Kelly's evidence identified that the existing public transport usage during the morning commuter peak period is 29% of person trips, with this figure rising to 41% in 2026 without TGP and 32% with TGP. When questioned by the Board¹¹⁴ regarding interpretation of these figures, Mr Mellor confirmed that these figures included other upgrade works identified through the Western Corridor study. He noted however that he considered TGP as a discrete project in the package of projects outlined for the Western Corridor.

- [294] We understood Mr Mellor's point to be that if the rail improvements are undertaken (as we understand they largely have) and TGP is not undertaken, then rail will have a higher level of use than it would if TGP is undertaken. However that approach overlooks the fact that rail improvements and TGP are part of an integrated Western Corridor upgrade proposal which will lead to increased rail usage above present levels. Only doing half the job as Mr Mellor suggests will result in even higher rail usage but at the expense of leaving the existing problems with the coastal route unresolved and in the face of increasing demand.

Main findings on traffic and transport effects

- [295] The evidence related to road design indicates that the design meets all current roading standards and has been through operation and safety reviews expected to be undertaken for a project of this size. There was some discussion regarding the appropriateness of the southern tie-in point at Linden, but the evidence of NZTA was that this is the most appropriate tie-in point and the Board accepts that evidence.
- [296] TGP will bring about a substantial reduction in vehicle numbers on the coastal route and will provide a resilient alternative route with capacity to accommodate projected levels of traffic. It will remedy existing problems of delay and variability of journey times. It creates the potential for significant improvements on the coastal route for vehicles, pedestrians and cyclists and resolution of community severance issues.
- [297] TGP generated construction traffic will be significant but will be mitigated to some extent by the use of internal haul roads. General construction traffic will be managed through management plans. Such plans have been used on many sizable infrastructure projects throughout the country and have proved to be a safe and efficient way of managing construction traffic.
- [298] NZTA addressed the operating conditions following completion of the Project, and established that four lanes (two in each direction) were required to provide sufficient capacity to accommodate future traffic flows. NZTA modelling showed that the Project will reduce variation in travel times and does not require TDM measures to manage traffic on or accessing TGP.
- [299] Although there was much debate in respect of the economic analysis of the project, we have accepted NZTA's evidence as to the strategic fit and

¹¹³ Traffic and Transport Conferencing, 19 January 2012, Table 2.

¹¹⁴ NoE, pg 219.

effectiveness of the route. Those factors appear to be of significant consequence in determining the efficiency of the Project.

- [300] The Regional Council proposed a condition for a Forest Harvest Plan to ensure the management of timber removal is appropriately managed. This proposal was accepted by NZTA.
- [301] Various improvements to rail infrastructure were identified that could encourage increased rail usage. The Board is supportive of these goals, but identified no link to the effects of TGP which required the imposition of conditions on these applications.
- [302] We find that there should be a process in place to verify the safety of the coastal route after opening of TGP and we will address that matter in the Conditions section of this report.
- [303] In terms of on road pedestrian and cycle facilities on the coastal route, the Board received conflicting evidence from NZTA and submitters and there appears to be no common ground. Our conclusion is that there is no appreciable link between the effects of TGP and the need for mitigation to include construction of additional on-road pedestrian and cycle lanes on the coastal route. Those are existing issues. Construction of TGP creates the opportunity for roading authorities to remedy them. We will deal with off-road issues in the Conditions section of this report.
- [304] In respect of the KCDC proposal to develop a local road connection between Paekakariki and MacKays Crossing, the Board understands the strategic desire of KCDC to have this link, but has concluded that the methodology used by NZTA has produced a design that is a safe and efficient method and provides for local and regional connectivity needs. As NZTA has indicated, there is an option for further discussion in relation to local connectivity issues that may result in a different ultimate design, but in terms of these designation applications, the Board finds that the design as proposed by NZTA is appropriate.

12.3 SEDIMENT

- [305] TGP is a massive earthworks project, some 27km long, involving 6.3 million cubic metres of cut and 5.8 million cubic metres of fill with 0.5 million cubic metres of surplus fill. Cut batters of up to 80m and fill depths of up to 60m are required in the hilly terrain traversed. Most of the construction occurs in the catchment draining to the Porirua Harbour (Pauatahanui Inlet and Onepoto Arm). A northern portion of the Project lies in the Te Puka catchment that drains to the west coast. The management of the production and the control of sediment from the construction activities and the effects of sediment released to the streams and in particular to the Pauatahanui Inlet is a particularly important issue arising out of TGP, if not the most important.
- [306] Extensive analysis was undertaken by the Applicants of the sediment production process, of the control of the sediment on site, of the transport of sediment in the streams and of the fate of the sediment reaching the Porirua Harbour. Associated with this work, evaluation was required of the hydrology

(rainfall, stream flow, sediment transport) expected during the six year project. Also modelling of the currents and settlement patterns in the Pauatahanui Inlet and Onepoto Arm needed assessment. This work was provided by the Applicants in the technical reports that formed part of the AEE prepared for the applications.

[307] The Director-General challenged the results of this work. It was the opinion of this submitter that the quantity of sediment that would be produced and released into the environment would be much greater than had been estimated and that the risk of even larger volumes entering Porirua Harbour than the Applicants had calculated was very significant. Consequential effects in the Pauatahanui Inlet would be drastic and unacceptable.

[308] The Director General considered the production of sediment from the earthworks to be seriously under-estimated by the Applicant, the effectiveness of control measures to be over stated, the effects of storms to be under-estimated and the sediment deposition in the Pauatahanui Inlet to be overwhelming.

[309] So, in respect of the effects of sediment discharges, the issues before us were:

- What is the background sediment runoff from the catchment;
- How much sediment is likely to be generated by the earthworks;
- What is the likely storm pattern during the construction period;
- How effective are the available sediment capture and control methods;
- What is the fate and effect of the sediment reaching the Pauatahanui Inlet and the Onepoto Arm;
- What is the probability of more severe outcomes; and
- What monitoring, corrective actions and conditions ought to be required.

[310] Over the following paragraphs we will work our way through these issues drawing on the evidence presented to us and the reports we commissioned under the provisions of section 42A RMA.

Baseline sediment yields

[311] Ms Malcolm was called by the Applicants to give us evidence on the baseline sediment yield from the catchments affected by the project and the additional production of sediment from the construction site during the earthworks activity. She also provided estimates of the sediment generation from storm events during construction. Besides confirming her evidence she advised that she was the co-author and lead reviewer of TR15.

[312] The baseline average annual sediment loss for each of the catchments affected (expressed as Kg/hectare/year) was calculated using the Universal Soil Loss Equation (USLE). This formula included factors related to rainfall, soil erodibility, ground slope, ground cover and ground surface roughness. By

altering the factors, changes in land use can be assessed. The formula does not include sediment arising from gully erosion, mass movement or stream bank erosion and it applies to plot scale areas¹¹⁵.

- [313] Another estimate of sediment yield from the catchments is provided by a formula developed by NIWA. It is referred to as the Suspended Sediment Yield Estimator (SSYE) and has been calibrated against a large NZ data set, but it cannot be used to assess changes in landuse.
- [314] So Ms Malcolm compared the results for the two approaches and in order to achieve equality between the two methods of estimating the average annual baseline sediment yield at the receiving environment (i.e. in the harbour) she applied a correction of 0.17 to the results of the USLE formula. She styled this factor as the Sediment Delivery Ratio (SDR) and said *...For the baseline scenario, this SDR simplification is acceptable, because the interest is in sediment yield from all sources, to provide the context for the additional sediment that will be generated from the road construction*¹¹⁶.
- [315] Results from this exercise were recorded in TR15 at Table 15.19. The estimated baseline annual sediment yields from the eight catchments range from 793 tonnes from the Ration catchment to 5889 tonnes from the Pauatahanui catchment. These results represent a sediment yield of between 65 and 197 tonnes per square kilometre (or g/m²). (Note there seems to be an error in the heading of the fourth column of the table where it refers to tonnes per km instead of per sq km.) Table 15.19 is reproduced in part below.

<u>Catchment</u>	<u>Annual Sediment Yield (tonnes)</u>
Duck	1144
Horokiri	5296
Kenepuru	826
Pauatahanui	5889
Porirua	3970
Ration	793
Te Puka/Wainui	1520
Whareroa	2022

- [316] Ms Malcolm developed sediment rating curves for estimating the sediment generation of storm events. Observed data were used to define the sediment rating curves for the Horokiri and Pauatahanui catchments. Synthesised stream flow data and sediment generation estimates from the scaled USLE methodology were used to define the sediment rating curves in the other catchments. The rating curves together with particular storm flows were then used to estimate the sediment discharges during storm events.

¹¹⁵ EiC, para 22.

¹¹⁶ EiC, para 110.

- [317] Historic rates of sedimentation in the Onepoto Arm 1974 – 2009 have been 5.7mm per year or 13,500 – 14,000 cubic metres per year. In the Pauatahanui Inlet, over the same period, sediment deposition has been 9.1mm per year or 42,000 – 43,000 cubic metres per year.
- [318] Harbour sedimentation rates from the predicted baseline sediment yields of the catchments over a 20 year period are given as 2.5mm per year (5900 cubic metres per year) in the Onepoto Arm and in the Pauatahanui Inlet 3.4mm per year (15,500 cubic metres per year). These results are just 44% and 37% respectively of the measured sedimentation.
- [319] Ms Malcolm considered that sedimentation in the harbour during 1974 – 2009 will have been higher than natural because of the extensive subdivision developments of Whitby, Papakowhai and Browns Bay. There will also have been a contribution of sand from the marine area. She considered, after allowing for the catchment developments, that the harbour sedimentation comparison confirmed the reality of the baseline sediment yields from the catchments.
- [320] Ms Malcolm described a further method to check the accuracy of the sediment yields from the eight catchments. A long term simulated flow record was generated from measured flow records and combined with the sediment rating curves to estimate the long term discharge of sediment to the harbour. The result compared favourably with measured harbour sedimentation.
- [321] Dr Basher gave evidence for the Director General about the estimation of baseline sediment generation from the catchments and on the project sediment generation. Dr Basher is well versed and highly experienced in soil erosion research and consultancy.
- [322] With reference to estimating the baseline sediment yield from the catchments Dr Basher considered the use of the USLE analysis to be inappropriate because it does not adequately include catchment wide processes that affect the actual yield of sediment from the catchment. He preferred the SSYE approach for catchment wide baseline estimates of sediment generation. Ms Malcolm agreed because, using an SDR of 0.17, she scaled her baseline sediment yield estimates from the USLE approach so that they matched the SSYE results.
- [323] Dr Basher also told us that other systems of analysis for catchment sediment yield estimation were available and could give more accurate results than USLE or SSYE methods. He mentioned GLEAMS (Groundwater Loading Effects of Agricultural Management Systems) and WEPP (Water Erosion Prediction Project) but acknowledged that significantly more detailed information would be required to apply these other analysis systems than was available at this time for the TGP.
- [324] Ms Malcolm's work was peer reviewed by Dr Fisher. Dr Fisher accepted that scaling the baseline sediment yield results from the USLE analytical process so that they match the results from the SSYE approach is a satisfactory way of estimating baseline sediment yields from the catchments to the harbour. He

noted that the GLEAMS methodology is a better model but it requires more detailed information than is available for this project at this time.

- [325] The Board considered the effects of the discharge of sediment from the construction and its comparison with the baseline discharge of sediment were key matters and that these were complex subjects. Like Dr Basher we found the explanations difficult to follow so we instructed Dr Hicks to provide us with a *Peer Review of Sediment Generation and Yield Aspects*. This he provided in January 2012.
- [326] With respect to the baseline estimate of sediment yields from the catchments Dr Hicks considered that calibrating the USLE results with the SSYE estimate effectively means the later method is relied upon. He retained the view that *...there remains an approximately factor-of-two uncertainty on the baseline mean annual sediment yields*. If the baseline estimates are low and the project generated sediment discharges are higher than the estimates the signature of the project on the downstream environment will be higher¹¹⁷.
- [327] To reduce the uncertainty of the baseline sediment discharge to the harbour Dr Hicks recommended that stream flow and sediment discharge be monitored for two years prior to commencing construction.
- [328] Finally on this subject, we refer to the several expert caucusing reports provided to us. The experts were generous in meeting seven times, including four times during February 2012 and once with the planners, to discuss their opinions and their differences and we are grateful for the resulting advice we were given.
- [329] The experts agreed that the SSYE is the best model for providing the baseline sediment estimates and appeared to agree with the scaling of the USLE results to match the SSYE results¹¹⁸.

Main findings on baseline sediment yields

- [330] We know that estimates are just that. They often have wide uncertainty ranges especially when dealing with the sediment discharge of streams. They have to be viewed as a guide as to the magnitude of the sediment discharge, not an absolute value. No doubt more monitoring might reduce the uncertainty, that is obvious, but here we are charged with evaluating whether or not sufficient is known about the subject to make an informed and reasoned decision. Taking into account the evidence and the assistance the experts gave us through caucusing, we are satisfied that the baseline sediment yields from the catchments have been estimated satisfactorily for the purpose and are appropriately recorded in Table 15.19 of TR15 (reproduced in part in para [315] above).

Sediment production from earthworks

- [331] Ms Malcolm provided us with estimates of the quantity of sediment likely to be produced by the earthworks including an allowance for the Transpower works

¹¹⁷ Hicks Updated Statement 20 February 2012.

¹¹⁸ Expert conferencing Joint Report to the BOI of 7 & 8 December 2011, paras 10 and 11.

required to relocate the transmission line. She used the USLE analysis method to estimate the sediment generated by the earthworks including the scaling down by the SDR of 0.17. The analysis is also undertaken for discrete rainfall events as they are the triggers for erosion and the discharge of sediment.

- [332] Estimates of the effect of construction sediment on streams were made for the peak year of construction in each catchment. In respect of the harbour some 37.5ha of open earthworks were assumed in the Pauatahanui Inlet catchment and 17.5ha of open earthworks in the Onepoto Arm catchment. The areas of active earthworks in each of the catchments is given in Table 15.2 of TR15 and reproduced below:

Catchment	Active length (km)	Active area (ha)
Whareroa	0.6	4.5
Te Puka	2	15
Horokiri	2.8	21
Ration	3.2	24
Collins	0.4	3
Pauatahanui	1.8	13.5
Duck	1.8	13.5
Kenepuru	1.1	8.25
Porirua	1.8	13.5

- [333] To undertake a comparison of the total suspended sediment in the streams without TGP and with TGP, Ms Malcolm chose four discrete rainfall events to analyse; the $\frac{1}{3}$ of the two-year Annual Return Interval (ARI), the two-year ARI and the 10-year and 50-year ARI rainfalls. She said *...these storms were chosen because they reflect a range of events from small events that are almost certain to occur during the construction programme through to a large event that could occur but is unlikely.*¹¹⁹

- [334] The range of increases in total suspended sediment (TSS) in the streams are given by Ms Malcolm¹²⁰ as 2% in the Pauatahanui and Porirua and 75% in the Collins for the $\frac{1}{3}$ of the two-year ARI rainfall. For the 50-year ARI rainfall, the increases in TSS range from 4% in the Porirua to 158% in the Collins. She concluded that effects on the streams are likely to be limited to up to a 1mm of deposition on the stream bed, although there could be up to 8mm deposition on the Whareroa stream bed in a 50-year ARI rainfall.

- [335] Turning now to the discharge of sediment to the harbour, Ms Malcolm assessed there would be an additional 200 tonnes of sediment (a 5%

¹¹⁹ EIC, para 50.

¹²⁰ EIC, para 51.

increase) discharged to the harbour in a two-year ARI rainfall from TGP. In a 10-year ARI rainfall the increase would be 271 – 645 tonnes (4 – 9%)¹²¹.

[336] Following a similar approach, Table 15.23 in TR15 recorded the sediment loads being discharged from each of the streams to the harbour with TGP and without TGP for the three rainfall events, two-year ARI, 10-year ARI and 50-year ARI. These figures show that sediment discharged to the Pauatahanui Inlet from TGP, is 160 tonnes (5.7% of total sediment discharge) in a two-year ARI rainfall, 818 tonnes (5.6%) in a 10-year ARI rainfall and 3656 tonnes (11.1%) in a 50-year ARI rainfall.

[337] Table 25 of TR15 recorded the estimated additional sediment load into the harbour for the six-year construction period as follows (catchments with zero values removed).

<u>Catchment</u>	<u>Additional Sediment Load (tonnes)</u>
Collins	23
Duck	762
Horokiri	1717
Kenepuru	167
Pauatahanui	241
Porirua	84
Ration	30

[338] The total is 3024 tonnes of sediment discharged to the harbour during the construction period which is 4.6% of the baseline sediment discharge during the 6 year period.

[339] Dr Basher considered that the Applicants have underestimated the likely sediment yield from construction activities. He had several reasons for this view.

[340] While he accepted the use of the USLE methodology for estimating sediment yields from discrete construction sites he considered the SDR should be 0.5 for slopes up to 10 deg and 0.7 for slopes over 10 deg instead of the 0.17 used by Ms Malcolm. That is a three to four fold increase in the estimate.

[341] He was concerned that not all sources of construction sediment had been included in the assessment. In particular, he mentioned haul roads, extensive culverting and works associated with bridging and transmission tower relocation.

[342] He also considered that adopting an efficiency of 75% removal for the sediment control practices and 70% for sediment ponds up to the 10-year ARI was optimistic.

¹²¹ EIC, paras 59 and 60.

- [343] At several places he referred to a difficulty in understanding some of the analytical processes used by Ms Malcolm (e.g. derivation, adjustment and use of the rating curve approach to storm event sediment loads)¹²².
- [344] He also raised the uncertainty inherent in the sediment production estimates and said that compared to other major roading projects he considered the level of detail of design for this project is much less, adding to the uncertainty in the estimates. No assessment of the uncertainty was given.
- [345] The criticisms of the sediment production estimates from construction given in Ms Malcolm's evidence and in TR15 caused Ms Malcolm to readdress the process and apply the USLE analysis in a more detailed fashion. She analysed sediment production at 10m intervals along the alignment and included earthworks for the stream diversions, haul roads and other works.
- [346] This work was provided as a report from SKM titled USLE REVISED ANALYSIS Revision A of 20 January 2012 and was attached to the Expert Conferencing Report – Earthworks & Sediment Control Conferencing dated 20 January 2011 (presumably should have been 2012). The relevant experts, Dr Basher, Dr Hicks, Dr Fisher and Ms Malcolm agreed that the revised estimate provided a better estimation and a reduced uncertainty in modified USLE parameters.
- [347] The report of the revised analysis is quite abbreviated and in places not entirely clear. Ms Malcolm, in a statement of rebuttal evidence, gave us further explanations which clarified some of the matters.
- [348] The revised USLE analysis began by revising the area of earthworks in each catchment. Some were reduced and some increased but overall the total area was reduced by 5.7ha or 5.4%. Then account was taken of the different soil types encountered along the route with the erosivity factor being governed by the areas of rock and colluvial material expected. Realistic length and slope factors were set based on the cross sections and long sections of the road and associated works. Soil surfaces were assumed to be bare earth except in the Ration catchment where earthworks are to take just nine months so some of the time the soil will be grassed. Rough irregular surfaces were assumed for the active earthworks. Then a major change to the sediment delivery ratio was adopted. Instead of the factor being 0.17 it was made 0.5 and 0.7 depending on the slope and proximity to a stream.
- [349] Results were presented in a series of tables that are not fully self explanatory. For example the revised USLE analysis for the Kenepuru catchment from Table 14 labelled *Revised results kg/ha/yr* is reproduced below.

Catchment		Road	Fill Sites	Stream Works
Kenepuru	Area	12.1	2.2	0.1
	Untreated kg/ha	68035	22756	11225
	Treated kg/ha	7266	6827	7858

¹²² EiC, paras 52e, 53, 55c, 55d and 56.

- [350] The revised area in the Kenepuru catchment given in Table 1 is 17.0ha, not 12.1 or a total of 14.4ha as per Table 14. The gross production of sediment is 102,016 kg/ha, but the table is labelled kg/ha/yr, so one must assume that is the annual average from the USLE methodology. It is not clear what area the results relate to so the total contribution cannot be ascertained. The next row refers to a *treated* result. The treatment is not specified but is assumed to include onsite erosion prevention techniques and sediment retention devices. It produces a reduction of 79%. How the discharge of sediment after treatment compares with the earlier estimate of sediment discharge during construction from the Kenepuru catchment of 167 tonnes is unclear.
- [351] And so the table goes on for the other catchments together with the uncertainties.
- [352] In Table 17 the 24 hour storm sediment yields from each catchment without TGP and then with TGP and the revised sediment yield are given. Then in Table 18 the revised increases in storm sediment yields from construction are given but presumably after treatment. They show that in total the revision has reduced the estimates by 25 – 27%, although in the Kenepuru catchment the revised result is some 50% greater than first estimated, mainly due to the inclusion of the surplus fill areas.
- [353] Ms Malcolm concluded that *...the revised analysis has confirmed that the estimates calculated using the USLE scaled to the SSYE for the assessment of effects, provides a similar estimate to the detailed USLE calculations.* (USLE Revised Analysis 20 Jan 2012 para 5). In her rebuttal evidence¹²³ Ms Malcolm compared the initial estimates of sediment yields with the revised estimates and noted *...how conservative the initial assumptions were.*
- [354] Dr Hicks considered that the sediment yields from the project-affected slopes depend on the assigned USLE coefficients and the assumed efficiencies of erosion control and sediment trapping measures. He accepted that the revised USLE analysis was a more detailed and improved assessment of the sediment expected to be generated off the project-affected slopes. He emphasised that a key factor will be that the planned erosion and sediment control measures perform as assumed.
- [355] He said the Project requires conservative erosion and sediment control measures and careful monitoring of construction practice and sediment delivery into key streams. He retained a reservation that the estimates of storm event sediment discharges might be too low. A conservative approach would be to double them.

Main findings about the likely discharge of sediment from construction

- [356] Obviously the total amount of sediment discharged from the Project will depend on the pattern of rainfall experienced during the construction period when earthworks are open or unstable and will also depend on the area of open or unstable earthworks. To estimate the total requires consideration of the construction programme and area of open earthworks with the probability of various rainfall ARIs and the sediment yields for each of the rainfall events

¹²³ Para 16.

during the project work period. This does not seem to have been done for a six-year construction programme but Table 25 in TR15 records the results from a 20-year simulation. The total additional sediment contributed to the harbour from construction is estimated to be 3024 tonnes. The natural sediment load to the harbour over the 20-year period is given as 244,678 tonnes or 12,234 tonnes per year. That would be 73,403 tonnes during a six-year period and the additional contribution from construction would be 4.1%.

- [357] We are acutely aware of the difficulties in deriving estimates of sediment runoff from major earthwork construction. It is an inexact science with significant uncertainties. The consequences in this case on the Pauatahanui Inlet could be significant if major exceedences from estimated levels of sediment discharge occur. Construction practices designed to minimise the production of sediment laden runoff together with the capture and treatment of the runoff are the best means to prevent unacceptable offsite environmental effects.
- [358] We have also taken into account the reducing effect on the baseline sediment generation of retirement and planting of some 534ha (initial estimate - now 625ha proposed) of land in the TGP catchments. Table 15.26 of TR15 shows a reduction of 457 tonnes of sediment generation per year. This is an ongoing and permanent improvement. Once the planting has matured sufficiently to have full effect it will take 6.6 years to offset the additional sediment discharge from TGP. Thereafter the baseline sediment generation is permanently reduced by 3.7%.
- [359] The significant benefit from the Project's offset planting alleviates uncertainty about the ultimate level of additional sediment to the harbour. If it turns out to be twice as much, as suggested by Dr Hicks, then full offsetting of the effects of increased sediment volumes would still occur but it would take 13 years.
- [360] Both Dr Basher and Dr Hicks expressed difficulty in understanding and following the sediment generation analysis. We did too. We were not helped by the sometimes incomplete description of processes, unclear assumptions, poorly defined nomenclature and confusing comparisons. The USLE methodology was incompletely explained in the evidence to which we were referred and appeared to us to be just a series of coefficients with arbitrary values and no units and which was said to produce the annual average sediment yield in tonnes/ha/yr. The investigation and design of cuts, fills, roading, culverts, bridges etc use well defined terms, assumptions and analyses. It would be helpful for erosion control experts to apply the same kind of engineering rigour to their analysis and reporting.
- [361] The saving grace for us is that the experts through conferencing have been able to advise that there remain no serious matters of disagreement on the overall quantities of sediment likely to be produced by TGP. Differences remain over the estimates of sediment from storm events. In general, the experts say the key to avoiding the discharge of excessive amounts of sediment lies in careful on-site management to minimise the generation of sediment, limiting the extent of active earthworks in each catchment,

stabilising areas before storm events, the capture of runoff containing sediment and the efficient removal of the sediment before discharge.

[362] We are satisfied that on the information available the additional sediment likely to be discharged to the harbour during construction has been reasonably estimated to be about 3024 tonnes and is of the order of 4 – 5% of the baseline sediment discharge without TGP construction. This conclusion relies on the assumptions related to:

- The areas of open earthworks at any particular time;
- The adoption of best practice for limiting the generation of sediment runoff;
- Stabilising active earthwork areas before storm events;
- Capturing and treating all sediment laden runoff from active earthwork areas so that 70% of the sediment is retained; (although Ms Malcolm¹²⁴ referred to 75%)
- Monitoring the actual discharge of sediment and adjusting practices to ensure sediment discharges from construction do not exceed the estimates given in the AEE;
- Planting and retirement is undertaken of at least 534ha of catchment.

[363] We are also satisfied that long term there will be a net improvement in the baseline sediment discharge brought about by the project.

[364] Conditions are required to ensure the validity of the assumptions.

Storms during the construction period

[365] Construction is estimated to take six years. During that time some heavy rainfall events can be expected. As noted above, storms considered by the Applicants when analysing likely sediment discharges were $\frac{1}{3}$ of the two-year ARI, the two-year ARI, the 10-year ARI and the 50-year ARI.

[366] Dr Sim advised us about the probabilities of these events happening during the construction period of six years. She told us that there is a 95% probability that at least one rain event with a rainfall at the ARI two-year level or greater will occur over a six-year period. She also advised that there is a 45% probability that at least one rain event with rainfall at the ARI 10-year level or greater will occur over a six-year period. These are as recorded in Table 15.35 of TR 15.

[367] Rarer events such as the 50-year ARI and 100-year ARI rainfalls have relevant lower probabilities of 11% and 6% respectively.

[368] Dr Hicks raised the likelihood that rarer events might cause greater sediment discharges to the harbour, and while this is inherently true, Ms Malcolm referred to Dr De Luca's opinion that baseline sediment discharges are

¹²⁴ EiC, para 45.

proportionately higher and so the effects of the construction sediment are less than those estimated for the 10-year ARI.

[369] Ms Malcolm also revised the estimated sediment discharges from the various catchments for the two-year ARI and 10-year ARI storms. As recorded in paragraph [352] the revised estimates are 25 – 27% less than those given in TR15 except for the Kenepuru catchment which had increased by about 51%.

[370] The experts in their report of 13 February 2012¹²⁵ agreed that climate change impact on erosion processes within the construction timeframe is likely to be within the inherent variability of the existing climate.

[371] Dr Hicks retained a reservation that the revised estimation of sediment discharges from storm events might be too low. Ms Malcolm advised that the environmental effects in the harbour remain based on the earlier higher estimates. She also described further sensitivity analyses assuming 30% more sediment during storms and reported only small changes in the distribution of the sediment in the harbour.

Main findings on the treatment of storms

[372] We are satisfied that the range of storms, their probabilities and their effect on the discharge of sediment from construction have been adequately assessed. Uncertainties in the assessments do not lead us to doubt the overall estimates of sediment generation from the project.

Sediment capture and control

[373] The ecological assessment of effects assumed that effective erosion and sediment controls are established and maintained during construction. Mr Gough presented evidence for the Applicants concerning the control of sediment during construction. He said the steps involved were to minimise erosion and control and retain sediment within the work site.

[374] He described erosion and sediment control measures as including; minimising disturbed surfaces and bare soils, stabilising soil surfaces and steep slopes, installing clean water perimeter controls, collecting internal surface water for treatment and treatment facilities to retain sediment. Details are to be included in site specific erosion control plans. He said that the erosion and sediment control (ESC) design for the project is at the concept stage with only enough detail to determine whether the ESC measures could be applied.

[375] Mr Gough referred to a target erosion control performance rate of 75% as recorded in paragraph 9.6.1 of TR15. He said *...this performance rate can be achieved by restricting the area of earthworks and unstabilised areas along the extent of the alignment to no more than 25% of the total area*¹²⁶. With a construction footprint of 270ha the maximum area of active earthworks would then be 67.5ha. Later he amended this requirement to reflect Ms Malcolm's preference to restrict non-stabilised earthworks to particular lengths of road corridor within specific catchments.

¹²⁵ Para 8.

¹²⁶ EIC, para 45.

- [376] Separately he referred to sediment control measures that are designed to capture sediment that is not retained by the erosion control measures. Devices include ponds, earth decanting bunds and proprietary devices such as shipping containers or tanks. He assessed the average long term pond efficiency rate as 70% sediment removal. Table 15.16 in TR15 gave the sediment removal efficiencies of sediment ponds adopted for the project as 70% for the two-year and 10-year ARI storm events and 40% for the 50-year ARI storm event.
- [377] Mr Gough then referred to conditions needed to achieve these requirements and to monitoring.
- [378] Mr Handyside presented evidence for the Director General. He raised issues about the lack of detail in the ESC measures proposed, the efficiencies to be achieved in the sediment ponds and other sediment control devices, the use of the USLE method for estimating sediment generation from earthworks and the additional contribution of sediment from the stream diversions, culvert construction and surplus fill sites.
- [379] Mr Handyside was particularly critical of the draft site specific erosion management plan (SSEMP) for works in the Te Puka stream. He said the plan *...would not comply with a number of the proposed conditions, does not comply with the GW guideline and that the proposed control measures do not, in my view, represent best practice and the SSEMP does not demonstrate that effective erosion and sediment control can be achieved*¹²⁷.
- [380] In respect to the use of the USLE method of estimating sediment yield Mr Handyside described an example of its use in the Duck Creek catchment. From his analysis he concluded that the actual discharge of sediment to the Porirua Harbour could be twice the Project's assessed sediment yield. He also showed how effective limiting the area of open earthworks can be in reducing the discharge of sediment.
- [381] Mr Handyside agreed with the proposed erosion and sediment control philosophy, practice measures, chemical treatment of all ponds and decanting earth bunds, and that the stricter of either the Regional Council or the NZTA guidelines be followed. He considered that the draft SSEMPs proposed need more detail and that the efficiency of overall treatment might be over-estimated.
- [382] Mr Handyside also provided detailed comment on the proposed conditions. Development of the conditions began with a draft set provided by the Applicants and were modified as the case progressed and expert conferencing continued.
- [383] Mr Gough responded by providing further details of SSEMPs for the Te Puka Stream works and for the Duck Creek bridge works. He considered these details showed how effective sediment control would be implemented. Notwithstanding Mr Handyside's reservations, he remained confident that once detailed SSEMPs were designed and agreed by the Regional Council the required 70% removal of sediment would be achieved. He agreed with a

¹²⁷ EIC, para 43.

suggestion by Ms Grant for the Regional Council that levels triggering a review of sediment removal performance be set at 75% removal or a 5% drop in performance.

[384] As for the estimates of sediment yield from the earthworks, the Board was concerned to get further expert advice on the provision of erosion and sediment control. The Board engaged Mr McLean from SouthernSkies Environmental Ltd.

[385] Mr McLean concluded that the management of the effects of sediment discharges proposed for TGP is industry best practice. He considered that the SSEMPs still lack sufficient detail but expected that to be remedied when submitted to the Regional Council for acceptance. Limiting the area of active earthworks and effective stabilisation are the two most effective means for controlling the generation of sediment. He took part in the expert conferencing and has contributed to the development of appropriate conditions. He supported monitoring of stream water quality before and during the construction and restricting further the discharge of sediment if that proves necessary.

Main findings on sediment capture and control

[386] The detailed provisions proposed to control sediment generation and to control the discharge of sediment during construction have not been yet determined so the key matter for us is to ensure definite and measurable results are stipulated for these works. The uncertainty in estimates of the discharges of sediment from the Project reinforce the need to require strict, enforceable and predictable treatment standards for sediment laden runoff.

[387] An approach that was obvious to us after reading the evidence before the hearing was to have a requirement that the sediment laden runoff from all, or up to 95%, of the Project earthworks area ought to be captured for treatment in a compliant sediment retention device. Physical reasons might prevent runoff from some small areas not being fully captured so an allowance of up to 5% was permitted provided each case was accepted by the Regional Council.

[388] In our view a requirement of this nature provided certainty that the sediment laden runoff would be treated adequately to ensure the assumptions made in assessing the environmental effects of the sediment discharged were achieved. It also has the benefit of encouraging on site erosion prevention measures to minimise the generation of sediment runoff and effective perimeter drainage to keep clean water from being contaminated.

[389] The Board conveyed this to the parties at the beginning of the hearing for their consideration.

[390] In the end the Applicants proposed some amendments to the conditions that gave partial recognition to the suggestion, but the explicit requirement we suggested was missing. Under a heading *Erosion and Sediment Control objectives, standards and design criteria* a suggested condition attached to the earthworks and discharge consents labelled E.7(f) requires ...*Treat all sediment laden discharges from the site arising from the works using erosion*

and sediment control measures implemented in general accordance with the ESCP and any relevant SSEMP.

[391] We consider this condition to be close to meeting our concerns but not quite precise enough. We want all sediment laden runoff from the site arising from the works to be treated in a compliant sediment retention device.

[392] A compliant sediment retention device is defined as *...A device which has a volume of 3% of the contributing catchment, 3 to 1 length to width ratio, floating decants and a rainfall initiated chemical treatment system and meets the design criteria specified in the ESCP, and otherwise meets the design criteria specified in NZTA's Draft Erosion and Sediment Control Standard for Highway Infrastructure and Draft Field Guide for Contractors or the GWRC Erosion and sediment Control Guidelines for the Wellington Region whichever is the more stringent.*

[393] Condition E.7(f) should therefore read *...Treat all sediment laden runoff from the site arising from the works using a compliant sediment retention device together with any other erosion and sediment control measures implemented in general accordance with the ESCP and any relevant SSEMP.*

[394] We realise that in some locations it may be impractical to use a compliant sediment retention device. In these locations other methods of sediment retention may be used but only with specific acceptance by the Regional Council and only to the extent of in total 5% of the Project earthworked area.

[395] Such a condition would read *...E.7(g)...Notwithstanding the requirements in condition E.7(f) above, other sediment retention devices may be used where it is impractical to use a compliant sediment retention device, provided the WRC accepts each proposal and the total area from which runoff emanates does not exceed 5% of the total Project earthworks area.*

[396] The Applicants have provided draft conditions covering the development and acceptance of management plans, monitoring requirements and corrective measures if required. We are satisfied that they are comprehensive and adequately address the other matters raised during the hearing.

12.4 HYDROLOGY

[397] The project traverses the catchments of the Te Puka Stream at the northern end, the Horokiri Stream south of the Wainui Saddle, the Ration Stream by the Pauatahanui Golf Course, the Pauatahanui Stream in the vicinity of Haywards Road (SH58), then Duck Creek behind the suburb of Whitby, the Kenepuru Stream behind the Porirua suburb of Waitangirua and finally the Porirua Stream. At its northernmost end there will be some tie in works within the Whareroa Stream catchment. Some works are also located in the bottom of the Wainui Stream where it joins the Te Puka Stream.

[398] Mr Martell provided us with a statement of evidence covering the hydrological aspects of these streams on behalf of the Applicants. He was the senior advisor, contributing author and reviewer of TR14, Hydrology and Stormwater Effects.

- [399] Each stream affected by TGP has been evaluated carrying a 10-year ARI event (Q10), a 100-year ARI event (Q100) and a 100-year ARI event increased to account for a climate change (Q100cc). The evaluation was made without TGP and with TGP. Flood effects of the Project arise mostly from alterations to natural or existing drainage, encroachment of embankments into flood plain storage and additional runoff from the impervious surface of the new road. Some fine tuning of the culverts, bridges and alignments have been made to avoid or minimise flooding effects.
- [400] Design of the culverts and bridges is conceptual at this stage of the Project so it is important to record the basis for their detailed design. Relevant standards were given by Mr Martell¹²⁸ so conditions of consent need to reflect these. In particular, culverts are to be sized to convey the critical duration 10% annual exceedence probability rainfall storm event without heading up above the culvert soffit. The road surface level should be at least 500mm above design stormwater levels for a 1% exceedence probability event.
- [401] We now record the more important flooding effects from the new road at sites where the effects have required a more detailed consideration.
- [402] At Pauatahanui the new road crosses the Pauatahanui Stream and SH58, the Paremata/Haywards Highway. There is to be an interchange here with the new road on an embankment passing over the roundabout interchange below. There is to be a bridge over the stream and two bridges over the lower interchange roundabout legs.
- [403] This area is already flood prone even in the Q10 event. Two existing bridges form additional constrictions on the flood flows and in a Q100 there is flooding over residential properties and an electrical substation.
- [404] The solution proposed to deal with increased flooding caused by the new road embankment is to provide a maximum single span 28m bridge across the Pauatahanui Stream and to keep the new roundabout road level low enough to act as a secondary flow path in extreme flood events when up to 500mm water depth would occur over the roundabout road. Some additional flooding would occur upstream and downstream of the new bridge including the low lying land at the back of four residential properties in Joseph Banks Drive. If the rare and not severe additional flooding of those sections needs avoiding, a bund or other solution is possible. Downstream of the interchange some improvement in flood levels is achieved for the substation and neighbouring residential properties.
- [405] Bridges 4, 6 & 8, numerous culverts and lengths of stream realignment are involved in the new road's alignment down the Horokiri Stream. In the steeper upper reaches stream flood flows are confined but in the lower reaches, where the land alongside is flatter, flood water escapes the channel and in a Q10 threatens four buildings and in a Q100 threatens seven buildings. An existing box culvert at Paekakariki Hill road is a constriction and a Q100 would overflow the road.

¹²⁸ EIC, para 21, footnote 5.

- [406] Bridges 4 and 8 do not cause significant effects on flood flows and Bridge 6 will cause some localised upstream ponding in the channel and on pasture with a slight reduction in ponding downstream.
- [407] Several stream diversions are required and these have been designed to replicate the low flow channel and its floodplain. They will not cause any significant increase in flooding and will have velocities and channel characteristics similar to the natural channels.
- [408] The section of new road, between the existing SH1 in the north and the top of Wainui Saddle, crosses the Wainui Stream on twin box culverts of 3m x 2.5m and a 900mm culvert and the Te Puka stream on a bridge. Existing conditions, with culverts under both the SH1 and the North Island Main Trunk (NIMT), produce flooding between the highway and the NIMT and below the NIMT for both the Q10 and the Q100. The highway and the NIMT would be flooded.
- [409] Proposed culverts, bridging and stream realignments do not aggravate the existing situation. Some slight ponding in the Q100 above the proposed twin box culvert provides a small improvement for the existing floodable area.
- [410] Duck Creek drains to the Pauatahanui Inlet and rises through the suburb of Whitby and into the Belmont Regional Park. The new road runs parallel from the James Cook interchange to almost Cannons Creek. Numerous culverts and two bridges cross tributaries of Duck Creek with a further bridge where the new road crosses Duck Creek itself.
- [411] Additional impervious surface is added to the Duck Creek catchment by the new road and this will cause a 2% increase in peak flows. The increase in the Q100 can be offset by storing water upstream of the culvert where the Waitangirua Link Road crosses Duck Creek. About 4000 cubic metres of water would pond up to a depth of 1.8m for up to 2 hours in this rare event.
- [412] A small increase in stormwater runoff to the existing Linden stormwater system will result from the new road. The existing system becomes overloaded in Q10 year and Q100 year events. To avoid increases in flooding, ponding above the new road by limiting the size of the new culvert, PO6, is proposed.
- [413] A short length, 600m, of the Waitangirua Link Road will drain into the existing stormwater system. That system already floods to a small degree in the Q10 and throughout its length in a Q100. Upgrading of the system is required in order to reduce the current flooding and to take the small contribution from the new road.
- [414] A condition controlling works in the winter time has been proposed and Mr Martell has examined the rainfall patterns during the seasons. The number of days in each month where the rainfall has exceeded 50mm/day show a predominance in spring and autumn. However, because of other factors such as wet ground during winter and poor drying conditions, he supported Ms Grant's request for such a condition (Condition E.12(j) and (k)).

[415] He also supported a condition to initiate stabilisation on active earthworks based on a predicted rainfall of 50mm/day.

Main findings in respect to hydrological matters

[416] Mr Martell and Mr Yorke (representing KCDC) conferenced and agreed on matters affecting the Council's proposed new ground water supply bore and the avoidance of worsening flood effects on the Te Puka/Wainui floodplain. We are grateful for that assistance.

[417] We are satisfied that significant environmental effects will be avoided if the culverts and bridge waterways are designed to conform to the standards identified. Where there have been specific circumstances requiring the particular examination recorded above, the remedial steps identified are to be implemented. Conditions are to be included to ensure this.

[418] There are some timing issues inherent in the steps proposed to offset flooding effects. For example, upgrading of the Waitangirua storm water system would be required before the link road could be completed and storm water storage in Duck Creek at the culvert under the Waitangirua Link Road would be required before drainage from the motorway is provided. These timing constraints need to be resolved at time of final design.

[419] The solution to flooding at the Pauatahanui Interchange of providing the secondary flood flow path under the new road through the roundabout bridge waterways effectively retains the existing flood prone nature of the SH58. That is a surprising outcome and we would have thought the opportunity to cure the present flooding limitation on SH58 at this site would have been taken. That, however, is a matter for NZTA and we can take it no further.

[420] We consider a predicted rainfall of 50mm/day or greater is a suitable trigger for initiating stabilisation of active earthwork areas.

[421] We also agree that a condition limiting works in winter time is appropriate. We acknowledge some earthworks in rock material can benefit from more moist conditions and so the condition should not prevent earthworks in winter time, but simply require particular agreement by the Regional Council.

12.5 TERRESTRIAL ECOLOGY

[422] Under this head we consider the impact of TGP on the terrestrial flora and fauna located along and around the TGP route. Unsurprisingly, the 27km long TGP route traverses a wide range of habitats from improved pasture, plantation forestry, shrublands and scrub to native forest remnants. The route ranges from sea level to 280m in altitude and crosses a number of catchments. The route will involve disruption to many habitats of flora and fauna.

Witnesses

[423] We heard evidence from the following witnesses on issues pertaining to terrestrial ecology and effects of TGP:

- Ms Adams for the Director General;

- Dr Baber for the Director General;
- Dr Bull for the Applicants;
- Mr Fuller for the Applicants;
- Ms Myers for KCDC;
- Ms Warren for RTS.

[424] According to TR11 the ecological communities affected by the TGP route are:

- Vegetation - the majority of the route lies in a highly modified landscape. 48% is in pasture, 21% is in plantation forestry or other exotic forest and 10% in pioneer shrublands and scrub within pastures. A further 10% of the vegetation within the designation is in seral (intermediate) scrub and forest dominated by either Kanuka or Mahoe. Indigenous forest makes up less than 4% (20ha) of the plant communities potentially affected. The only plant species identified in the TGP footprint with a threatened status was a locally uncommon wetland plant, *Leptinella tenella*. The final 10% of the designation is classified as urban;
- Terrestrial fauna (lizards and invertebrates) - three species of common lizard were observed in low numbers within the proposed designation. None of these was a species of conservation concern although such species may be present but in low numbers. Other species such as *peripatus* (velvet worms) were identified;
- Avifauna - 37 species of bird were observed in and around the TGP route during the studies. Of these, five species are of conservation concern, NZ Bush Falcon, North Island Kaka, NZ Pipit Black Shag and Pied Shag (we will address the issue of coastal birds in our consideration of the marine environment);
- Bats - the TGP route does not intrude on known bat habitat but the Akatarawa Forest which borders the eastern side of the route is of sufficient size and maturity to sustain a population of native bats. No bats were identified in the vicinity of the route but an unconfirmed bat vocalisation was recorded at Wainui Saddle on the margins of the forest.

[425] The total area included in the TGP designations is about 485ha. The area of actual road footprint is approximately 170ha. TR11 identified the following effects on terrestrial ecology which would arise from construction of TGP:

- Permanent loss of about 40ha of indigenous vegetation (wetlands, shrublands and scrub, seral forest and mature or maturing forest) and habitat beneath the road footprint;
- Temporary loss or modification to a further 80ha of indigenous vegetation due to earthworks and construction activities within the wider designation;
- Potential loss of sedentary species (such as lizards) when their habitat is removed;

- Disturbance and displacement of mobile species (such as birds) by construction activity.

[426] In addition to the above construction effects, TR11 identified that operation of TGP might potentially affect sensitive bird and or bat populations.

[427] TR11 concluded that the significance of effects on vegetation and terrestrial habitat would range from very low to moderate, depending on the ecological value of affected sites and the magnitude of effects in each case. It recognised that mitigation was required for adverse effects. It contended that effects on terrestrial fauna and avifauna would be very low or low.

[428] TR11 referred to the primary avoidance measure taken in planning TGP on its current route. The change in alignment through the Te Puka Valley from the already designated eastern route to the western side of the valley means that the road alignment now avoids the fringes of the Akatarawa Forest, a 15,000ha wilderness area which borders the northern end of TGP. Additionally, it was recognised that there was the potential for avoidance of further loss of vegetation at the time of detailed design of the road itself.

[429] Other than route realignment, the principal terrestrial mitigation measure which was proposed by the Applicants was a systematic process of re-vegetation involving four broad restoration treatments. These were intended to be *like for like* and generally in the catchments where the most vegetation clearance would occur. The proposed treatments are:

- Terrestrial re-vegetation being mass planting, typically in pasture and using native pioneer species (e.g. Tauhinu, Cottonwood, Coprosma, Hebe, Kanuka, Ngaio) with some future canopy species interspersed;
- Riparian vegetation - generally the same as above but using rapid growing and strongly rooted species suited to riparian environments with some future canopy species interspersed;
- Enrichment planting - typically where there is already regeneration of open shrublands that can provide a nursery. Planting will be of future canopy species;
- Retirement - typically where natural regeneration has progressed to the point that additional planting is not required. In such cases fencing and pest control will be undertaken.

[430] Table 11.50 of TR11 contained a calculation of the extent of re-vegetation which the Applicants estimated was required to mitigate for vegetation losses brought about by TGP (we will return to that matter in our assessment). The Applicants calculated that 250ha of re-vegetation was required to mitigate the loss of 120ha of vegetation. The extent of mitigation planting initially proposed by the Applicants was 426ha which was subsequently recalculated to 534ha. By the conclusion of our hearing, that amount had been further increased and again, we will return to that matter in our assessment.

[431] NZTA has already undertaken approximately 31ha of early retirement plantings including both riparian and terrestrial vegetation over the last eight

years as part of conditions of the existing designation. Maintenance of these sites will continue and in some cases they will be expanded.

- [432] NZTA will look to avoid or to minimise effects of road construction on *peripatus* by translocation of logs and debris containing these species to safe habitats adjacent to the TGP footprint prior to vegetation clearance and construction. Effects on lizards found in some habitats along the site will be minimised by capture and translocation prior to vegetation clearance and construction.
- [433] There was extensive conferencing between the terrestrial ecology witnesses. Four witness conference statements identifying matters of agreement and disagreement between these witnesses were presented to the Board. The conference statements provided an iterative process whereby issues in dispute between the witnesses were identified, debated and (largely) resolved or narrowed. We will return to the conclusions reached in the conferencing statements in reaching our conclusion on the effects of TGP on terrestrial ecology. Before doing so we now briefly summarise the evidence of the various witnesses on these issues.
- [434] Mr Fuller was the primary witness for the Applicants on terrestrial ecology. He has been involved in the Project since 1994. In his view the alignment now proposed is a considerable improvement in terrestrial ecological terms over the existing designation. Mr Fuller set out the methodology¹²⁹ that was used in identifying the range of terrestrial vegetation, flora, fauna and their habitats along the proposed route and quantification of likely effects arising from construction and operation of TGP.
- [435] Mr Fuller stated that where it had been practicable to do so, significant adverse effects on ecosystems have been avoided through the proposed route design¹³⁰. He noted that the proposed alignment and design changes have moved almost all of the designation into a pastoral landscape with limited habitats of indigenous flora and fauna. Where adverse effects could not be avoided, mitigation or remediation is proposed. Mr Fuller explained that a conservative approach was adopted in determining the extent of effects on terrestrial vegetation. For example it was assumed that all vegetation within the designation footprint would be affected or lost, whereas that was unlikely to be the case in practice.
- [436] Mr Fuller gave evidence as to his calculation that approximately 250ha of revegetation is required in order to offset the loss of 120ha. He recognised that other more specific mitigation is proposed for potential effects on certain species, including the translocation of lizards. Mr Fuller confirmed that he was involved in the preparation of the SEMP as well as the proposed EMMP¹³¹. Mr Fuller stated that these plans will be instrumental in ensuring the proposed mitigation is achieved.
- [437] Dr Baber addressed effects on terrestrial ecology for the Director General. He considered that the effects on lizards, native bird species and other taxa may

¹²⁹ EiC, paras 34 to 70.

¹³⁰ EiC, paras 97 and 98.

¹³¹ EiC, paras 152 to 163.

have been underestimated due to inadequate surveying. Dr Baber was concerned with the use of Environmental Compensation Ratios (ECRs) in order to calculate the necessary offsetting requirements. He was concerned that this method will not achieve a no net loss in terms of biodiversity. Dr Baber recommended that a biodiversity offset model be used to calculate appropriate mitigation. That model can be applied based on the existing information that has already been obtained¹³². He also suggested that the mitigation proposed for certain species (including lizards) is inadequate and that predator control is also likely to be required¹³³.

[438] Ms Warren also considered that the Applicants' assessment of the value of habitats affected by TGP was not adequate. In particular, the significance ranking system would imply low values in degraded habitats that may in fact be extremely valuable for species such as small organisms¹³⁴. The impact of TGP on small organisms was of particular concern to Ms Warren. She described these as including non-vascular plants (mosses, liverworts, hornworts etc), fungi, insects and other invertebrates. Ms Warren provided detailed evidence about the habitat requirements of such species, their variable dispersal rates and vulnerability to fragmentation. She contended that there was inadequate investigation of small organisms by NZTA and highlighted their importance in the wider ecosystem. She expressed particular concerns about habitat loss in the Te Puka Valley.

[439] Ms Warren lodged a supplementary statement of evidence after a site inspection of the northern end of the route. She raised issues as to the conditions of wetlands and seeps and identified the presence of dense liverwort cover in what she described as *J banks* in the Te Puka and Upper Horokiri which she contended were possibly unique in the Wellington region. It was her view that these habitats were of high value and would be completely lost as a result of TGP. She commented on the value of forest remnants on the TGP route and expressed the view that if TGP proceeds, conditions are required to minimise impact on the remnants.

[440] Mr Fuller comprehensively addressed Ms Warren's comments in a supplementary statement of rebuttal evidence. He observed that the wetlands and seeps seen by Ms Warren were systems which were formed as a result of human occupation and in many instances were caused by cattle grazing. He advised that he had seen similar bank habitats to those identified by Ms Warren in a number of areas which will be avoided by TGP and contended that the relevant environmental management plan and consent conditions did seek to minimise the impact on forest remnants in the Te Puka Valley.

[441] We understood that the response that Mr Fuller had to a number of the issues raised by Ms Warren as to lack of specific knowledge about the presence or otherwise of smaller organisms, was that a habitat based approach was appropriate. We took that to mean that if the wider habitat was protected or enhanced, the species within that habitat would benefit. Mr Fuller accepted that it was appropriate for consent conditions and management plans to be

¹³² EiC, para 25.

¹³³ EiC, para 77.

¹³⁴ EiC, para 49.

more explicit regarding the manner and objectives of restoration of boulderfields, and re-vegetation of barren hill slopes. This was agreed in witness conferencing on 3 February 2012.

- [442] Ms Adams observed that TGP could potentially affect bat habitat by the removal of roost trees, and recommended that specific conditions to address potential effects on bats¹³⁵ be included in any consent. In relation to effects on lizard habitat, Ms Adams generally supported the proposed approach by NZTA, but recommended that more detail be provided in the management plans and conditions in this regard. She recommended that appropriate conditions include a translocation management plan, pest control, and monitoring to ensure any habitat relocation is effective.
- [443] Mr Fuller generally supported the conditions proposed by Ms Adams with respect to bat surveys and lizard mitigation requirements¹³⁶ and proposed additional conditions¹³⁷. We note that during the hearing it was identified that some of these matters will also be dealt with through wildlife permits which NZTA would require to undertake these activities¹³⁸.
- [444] Ms Myers' evidence for KCDC addressed the potential effects of TGP in the Te Puka catchment which is in that Council's territory. She suggested that mitigation should include protection and covenanting of any retired areas within Te Puka and Horokiri catchments and protection of other kohekohe remnants in the catchment¹³⁹. She also suggested greater mitigation for the wetlands systems in particular at MacKays Crossing and a small wetland in the upper Te Puka catchment.
- [445] Mr Fuller stated that the activity proposed for the MacKays wetland is the expansion of an existing stormwater treatment pond, created during formation of the MacKays crossing interchange, into a more comprehensive stormwater treatment wetland. He said that the design of the wetland does not extend into core raupo wetland habitat, but lay to the south in broken brushland, sedgeland and wet pasture. Mr Fuller accepted that this site was omitted from the proposed EMMP and that it should be included¹⁴⁰.
- [446] Ms Myers also suggested that mitigation for effects on terrestrial ecology should include predator control. The connection between TGP effects and the need for predator control in areas outside the TGP boundary was the subject of some debate¹⁴¹.
- [447] In his evidence in chief, Mr Fuller stated that the management of browsers is a standard requirement for the re-vegetation programme and must continue for an agreed maintenance period until the plants are established at the required density, are showing normal growth and there is realistic expectation of

¹³⁵ EiC, para 18.

¹³⁶ Rebuttal Evidence, paras 14 and 17.

¹³⁷ Condition G.15I.

¹³⁸ NoE ,pg 642.

¹³⁹ EiC.

¹⁴⁰ EiC, paras 194 & 195.

¹⁴¹ NoE, pg 750.

survival. He also recommended predator control if there is a requirement to transfer lizards until populations re-establish in their transfer site. Mr Fuller disagreed that predator control should continue in perpetuity¹⁴² as had been suggested on behalf of the Director General. He noted that in the case of those areas which are to be retired and protected by covenant there will be an ongoing obligation to manage the vegetation and protect it from browsers in any event¹⁴³. Dr Baber confirmed that pest control undertaken for a period of at least 10 years would be very beneficial as opposed to not doing any at all¹⁴⁴.

[448] Mr Fuller considered that there should be a three year maintenance period for any areas of re-vegetation, with a review to confirm its success after 10 years¹⁴⁵. Other witnesses disagreed and considered a longer maintenance period would be required.

[449] Mr Fuller responded to the criticisms in relation to the use of the ECR in determining appropriate mitigation in his rebuttal evidence. He said that this is a simple tool which has been used to determine mitigation requirements for the loss of terrestrial habitat. In his view, the extent of mitigation it has led to in this instance is comparable with other projects where other methods have been used. During cross examination he said that there was no fixed ratio that is used to determine an appropriate quantum of compensation¹⁴⁶.

[450] Mr Fuller spoke to amended calculations of mitigation which NZTA now proposed and which exceeded those originally advanced of 426ha of mitigation. Annexures 8 and 9 to Mr Fuller's rebuttal evidence of 20 January 2012 contained revised areas for retirement (Annexure 8) and the total area of mitigation if planting for purposes other than terrestrial mitigation was counted in the overall proposal (Annexure 9). The outcome was that there would be a total of 627ha of mitigation planting across the Project although not all of this was for terrestrial ecology purposes.

[451] Mr Fuller contended that the combined total of some 627ha of land retirement and re-vegetation significantly exceeds the 250ha that he had determined was appropriate to mitigate the effects of TGP on terrestrial ecology¹⁴⁷ (We note that proposed conditions seek to secure an area of at least 620ha). Dr Baber confirmed that this was generally appropriate also¹⁴⁸. We note however that Ms Warren expressed concern at the hearing that the mitigation proposed is not sufficient to prevent the risk of loss of highly valued species.

[452] Much of the debate between the witnesses revolved around the issue of whether or not the mitigation proposal achieved a *no net loss* outcome in terms of ecology or biodiversity values and we will address that directly. The differences between the terms *ecology* and *biodiversity* was also debated by

¹⁴² NoE, pg 597.

¹⁴³ NoE, pg 637

¹⁴⁴ NoE, pg 1089

¹⁴⁵ NoE, pg 623

¹⁴⁶ NoE, pgs 603, 611.

¹⁴⁷ Rebuttal Evidence, paras 156 and 157.

¹⁴⁸ NoE, pgs 1104 and 1114.

NZTA and the Director-General's witnesses in particular, although the debate was of little assistance to the Board. It was generally agreed that both re-vegetation efforts and ongoing pest management would be required, at least for a certain period post re-vegetation.

Main findings on effects of TGP on terrestrial ecology

[453] The conclusions which we have reached regarding the effects of TGP on terrestrial ecology are greatly assisted by agreements reached by the witnesses in their conferences. We will briefly summarise what we consider are the significant or determinative conclusions on this issue.

[454] Our starting point for these considerations is the first agreement reached by the witnesses in these terms¹⁴⁹:

NO NET LOSS

6. *The group agrees that in designing the ecological mitigation package the aim should be no net loss of biodiversity and preferably a net gain (and the Biodiversity Offsetting principles underlying this).*

[455] The no net loss principle has been identified and described in the Business and Biodiversity Offsets Programme (BBOP) which is an international collaboration between a range of governmental agencies, private companies and institutions and other organisations. The principle of no net loss enunciated by BBOP has been recognised in the draft New Zealand Policy Statement on Biodiversity.

[456] The BBOP describes the principle in these terms:

The concept of no net biodiversity loss lies at the heart of biodiversity offsetting. No net loss, in essence, refers to the point where biodiversity gains from targeted conservation activities match the losses of biodiversity due to the impacts of a specific development project, so that there is no net reduction overall in the type, amount and condition (or quality) of biodiversity over space and time. A net gain means that biodiversity gains exceed a specific set of losses.

[457] The BBOP contains 10 principles relating to biodiversity offsets. Principle 1 is as follows:

Principle 1: No Net Loss:

A biodiversity offset should be designed and implemented to achieve in situ, measurable conservation outcomes that can reasonably be expected to result in no net loss and preferably a net gain of biodiversity.

[458] The Board (previously constituted) discussed the concept of offsetting in its Plan Change decision of 5 October 2011¹⁵⁰. We do not propose to revisit that discussion in this decision except to note that we did not understand any party to these proceedings to challenge the proposition that the extensive package

¹⁴⁹ Witness Conference Statement 16 December 2011.

¹⁵⁰ CF para 3.1 (above).

of offsetting measures proposed by the Applicants in these proceedings constituted mitigation of the effects of TGP (as opposed to some other form of environmental compensation).

[459] We appreciate that a key element of the concept of no net loss is a detailed assessment of the ecological environment and the effects which a project might have on it, accompanied by a principled assessment quantifying the value of biodiversity offsets and the extent of gains which are required to offset losses in biodiversity. Much of the debate between the witnesses and the parties revolved around these matters and the issue of calculation of an ECR. Table 11.50 of TR11 contained the ECRs used by Mr Fuller to calculate that 250ha of re-vegetation was required to mitigate for the loss of up to 120ha of vegetation. This figure was calculated having regard to the following ratios of mitigation planting provided for habitat lost:

- In the case of shrublands presently in pasture dominated by tauhinu – 1 for 1;
- Kanuka scrub and low forest – 2 for 1;
- Wetlands, regenerating native forest and mature native forest – 3 for 1.

[460] It was not apparent to us why these particular compensation ratios were promoted and it appeared that there may have been a certain *rule of thumb* element to their selection. Ultimately we do not consider that is of any great moment in our decision, even appreciating the need for there to be a principled approach to the quantification of biodiversity offsets. It is not necessary for us to specify appropriate offset mitigation ratios in reaching our decision. There are three reasons for that.

[461] Firstly, none of the witnesses identified any universally accepted ratio for the calculation of mitigation for vegetation loss. It seems to us that such a matter will always be open for debate and that ultimately the adequacy of mitigation proposed (whether biodiversity mitigation or otherwise) is always a matter which is subject to debate and determination by a consent authority.

[462] Secondly, while we recognise the desirability of achieving a situation of no net loss of biodiversity from a project, we do not believe that it is a requirement of RMA that no net loss be achieved in any given case. The principle of sustainable management requires a broad consideration of a range of sometimes competing factors. A consent authority is entitled to conclude that consent ought be granted to a proposal notwithstanding that all adverse effects of the proposal have not been avoided, remedied or mitigated. In other words there may be a net loss of some values or aspects of the environment. The significance of that loss and its *weighting* against the benefits of any given proposal is a matter to be determined by a consent authority applying s5(2) RMA.

[463] Thirdly and most significantly, there was a certain academic ring about the debate in this regard. By the conclusion of our hearing it appeared to be generally accepted by all of the relevant witnesses, that the mitigation package proposed by the Applicants was an adequate response to the effects on terrestrial ecology generated by TGP. There were some remaining areas

of disagreement and we will address those shortly. Ms Warren remained unconvinced that the mitigation proposals would result in no net loss for all species groups but agreed that *...the revised conditions developed by the caucusing group will address the concerns that have been raised, to the extent that current knowledge and management techniques allow*¹⁵¹.

[464] Ironically, the greatest objection in principle to the mitigation package was that of Dr Baber who somewhat doggedly adhered to the view that it went considerably further than what was required having regard to appropriate mitigation ratios. He considered that this might ultimately lead to the Applicants seeking to vary the conditions of any consents or designations at a later date to reduce the amount of mitigation planting. That view was highly speculative but even if it proved to be the case, such an application would be dealt with by public process and its success would be far from assured. Any application to reduce the extent of mitigatory planting would need to be assessed not only in the light of ecological/biodiversity issues but also the soil conservation benefits of the planting which feature just as significantly in our considerations.

[465] We now briefly document the further relevant areas of agreement reached by the witnesses on terrestrial ecology as contained in the witness conference statements:

- The Te Puka Stream and upper Horokiri Stream to either side of Wainui Saddle is an *ecological hotspot* for the Project due to the concentration of terrestrial values¹⁵²;
- A number of threatened species are known to be present on this site and others are likely to be present¹⁵³;
- The methodology used by the Applicants in carrying out their ecological assessment was consistent with best practice¹⁵⁴;
- With certain limited exceptions, the revised conditions of consent agreed by the witnesses *...provide greater confidence that the management during construction and mitigation for effects following construction can and will be carried out in such a way that effects that can be minimised are, and agreed mitigation is achieved*¹⁵⁵;
- The area of disagreement between Mr Fuller and Ms Warren regarding poorly known species groups is not resolvable with current knowledge¹⁵⁶;
- The conditions now proposed address the values of J banks and wetlands identified by Ms Warren as far as is possible with current knowledge and methodologies¹⁵⁷.

¹⁵¹ Witness conference joint statement 2 March 2012, para 7.

¹⁵² Witness conference statement 16 December 2011, para 7.

¹⁵³ Witness conference statement 16 December 2011, para 8.

¹⁵⁴ Witness conference statement 16 December 2011, para 8.

¹⁵⁵ Witness conference statement 2 March 2012, para 11.

¹⁵⁶ Witness conference statement 2 March 2012, para 11 (Fuller and Warren only).

¹⁵⁷ Witness conference statement 2 March 2012, para 11 (Fuller and Warren only).

[466] Although not specifically referred to in the conferencing statements we again refer to our clear understanding from the evidence of all of the ecological witnesses that if TGP is to proceed, the route chosen is the best practicable route in terms of its impact on terrestrial ecology.

[467] The remaining matters of disagreement between the terrestrial ecology witnesses related to either the necessity for or form of conditions to be imposed regarding:

- Land acquired by NZTA for the purposes of TGP but outside designation boundaries;
- Animal pest control measures;
- Appropriate maintenance periods;
- Proposed Condition NZTA.47.

We briefly express our view on those issues which will be reflected in final conditions.

[468] The witnesses for the Director General, KCDC and RTS noted that the Applicants are likely to acquire land under Public Works Act powers which will not actually be required for the designations. If the land contained areas of indigenous vegetation or habitat with high ecological value, they sought that it should be *...legally protected, with management implemented to protect ecological values*¹⁵⁸.

[469] Mr Fuller opposed the imposition of such a condition. We agree with his objection. This appeared to us to be an example of parties seeking to get as much as they possibly could out of NZTA irrespective of whether or not the conditions proposed sought to address adverse effects arising from TGP. The witnesses had agreed as to the adequacy of the mitigation planting already proposed by the Applicants.

[470] All of the witnesses agreed that control of animal pests within the mitigation areas was necessary to ensure the success of mitigation plantings and the (possible) transfer of species from the TGP route into other areas. We agree with Dr Baber's observations that it is necessary to employ a *multi-species approach* to pest control at the mitigation sites and we did not understand the Applicants to dispute that. However, to the extent which some of the witnesses sought to expand NZTA's obligations to pest (such as possum) control in areas such as the Akatarawa Forest outside of the TGP route, we consider that again to be an example of parties trying to extract as much as possible from NZTA irrespective of any relationship with effects.

[471] The Environmental Management Plan proposed by NZTA recommended that mitigation plantings be maintained and monitored for a period of three years after establishment, followed by a review of success and recommendations for any additional work. There would be a further review and enrichment planting after 10 years. Mr Fuller supported that approach. The other witnesses

¹⁵⁸ Witness conference statement 2 March 2012, para 14.

sought a five-year maintenance period followed by a 10-year review. They contended that this would provide greater assurance that the intended effect of mitigation would be achieved.

[472] We concur with Mr Fuller's view. His timeframes were based on his experience at early retirement sites already established by NZTA and we believe represent reasonable timeframes.

[473] The witnesses agreed on a condition (Condition 47) providing for the setting aside and protection of mitigation areas. The difference between them was whether or not that should have to occur within five years of the granting of the designation (the position of the witnesses other than Mr Fuller) or no less than two years prior to the commencement of construction (Mr Fuller's position)

[474] Again we agree with the position of Mr Fuller as we have difficulty in linking the other witnesses' position with the mitigation of effects from TGP. The other witnesses' proposal seems to be an attempt to secure immediate reductions in sediment generation to streams through retirement and removal of stock even though those are part of the existing environment and not generated by TGP.

[475] Having regard to all of the above, we are of the view that the effects of TGP on terrestrial ecology can and will be adequately avoided, remedied or mitigated by the Applicants' proposals. We have included reference to avoidance of adverse effects because that has been achieved by the change of route for the previously designated eastern route to the now proposed western alignment. Otherwise the mitigation package proposed by the Applicants achieves a substantial degree of remedy and mitigation of the acknowledged adverse effects of works on terrestrial ecology.

[476] Other than the issue of detail of conditions discussed above no party advanced through evidence, submission or representation any other methods of remedy or mitigation of adverse effects on terrestrial ecology apart from declining the applications altogether. Only RTS sought that outcome which is inconsistent with the acknowledgements made by all other parties as to the adequacy of the TGP compensation package. It appeared to us that the position of RTS was largely driven by ideology and we reject that position.

12.6 FRESHWATER ECOLOGY

[477] Under this head we consider the impact of TGP on freshwater habitats and species. The TGP route passes through at least eight catchments and intersects with a number of streams and their tributaries. These streams and tributaries provide a habitat for a range of fish and aquatic invertebrates. TGP will involve alteration to or destruction of many of these habitats.

[478] We heard evidence from the following witnesses¹⁵⁹ on issues pertaining to freshwater ecology and the effects of TGP on that ecology:

¹⁵⁹ Also relevant to the issue of freshwater ecology was the evidence of those witnesses addressing hydrology, erosion and sediment control, water quality and terrestrial ecology (particularly enhancement planting, riparian vegetation etc). We also note that in some respects

- Dr Joy for KCDC;
- Dr Keesing for NZTA and PCC;
- Dr Ogilvie for the Director General.

[479] In this section of the decision we will concentrate on the streams affected by TGP rather than wider watersheds and catchments which we have addressed in the hydrology section of the decision. Those streams are:

- Te Puka Stream, which is the northern most stream affected by TGP. It has a catchment area of 372ha and runs for over 3km from above the Wainui Saddle to the Wainui Stream, which continues through the Queen Elizabeth Park Reserve to the coast;
- Horokiri Stream has a catchment area of 3380ha and drains from north to south for a distance of about 12.9km. It has a number of reaches and branches and drains into the Pauatahanui Inlet;
- Ration Stream has a catchment area of approximately 613ha and is 4.8km long. It discharges into Pauatahanui Inlet;
- Pauatahanui Stream has a catchment area of about 4200ha and has a number of tributaries and catchments. Its main stem is about 9.6km long. It discharges into the Pauatahanui Inlet;
- Duck Creek has a catchment of approximately 1000ha and drains from east to west for a distance of about 7.2km. It discharges into Pauatahanui Inlet;
- Porirua Stream is traversed by TGP at the southern end of the road alignment. It has a catchment of about 4100ha. TGP traverses the headwaters of an unnamed tributary of this stream. Porirua Stream width is typically 1 - 1.5m across with small flows. It discharges into Onepoto Inlet.
- Cannons Creek/Kenepuru Stream have a total catchment area of around 1300ha. Cannons Creek is about 3.6km in length until the point it joins Kenepuru Stream. Kenepuru Stream enters the Onepoto Inlet of Porirua Harbour.

[480] We have not referred to Wainui Stream in the above list. Wainui Stream is situated at the very northern end of the TGP route which will be bridged above the stream and will not affect it to any great extent. The Wainui and Te Puka Streams join in the vicinity of TGP and both discharge into the Kapiti Coast at the northern end of the route. However, Wainui Stream is relevant to our discussion of mitigation and we will return to it in that context.

[481] Seventeen species of fish were identified in the streams which we have described. Four of those species were tidal and only found in the lowest reaches of the streams. A number of the species are at risk species.

Ms Warren's evidence touched on matters relevant to freshwater ecology but we have discussed those concerns under the heading of terrestrial ecology.

Additionally, 81 different aquatic invertebrate taxa were sampled in the streams.

[482] The AEE¹⁶⁰ summarised freshwater ecology values in these terms:

The Duck, Horokiri and Te Puka systems provide valuable aquatic fauna and physical habitat, although it is noted that they appear to be deteriorating in the lower reaches, particularly due to current land use practices. In particular, the Horokiri Stream supports a number of threatened native fish and a small wetland area. Nationally threatened native fish (including tuna (longfin eel), red fin bully, inanga, kokopu and occasionally the rare kakahi (freshwater mussel)) have also been found in the Horokiri Stream catchment.

Despite their modifications, the lower reaches of the Ration, Cannon Creek (a tributary of the Kenepuru Stream) and Pauatahanui Stream catchments are also considered to be of moderate value as they still retain important fauna species. The Kenepuru and Porirua Stream systems are of lower value, although they still support an array of values, notably components of macro-invertebrate fauna.

[483] The Applicants undertook extensive surveying of the streams in preparation of the applications. We understood that the freshwater ecological witnesses for the other parties agreed that the surveying was appropriate and comprehensive. We do not propose to describe the ecological values of the streams in any detail. Table 22.3 of the AEE provided an overall summary of those values. We accept that many stretches of the streams have high fisheries and habitat values. For the sake of completeness we note that Appendix 2B of the Freshwater Plan identifies the Horokiri, Ration and Pauatahanui Streams as being water bodies which are to be managed for aquatic ecosystem purposes.

[484] The Applicants identified that TGP would cause habitat degradation and loss as a result of works in the streams. Culverts would be installed, there would be increases in sedimentation and permanent diversions. Some culverts would be temporary and would be removed in due course. These works would result in:

- Loss of stream length;
- Changes to flow regimes;
- Loss of riparian vegetation which can influence water temperature and quality of spawning habitats;
- Impediments to fish passage.

[485] The Applicants estimated that the total length of the streams in the various catchments was somewhere in the order of 30100m (30.1km). Of that total length, 10418m (10.4km) would be lost, modified, diverted or otherwise adversely affected by TGP. The Applicants acknowledged that adverse

¹⁶⁰ Para 6.8, pg 115.

effects on the streams could not be avoided or remedied completely although they had endeavoured to minimise these effects to the greatest extent practicable in their route alignment. To the extent that adverse effects cannot be avoided or remedied, the Applicants sought to mitigate them to the greatest extent possible.

[486] The Applicants designed their mitigation proposals on the basis that there would be no net loss of the life supporting capacity of freshwater habitat across the wider project area as a result of TGP. In some catchments there would be a net loss in stream length but that would be offset by habitat gains in other catchments. Dr Keesing considered that overall there would be a net gain in the quality of freshwater habitat as a result of TGP. He developed the mitigation package using a model known as the Stream Ecological Valuation method (SEV). Using this method, Dr Keesing calculated that the loss and/or modification of 10.4km of existing streams required the restoration and protection of approximately 26.5km of stream to mitigate the loss of habitat value. Additionally, about 6km of ephemeral streams would also be disrupted by TGP but would be replaced by about 17km of similar ephemeral habitat.

[487] The principal restoration and protection measure proposed was the retirement of pasture and the planting of native vegetation in riparian areas. Dr Keesing advised that the total planting proposed by the Applicants to compensate for both terrestrial and fresh water habitat loss would restore and protect approximately 30km of streams, 3.5km more than the 26.5km which he had calculated as necessary to offset the adverse effects of freshwater habitat loss. This additional 3.5km was what led him to the view that there would be a net gain in habitat terms and an improvement in freshwater habitat brought about by TGP. (We note that in rebuttal evidence Dr Keesing amended the 30 km figure to 27km).

[488] In addition to restoration and planting, the Applicants proposed a programme of stream realignment and reconstruction together with the provision of fish passage in various streams where native fish were known to be present. That will be provided by using techniques such as modified culverts (incorporating features such as wooden blocks or baffles), lowering perched culverts, the use of oversized culverts with depressed inverts and fish ladders. The possible effectiveness of these measures was the topic of considerable debate between the witnesses.

[489] Dr Keesing assessed the ecological effects of TGP on freshwater values and described the measures proposed to manage or address those effects in his evidence. He described the effects which stream diversions and modifications will have¹⁶¹ and summarised the extent of habitat loss and the significance of that loss. He was of the opinion that although there will be some values lost as a result of TGP, none of the water bodies affected are of sufficient quality, composition or sensitivity to require total avoidance of adverse effects¹⁶².

[490] Dr Keesing considered that mitigation can be utilised to effectively manage any adverse effects of TGP on freshwater ecological values. He noted that

¹⁶¹ EiC, para 98.

¹⁶² EiC, para 19.

effects of sediment discharges into the streams would need to be well managed in accordance with the methods set out in Mr Gough's evidence. He expressed the view that construction related sediment discharges can be managed to such an extent that adverse effects of sedimentation would be small with no long term impacts¹⁶³.

[491] Dr Keesing contended that the loss of various sections of stream can be mitigated by rehabilitating other sections of streams affected by TGP using SEV to calculate the required extent of rehabilitated mitigation¹⁶⁴. He contended that the SEV approach would ensure the sufficiency of mitigation of adverse aquatic effects because it requires the mitigation to be a water body (i.e. like for like) and by default to be at least 1.5 times the linear length of the stream affected. He acknowledged that SEV does not address some characteristics of the fauna affected (e.g. threatened status), but said that he developed the mitigation package with those values also in mind. Dr Keesing accepted that the AEE did not include appropriate monitoring provisions to ensure that the mitigation is successful and his evidence addressed this¹⁶⁵.

[492] In this regard, Dr Keesing advocated an adaptive management approach for the mitigation package. He said that adaptive management would require detailed monitoring of mitigation outcomes which would in turn feed back into the design and ongoing management of mitigation measures. The adaptive management process would include an assessment of baseline surveys, monitoring through construction and for two years after construction. The monitoring would consist of water quality indicators, aquatic benthic macro-invertebrate community composition, sediment deposition and assessment of culvert installation and fish passage. Table 28.2 of the AEE summarised TGP effects with proposed mitigation and management measures. Dr Keesing stated that this table, together with the proposed EMMP, provided the basis for the monitoring of ecological effects¹⁶⁶.

[493] Dr Keesing discussed the monitoring required to ensure the effectiveness of stream enhancements and provisions for fish passage. He identified the essential parameters of the proposed aquatic mitigation monitoring programme¹⁶⁷.

[494] Mr Kyle agreed¹⁶⁸ that monitoring is a critical component of any successful adaptive management regime and noted the necessity for monitoring obligations to be reflected in conditions and also for contingency measures to be identified in conditions of consent.

[495] Dr Ogilvie considered that the SEV model is not a sufficient tool to score the biodiversity values of streams nor to quantify compensation for lost biodiversity values and that the use of SEV could result in an undervaluation

¹⁶³ EiC, para 154.

¹⁶⁴ EiC, para 138.

¹⁶⁵ EiC, para 25.

¹⁶⁶ EiC, paras 162.

¹⁶⁷ EiC, para 166.

¹⁶⁸ Mitchell Partnerships s42A Report, Part 2, pg 18

of the biodiversity values affected by TGP¹⁶⁹. He suggested that there are better, proven tools to determine appropriate offsetting measures, including Habitat/Hectares based models¹⁷⁰.

[496] Dr Ogilvie identified that TGP includes more than 100 culverts, at lengths of up to 265m. He said that there is no certainty that affected fish will be able to pass through the longer culverts as currently designed and recommended that these culverts have baffles installed. He considered that cascade structures will potentially impede fish passage if they are not appropriately designed.

[497] Notwithstanding Dr Ogilvie's concerns about SEV, Dr Keesing confirmed his opinion that the use of SEV in this case is appropriate and the resulting mitigation that is proposed is cautious¹⁷¹. Ultimately, Dr Keesing and Dr Ogilvie agreed that the mitigation proposed is appropriate¹⁷² even though SEV is not the method which Dr Ogilvie would have used to calculate mitigation. Dr Ogilvie recommended that a biodiversity offset model would be useful in assessing actual success of mitigation proposals¹⁷³.

[498] Dr Joy addressed potential effects of TGP on the freshwater ecology of Te Puka Stream which presently runs along the western side of the valley in the road footprint. The Applicants' proposal is to divert 2.35km of the stream to the eastern side of the valley through artificial channels and culverts. Dr Joy considered that the proposed diversion and culverts would have *devastating* effects on stream ecology¹⁷⁴ and that it is not possible to mitigate these effects through diversion or culverts. He was of the view that works elsewhere were necessary to mitigate adverse effects on Te Puka Stream and suggested that this mitigation should take place in the nearby Wainui or Whareroa Streams¹⁷⁵.

[499] In his rebuttal evidence, Dr Keesing agreed that the formation of the diversion system for the main stem of the Te Puka Stream will be a significant challenge. However, he did not share Dr Joy's concerns that the diversion will fail to the extent that a reasonable level of mitigation will not be achieved¹⁷⁶. He accepted, however, that until success has been measured following construction, the adequacy of the alternative habitat provided by the diversion will not be known. Dr Keesing agreed that monitoring was necessary to determine the success of the diversion and that offsite mitigation might be required if it was unsuccessful.

[500] Dr Keesing noted that part of the additional mitigation sought by Dr Joy was removal of a perched culvert in the Wainui Stream at the point where the stream presently goes under the existing SH1 near McKays Crossing. A perched culvert is one with its outlet elevated above the downstream water

¹⁶⁹ EiC, para 16.

¹⁷⁰ EiC, para 69.

¹⁷¹ Rebuttal Evidence, para 44.

¹⁷² NoE, pg 535.

¹⁷³ NoE, pg 1047

¹⁷⁴ EiC, para 3.4.

¹⁷⁵ EiC, paras 5.5 and 7.4.

¹⁷⁶ Rebuttal Evidence, para 12.

surface so that water falls from the culvert into the water below. This requires fish seeking to migrate up stream to leap into the culvert from the downstream pool. The perched culvert on the Wainui Stream is such a height above the downstream water that fish cannot successfully make this leap and the culvert acts as a barrier for the movement of fish from downstream reaches to the upstream reaches. Dr Keesing confirmed that NZTA has decided to offer to correct the perched culvert as an additional mitigation measure¹⁷⁷. This will open up an additional 11km of the upper Wainui system to native fish.

Main findings regarding effects of TGP on Freshwater Ecology

[501] Again, the conclusions which we have reached regarding the effects of TGP on freshwater ecology are greatly assisted by agreements reached by the witnesses in their conferences. The witnesses provided the Board with five statements identifying areas of agreement and disagreement (not all three witnesses took part in all conferences). At the end of that process there was a high degree of agreement between the witnesses as to the matters that were relevant for our considerations.

[502] As a starting point, we note that neither Dr Ogilvie nor Dr Joy suggested that there was any other possible route for TGP which they considered preferable to the proposed route, in terms of its impact on freshwater ecology. We also note that both Dr Ogilvie and Dr Joy agreed that there had been sufficient data collection and proper methods and analysis undertaken by the Applicants to allow the assessment of values of freshwater ecology on the route and the effects of TGP on those values¹⁷⁸:

- Dr Keesing and Dr Ogilvie agreed that ecological values in the streams concerned are not so high as to require total avoidance of adverse effects¹⁷⁹;
- Dr Keesing and Dr Ogilvie agreed that in general the Applicants' proposals constituted sufficient mitigation for adverse effects¹⁸⁰;
- All three witnesses recognised the experimental nature of a number of the proposed mitigation measures. They agreed that given uncertainties as to the likely success of these mitigation measures there was an ongoing need for the collection of ecological data and further input as TGP developed and the success or otherwise of mitigation measures was ascertained¹⁸¹;
- The witnesses recommended the establishment of a Te Puka freshwater ecological panel to determine what was required to measure and achieve

¹⁷⁷ Rebuttal Evidence, para 20

¹⁷⁸ Para 9 of undated witness conference statement Keesing - Joy and Para 10 witness conference statement of 16 December 2011, Keesing - Ogilvie.

¹⁷⁹ Witness conference statement of 16 December 2011, para 12 Keesing - Ogilvie.

¹⁸⁰ Witness conference statement of 31 January 2012, para 9 Keesing - Ogilvie.

¹⁸¹ Witness conference statement of 9 February 2012, para 13 (all witnesses).

stream re-creation success and fish passage¹⁸². They identified the structure and functions of such a panel¹⁸³.

[503] We have previously noted that the Applicants' proposals for mitigation of effects on freshwater ecology were based on a philosophy of no net loss of ecological value. We refer to our comments on no net loss in the preceding section of this report. Again, we recognise that while no net loss of biodiversity is a highly desirable ecological outcome it is not an absolute requirement of sustainable management. That said, we consider that there was substantial merit in Dr Keesing's contention that the mitigation package proposed actually achieves no net loss and possibly a net gain in freshwater ecological terms. That was his opinion before NZTA agreed to remedy the perched culvert on the Wainui Stream, thereby opening up a further 11km of stream for migration of species from downstream. Clearly that matter should also be taken into account in assessing the adequacy of mitigation. This work appears to us to be a mitigation feature of some consequence although we do not know how the value of that should be measured in a scientific sense. Dr Ogilvie agreed that application of an adaptive management regime with post consent monitoring, assessment and (if necessary) adjustment would ensure adequate mitigation of effects on biodiversity of freshwater habitats¹⁸⁴.

[504] Again, consistent with our approach to the issue of calculation of ECRs for terrestrial ecology, we do not propose to step into the debate between Dr Keesing and Dr Ogilvie regarding use of the SEV method against other methods of assessing mitigation such as Habitat/Hectares. There are two reasons for that:

- Firstly, it appears to us that no matter how mitigation measures are assessed, the Applicants have offered a comprehensive, measureable and adequate mitigation package. Other than Dr Joy's suggestion regarding mitigation at the Wainui Stream (which NZTA has accepted) neither Dr Ogilvie nor Dr Joy suggested a more comprehensive package.
- Secondly, there again appeared to be a certain academic quality about the arguments in that regard, in light of the general acceptance by Drs Ogilvie and Joy as to the adequacy of the mitigation package. Dr Ogilvie clearly recognised that when he commented that it did not assist the Board to *squabble* about those issues¹⁸⁵. We concur with that statement but at the same time acknowledge the desirability of mitigation being assessed on a methodical basis. We did not understand there to be any one commonly agreed method.

[505] Dr Ogilvie was requested by the Board to identify what he regarded as the remaining major points of disagreement between Dr Keesing and himself. The only remaining issues appeared to relate to the definition of ephemeral streams and whether or not fish passage ought be required on all culverts in the TGP footprint. We understood the witnesses to ultimately agree on those

¹⁸² Witness conference statement of 9 February 2012, para 12 (all witnesses).

¹⁸³ Witness conference statement of 9 February 2012, Annexure A (all witnesses).

¹⁸⁴ Witness conference statement 16 December 2011, para 29.

¹⁸⁵ NoE, pg 1046.

matters, subject to a pre-construction fish survey being carried out and establishment of the ecological peer review panel to which we have previously referred¹⁸⁶.

[506] Having regard to all of the above matters, we conclude that the acknowledged and substantial effects of TGP on freshwater ecology are appropriately avoided, remedied or mitigated by the proposed mitigation package. That was the agreed position of the three witnesses on this topic. In reaching that conclusion, we have had regard to not only the direct mitigation proposals advanced by Dr Keesing but also to benefits that would flow from other sediment and soil control measures and terrestrial vegetation mitigation which of themselves will substantially contribute to mitigation of effects on freshwater ecology.

[507] Drs Keesing, Ogilvie and Joy largely agreed as to appropriate conditions to be imposed in the event that consent to TGP was granted. In particular they agreed that there should be an ecological peer review panel established as detailed in Annexure A of the witness statement of 29 February 2012. Mr Kyle agreed with that proposition. Ms Rickard for NZTA and Ms Grant for the Regional Council opposed such a condition, as did the Applicants, notwithstanding Dr Keesing's agreement with the other ecological witnesses.

[508] We concur with the views of those who consider that the peer review panel is unnecessary in this regard. Ms Grant considered that the Regional Council would have expertise available to it to consider issues which might arise from monitoring of the mitigation techniques. We agree with her view that the peer review panel adds an unnecessary layer to management of mitigation. The mitigation offered by the Applicants in this case is very extensive, even recognising the extent of effects on Te Puka Stream. We do not see review of mitigation measures in this respect as being anywhere near comparable in importance to review of stormwater and sediment mitigation measures which are fundamental to the outcome of TGP and where we agree it is appropriate to have a review panel.

12.7 MARINE ECOLOGY

[509] Although the TGP route itself does not intrude into the coastal environment, works involved with the Project will have a direct and ascertainable effect on the coastal marine area during construction of the road. That is because sediment generated by construction earthworks which enters into the freshwater stream system will ultimately be discharged into the coastal marine area at Porirua Harbour or Paekakariki Beach. Accordingly the effects of TGP on marine ecology are a significant issue for consideration in these proceedings.

Witnesses

[510] We heard direct evidence from the following witnesses on issues pertaining to marine ecology:

- Dr De Luca for the Applicant parties;

¹⁸⁶ Witness conference statement 29 February 2012, paras 6 and 7.

- Mr Fuller for the Applicants (as to coastal birds);
- Dr Bull for the Applicants (as to coastal birds);
- Mr Roberts for the Applicants;
- Ms Kettles for the Director General;
- Dr Baber for the Director General (as to coastal birds).

[511] Additionally, the evidence of witnesses regarding earthworks, sedimentation and terrestrial ecology all have a direct relevance to the issue of marine ecology as they address issues relating to the generation of sediment, its control, its discharge into freshwater streams and thence to the coastal marine area and its ultimate remedy by the process of terrestrial re-vegetation and retirement which we have described in previous sections of this decision.

Porirua Harbour

[512] The issue of particular significance relating to marine ecology is the effect of discharges of sediment into Porirua Harbour. We have noted that two of the streams intersected by TGP (Wainui and Te Puka) discharge at Paekakariki Beach. This is a high energy marine environment where sediment would be readily dispersed. None of the evidence which we heard raised issues of adverse effects on this environment of any consequence arising from TGP. The issue which was before us was the effects of sedimentation on Porirua Harbour.

[513] The catchment area for Porirua Harbour is approximately 600km². The discharge of elevated levels of sediment (i.e. above natural levels) into the harbour from the surrounding catchment due to development earthworks has been occurring for some time and continues to be a major environmental problem. We were told that at present rates of sedimentation, the harbour would be filled in 145 - 195 years. It was accepted by the Applicants that TGP earthworks would increase sediment discharge into the harbour in the short term and had the potential to adversely affect the receiving environment.

[514] Porirua Harbour contains two shallow tidal inlets, the Pauatahanui Inlet (524ha) and the Onepoto Inlet (283ha). These inlets have a common access to the sea via a narrow 0.1km wide entrance. Maximum water depth in both inlets is about 3.0m. Approximately 60% of the Pauatahanui Inlet is subtidal and 80% of the Onepoto Inlet. The primary driver for the movement of water into and out of Porirua Harbour is tidal exchange, with wind, waves and freshwater inflows also influencing the movement of water. The two inlets have different ecological values and we describe them separately.

[515] We were told that Pauatahanui Inlet is the largest relatively unmodified estuarine area in the southern part of the North Island. It has the status of a site of national significance in DoC's Sites of Special Wildlife Interest database. It is listed in the Regional Policy Statement as a site of national significance for indigenous vegetation and significant habitats for indigenous fauna. It is recognised as an area of significant conservation value in the Wellington Region Coastal Plan. DoC manages three areas in the Inlet for

wildlife protection and one as a scenic reserve. The ecological values of the Inlet were summarised in TR10 as:

- Saline flora - the Inlet and its immediate surrounds contain a wide variety of saline, estuarine and coastal plants and vegetation some of which are rare or threatened. This vegetation provides habitat and food for a number of fish and bird species;
- Invertebrates - the Inlet contains high densities of cockles, polychaete worms and copepods. These fauna are found in both the subtidal and intertidal areas. They provide food for a range of fish and birds and many of them are vulnerable to the effects of sedimentation;
- Fish - there have been various records of fish species compiled. More than 43 species of marine fish have been identified in both Pauatahanui and Onepoto Inlets and 12 indigenous freshwater fish species have been detected in the streams which discharge into Pauatahanui Inlet. A number of these are at risk species;
- Avifauna - a wide variety of birds use the Inlet including water fowl, waders and wetland birds. A 1984 survey recorded 43 avifauna species in the Pauatahanui Wildlife Management Reserve. The Guardians of Pauatahanui Inlet (a local community group) has identified 50 bird species in the Inlet and its immediate terrestrial margins. A number of these are resident species.

[516] TR10 summarised the ecological value of the Inlet in these terms:

The extensive literature on the Pauatahanui Inlet indicates that a range of estuarine habitats are present, supporting diverse communities of saline vegetation, invertebrate, fish and birds. Sediment quality is largely characterised by low concentrations of contaminants. There are significant concerns raised in many of the reports reviewed regarding sedimentation rates within the estuary and stability of the cockle populations¹⁸⁷.

[517] TR10 identified the following ecological values of the Onepoto Inlet:

- Saline flora - there are only limited areas of saltmarsh around the margins of the Inlet due to historic reclamation and development. Approximately 17.3ha of lush and healthy sea grass has been identified. This provides an important habitat for various organisms which fish and birds feed on;
- Invertebrates – these are found in both the intertidal and subtidal areas of the Inlet. Studies of the intertidal area have identified a diverse invertebrate community containing species which are sensitive to elevated mud content. A 2009 survey recorded 26 species of invertebrates within the subtidal area;
- Fish - as with the Pauatahanui Inlet, 43 species of fish have been identified in the Onepoto Inlet;

¹⁸⁷ TR10, para 3.1.2, pg 32.

- Avifauna - the diversity of avifauna in the Onepoto Inlet is low due to the lack of suitable terrestrial edge habitat. Black swans, gulls and other exotic species are however common.

[518] TR10 summarised the ecological values of the Inlet in these terms:

The Onepoto Inlet has lower ecological values than the Pauatahanui Inlet, due to extensive coastal edge habitat modification and the surrounding industrial landuse activities. However, the Inlet supports moderate diversity invertebrates and fish communities¹⁸⁸.

[519] The Applicants recognised from the outset the potential for adverse effects on Porirua Harbour from sediment generated by TGP earthworks. It was also recognised that once sediment is in the harbour, possible remediation and mitigation measures are extremely limited. The thrust of the Applicants' case was to control and minimise runoff and sedimentation at source. For this reason the preceding sections of this decision relating to those matters are important in considering this particular issue.

[520] The other factor of particular significance in our consideration on this issue is that any increase in sedimentation generated by TGP works would be a temporary effect largely confined to the life of the Project. Once the Project was completed and the terrestrial mitigation measures proposed by the Applicants are in place, the long term consequence will be a reduction in the generation of sediment from TGP catchments in the order of 457 tonnes per year. No other party provided evidence seriously challenging that proposition.

[521] The principal issue of contention (primarily between the Applicants and the Director General) revolved around the modelling of sedimentation effects on Porirua Harbour particularly during certain weather conditions. We will address that matter initially and then briefly consider the issue of coastal birds.

The fate and effect of sediment reaching the Pauatahanui Inlet and the Onepoto Arm

[522] Mr Roberts has developed a hydrodynamic, wave and sediment transport computer model of the Porirua Harbour. The model has been validated and used to predict the likely fate of terrestrial sediments entering the harbour from storm events and from a 20-year long simulation, both with and without TGP.

[523] Mr Roberts described the hydraulic and sedimentation processes in the Onepoto Arm and in the Pauatahanui Inlet. Both the Onepoto Arm and the Pauatahanui Inlet have central basins with mostly cohesive materials present and where there are circulation eddies. Characteristic *birds foot* deltas where stream sediments are deposited occur at the mouths of the larger streams. Average annual sediment deposit rates in the Pauatahanui Inlet are 9.1mm/yr (42,000 – 43,000 cubic metres/year and in the Onepoto Arm 5.7mm/yr (13,500 – 14,000 cubic metres/yr). Since 1974 the tidal prism has reduced by 8.7% in the Pauatahanui Inlet and by 1.7% in the Onepoto Arm. At current rates of sedimentation the Pauatahanui Inlet will cease to be a water body in 145 – 195 years. In the Onepoto Arm the process will take 290 – 390 years.

¹⁸⁸ TR10, para 3.1.3, pg 35.

- [524] The hydraulic and sedimentation processes in the harbour were modelled and a series of event scenarios were modelled for the existing catchment conditions and for a period of peak project construction. The event scenarios assumed, for instance, calm weather with a 50-year ARI in the Kenepuru and Porirua catchments and two-year ARI rainfalls in the other catchments. 21 various scenarios were modelled, including the 20-year simulation referred to above.
- [525] The long term simulation predicted sedimentation in the Pauatahanui Inlet of 3.4 – 4.1 mm/yr (cf 9.1mm/yr measured) and in the Onepoto Arm 2.0mm/yr – 2.8mm/yr (cf 5.7mm/yr measured). Mr Roberts considered the differences were explained by the influence of some marine sediment contribution and particularly increased sediment load from subdivisions that have occurred. He was of the opinion that the model predicted sedimentation patterns and sediment deposition depth adequately, notwithstanding contrary views expressed in Ms Kettles' evidence.
- [526] Dr De Luca examined the effects of sediment settling out in the harbour. She used the stream sediment discharge estimates from Ms Malcolm's analysis of sediment generation from project earthworks and the settlement predictions in the harbour provided by Mr Roberts to produce maps showing the extra areas of sedimentation in the harbour. In order to gauge the effects on invertebrates of the additional sedimentation she grouped the areas into additional depths of between 5 and 10mm and areas greater than 10mm.
- [527] Dr De Luca presented the results of her analysis of 13 combinations of events. For example the first map presented showed small areas of additional sedimentation, (5 - 10mm and > 10mm deep) in the Pauatahanui Inlet when there had been a two-year ARI rainfall in all the catchments and with calm wind conditions in the Inlet. All but two of the scenarios modelled showed there to be low or negligible effects on marine ecological values because sediment deposition was minimal or it occurred where there were low ecological values.
- [528] A 10-year ARI rainfall in the Kenepuru and Porirua catchments with two-year ARI rainfalls elsewhere and a persistent strong southerly wind might have moderately significant effects on marine ecological values in the Onepoto Inlet due to localised small areas of sediment deposition.
- [529] Also a 10-year ARI rainfall in the Duck and Pauatahanui catchments with a two-year ARI rainfall elsewhere and a persistent strong northerly wind might have highly significant effects on marine ecological values in the Pauatahanui Inlet due to localised small areas of sediment deposition.
- [530] Dr De Luca observed that the base line sedimentation in the harbour has been high so the existing intertidal habitat, and to a lesser extent the near shore shallow sub-tidal habitat, must be resilient. She considered that the localised areas of additional sedimentation identified in the two cases above are small relative to the baseline effects and are likely to recover over time.
- [531] Besides the event modelling mentioned above Dr De Luca also considered the marine ecological effects of a simulated 20-year period which included a

six-year construction period and 14 years of operation. That showed an accumulation of 2.5mm/yr in the central sub-tidal basins, an effect which Dr De Luca assessed as negligible given the low values of those areas.

- [532] Ms Kettles gave evidence on behalf of the Director General about the nature of the Pauatahanui Inlet in particular and the risks and effects of additional sedimentation from TGP. She said the Pauatahanui Inlet is nationally significant with substantial areas of rare saltmarsh and that it has been significantly adversely impacted through sedimentation from catchment development and landuse. She said that TGP is likely to add to the fine sediment load to the Inlet and it is important not to undermine work to restore the Inlet.
- [533] Ms Kettles provided us with a series of concerns she had over the estimates of additional sediment from TGP and the risk of greater quantities being discharged. In particular, rainfall events greater than analysed or cumulative rainfall events might present greater sediment loads to the Inlet. The re-suspension of deposited sediment by the wind might also affect additional areas within the Inlet. She also canvassed appropriate conditions. Key controls in her view were to carefully limit the area of active earthworks in each catchment, carry out adequate monitoring of sedimentation effects and provide compensatory actions if excess sedimentation occurred.
- [534] Dr De Luca and Ms Kettles met on three occasions to discuss their views and provided the Board with one conference statement identifying matters of agreement and disagreement. The statement was particularly helpful in informing the Board's decision. The witnesses agreed that minor and acceptable effects on marine ecological values were likely from two and 10-year ARI rainfall events.
- [535] A reservation remained relating to the scenarios of a 10-year ARI rainfall event in the Duck and Pauatahanui catchments and a northerly wind, and a 10-year ARI rainfall event in the Kenepuru and Porirua catchments with a southerly wind. As we have noted, Dr De Luca considered these two scenarios were the most significant but even then effects were in places of less significance and would be minor and acceptable. Ms Kettles considered that not only did those scenarios have significant effects but a further scenario of a rainfall greater than the 10-year ARI rainfall event in the Horokiri catchment (say a 50-year ARI rainfall with southerly wind) could be worse. Dr De Luca agreed that this latter scenario is the next most unfavourable but that the effects would still be minor and acceptable.
- [536] The two witnesses discussed the desirability of modelling rainfall events greater than the 10-year ARI and Dr De Luca agreed to model the results of a 50-year ARI rainfall event in the Duck and Pauatahanui catchments and in the Kenepuru and Porirua catchments.
- [537] Results from the further modelling of 50-year ARI rainfall events were presented by Dr De Luca in a further statement of evidence. The modelling showed that under baseline conditions (without TGP), one third of the Onepoto Arm and one third to one half of the Pauatahanui Inlet presently receive sediment deposition. This is less than stated by Dr De Luca in her

EiC. Under these extreme rainfall events and with the peak construction of TGP, disregarding the effects of stabilisation works ahead of the storms, areas of additional sedimentation above threshold depths in the intertidal area would be less than 0.37ha. In sub tidal areas it would be less than 2.67ha. Dr De Luca confirmed the opinion expressed in her initial evidence that *...additional sediment discharged to the harbour in a Q50 event from Project related open earthworks would make a negligible contribution to the adverse effects that would occur under baseline conditions*¹⁸⁹.

[538] Dr De Luca also carried out further modelling of other scenarios mentioned by Ms Kettles as possibly reflecting significant sedimentation effects. The results led Dr De Luca to conclude that adverse effects from these rains were of low significance. As previously, we acknowledge the limitations of modelling. We accept that Dr De Luca's modelling has been cautious in approach and we note that no allowance was made in her modelling for the beneficial effects of site shut down and stabilisation in the event of predicted heavy rain.

[539] The witnesses agreed that careful timing and staging of earthworks, limiting active areas of earthworks, retiring land in the catchment and stabilising earthworks before significant rainfall events were required to minimise sediment discharge to the harbour. They also discussed conditions which should be imposed if consent was granted to TGP.

Coastal Birds

[540] TR8, which addressed the affects of TGP on avifauna, dealt only briefly with potential effects on coastal birds. It noted that the Main Alignment of TGP was 1km away from Pauatahanui Inlet but accepted the potential for indirect impact on the habitat of coastal birds by way of increased sedimentation to the Inlet. TR8 identified¹⁹⁰ the number of bird species known to occur in the Inlet and around its margins but dealt only briefly with these issues.

[541] In the Director General's submission it was claimed that there had been an inadequate assessment of potential effects of TGP on the habitats of coastal birds. Mr Fuller addressed that in his evidence¹⁹¹ and contended that *...the great majority of potential estuarine bird feeding habitat will be unaffected...* by TGP. He expressed the opinion that there are unlikely to be adverse effects on coastal birds or their behaviour/feeding.

[542] Dr Baber disagreed with Mr Fuller. He expressed concerns about the adequacy of the sedimentation modelling and the effect which sedimentation could have on habitat and food sources for coastal birds¹⁹². Dr Baber requested that a survey of coastal birds is undertaken to establish a baseline against which to monitor and adaptively manage the potential effects of TGP on coastal birds¹⁹³.

¹⁸⁹ Rebuttal Evidence, para 24.

¹⁹⁰ Para 4.1.2.

¹⁹¹ Para 203.

¹⁹² EiC, paras 57 to 59.

¹⁹³ EiC, para 90.

[543] In rebuttal evidence, Dr Bull accepted that a range of native birds utilise the Pauatahanui Inlet, but noted that due to the various foraging behaviours and diets of these species, only small numbers of a few species are likely to potentially be affected by sediment discharges. She doubted the value of a bird survey because of the existing and continued discharge of sediment into the harbour through current land use activities and the relatively low numbers of wading birds recorded in the Inlet. These factors make it difficult to detect any statistically significant results in terms of changes in foraging behaviour¹⁹⁴. Instead of a bird survey, Dr Bull supported Dr De Luca's recommendation that monitoring of invertebrate indicator species is undertaken prior to, during and post construction¹⁹⁵. As it is likely that these species form the diet for any wading birds, this would provide a more accurate indication of whether or not TGP has adverse effects on coastal birds through sedimentation.

[544] We concur with the evidence of Mr Fuller, Dr Bull and Dr De Luca in this regard. We do not understand there to be any dispute with the proposition that bird habitat will not be affected by the TGP route itself. It is the effects of sedimentation on bird habitat including the effect on plants and animals on which coastal birds feed that is the issue in this instance. We consider that there is some merit to Dr Bull's evidence that given bird mobility, the current high levels of sediment discharge from other land uses and the relatively low predicted sediment from TGP it would be difficult to attribute effects on bird habitat use to TGP¹⁹⁶. We accept her evidence that wider monitoring of marine ecological values is an adequate proxy for direct monitoring of effects on coastal birds themselves.

Main findings as to effects of TGP on marine ecology

[545] Having regard to all of the above matters, we have concluded that the effect of sedimentation generated by TGP on Porirua Harbour will fall within acceptable limits, provided that appropriate controls are placed on the Project to ensure that the generation of sediment is minimised and controlled at source to the greatest extent practicable. In reaching that conclusion, we have accepted the evidence of Dr De Luca which we found to be thorough and considered. We have placed particular weight on the short term nature of the sediment generation from TGP and the reduction of sediment into Porirua Harbour from the TGP catchments in the longer term due to the remediation and retirement works to be undertaken by the Applicants.

12.8 NOISE AND VIBRATION (OPERATIONAL)

Operational noise

[546] Dr Chiles has undertaken the analysis of the incidence of operational road noise from the proposed TGP alignment and has determined the best practicable option for dealing with recipients of future high road noise. He presented this evidence on behalf of the Applicants. He also advised that he was the author of TR12 (Acoustic Assessment Report).

¹⁹⁴ Rebuttal Evidence, para 48.

¹⁹⁵ Rebuttal Evidence, para 56.

¹⁹⁶ EiC, para 49.

[547] Existing sound levels were surveyed and, as might be expected, near existing roads at Linden, SH58 and MacKays Crossing sound levels were dominated by noise from the roads. In the more remote areas around the outskirts of the eastern suburbs of Porirua, near Flightys Road, and Paekakariki Hill Road natural sounds dominate.

[548] Dr Chiles explained the new way noise mitigation measures are designed to reduce road operational noise levels. He said that the new NZS 6806:2010 Standard, *Acoustics – Road-traffic noise – New and altered roads*, promotes an integrated design process to establish the best practicable option (BPO). It specifies the types of protected premises and facilities (PPFs) for which a noise assessment was required and considers only those PPFs within 100m of the road in urban areas or within 200m in rural areas.

[549] He advised that there were three categories of noise criteria given in the Standard. The external noise criteria for category A should be achieved if it is practicable. If it is not practicable then the higher external noise levels of category B should be achieved. If these external noise levels cannot be achieved practicably then building modification should be implemented to achieve the internal noise limits in category C.

[550] The steps then required the assessment of the BPO for mitigating road noise at each of the PPFs that were estimated to receive road noise levels greater than category A levels. *The maximum external noise level criteria for category A is 64dB $L_{Aeq(24hr)}$ where there is either an altered road, or 57dB $L_{Aeq(24hr)}$ where there is a new road with a predicted traffic volume of 2000 to 75000 AADT.* The basis for this assessment depended on:

- Compliance with the NZS 6806:2010 criteria;
- Attenuation provided by structural (barriers and low noise surfaces) mitigation;
- Need for building-modification (ventilation/sound insulation) mitigation; and
- Value-for-money (using the acoustic benefit-cost ratio (BCR) calculation from NZS 6806:2010

[551] The options for noise mitigation at each location where it was necessary were then assessed against 18 factors that included constructability, land availability and visual and environmental effects. There were 15 areas identified along the route for specific evaluation.

[552] As an example of the evaluation, at MacKays Crossing there were 10 PPFs identified. Low noise road surfacing and roadside noise barriers were examined to reduce road noise at these receptors. Both options were found to have relatively poor BCRs so no specific mitigation is proposed, although one PPF was purchased by the Crown. Another example is at Linden. Here the existing SH1 is widened to accommodate merging traffic from and to the new expressway. Aside from properties purchased by the Crown, there is a need to erect a 2m high earth bund to achieve category A noise levels at the other PPFs.

- [553] For the majority of the project north of Linden, the BPO has turned out to not require any specific noise mitigation measures. A noise bund is proposed by a section of Flightys Road extension.
- [554] Around Linden there is to be a low noise road surface and the BPO requires extensive noise barriers and in three instances acoustic treatment of individual houses.
- [555] Dr Chiles said that *...Road-traffic noise levels will unavoidably increase throughout the Project area. In my opinion this will give rise to a significant change in acoustics amenity in areas remote from existing roads. This potential change in amenity has been signalled by the existing designation. While the position of the designation has moved in places, the wider area would become affected by road-traffic noise in either new or old locations. In my opinion the effect of the change in amenity is related to the change in character of noise caused by the presence of the road in the area, more so than the specific noise levels which depend on the exact position of the road.*¹⁹⁷
- [556] With the mitigation measures selected as the BPO, Dr Chiles considered that road-traffic noise will be at reasonable levels as determined by NZS 6806:2010 at all locations.
- [557] In respect to submitters, Dr Chiles concluded, with the noise mitigation works proposed, that for 55 Collins Avenue and the Rangitira Road residents, noise levels will be within the category A criteria and at 23 Tremewan Street road noise will slightly decrease. Increased local traffic from the Waitangirua link road was said to be small and to result in road noise increases of only 1 – 2dB. At Flightys Road residences numbers 129 E and F, predicted road noise levels are less than category A criteria so do not require special treatment and those at 247 B and C also fall within category A. Nevertheless, a noise bund is proposed along the expressway beside Flightys Road extension. In parts of Battle Hill Farm Forest Park and Belmont Regional Park road noise will be detectable but in Dr Chiles' opinion will not detract significantly from the park experience.
- [558] The Board apprehended that the conclusions of Dr Chiles in his evidence relied upon criteria contained in NZS 6806:2010, their measurement in terms of $L_{Aeq(24hr)}$, the requirement for BPO and that those provisions satisfied the requirements of the RMA. Furthermore the Board was interested in how the criteria compared to the standards adopted by other countries and it needed to know whether any of the noise provisions of the district plans had any application. The Board was also aware of reservations about the use of NZS 6806:2010 expressed in the decision of the Waterview Board of Inquiry and wanted to have the benefit of Dr Chiles' views on those matters. Accordingly the Board issued a minute asking Dr Chiles to provide further evidence addressing these issues.
- [559] Dr Chiles had prepared a guide on NZS 6806:2010 for NZTA but, other than being a submitter on the draft standard, he was not directly involved in the

¹⁹⁷ EIC, para 40.

determination of the Standard. He said the experts appointed to the technical committee by Standards New Zealand represented the Department of Building and Housing, INGENIUM, Local Government New Zealand, Ministry of Health, Ministry of Transport, New Zealand Acoustical Society, New Zealand Institute of Environmental Health, NZTA, Road Controlling Authorities New Zealand and Roding New Zealand. He considered the committee had extensive and comprehensive knowledge of road-traffic noise and its effects on people. He also considered the Standard provides a robust method for the assessment of road-traffic noise and provides appropriate criteria to maintain reasonable amenity and to protect against health effects such as sleep disturbance.

- [560] Dr Chiles helpfully explained the various measurement units for sound and concluded by saying that the $L_{Aeq(24h)}$ is a measure of the average sound level over a 24hr period and best matches the continuous nature of highway traffic noise and the measured responses of people to road traffic noise. Road traffic noise is the only noise source that uses this particular measure. A similar measure is L_{dn} which is an average day/night noise level but where the night-time noise is penalised by an increase of 10dB. It is used where the noise emanates from airports, heliports and coastal ports.
- [561] An external road noise level of up to 57dB $L_{Aeq(24h)}$ from new roads and up to 64 dB $L_{Aeq(24h)}$ from altered roads was said to be reasonable by Dr Chiles and is the criterion given in the Standard in category A. If all PPFs receive road noise at or below this level no mitigation of road noise is necessary under the Standard. Dr Chiles says that the public are more tolerant of road traffic noise partly because it is continuous, relatively bland and unobtrusive and everyone relies on road transport.
- [562] Dr Chiles explained that where the external road traffic noise at a PPF exceeds either 57 dB $L_{Aeq(24h)}$ (new road) or 64dB $L_{Aeq(24h)}$ (altered road) the best practicable noise mitigation is required under the Standard to reduce the noise level to the category B level of 64dB $L_{Aeq(24h)}$ or 67dB $L_{Aeq(24h)}$. If practicable mitigation measures cannot achieve that external noise level and internal noise levels from road traffic at the PPF exceed 45dB $L_{Aeq(24h)}$ then the standard requires that the internal noise level is not to exceed 40dB $L_{Aeq(24h)}$.
- [563] In respect to loud sporadic noises from vehicles, Dr Chiles advised that control of those noises relied on the Land Transport Rules for new vehicles and that a maximum noise level $L_{A_{fmax}}$ imposed on the road controlling authority is not effective. Because of the steep grades on the expressway, Dr Chiles examined the noise level from engine brakes and concluded the maximum noise level events should remain within reasonable limits.
- [564] Dr Chiles then described why he and other noise experts considered NZS 6806:2010 provided the best methodology for assessing road traffic noise and for assessing the BPO for mitigating the noise where required by the criteria set in the Standard. The methodology set out in the Standard and in the guide requires, he says, a holistic approach where visual and other environmental effects of noise mitigation options are considered against the effectiveness and cost of the options. He said the Standard sets out a process rather than a noise limit and therefore cannot be made subject to a simplistic performance

standard¹⁹⁸.

[565] In response to our question about the relevance of district plan rules Dr Chiles advised that the noise levels in district plans for Wellington, Porirua and Upper Hutt did not include road traffic noise. The Kapiti Coast district plan treats new roads in the rural area as a controlled activity and includes the Transit (pre NZTA) noise guidelines as the acceptable noise limits. Dr Chiles found that five houses in the MacKays Crossing area would experience road traffic noise levels above the Transit guideline. Three houses were 1 – 2dB above and two houses were 4dB above. A length of 4km of low noise road surface and 850m of noise barriers and bunds would be required to reduce the received sound to the levels specified in the district plan.

[566] Applying NZS 6806:2010 to the five houses affected the BPO was determined to be to do nothing. The cost, maintenance and visual effects of the mitigation options outweighed the acoustic benefit and the noise level was deemed acceptable by Dr Chiles, but the details supporting this conclusion were not provided.

[567] With reference to the comments of the Board of Inquiry for Waterview, Dr Chiles observed that in that case 80,000 vehicles per day were to pass through a dense residential area and more lenient noise criteria applied. He supplied an NZTA paper titled *Waterview Connection and NZS 6806:2010 NZTA Position October 2011*.

[568] The paper addresses the Waterview Board's concerns. It says a roading authority when carrying out upgrading works cannot be required by a consent to improve an existing noisy environment. It may offer but it cannot be obliged. It also says that the BPO definition and process in NZS 6806:2010 accords with the various requirements of the RMA and balances factors of health, environment, social, safety, cultural, economic and other matters. It acknowledges the Standard is not a formal National Environment Standard but says it is a robust, consistent and standardised process. It says the Standard has been carefully developed by experts in all relevant areas and is an appropriate basis for assessing the acceptability of road traffic noise.

[569] Notwithstanding the evidence of Dr Chiles, the Board, because it must apply the provisions of the RMA, remained concerned about the appropriateness of the noise criteria and the reliance on BPO in NZS 6806:2010. Accordingly it instructed Mr Nigel Lloyd to prepare a report under section 42A RMA that advised the Board on:

- The interpretation of NZS 6806:2010 including the implications of use of an $L_{Aeq(24h)}$ standard;
- Whether or not NZS 6806:2010 provides a suitable basis for consideration of operational noise effects, particularly with respect to environmental and health effects;
- The application or otherwise of relevant district plan noise rules: and

¹⁹⁸ EIC, supp para 33.

- The applicability of comments made by the Board of Inquiry into the Waterview proposal regarding NZS 6806:2010.

[570] Mr Lloyd has clearly and succinctly encapsulated the concerns we have had with the new Standard so a substantial part of his evidence is reproduced below.

The purpose of the RMA is set out in Section 5. Applying the RMA in practice involves a broad judgement of whether a proposal would promote the sustainable management of natural and physical resources. To make a decision requires having an understanding of the different factors, some of which may be conflicting. However the RMA is not only about achieving balance between the benefits and adverse effects occurring from an activity but is about avoiding, remedying or mitigating the effects irrespective of the benefits that may be gained.

I believe NZS 6806 provides an excellent mechanism for mitigating the adverse effects by exploring the best practicable option for controlling roading noise. But it does not assist in establishing what the impacts of the actual or potential impacts will be.

One of the issues with NZS 6806 is that it jumps to a conclusion without showing what workings have been undertaken. An assessment undertaken in accordance with NZS 6806 therefore will not set out those matters that should be included in an assessment of effects on the environment that are laid down in Schedule 4 of the RMA. What is missing is a full assessment of the actual or potential effects on the environment and where, once the proposal is approved, effects will be monitored and by whom.

An AEE will normally determine:

- (i) The existing sound environment, including background and ambient sound levels;*
- (ii) appropriate noise criteria based on community standards for health and amenity protection;*
- (iii) predicted noise levels without any noise mitigation;*
- (iv) what noise mitigation is required to meet the criteria;*
- (v) future noise levels; and*
- (vi) what noise monitoring is required.*

NZS 6806 does not take this approach. The Standard has a sliding set of criteria that provide for different outdoor noise levels based on the ability of the road to comply with the criteria using the best practicable option. If none of the outdoor criteria can be met then an indoor criterion is set. The difference is that NZS 6806 criteria are not established using recommended limits that will protect health and amenity, but the criteria are designed to allow the road to be constructed in the most practicable way.

That said there seems to be a wide agreement that the Standard is only meant

to provide general guidance as to methodology. As pointed out by the Board of Inquiry in the Waterview Connection Proposal too much faith should not be placed on the Standard and that it should be employed more as a "Standard" than a "recommendation" which the fine print reveals the document to be.

The Standard works from the principle that the benefits of the proposed road will outweigh any negative noise impacts and then sets about establishing whether it is practicable to provide for noise mitigation. This is not the purpose of a Standard which should be to recommend noise criteria to be applied to new or altered roads received at the assessment positions of protected premises and facilities (as stated in the foreword of NZS 6806). The decision as to whether the adverse noise impacts have been adequately avoided or mitigated, and whether the resultant adverse noise effects will be acceptable for the community, is the province of the ultimate consent authority and the Standard should provide sufficient information to allow them to undertake that task. I do not believe the Standard provides adequate guidance in this respect.

If, according to NZS 6806, it proves to be impracticable to reduce noise from the new route, then nearby dwellings can be left exposed to levels that are greater than those that would normally be considered to be reasonable to protect health and amenity. This may prove to be an inevitable result of the establishment of the route but in my opinion the Standard does not allow the adverse effects to be fully described or tested into the future, or, ultimately, for appropriate indoor noise environments to be provided for.

An assessment using NZS 6806 therefore does not provide the decision maker with the tools to determine what residual adverse effects remain or to provide any form of noise conditions to allow the community to have confidence that the prediction methodology is correct and that they will not be exposed to future noise that is reasonable. The Standard provides a process whereby the BPO is decided upon (using a range of factors including non-acoustical considerations) and if higher noise levels result then no further action is required. I can understand why a consenting authority would be uneasy with this approach.

In addition the Noise Criteria in NZS 6806, while only used to trigger the determination of BPO, tend to legitimise "reasonable" noise levels that are greater than those levels generally considered to be appropriate for amenity protection. I discuss the WHO Guidelines and AS/NZS 2107:2000 recommended guidelines further below.

With respect to $L_{Aeq(24hr)}$ parameter I believe that longer term averaging is appropriate for traffic noise given the variations that occur throughout the day. Averaging over the whole day or a significant part of the day or night is appropriate for assessment rather than short term monitoring such as over 10-15 minutes or 1 hour. The other decision that needs to be made is whether night-time L_{max} criterion should apply.

In the conclusions of the Land Transport New Zealand Research Report 299 entitled Transportation and noise: land use planning options for a quieter New Zealand under the heading "Establish the preferred noise criteria" the

report states:

The criteria for noise measurement need to be agreed. Internationally and currently in New Zealand the measurement $L_{Aeq(24hr)}$ is recommended for general road traffic noise measurement. However, this measure has been criticised as not being a close representation of the noise that people actually experience. Current Australian research recommends using both $L_{Aeq(15hr)}$ and $L_{Aeq(9hr)}$ to provide separate measures for day and night, and can be manipulated to very closely approximate L_{dn} .

Report 299 has extensive research into the traffic noise parameters used overseas.

In my opinion the traffic noise index used in NZS 6806 should be based on a noise monitoring parameter that recognises the greater impact of noise on evening and night-time amenity and thus would more properly protect the community from noise with respect to health and amenity. L_{den} (day evening night equivalent level) is the preferred EC method of assessing noise including transportation noise. L_{den} is based on the L_{Aeq} parameter but imposes a 5 decibel penalty for evening events (7pm to 10pm) and a 10dB penalty for night-time events (midnight to 6am and 10pm to midnight). The other option is criteria based on daytime $L_{Aeq(15hr)}$ and night-time $L_{Aeq(9hr)}$ parameters.

NZS6806 uses the time-average A-weighted sound pressure level with a 24 hour reference time ($L_{Aeq(24h)}$). This has traditionally been used to describe traffic noise in New Zealand and forms the basis for the design sound levels in the Transit Guidelines.

The traffic noise parameter used prior to $L_{Aeq(24hr)}$ was $L_{A10(18hr)}$ which forms the basis of the UK calculation method (CoRTN) and which was used in a New Zealand modified form to predict traffic noise levels for this project. Technical Report 12 describes (in Section 4) how the modified CoRTN prediction is converted to $L_{Aeq(24hr)}$ by subtracting 3dB.

The prediction is therefore made based on the 18 hour traffic flow between the hours of 6am and midnight and then a -3dB correction made to arrive at the 24 hour $L_{Aeq(24hr)}$. I understand from technical report 12 that the 24hr AADT value has been used directly in the CoRTN for the 18 hour volume (instead of calculating the 18hr traffic volume separately) resulting in the calculation be slightly conservative. The accuracy of the conversion relies on there being relatively low night-time traffic volumes.

Night-time traffic between midnight and 6am is not specifically modelled.

This method relies on this assumption that different road types will, on average, produce a reasonably consistent diurnal flow pattern. For roads where significant deviations in the average conditions occur then errors in conversion may result.

NZS 6806 is unusual therefore because there is no differentiation made between daytime and night-time noise impacts.

All other New Zealand Standards provide some form of differentiation between

the daytime noise limit and the need for stricter night-time protection. Both NZS 6802 and NZS 6803 provide for separate stricter residential night-time controls and NZS 6805 (Airport Noise), NZS6807 (Helicopter Noise) and NZS 6809 (Port Noise) all use an L_{dn} criterion which penalises night-time events such that their sound energy is calculated to be ten times (10x) that of the actual event. In other words one aircraft take-off is averaged on the basis of there being theoretically ten aircraft take-offs. This generally provides a weighting that accounts for the increase in community annoyance likely to result from noisy night-time activities.

NZS 6808 (Wind farms) uses a different methodology altogether (L_{A90}) which is designed to enable the relatively steady wind farm sound levels to be paired with the wind farm wind speeds and for any correlation to be determined. This provides for sounds to be measured during times when interference from high wind gusts might otherwise be an issue. Wind farms generate the same noise levels day and night and the noise criteria are therefore pitched at protecting the more critical night-time amenity.

In NZS 6806 the Health Criteria are discussed in section 4.7 which states that the approach used in the Standard, such as emphasis on land-use planning, isolation of building from traffic sources, and the selection of $L_{Aeq(t)}$ to quantify traffic noise, are consistent with the advice contained in the World Health Organisation Guidelines for community noise.

The noise criteria referred to in NZS 6806 are those WHO guideline values in the 1999 document, for example:

Specific environment	Critical health effect	L_{Aeq} [dB]	Time base [hours]	L_{Amax} Fast [dB]
Outdoor living areas	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwelling Indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	-
Inside bedrooms	Sleep disturbance, night-time	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School classrooms and pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	During class	

An important aspect of this table is the time base shown in the 4th column. For daytime activities the time base is 16 hours but for night-time the time base is 8 hours and the guideline limit is 5-10dB stricter than the daytime limits.

The guidelines recommend night-time L_{max} levels which are not provided for by NZS 6806 (but which Dr Chiles invokes separately particularly for truck braking noise on steep inclines).

These criteria are also represented in AS/NZS2107:2000 in a more detailed way.

Dr Chiles discusses the use of $L_{Aeq(24h)}$ in his supplementary evidence and he also recognises that while other New Zealand Standards adopt various different criteria, each of these has recognition of night-time impacts.

In his opinion $L_{Aeq(24h)}$ is appropriate for road traffic noise because it is the same as L_{dn} used for other transportation sources but without the night-time penalty. He states that the main reason for the difference is that “the diurnal variation of road-traffic for a particular type of road does not change significantly, and compared to say an airport operator, the road controlling authority has no influence on this variation”.

In his opinion a road will be subject to daytime peak periods and reduced traffic at night but the pattern is reasonably consistent. He states that the prediction algorithm currently used in New Zealand does not allow the application of a night-time penalty as day and night levels are not separately calculated.

The fact is though that the dose response curves in Europe are based on L_{den} rather than $L_{Aeq(24hr)}$. Dr Chiles’ reasons for using $L_{Aeq(24hr)}$ are primarily that the roading authority has no control over night-time traffic and that L_{den} is difficult to predict using information we have in NZ. However in my opinion the critical question is does the $L_{Aeq(24hr)}$ appropriately represent the community reaction to noise, and in particular night-time noise, as opposed to, say, L_{dn} or L_{den} ?

The roading authority has no control over the night-time noise level from this route. If the diurnal variations of the route are abnormal, with heavy trucks on the route at night for example, then the neighbouring community may experience high night-time noise levels with there being no ability to recognise that fact in the noise measurement parameter, or for appropriate levels of mitigation to be provided should it be required. It is the responsibility of the roading authority to deal with such a scenario should it arise and there is no process for them to do so.

It could be argued that enough information is known about roading systems that it can be confidently stated that diurnal patterns for Transmission Gully are expected to correspond to those found elsewhere and that the conversion factors used by Dr Chiles will therefore be appropriate.

I have given this matter considerable thought and what decides me that either L_{den} (or L_{dn}) would be a more appropriate measurement parameter than $L_{Aeq(24hr)}$ are summarised as:

- (i) *The L_{den} value is used in Europe to determine community dose relationship and is more appropriately applied to assess impacts on health and amenity; and*
- (ii) *If the diurnal values for Transmission Gully do not vary significantly from the norm then the L_{den} will be consistent with the $L_{Aeq(24hr)}$ value. Any small adjustments necessary to convert between the two can be accommodated if these differ from the WHO recommendations. It is only should the diurnal traffic flow patterns prove to be abnormal e.g. high night-time traffic flows with high percentage heavy vehicles, that this would become important. I accept that the roading authority may not be able to predict this but in my opinion that is not the issue. The issue is that this abnormal flow might have a significant impact on residents which needs to be measured and assessed.*

Alternatively it would be appropriate to adopt $L_{Aeq(15hr)}$ and night-time $L_{Aeq(9hr)}$ if consistency with Australia was seen as beneficial.

Whether a night-time L_{max} criterion should be applied is a difficult subject. Dr Chiles has recognised that steep sections of the route may cause truck braking noise to impact on residential amenity and has used L_{max} to assess that impact. On that basis it could be argued an L_{max} criterion is appropriate to assess night-time noise impact. The problem with L_{max} is that it could be exceeded by one particularly noisy car, truck or motorbike. It is controlled by individual vehicle noise rather than as a function of the traffic volume. Night-time noise impacts could well become a function of the level and number of individual noise events but a single L_{max} criterion may not be the best way of assessing these.¹⁹⁹

- [571] In his evidence, Mr Lloyd went on to discuss the matters raised by the Waterview Board of Inquiry related to the NZS 6806:2010. He said those issues raised by TGP were the relevance of the 40dBA $L_{Aeq(24h)}$ internal noise criterion, and the existing quiet nature of the majority of the route.
- [572] He observed that the night-time noise level could be expected to be 5 or 6 decibels less than the average 24-hour value.
- [573] Mr Lloyd referred to the internal sound levels recommended as acceptable in the standard AS/NZS 2107 of 35dB $L_{Aeq(24h)}$ in bedrooms. NZTA adopts this internal noise level in its Planning and Policy Manual and recommends adherence to consent authorities for new houses near roads. As an example NZTA and the developers of the *Silverwood* subdivision agreed to an internal noise level in bedrooms of 35dB $L_{Aeq(24h)}$ in stage 2.
- [574] This level of 35dB $L_{Aeq(24h)}$ is 5 – 17dB lower than the internal noise criterion of 40dB $L_{Aeq(24h)}$ in NZS 6806:2010, or 64-15=49dB $L_{Aeq(24h)}$ ex category B with windows open for new roads, and 67-15=52dB $L_{Aeq(24h)}$ ex category B with windows open for altered roads. (The reduction by 15 accounts for the reduction in noise level from outside to inside assuming windows are partly

¹⁹⁹ EIC, Section 42A Report on Noise, paras 13-48.

open.)²⁰⁰

- [575] Considering the introduction of a new route into a quiet rural area, Mr Lloyd said the application of AS/NZ 2107:2000 would require maximum internal sound levels of 30dB L_{aeqt} where t is the time over which the sound level is averaged, presumably 6 hours during the night. For normal diurnal traffic distribution this would equate to about 35 dB $L_{Aeq(24h)}$.
- [576] Mr Lloyd then reported on the provisions of the relevant district plans and why they do not provide any or adequate controls of road noise, except perhaps for the Kapiti Coast District Plan which incorporates the Transit Guidelines.
- [577] He concluded that NZS 6806:2010 identifies the BPO for mitigating road noise but falls short of identifying the likely adverse effects as required under the RMA. He said *...NZS 6806:2010 does not provide for appropriate indoor or outdoor noise criteria to protect community health and amenity and does not provide sufficient information to allow a consenting authority to appropriately decide on the adverse effects of noise.* He considered a night-time noise criterion should have been adopted instead of the $L_{Aeq(24h)}$ measure.
- [578] Dr Chiles, after sufficient time to absorb Mr Lloyd's views, prepared a second statement of supplementary evidence. He stood by the conclusions in his evidence and the mitigation proposed. He said his evaluation used NZS 6806:2010 and as recorded in TR12 covered all the issues raised by Mr Lloyd. He said it was reviewed by experts and not found wanting. He considered the criteria in NZS 6806:2010 are reasonable.
- [579] Options for the alignment of the road included consideration of noise effects before detailed evaluation under NZS 6806:2010 which then allowed the identification of the best practicable option for mitigating the road noise on the chosen alignment. Dr Chiles regarded the selected mitigation to be appropriate and said that he has provided the information necessary for others to consider the issues. Because he says road traffic noise is particularly stable the actual unit of average sound measurement (dB $L_{aeq(24h)}$ or dB $L_{A_{den}}$) is less important but obviously the criteria set need to be in terms of the chosen unit.
- [580] Dr Chiles considered the WHO criteria to avoid health effects are idealistic and that most countries adopt criteria above those for noise levels reaching the criteria in NZS 6806:2010. Dr Chiles said that people will generally adapt their use of indoor and outdoor spaces. If windows away from the road noise are used for ventilation then indoor noise levels will not be exceeded by external noise levels at the levels in NZS 6806:2010.
- [581] Dr Chiles acknowledged the difference in internal noise levels promoted by NZTA for new houses and those required by NZS 6806:2010 and said that is being reviewed.
- [582] Dr Chiles and Mr Lloyd then met to discuss their views and they provided us with a statement that identified the areas they agreed on and stated there were no remaining areas where they did not agree. We are grateful for the assistance these two experts have given to the Board and for the professional

²⁰⁰ NoE, pg 1795.

approach taken by them both.

- [583] They agreed that the assessment of operational road-traffic noise effects under the RMA requires broader consideration than just the assessment of mitigation options in accordance with NZS 6806. They agreed road-traffic noise ought to be time averaged, not an instantaneous or short term measurement, and a separate L_{Aeq} should be used for day and night criteria, especially where abnormal night time noise might occur.
- [584] Provided the diurnal variation of traffic was normal, they agreed that 40dB $L_{Aeq(24h)}$ (approximately 35dB $L_{Aeq(9h)}$ at night) is a reasonable road-traffic noise level inside a bedroom with windows partly open near a major road. In remote rural areas a lower level is desirable.
- [585] They also agreed that internal noise levels of 40dB $L_{Aeq(24h)}$ will not be achieved with external noise levels at category B NZS 6806:2010 and windows open. In existing noisy areas they say households will have adapted so that windows facing the road will not be used for ventilation at night. Where a new road is proposed they say most houses affected will need some adaptation for the internal noise criteria to be met and NZS 6806:2010 does not provide guidance on who must do the adaptation. They said this latter matter featured strongly in the Waterview decision.
- [586] Mr Lloyd had criticised the absence of detailed sound level estimates at each affected PPF and Dr Chiles agreed to provide that information. It was presented during Dr Chiles' second statement of supplementary evidence and became Exhibit 22. It showed the predicted sound level at each PPF for existing conditions, for existing conditions in 2031, for TGP in 2031 without noise mitigation and for TGP in 2031 with the noise mitigation proposed.
- [587] The two acoustics experts reviewed the proposed conditions that related to noise matters and proposed agreed amendments. The changes relate to identifying PPFs that fall into category C by an altered road or into categories B and C by a new road. They suggest these be referred to as *qualifying buildings* in the conditions. There is to be no limiting distance from the road for these PPFs, unlike the 100m and 200m limit in NZS 6806:2010 for urban and rural locations respectively. At those PPFs that require some building or structural modification the options identified by an acoustical expert are to achieve an internal level of 40dB $L_{Aeq(24h)}$. Then additional conditions have been recommended to require compliance assessment of the noise mitigation and assessment.

Findings about operational noise effects

- [588] We have carefully considered the debate about the nature and capability of NZS 6806:2010. We think that Mr Lloyd has captured our views well and that is the reason we have included that part of his evidence in full.
- [589] The scope of the Standard does not include all the matters that are relevant to our decision under the RMA. The Standard has a philosophy that is different to the purpose of the RMA. It has an approach that seeks to find the BPO for controlling road-traffic noise rather than ensuring acceptable noise and amenity conditions are maintained for those receiving the noise.

[590] Mr Lloyd described this approach as a sliding set of criteria where category A levels were sought and if they could not practicably be met then category B levels would be accepted and if they could not practicably be met then category C internal noise levels would be accepted. We found it puzzling that neither of the experts referred to category D, or rather paragraph (d), in the criteria in the standard. That says;

(d) Where it is inconsistent with the adoption of the best practicable option to achieve the criteria of Category A, B, or C, the internal noise levels of any habitable space shall be mitigated to the extent that it is practicable.

[591] Clearly the Standard really says in all cases do the best you can practicably. That is not the test under RMA. We must consider the effects that additional road-traffic noise will have on the people who will be subject to it, and whether or not with the additional noise the health and amenity of the community will be maintained. We must assess what noise level each PPF will receive and determine whether in the particular circumstances that is acceptable or not. If not, we must require the effect be avoided, remedied or mitigated. The effect might be mitigated using sound barriers or low noise road surfacing, it might be remedied by structural modifications but if the result is still unacceptable in terms of the health and amenity of the community then the effect might have to be avoided. That could be done by declining the application or by removing the susceptible PPF. It is not adequate just to do the best you can which is what the Standard seems to promote.

[592] Within the Standard noise criteria are given that are said to be *reasonable taking into account adverse health effects associated with noise on people and communities, the effects of relative changes in noise levels, and the potential benefits of new and altered roads*. External noise levels of 57dB $L_{Aeq(24h)}$ for a new road and 64dB $L_{Aeq(24h)}$ for an altered road are given as the acceptable levels. Secondary levels of 64 and 67 respectively are also given. They are category B. Satisfactory internal noise levels are given as 40dB $L_{Aeq(24h)}$.

[593] Both Dr Chiles and Mr Lloyd consider a distinction ought to be drawn between daytime noise and night time noise as most other noise standards make this distinction. We agree.

[594] They told us that an average sound level over 24 hours would be about 5 – 6dB above the average during the night for the normal traffic distribution between night and day. So an internal sound level of 40dB $L_{Aeq(24h)}$ would be equivalent to about 35dB $L_{Aeq(6h)}$ at night assuming normal traffic distribution. Dr Chiles says that to make a significant difference to the 24hour average noise value would require a major change of the night time traffic flow, something that is unlikely, and so he considers the 24hour noise measure to be satisfactory. We think that reasoning reinforces the need to separately identify the received night time noise. Smaller but significant departures from expected night time noise will then be observable and able to be corrected so that the communities' night time amenity is maintained.

[595] The reasonable road-traffic noise criteria given in the Standard when compared to those quoted by Mr Lloyd appear to be high.

- [596] Examples of acceptable road noise criteria from WHO and quoted by Mr Lloyd for outdoor living areas are 50 – 55dB $L_{Aeq(16h)}$, for indoor areas 35dB $L_{Aeq(16h)}$, for bedrooms to avoid sleep disturbance 30dB $L_{Aeq(8h)}$ and outside bedrooms with window open 45dB $L_{Aeq(8h)}$.
- [597] New road criteria for outside are 2 – 7dB higher and for indoor bedroom criteria are 10dB higher or allowing for the different measurement unit some 5dB higher.
- [598] Altered road criteria for outside are 9 – 14dB higher. Indoor noise criteria are the same as for a new road. A particular aspect of the Standard for an altered road is that where existing noise levels exceed 64dB $L_{Aeq(24h)}$ and the BPO permits, the existing noise level is to be reduced. Previously under the Transit Guidelines where the noise level was already high it was not permitted to increase it.
- [599] Both Dr Chiles and Mr Lloyd comment that most countries adopt criteria that are higher than the WHO levels for practical reasons and because road-traffic noise is more tolerable.
- [600] The Kapiti Coast District Plan reflects the Transit Guidelines for controlling road-traffic noise. The criteria in the District Plan for new roads is given in the table below:

Ambient Noise Levels (dBA) Leq (24hour)	Noise Limit (dBA) Leq (24 hour)
Less than 43	55
43-50	Ambient + 12
50-59	62
59-67	Ambient + 3
67-70	70
More than 70	Ambient

- [601] These criteria show a maximum of 55 in quiet areas, 62 in average noise areas and a maximum of 70 in noisy areas. While based on an existing amenity measure the values appear higher than as now contained in the new Standard.

Main findings on operational noise

- [602] We think, on the evidence we have heard, that an external road-traffic noise for new roads of 57dB $L_{Aeq(24h)}$ is acceptable, as in the Standard but that it should be adjusted to the 18 hour daytime and 6 hour night time periods.

- [603] We consider, again on the evidence we have heard, that an internal bedroom noise level of 35dB $L_{Aeq(8h)}$ is acceptable for both new roads and for altered roads. For normal diurnal traffic distribution that is equivalent to 40dB $L_{Aeq(24)}$ as given in the Standard.
- [604] We have not been given evidence sufficient for us to establish appropriate external noise levels for altered roads. The Standard allows up to 64dB $L_{Aeq(24h)}$ or some 7dB more than for new roads on the basis, it appears, that the existing road-traffic noise will have acclimatised those receiving the noise or caused them to adapt. For the present we accept that.
- [605] Then there arises the question of the status of category B criteria in the Standard. The Standard says *where it is inconsistent with the adoption of the best practicable option to achieve the criteria in category A, the criteria in category B shall apply*. For new roads that increases the permitted external noise level by 7dB and by 3dB for altered roads. Internal noise levels remain the same. To evaluate this sliding set of criteria requires an understanding of how the BPO is selected but equally important is the concept of allowing an increase in acceptable noise levels because of the difficulty and cost of meeting category A criteria.
- [606] The BPO as defined in the RMA and the Standard requires a series of matters to be considered when determining the BPO for noise mitigation. Consideration is to be given to (inter alia) the value for money delivered by the mitigation option, the benefit-cost analysis and the availability of land or the need to acquire land for the mitigation option.
- [607] Obviously the cost part of the benefit-cost analysis is the cost of the noise mitigation. The benefit is determined by 1.2% of the market value of an affected property for each decibel reduction (with other modifications). If the benefit does not exceed the cost for meeting category A criteria then category B criteria may apply.
- [608] Dr Chiles and Mr Lloyd agreed that for new roads in quiet rural areas an internal noise time level lower than 35dB $L_{Aeq(9h)}$ (equivalent to lower than 40 dB $L_{Aeq(24h)}$) is desirable. We suppose a similar reasoning could be applied to new and altered roads in a noisy area where higher noise level criteria might be acceptable. Having different acceptable traffic-noise criteria based on the actual amenity of an area would seem to us to be more in accordance with the RMA than allowing higher noise levels because of an inadequate BCR or the availability of land.
- [609] We are not therefore able, on the evidence before us, to determine the appropriateness or the applicability of the road-traffic noise in category B.
- [610] Dr Chiles provided us with a list of all 292 PPFs assessed for this proposal. Of those 182 premises, after the noise mitigation proposed, will receive external sound levels above the category A criteria for a new road of 57dB $L_{Aeq(24h)}$. Some will be affected by an altered road, not a new road, but they are not separately identified. There are 29 premises that will receive sound levels above the category A level for an altered road of 64dB $L_{Aeq(24h)}$.
- [611] The applicants have suggested a series of conditions in the NoRs. They

oblige the Requiring Authority to implement the road-traffic noise mitigation measures to achieve the noise criteria in the Standard where practicable and for the detailed design to be done by an expert. Where a building requires modification to ensure a maximum inside noise level of 40 dB $L_{Aeq(24h)}$ conditions specify the procedure to be followed.

[612] Mr Lloyd and Dr Chiles also agreed upon some additions to those conditions:

- Definitions of new and altered road are added;
- Where changes to proposed noise mitigation are proposed they are to be agreed to by a planner approved by the Council in consultation with an acoustics expert;
- A new term of “Qualifying buildings” is introduced to identify those PPFs that are in category C as a result of an altered road as well as those PPFs that are in category B or C as a result of new road. Consequential changes follow to four proposed conditions replacing the term ‘category C Buildings’ with ‘Qualifying buildings’;
- Advice to building owners is to cover the modifications required to meet an internal noise level of 40dB $L_{Aeq(24h)}$;
- Additional conditions to require noise compliance assessment and corrective actions where needed are proposed.

[613] In an overall sense we need to weigh these noise effects against the benefits of the proposed road.

[614] A necessity in our view is that noise levels do not prevent a regular good night’s sleep. That to us is essential. We are satisfied that can be ensured by limiting internal noise levels to 40dB $L_{Aeq(24h)}$, assuming normal diurnal traffic flows which Dr Chiles said should be achieved. A condition requiring the 40dB $L_{Aeq(24h)}$ is proposed and we accept that is necessary. It is not to be an option where practicable. It is to be a clear obligation.

[615] As to the wider noise environment, we are satisfied that controlling noise levels to the category A criteria will preserve adequate levels of amenity. We have reservations about the noise levels permitted by category B criteria as we have recorded. Nevertheless bearing in mind there are areas of existing low noise levels as well as areas of existing high noise areas and there is an existing designation with noise conditions that seem to reflect the Transit guidelines, we are satisfied that the noise environment that will prevail with the proposed road and with the proposed noise mitigation measures will be acceptable.

12.9 CONSTRUCTION NOISE AND VIBRATION

[616] Dr Chiles examined the effects of construction noise. He said the majority of the construction activity is remote from residential areas and while construction noise may be audible he considered that it can be controlled to within reasonable levels, defined by guidelines in NZS 6803:1999, with good practice construction noise management.

[617] At Linden and other areas with houses closer to construction works there is the potential for greater construction noise and vibration effects, due to the proximity of neighbours and the likely need for some night works. He proposed additional management and control measures in these areas such as the early construction of road-traffic noise barriers. He considered the implementation of a Construction Noise and Vibration Management Plan (CNVMP), as specified in the proposed designation conditions, is an effective and appropriate method to manage adverse effects when works are close to houses and at night.

[618] In some of these instances it will not be practicable to comply with the guideline noise criteria in NZS 6803:1999, due to the proximity of houses, and some night works will be unavoidable at areas of tie-in or overlap with the existing road network due to the traffic volumes on the existing roads.

[619] NZTA has developed standard procedures that will form part of the CNVMP, including the production of individual management schedules for specific activities such as night works. The specific mitigation required for each activity will be confirmed in the schedules. Dr Chiles says a flexible approach is required to take account of the individual circumstances of residents, but in general, a hierarchy of mitigation is followed:

- Managing times of activities to avoid night works and other sensitive times;
- Liaising with neighbours so they can work around specific activities;
- Selecting equipment and methodologies to restrict noise;
- Use of screening/enclosure/barriers;
- Offering neighbours temporary relocation; and
- For long duration works, treating neighbouring buildings.

[620] Part of the management process will also include condition surveys of all buildings close to the works, before and after construction, so that any cosmetic damage due to the works can be identified and repaired.

[621] Dr Chiles has recommended that construction traffic on local roads should be minimised by utilising state highway access where possible.

[622] Blasting is an option in the areas east of Porirua as well as around the Wainui Saddle. The nearest houses in the Porirua eastern suburbs are separated from works by around 200m. If blasting is used it will only be in areas that are not immediately adjacent to houses. Dr Chiles considered that standard practices can be used to achieve compliance with the criteria, as occurs at various quarries and mines in New Zealand including some locations close to houses. The main practices controlling vibration and airblast are the selection of appropriate charge sizes, limitation of charge sizes if necessary and for larger blasts using multiple charges in a delay sequence.

[623] There are two structures of historical significance near the proposed road. St Joseph's Church by SH58 is some 20m from any works and a large brick

circular structure used to house a fuel tank during the war is some 10m from earthworks. Dr Chiles has proposed closer monitoring of these structures during construction and special care being taken to minimize vibration effects. These requirements are included in the specification for the CNVMP.

- [624] Vibration effects of road-traffic were assessed for the existing road at Linden. Levels of vibration were found to be below those just perceptible in residential environments at a distance of about 7m from the road edge. Acceptable levels would therefore exist beyond the designated area.
- [625] There are no adverse construction vibration effects predicted for most of the route. For areas such as Linden where there are neighbours close to construction vibration sources, there is the potential for cosmetic damage to buildings (such as cracking) and annoyance from perception of construction vibration. Any cosmetic damage due to TGP will be detected through condition surveys before and after construction and will be repaired. Annoyance will be addressed by accurately communicating the time and duration of vibration in advance and this will generally only be during the daytime.
- [626] Detailed assessment of specific construction equipment and vibration monitoring has been recommended when works are close to St Joseph's Church and the brick containment vessel in the Te Puka Valley. Works would be stopped if measured levels were near to the criteria established by NZS 6803:1999, and therefore construction vibration should not have an adverse effect on these structures.
- [627] If blasting is used in the Wainui Saddle area it may be audible as a *thud* at the nearest receivers, but airblast and vibration levels will be within the AS 2187-2 guideline limits.
- [628] Submissions by NZHPT confirmed its concerns about vibration effects on the historic structures were satisfied by the conditions proposed.
- [629] A concrete batching plant is to be located at the main laydown area by SH58. Specific resource consents have been sought for the operation of this plant for the duration of the project. Noise from the plant will exceed the guideline criteria of NZS 6803:1999 at a property on SH58. The property is included within the designation and so may be purchased. Nevertheless the owner prefers to stay at the property notwithstanding the noise. The Applicants agreed to that but continue to offer alternative accommodation if required.

Main findings on construction noise and vibration

- [630] NZS 6803:1999 gives guideline construction noise limits. We were told they are widely followed and adequately limit construction noise. We accept that advice.
- [631] Guidelines from the Standard are given in the table below.

Guideline construction noise limits

Time of week	Time period	Duration of construction work at any one location					
		less than 2 weeks		less than 20 weeks		more than 20 weeks	
		L _{Aeq} (1h)	L _{AFmax}	L _{Aeq} (1h)	L _{AFmax}	L _{Aeq} (1h)	L _{AFmax}
Residential							
Weekdays	0630-0730	65 dB	75 dB	60 dB	75 dB	55 dB	75 dB
	0730-1800	80 dB	95 dB	75 dB	90 dB	70 dB	85 dB
	1800-2000	75 dB	90 dB	70 dB	85 dB	65 dB	80 dB
	2000-0630	45 dB	75 dB	45 dB	75 dB	45 dB	75 dB
Saturdays	0630-0730	45 dB	75 dB	45 dB	75 dB	45 dB	75 dB
	0730-1800	80 dB	95 dB	75 dB	90 dB	70 dB	85 dB
	1800-2000	45 dB	75 dB	45 dB	75 dB	45 dB	75 dB
	2000-0630	45 dB	75 dB	45 dB	75 dB	45 dB	75 dB
Sundays and public holidays	0630-0730	45 dB	75 dB	45 dB	75 dB	45 dB	75 dB
	0730-1800	55 dB	85 dB	55 dB	85 dB	55 dB	85 dB
	1800-2000	45 dB	75 dB	45 dB	75 dB	45 dB	75 dB
	2000-0630	45 dB	75 dB	45 dB	75 dB	45 dB	75 dB
Industrial and commercial							
All days	0730-1800	80 dB	-	75 dB	-	70 dB	-
1800-0730	85 dB	-	80 dB	-	75 dB	-	

[632] Conditions proposed to be attached to the designation require adherence to noise levels that reflect the guidelines in NZS 6803:1999 and for vibration and airblast those levels recommended in ISO 4866:2010 and AS 2187-2:2006. The methodology for complying with these criteria is to be set out in the CNVMP. Consultation with the owners of specified properties is required before construction work within 200m is commenced.

[633] We are satisfied that the effects from construction have been properly identified and adequately avoided, remedied or mitigated.

12.10 AIR QUALITY AND RELATED HEALTH EFFECTS

Evidence/Submissions

[634] Evidence on this topic was received from a number of witnesses:

- Dr Chapman for RTS;
- Mr Fisher on behalf of NZTA and PCC;
- Mr Kelly for NZTA and PCC;
- Mr Nicholson for NZTA;
- Dr O'Sullivan for RTS;
- Ms Walters for NZHPT.

[635] In addition to the evidence which we heard, at least 15 submissions raised this topic.

Issues Identified

[636] The issues identified through evidence and submissions can be broadly classified into four areas;

- Air quality;
- Construction dust effects;
- Concrete Batching Plant;
- Air quality health effects;

Air Quality

[637] Mr Fisher's evidence addressed the effects of the proposal on air quality on behalf of NZTA and PCC. He described the existing air quality as being characteristic of a rural environment, with generally low contamination levels. He noted that air quality will improve in the urban areas where traffic would be removed and emissions dispersed in a rural location²⁰¹. Mr Fisher noted that Mana Esplanade and Raumati were areas previously identified as having concentrations close to or exceeding the standards and would benefit from the removal of traffic.

[638] The AEE identified that the effect of TGP on air quality will depend on the existing air quality, predicted traffic volumes, meteorological factors influencing dispersions, the location of sensitive receptors and improvements in the performance of the country's vehicle fleet emission rates. Overall the air quality assessment concluded that on a regional basis, there will be an overall reduction of public exposure to vehicle emissions on completion of TGP and that as there will be no material adverse effects resulting from the Project's construction, no mitigation is necessary.

[639] Mr Fisher testified that the operation of TGP will improve air quality in many parts of the Project area, due to vehicle emissions being largely removed from the congested SH1 route and arterial roads and dispersed in a rural location. He also noted that regional scale impacts will be insignificant due to improvements in traffic flow combined with the continuing improvement in vehicle emissions generally²⁰².

[640] Mr Fisher also noted that *...Exposure levels in all areas will comply with the National Air Quality Standards which are designed to protect the health of the most vulnerable individuals in the community*²⁰³. This was supported by evidence of air quality modelling for various design years (as presented in TR13) in comparison to existing modelled reference data. The results demonstrated that at Linden and Warspite Avenue, the levels of nitrogen dioxide, carbon monoxide and particulates were all below recommended standards in the forecast year 2031.

[641] There was no contradictory evidence to that of Mr Fisher on this topic and the Board is comfortable that emissions from TGP will be within nationally accepted guidelines and therefore not create any adverse effects which are more than minor.

Construction Dust

²⁰¹ EiC, para 14.

²⁰² EiC, para 18.

²⁰³ EiC, para 15.

[642] The AEE stated that *...construction of the Project (particularly the earthworks and concrete batching) has the potential to generate dust which could have an adverse effect on air quality. This potential effect can be mitigated to an acceptable level through dust management measures*²⁰⁴. It also considered dust generated from earthworks (including dust from stockpiles and road dust from construction vehicles) and rock crushing, emissions from construction vehicles, odour generated during construction and discharges to air from concrete batching.

[643] Mr Fisher acknowledged that there will be dust generated by TGP, largely as a result of earthworks but also because of other activities including operation of the concrete batching plant. He said that implementation of a Construction Air Quality Management Plan (CAQMP) is intended to manage any potential effects arising from earthworks and associated dust discharges²⁰⁵ and would include many standard measures for reducing dust nuisance²⁰⁶.

[644] A draft CAQMP accompanied the application documents. The suppression of dust at its source²⁰⁷ was the primary management approach proposed. Table 7.1 of the draft CAQMP sets out the potential dust sources and appropriate control methods. The CAQMP also contains a monitoring programme.

[645] Mr Kyle stated that specification of trigger levels in both the management plan and conditions would provide greater certainty for those potentially affected by dust discharges and for those called upon to administer the conditions.

[646] Mr Fisher recommended that slightly more stringent trigger levels than those recommended by the Ministry for the Environment should be adopted in the CAQMP to provide greater certainty to dust sensitive neighbours²⁰⁸. He also outlined proposed locations for dust monitoring equipment relative to sensitive receptors and suggested that mobile monitoring equipment could be utilised²⁰⁹.

[647] In questioning by Counsel, Mr Fisher explained that NZTA has agreed to include further detail around the number and location of dust monitors and the dust trigger levels (as above) in the conditions. NZTA did not agree that how, why and when mitigation for dust nuisance effect should occur should be detailed in the conditions as the effects from detailed operations are not known yet, are somewhat weather dependent and are already managed in the construction management plan²¹⁰. Mr Fisher considered that the guidelines in the CAQMP are appropriate.

²⁰⁴ Executive Summary pg (vi).

²⁰⁵ EiC, pPara 42.

²⁰⁶ EiC, para 50.

²⁰⁷ We note that dampening of the site is a proposed mechanism – a water take has not yet been sought for the project. This is not unusual in a project of this scale and seems appropriate in our view to seek more specific construction related consents at a later date. The effects of any take can be assessed at that time.

²⁰⁸ Rebuttal Evidence, para 11.

²⁰⁹ NoE, pg 287.

²¹⁰ NoE, pg 288.

[648] Issues raised through submissions generally reflected the issues raised by Mr Kyle in respect of the ability to set and monitor trigger levels for dust and then expeditiously deal with these effects²¹¹.

[649] Mr Fisher provided overall objectives for the CAQMP²¹² and concluded that implementation of measures to meet these objectives would suitably manage construction related dust effects.

[650] The Board accepts Mr Fisher's evidence that dust effects are notoriously difficult to manage, given the possible sudden change of effects from wind conditions and the often short term nature of the effects. We conclude that any CAQMP must provide for dust suppression at source, adequate monitoring, identification of significant incidents and remedies to affected parties.

Concrete Batching Plant

[651] A Concrete Batching Management Plan (CBMP) was proposed to address specific issues relating to the concrete batching plant. Mr Fisher confirmed that the proposed conditions relating to air quality will implement suitable measures for the management of dust during TGP's construction period²¹³.

[652] Mr Fisher provided overall objectives for CBMP in Paragraph 58 of his Evidence in Chief and concluded that implementation of measures to meet these objectives would suitably manage dust effects from the concrete batching plant.

[653] Mr Kyle considered that there is currently a lack of adequate certainty within the conditions, particularly if an event is short lived, that any mitigation will be undertaken if a complaint is made as a result of a discharge from the concrete batching plant. He²¹⁴ suggested that there was not sufficient transparency in the conditions to determine when action will be taken to implement identified contingency measures.

[654] Mr Fisher disagreed with Mr Kyle²¹⁵ and considered that the conditions proposed with regards to the concrete batching plant are standard, and that *in the opinion* of an enforcement officer is a reasonable and robust measure to assess dust nuisance²¹⁶. In his rebuttal evidence and during cross-examination Mr Fisher explained his view that it is neither practical nor realistic to attempt to tie in any mitigation responses to any particular trigger event. This is because the event can be short lived, or quite sensitive to wind direction, and the effects can be very localised. Mr Kyle maintained the view that trigger levels either within the conditions and/or management plan may serve to assist enforcement officers and affected parties to determine what might constitute an adverse effect.

²¹¹ Mitchell Partnerships, s42A Report, Part 2, pg 35.

²¹² EiC, para 57.

²¹³ EiC, para 59.

²¹⁴ Mitchell Partnerships Section 42A Report, Part 2, pg 35.

²¹⁵ Which recommended that limitations on air discharges arising from the concrete batching plant be included in conditions and/or a draft Concrete Batching Management Plan.

²¹⁶ Rebuttal Evidence, para 17.

- [655] Two submissions raised specific issues relating to the concrete batching plant – St Joseph’s Church (through NZHPT) and Mr Edge.
- [656] Discussions between NZHPT and the Applicants identified conditions which would mitigate any effects on the glacier windows at St Joseph’s Church. These are reflected in proposed conditions NZTA.16-19 – Archaeology and Heritage
- [657] The issues raised by Mr Edge were addressed outside of the inquiry process and a confirmation letter attached to Mr Nicholson’s rebuttal evidence of 20 January 2012. This letter from NZTA to Mr Edge outlined processes to apply if Mr Edge did not want to remain in the property during construction. Mr Edge confirmed by an acknowledgement signature that his concerns had now been adequately addressed.
- [658] However, the various planners agreed that a management plan for dealing with the concrete batching plant is not necessary as appropriately drafted conditions can deal with this matter.
- [659] The Board accepts the the planners agreement that conditions are an appropriate mechanism to address specific issues associated with the batching plant.

Air Quality Health Effects

- [660] The health effects of vehicle emissions were raised by several submitters and also through the evidence of Dr O’Sullivan for RTS.
- [661] Dr O’Sullivan outlined the changes in transport modes and reflected on the road transport focus of transport planning as well as the increasing dependency on car usage. Her evidence highlighted that poor urban design can lead to poor health outcomes, but this was related more to obesity and mental health problems than air quality related issues. The only comments in terms of health effects related to air quality were generic comments identifying the vulnerability of poorer communities to health related air quality issues.
- [662] The evidence presented did not highlight any specific health related air quality issues. Generalities in terms of air quality and health effects did not relate specifically to TGP and there appears to be no determination required by the Board in this respect. As noted in the evidence of Mr Nicholson²¹⁷ the economic analysis highlights a small overall reduction in carbon dioxide emissions.
- [663] The Board considers that while the relocation of vehicles and associated emissions will result in different effects on specific communities, the resultant detrimental health effects asserted in submissions have not been supported through evidence presented and the overall effects are likely to be relatively neutral.

²¹⁷ Rebuttal Evidence, paras 67-68.

Main findings on air quality and dust effects

- [664] With respect to air quality, the Board accepts that the level of emissions will be within nationally accepted guidelines and will therefore not create any significant effects in this situation.
- [665] The Board accepts that dust effects are difficult to manage, given the sudden change of effects from wind conditions and concludes that any CAQMP must provide for dust suppression at source, adequate monitoring and identification of significant issues and remedies to affected parties. The conditions presented by NZTA and PCC in this respect (NZTA.39-41) outline the requirements of the CAQMP.
- [666] The concrete batching plant was initially the subject of some debate. Overall, the Board concludes that a CBMP is an appropriate mechanism to address specific issues associated with the batching plant.
- [667] Submissions from NZHPT and Mr Edge raised site specific issues in relation to the concrete batching plant. Their concerns were addressed by NZTA and agreed positions presented to the Board. The Board has no objections to or concerns about the agreements provided that agreed conditions are confirmed.
- [668] Health effects in relation to air quality were also considered and found that while the relocation of vehicles and associated emissions will result in different effects on specific communities, the resultant detrimental health effects raised by submissions have not been supported through evidence presented and the overall effects are likely to be relatively neutral.
- [669] Ultimately we found that all of the issues which we have addressed under this head have been dealt with by the Applicants in a manner which avoids, remedies or adequately mitigates adverse effects.

12.11 CONTAMINATED LAND

Evidence/Submissions

- [670] Ms Maize was the only expert witness to present evidence on contaminated land issues. No submissions on TGP raised the issue of contaminated land.

Issues Identified

- [671] No specific issues were identified through either evidence or representations in terms of specific contaminated land issues. The rebuttal statement from Ms Maize addressed issues raised in Mr Kyle's first s42A Report (Part 1, November 2011). There was also comment on contaminated land in the second s42A Report (Part 2, February 2012), which is discussed in the findings below.

Main findings on contaminated land

- [672] The AEE presented the results of investigations relating to contaminated land in TR16 (Contaminated Land Assessment).

[673] The AEE stated that the majority of areas on the TGP route identified as currently contaminated do not present a significant risk to human health or ecology. The highest risk areas are:

- An area at MacKays Crossing where potential for unexploded ordinances has been identified;
- Soil contamination at the Porirua Gun Club and a former nursery;
- The potential presence of asbestos in building materials.

[674] Ms Maize identified the mitigation or remediation that is required in relation to each site and confirmed that the removal and/or remediation of any sites will be in accordance with requirements of the National Environmental Standard for Soil (Soil NES) which came into effect on 1 January 2012. Ms Maize²¹⁸ also confirmed that specific contamination issues identified at the Porirua Gun Club would need to be addressed as part of a future consenting process.

[675] The application²¹⁹ contemplated that an Asbestos Management Plan will be prepared as well as a Contaminated Land Management Plan (CLMP). The S42A Report (Part one) highlighted an inconsistency between the application and the proposed conditions at that time, which only referred to a CLMP. The proposed CLMP condition did however include actions relating to asbestos identification and management.

[676] Ms Maize noted in her rebuttal evidence that the application omitted a reference to a CLMP for the PCC designations and that this should be included as a condition. We have done so (PCC.46).

[677] In response to questions from the Board, Ms Maize²²⁰ explained that the CLMP requires that contaminated soil is tracked to its final deposition because of the need for care about human exposure and risks to ecological values.

[678] The Board accepted Ms Maize's evidence and concluded that the proposed CLMP (to be required through Condition G.20 and PCC.46) includes suitable measures for the identification and treatment of contaminated land in unexpected situations and addresses unexploded ordinance and asbestos related issues. Implementation of the CLMP provides a method to avoid, remedy or mitigate any contaminated land issues associated with TGP. Specific issues identified at the Porirua Gun Club (contamination above human health and ecological guideline levels) will need to be addressed as part of a future consenting process.

12.12 TANGATA WHENUA

[679] TGP lies within the rohe²²¹ of Ngati Toa Rangatira (Ngati Toa), the manawhenua iwi. We heard evidence about the migration of Ngati Toa from their traditional rohe in Kawhia and the subsequent conquest and settlement

²¹⁸ EiC, para 23.

²¹⁹ Page 469.

²⁵⁰ NoE, pg 249.

²²¹ Area.

of the Wellington region. These historical factors were covered in TR18 (Cultural Impact Report) and provide context for Ngati Toa's relationship with the Transmission Gully area, and for Ngati Toa concerns in relation to the Project.

[680] In the modern context, Ngati Toa interests are represented by Te Runanga o Toa Rangatira Incorporated (the Runanga). Ms Pomare was engaged by the Runanga to give evidence to the Inquiry. Ms Pomare's evidence covered (inter alia); Ngati Toa's relationship with the Proposal area; the effects of the Proposal on matters of cultural importance; mitigation measures and conditions proposed; assessment of the Proposal against the relevant Part 2 RMA matters (i.e. sections 6(e), 7(a) and 8); and conclusions²²².

[681] In line with Ngati Toa kaitiaki responsibilities, TR18 was prefaced with the following whakatauki²²³.

Toitu te Marae o Tane

Toitu to Marae o Tangaroa

Toitu to Iwi

If the domain of Tane survives to give sustenance,

And the domain of Tangaroa likewise remains,

So too will the people.

Issues

[682] Ms Pomare expanded on Ngati Toa's relationship with the Transmission Gully area and told us of Ngati Toa's specific concerns about TGP. They were sediment discharge to both freshwater and marine environments; the management of stormwater; stream ecology and the associated underlying cultural values; the proposed stream works; impacts on native fish; native vegetation; waahi tapu; and areas of cultural significance.

[683] In terms of cultural effects regarding sediment discharge, Ngati Toa were particularly concerned about:

- The high risk of sediment contamination during construction when silt and soils from areas of open ground can be carried into waterways during rain events;
- The potential for further contamination once the road is operational, as stormwater discharges can transfer contaminants (including sediments) from the road surface to the catchments, thus potentially affecting downstream water quality; and
- The extensive earthworks required within streams where culverts, bridges and realignments are proposed, which will potentially generate significant

²²² EiC, para 11.

²²³ Proverb.

adverse effects on stream environments and cause downstream effects on the Pauatahanui Inlet and Porirua Harbour²²⁴.

[684] Ms Pomare told us that the development of an erosion and sediment control plan by NZTA and PCC (which will be required to be approved by the Regional Council)²²⁵ will be necessary to identify specific measures to be imposed and how the effectiveness of those measures will be monitored on an ongoing basis. Ms Pomare also said that Ngati Toa consider that effective monitoring will be just as important as the measures themselves in achieving successful sediment control²²⁶.

[685] Ngati Toa believed their concerns regarding site construction management in regards to sediment can be addressed by the proposed erosion and sediment control plan. The complete list of mitigation measures (including site specific mitigation) for construction effects is included in TR11.

[686] Ngati Toa acknowledged that even though an erosion and sediment control plan would be in place, a risk still remains that in a large rainfall event, where sediment deposition occurs at a depth and duration that is likely to cause adverse effects, the options for remedial action are very limited. Inability to remedy these adverse effects once they have occurred was of concern to Ngati Toa.

[687] However, Ngati Toa believed the above effects are largely mitigated by the low risk of such an event occurring and the positive effects of other mitigation intended to reduce erosion and sediment discharge over the medium to long term.

Stream Ecology and Enhancement

[688] Ms Pomare told us that the mitigation proposed for habitat loss (outlined in TR11) includes significant stream restoration and enhancement proposals. More than twice the length of stream adversely affected by TGP will end up being restored as a result. The upper Horokiri and Te Puka catchments are the main focus areas for mitigation, as substantial land retirement and stream enhancement is possible in these locations²²⁷.

[689] Ngati Toa supported these mitigation proposals and the rationale for selecting these particular sites, as they have the highest ecological value and the greatest potential for quick recovery and long term benefit. Ngati Toa was also supportive of the approach taken in selecting key ecological areas for mitigation as opposed to creating small isolated sites along the route within each affected catchment. This is consistent with a more holistic approach to environmental management which underpins the ethic of Kaitiakitanga²²⁸.

[690] Ngati Toa also considered the riparian areas already planted by NZTA will have positive effects and should be considered as an existing benefit for the loss of habitat and riparian vegetation elsewhere within the TGP area.

²²⁴ EiC ,paras 40, 40.1, 40.2 and 40.3.

²²⁵ Conditions E.11 and PCC E.19.

²²⁶ EiC, para 82.

²²⁷ EiC, para 90.

²²⁸ EiC, para 91.

[691] Ngati Toa considered the proposed works in streams might compromise the well-being and passage of native fish. The mitigation package proposed to address these concerns includes culvert design that will allow fish passage and stream diversions that are designed and constructed to be consistent with the morphology of the streams.

[692] NZTA also propose to repair or replace malfunctioning culverts which are currently limiting, if not stopping, fish movements within this catchment. This mitigation is outlined in the draft EMMP which also gives details of perched culverts that are to be replaced or retrofitted in Duck Creek. It was expected that this mitigation will reopen 8.5km of stream where fish are affected²²⁹ (before allowing for the reopening of Wainui Stream as now proposed).

[693] Ngati Toa believed that fish passage should be maintained at all times and considered the conditions²³⁰ proposed address this concern. NZTA has also addressed the question of freshwater fish translocations in the draft EMMP²³¹ and in the Indicative SSEMP for the Te Puka Stream and Upper Horokiri Stream.

Stormwater

[694] Ngati Toa supported the *treatment train* approach of using wetlands and proprietary devices to mitigate stormwater discharge. However, as wetlands have important ecological values, Ngati Toa would support the use of wetlands as the first option whenever possible.

[695] Ngati Toa also considered that operational stormwater discharged from the TGP highway should be treated to minimise the effect of contaminants on the water quality of freshwater and coastal environments. As there is no resource consent required for operational stormwater discharges, mitigation measures to manage stormwater discharges are not embodied in the designation or resource consent conditions. That notwithstanding, based on the comprehensive mitigation proposed to manage the effects of stormwater, Ngati Toa considered that contaminant discharge can be managed to produce the highest quality discharge possible resulting in very low effects to the receiving environment²³².

Cultural Issues

[696] We were told the loss of *mauri*²³³ as a result of stream diversions and reclamation will need to be mitigated through appropriate cultural ritual/protocol to be conducted by Ngati Toa. As part of that mitigation package, Ngati Toa and NZTA have entered into a Memorandum of Understanding (MoU). The purpose of the MoU is to establish an effective relationship through open and frank dialogue in relation to the design, construction and completion of the Wellington Northern Corridor projects. The

²²⁹ Draft Ecological Management and Monitoring Plan, Section B9.26.

²³⁰ A number of resource conditions address these matters. See, for example G.21.

²³¹ Draft EMMP at Section B10.

²³² EIC, para 101.

²³³ Life force of the natural environment.

opportunity is also provided for Ngati Toa to undertake any cultural ceremony at the site of the construction activity should this be deemed necessary.

Native Flora

[697] Ngati Toa considered that all efforts should be made by NZTA for the road alignment to avoid areas of native forest/vegetation. Ngati Toa also considered that further investigation needs to be made into avoiding those areas currently within the road alignment.

[698] For Ngati Toa, the loss of mauri, where native forest has been removed, will be mitigated by the appropriate use of karakia and tikanga. This protocol is specifically provided for in the MoU between Ngati Toa and NZTA.

[699] We were told that Ngati Toa are supportive of revegetation proposals as part of the mitigation for terrestrial habitat loss, and the selection of sites intended to maximise ecological benefits. In addition, the retirement of 450ha of land was initially proposed to offset the loss of 120ha of native vegetation. This is considerably more than the 250ha estimated to mitigate the loss of native vegetation which Ngati Toa considered will result in positive ecological effects over the long term²³⁴.

Waahi Tapu

[700] Ngati Toa are not aware of any waahi tapu within the proposed designation boundaries, however, this does not rule out the possibility of unearthing a site or cultural material during construction. Measures have been put in place to ensure correct protocol is followed in the event of an accidental discovery of culturally significant material. Procedures for an Accidental Discovery Protocol²³⁵ are clearly outlined in the conditions and the MoU.

Sites of Cultural Significance

[701] We heard evidence that Transmission Gully was not favoured as a place for occupation for Ngati Toa, although important Ngati Toa settlements were located at either end of the proposed alignment; at Whareroa in the north and Porirua in the south. The focus of Ngati Toa settlement was in coastal locations such as Wainui (Paekaakaariki), Pukerua, Taupo (Plimmerton), Paremata and Porirua. The environs of the Pauatahanui Inlet and Porirua Harbour also provided attractive locations for settlements and facilitated access to the coast for fishing and the gathering of kaimoana.

[702] The TGP area was used significantly by Ngati Toa for subsistence purposes. Although the kaimoana and kaiawa in modern times is not as plentiful, the area is still used for customary gathering and still retains cultural significance for Ngati Toa.

[703] Ngati Toa considered that for these places of cultural significance the mitigation of the effects of TGP will be achieved through the design and implementation of effective erosion and sediment controls, and robust stormwater treatment.

²³⁴ EiC, para 104.

²³⁵ Conditions G.8 and PCC.14.

Main findings as to effects on Tangata Whenua

[704] Ms Pomare told us that Ngati Toa considered that the proposal is consistent with ss6(e), 7(a) and 8 of the RMA, and therefore satisfies the statutory requirements in matters relating to Maori resource management.

[705] We also heard that Ngati Toa supports TGP as a way to ease congestion along SH1, thereby protecting the coastal environment from further roading impacts. Ngati Toa believed that without TGP, major upgrades will be required through Mana and Centennial Highway to cope with projected increases in traffic levels. This would require further reclamation of the coastal environment and the destruction of numerous sites of cultural significance along the coastal route. As a result, there would be significant adverse cultural effects which could not be appropriately mitigated²³⁶.

[706] Ngati Toa recognised that there will still be significant impacts of the Project on some areas of native vegetation and significant lengths of stream which will be unavoidable. Therefore, a comprehensive range of mitigation will be required to address these losses and the loss of mauri.

[707] We heard that Ngati Toa is satisfied that the adverse cultural effects identified in TR18, which include those concerns outlined above, can be appropriately mitigated. Further to this, over time Ngati Toa believe that the proposed mitigation will reduce the scale of the above effects to the point where there will be a range of positive effects on the environment.

[708] We accept the views expressed by Ngati Toa on these issues.

12.13 ARCHAEOLOGY AND BUILT HERITAGE

Archaeology

[709] We heard evidence from the following witnesses, relating to assessments of archaeological sites and features that could be affected by construction of the proposed Project.

- Ms O'Keeffe for NZTA;
- Ms Pomare for Ngati Toa;
- Ms Walters for NZHPT.

[710] Ms Pomare told us that the TGP alignment passes near several areas of significant cultural and historical value. However it does not directly impact on any known waahi tapu (sacred sites) or sites of cultural significance²³⁷.

[711] Ms O'Keeffe carried out an archaeological assessment and co-authored a report on the TGP area²³⁸. The Project study area can be divided into three broad themes: Maori occupation and subsistence; military history; and

²³⁶ TR18, Conclusion Para 1.

²³⁷ EIC, para 63.

²³⁸ TR20.

European farming. Aspects of these three themes are contiguous in time and place.

- [712] The archaeological sites recorded within the vicinity of TGP are in three main locations: on the coast at Paekakariki, at Battle Hill, and at the Pauatahanui Inlet²³⁹.
- [713] Archaeological sites at Paekakariki include pre-European Maori middens, pits, pa and terraces. In addition, there is a military theme at Paekakariki with sites including the locations of the three World War Two (WWII) military camps (Camps Russell, McKay and Paekakariki), which housed United States (US) Marines during WWII.
- [714] Archaeological sites at Battle Hill, adjacent to the Paekakariki Hill Road, include sites associated with the military engagement in August 1846 between the European militia and Maori forces under Te Rangihaeata. There is also an historic quarry, an historic woolshed and a gold mining site in the vicinity.
- [715] The archaeological sites around the Pauatahanui Inlet are of both Maori and European origin. There are numerous midden sites located around the edge of the Inlet, reflecting the richness of the sea-based resources available to the Maori occupants. There are also European houses and churches, reflecting the strategic importance of this location as a new settlement. In addition, St. Albans Church is built on the remains of Matai-Taua, a defended pa built by Te Rangihaeata.
- [716] As a result of this assessment, Ms O'Keeffe concluded that there are no known archaeological sites within the proposed designation footprints or in close vicinity to TGP that will be directly adversely affected during the Project's construction. Neither will there be adverse effects on sites in the close vicinity during operation of TGP²⁴⁰. We agree with this conclusion.
- [717] However, Ms O'Keeffe recommended that NZTA take a precautionary approach and apply for an authority under s12 Historic Places Act 1993 to modify, damage or destroy archaeological sites²⁴¹. This matter is outside our jurisdiction, however we understand NZTA have agreed to the recommendation.
- [718] Further, Ms O'Keeffe considered that there is a low probability of further, unknown archaeological sites being discovered during the construction period. This is because:
- Previous archaeological surveying and documentary research suggests a strong preference for coastal locations for pre-European Maori and early European settlers, based on the richness of coastal resources for subsistence, and ease of access along the coast;
 - The vast majority of recorded archaeological sites within the wider Wellington/Kapiti Coast region are located on or very near to the coast;

²³⁹ EIC, para 20.

²⁴⁰ EIC, para 32.

²⁴¹ EIC, para 38.

- The majority of the proposed TGP area is well inland;
- Where the route is near the coast or harbour edge, additional site visits have been made to check for the possibility of additional unrecorded sites being present²⁴².

[719] Ms Walters told us that she and a colleague had undertaken a detailed assessment and consideration of TGP and its effects. The Project had also been assessed by NZHPT's archaeologists and Maori heritage advisors.

[720] As a result of these assessments, Ms Walters told us that no known archaeological sites will be affected by TGP. We accept that evidence.

Built Heritage

[721] We heard evidence about two significant sites of built heritage in close proximity to TGP that might potentially be affected by the Project's construction and operation. These sites are St Joseph's Church and a WWII Petrol Storage Tank. St Joseph's Church was built in 1878 and thus is an archaeological site in terms of the definition in the Historic Places Act 1993²⁴³. The petrol storage tank is not *archaeological* in the sense of this definition as it postdates 1900AD. However, this feature does have high historical values, through its relative rarity and historical associations²⁴⁴.

[722] The following people gave evidence on sites of built heritage:

- Mr Bowman for NZTA;
- Mr Lister for NZTA;
- Ms O'Keeffe for NZTA;
- Ms Thomson for KCDC;
- Ms Walters for NZHPT.

[723] Mr Bowman was the author of TR19 (Built Heritage). He told us that St Joseph's is the oldest Catholic Church still in use in the Wellington Region and has a rare form of glazing known as *glacier windows* or *poor man's stained glass*. Mr Bowman said the glacier windows are not in particularly good condition at the moment but he did not know the cause of the damage to them²⁴⁵. Associated with the church is a cemetery where a number of early settlers in the area were buried.

[724] The church is located approximately 170m from the Main Alignment and 300m from the Project's main construction yard and is elevated above the SH58 interchange. However, TGP will raise the level of the SH58 interchange approximately 9.5m from existing ground level and this will result in the interchange being approximately the same level as the church.

²⁴² EiC, paras 33, 33.1, 33.2, 33.3 and 33.4.

²⁴³ Built heritage structures that pre-date 1900AD meet the definition of *archaeological site* contained in the Historic Places Act 1993

²⁴⁴ EiC, para 22.

²⁴⁵ NoE, pg 254.

[725] The Main Alignment will be visible to the west and north of the church grounds. The historical visual connection with the Inlet and wider village setting will be hindered by the Project²⁴⁶. Mr Bowman recommended planting on the Main Alignment to mitigate these effects on the church, and during cross-examination clarified that amenity planting around the church grounds is not a good idea because it may obscure the view and alter the rural setting²⁴⁷.

[726] There are potential noise, vibration and dust effects on the church. These effects are to be managed through a CNVMP²⁴⁸ and conditions proposed by NZTA²⁴⁹. Mr Bowman said there may be scope to manage these effects in a proposed Heritage Management Plan.

Petrol Storage Tank

[727] The WWII petrol storage tank is one of few surviving structures in the area associated with the US Defence Force in WWII. The petrol storage tank is listed as a historic building in the KCDC District Plan²⁵⁰ (The structure is not actually the tank itself but rather its protective brick outer skin).

[728] War historian Peter Cooke has written that the petrol storage tank and splinter proof wall at Paekakariki was the last to be constructed and, because it was used for US motor spirits (rather than aviation fuel) it is unique among the depots constructed²⁵¹. He considered that the tank is the best preserved of those still in existence²⁵². The petrol storage tank is one of few surviving structures, of the many built throughout the Wellington region, associated with the US Defence Force in WWII²⁵³.

[729] The route of the Main Alignment was refined to avoid the petrol storage tank²⁵⁴ and is now proposed to pass approximately 20m east of the structure. TGP will affect the setting of the tank to a considerable degree, with a six metre high embankment separating the structure from the alignment.

[730] Mr Bowman concurred²⁵⁵ with Mr Lister's recommendation for mitigation planting between the fuel tank and the Main Alignment and the removal of vegetation growing out of the fuel tank structure²⁵⁶. That notwithstanding, Mr Bowman concluded that the effect on the overall heritage significance of the structure will be minor²⁵⁷. We agree with this conclusion.

²⁴⁶ EiC, para 25.

²⁴⁷ NoE, pg 252.

²⁴⁸ NZTA.35 and PCC.23.

²⁴⁹ NZTA.16.

²⁵⁰ EiC, para 15.2.

²⁵¹ Defending New Zealand: Ramparts on the Sea 1840-1950s, Defence of New Zealand Study Group, 2000.

²⁵² Personal communication Peter Cooke to Ian Bowman 8 November, 2010.

²⁵³ EiC, para 36.

²⁵⁴ EiC, para 87.

²⁵⁵ EiC, para 52.

²⁵⁶ NoE, pg 254.

²⁵⁷ EiC, para 39.

[731] We were told that there could be vibration effects on the tank caused by the construction of TGP. These effects are to be managed via the CNVMP²⁵⁸ and conditions proposed by NZTA²⁵⁹.

[732] Ms Walters supported Mr Bowman's recommendation²⁶⁰ suggesting a conservation plan be put in place for the petrol storage tank²⁶¹ and the upgrading of the conservation plan for St Joseph's church²⁶².

[733] Initially, Ms Thomson believed public access to the brick fuel tank structure would be appropriate. During cross-examination Mr Bowman agreed with Mr Kyle that it was a good idea to provide a public access track to the tank.²⁶³ Further to this, a Conservation Plan is to be prepared for the tank.

[734] However, in her supplementary evidence Ms Thomson said she now appreciates how well hidden the storage tank site is. The vegetation and landform around the site disguised it completely when one is standing adjacent to the proposed road corridor. Ms Thomson understood that the proposed road will be several metres below the existing ground level when adjacent to the tank so it will be even less visible in the future. Accordingly, Ms Thomson now considered that providing public access to the structure is neither necessary nor particularly desirable due to the risk of vandalism²⁶⁴.

[735] NZHPT, KCDC and NZTA have proposed that a Heritage Management Plan. be written to manage the effects of TGP on St Joseph's Church, the petrol storage tank and other archaeological sites and features within 500m of the designation boundary²⁶⁵. We concur with that. We also find that issues of access to the petrol storage tank are best resolved through either that plan or a specific Conservation Plan and make no directions in that regard.

Main findings as to effects of TGP on archaeology and built heritage

[736] We find that potential adverse effects of TGP on archaeology and built heritage will be avoided, remedied or adequately mitigated by application of the conditions and management plans proposed by the Applicants.

12.14 SOCIAL

[737] We heard evidence on the potential social effects of TGP from:

- Ms Lawler for PCC;
- Dr O'Sullivan for RTS;
- Mr Rae for NZTA.

²⁵⁸ NZTA.35 and NZTA.36.

²⁵⁹ NZTA.16.

²⁶⁰ TR19, Section 7.1.

²⁶¹ NZTA.18.

²⁶² NZTA.17.

²⁶³ NoE, pg 251.

²⁶⁴ Supplementary evidence dated 9 February 2012, Para 2.6.

²⁶⁵ NZTA.16.

[738] Mr Rae told us that his evidence was an overview of the social effects of TGP at a regional and local scale, and in terms of construction and operational effects. His evidence drew on effects identified by technical experts in the air quality, traffic, noise, urban design and landscape disciplines²⁶⁶. Mr Rae co-authored the Social Impact Assessment (TR17) which formed part of the AEE in support of the Project.

[739] We heard that TR17 took account of the principles embodied in the International Association for Impact Assessments. Broadly these are to seek improvement of social well-being of the wider community affected by planned interventions, whilst being aware of the differential distribution of impacts among different groups, including vulnerable groups in the community²⁶⁷.

[740] Mr Rae told us that TR17 established a local study area for the purposes of profiling the existing environment and for assessing local social impacts associated with TGP. TR17 identified six main community areas within the Project area²⁶⁸.

- Community Area 1 – Paekakariki;
- Community Area 2 – Rural communities;
- Community Area 3 – Pauatahanui and Whitby;
- Community Area 4 – Eastern Porirua;
- Community Area 5 – Linden and Tawa;
- Community Area 6 – Coastal communities.

[741] Mr Rae advised that consultation had been carried out to inform his assessment and in summary, this has involved:

- Reviewing the outcomes of previous consultation and public submissions on the existing designations;
- Participating in the wider consultation carried out by the Project team, including attending TGP open days;
- Separate consultation with Regional Public Health, and with NZ Police;
- Separate meetings with PCC's staff and consultants to discuss planning and policy documents, and to discuss the outcomes from PCC's consultation on the proposed Porirua Link Roads, as discussed in Mr Bailey's statement of evidence.

[742] Mr Rae said that the wider consultation results²⁶⁹ showed that the consultation undertaken to date established a good level of community support for TGP, acknowledging that some residents of the community in close proximity to the route (e.g. at Paekakariki Hill Road and at Flightys Road) are not supportive of

²⁶⁶ EiC, para 15.

²⁶⁷ EiC, para 35.

²⁶⁸ AEE, Chapter 27, Section 27.2.

²⁶⁹ TR22.

the Project and are affected in ways that require specific mitigation. Of relevance to assessing social impacts, the consultation undertaken also showed that:

- There is an on-going commitment to engagement between NZTA and Ngati Toa, recorded in their MoU. Ngati Toa had also prepared a Cultural Impact Assessment Report (TR18);
- No concerns were raised by the providers of emergency services (Fire Service, Police, Ambulance services);
- Housing New Zealand Corporation, which owns almost 48% of all housing stock in eastern Porirua had expressed no concerns with TGP;
- The Tawa Community Board consulted widely with Tawa residents but had raised no specific concerns;
- The only Residents Associations within the Project area to express any particular interest were the Pauatahanui Residents Association (whose members had widely differing views about the merits of TGP but with no specific concerns about the design) and the Waitangirua Providers Forum (which initially requested a meeting but did not respond to subsequent invitations);
- Other than Tawa College, and Linden School (which is directly affected), none of the 34 schools in the Project area expressed any interest in or concerns with TGP;
- Business groups throughout the Project area were invited to attend the open days, and no concerns emerged from that process²⁷⁰.

[743] Further to this, we heard the TR17 assessment team conducted its own consultation which resulted in feedback obtained from the open days, and from meetings with Regional Public Health and NZ Police. From all of this consultation the following conclusions on social effects were able to be drawn:

- The route is recognised as being of strategic importance and transport benefits will arise from the new linkages;
- Economic benefits, in terms of employment opportunities and increased spend in the local communities, are expected to arise from TGP;
- There are potential impacts for access through regional reserves and forest parks;
- Traffic is a significant source of noise and air pollution, and poses a risk of road traffic injury;
- Transport infrastructure can cause a barrier to physical activity, and can cause community severance and affect social cohesion – and these effects are most pronounced in socio-economically deprived neighbourhoods (e.g. Waitangirua);

²⁷⁰ EIC, paras 44, 44.1 - 44.7.

- There are potential health-promoting impacts including improved access to employment, shops and services and from promoting economic development;
- The incidence of crime may be reduced, especially in Waitangirua where the link road will provide increased traffic movements, passive surveillance and lighting;
- There is a need to maintain and provide local roads, walkways and cycleways as important community linkages;
- There will be adverse effects during construction, including noise and visual effects.

[744] Mr Rae told us that, at a regional level, having regard to evidence from other expert witnesses on traffic effects, economics, air quality and noise he considered that the main overall social and economic effects of TGP will be:

- Improved security of the regional transportation network by establishing an alternative major transportation corridor;
- Overall improved accessibility, traffic safety, and reduced travel times arising from the implementation of a major new corridor, with strategically located interchanges and link roads;
- Improved overall connectivity between communities and opportunities for reduced community severance of communities along the existing coastal route, which is affected by high traffic volumes;
- Economic benefits from construction activities generating local employment and spending and from increased levels of economic activity in the region as a consequence of TGP (such as reduced unemployment and underemployment of resources) as described in Mr Copeland's evidence;
- Economic growth and indirect economic benefits arising from land use development and fulfilment of strategies in several district and regional planning documents which show TGP as an integral component.

[745] We also heard that the health and sustainability of communities will be enhanced through:

- Overall improvements in accessibility to places of employment, shops, social support, health services, parks and reserves;
- Maintenance of vital community linkages and walkways and cycle ways;
- Traffic safety improvements, including an overall reduction in traffic along the existing SH1 through coastal communities;
- Improved overall air quality and exposure to traffic noise, through reductions in traffic on some routes (in particular, the existing SH1 between Linden and MacKays Crossing, and on SH58 west of the junction

of the main alignment with SH58 and on Grays Road) and freer flowing traffic on other routes.

Construction Effects

[746] We heard evidence that the main potential impacts arising from construction activities are considered to relate to:

- Construction noise and vibration;
- Air quality effects;
- Traffic and access issues;
- Effects on recreational activity;
- Landscape and visual impacts.

[747] Mr Rae told us that key to minimising any anxiety in the community is the use of good communication to inform affected communities and to respond to any difficulties that may arise for them. This will be done principally through the operation of a CEMP, which contains provisions for consultation, monitoring and response in the affected community areas²⁷¹.

[748] We heard that the CEMP has subsidiary plans, each with provisions for addressing noise, air quality and traffic effects in the local communities. SSEMPs will be prepared within the framework of the CEMP (and its subsidiary plans) which will provide a construction methodology that addresses relevant environmental issues and explains how potential effects can be managed²⁷².

[749] Day time construction noise will generally not affect residents beyond some nuisance/disturbance during particularly noisy works, although people who stay at home during the day (including people who work from home, are sick, or who work night shifts) could be disproportionately affected by long periods of noisy works. A CNVMP²⁷³ identifies methods to control construction noise, including noise barriers in sensitive locations, and these were explained in the evidence of Dr Chiles.

[750] Dust can affect human health and also impact on people's enjoyment of outdoor areas and cause perceived or actual health impacts. These effects will be avoided or minimised through dust suppression at its source, and by meeting appropriate separation distances for dust generating activities. A CAQMP²⁷⁴ sets out methods to manage effects on air quality. The effects were assessed in TR13 and in Mr Fisher's evidence.

[751] Potential effects from construction traffic may include noise and loss of amenity for residents along the roads to be used for construction related traffic; and temporary disruption of access and accessibility through the

²⁷¹ NZTA.13.

²⁷² EiC, para 54.

²⁷³ NZTA.35, PCC.23.

²⁷⁴ NZTA.40.

communities. These effects were addressed in TR4 and in Mr Kelly's evidence.

[752] Horse riding on Paekakariki Hill Road was identified as a popular recreational activity within regional parks, on private land and on local roads. To mitigate these adverse effects a CTMP²⁷⁵ is to be prepared recognising that horse riders are present on local roads such as Paekakariki Hill Road.

[753] Mr Rae said overall access to Belmont and Battle Hill Forest Farm regional parks (and pedestrian and cycle linkages through the Parks) will be maintained in the long term (post-construction), but there will be some minor changes to the access to Parks during construction in order to manage phasing of construction activities. Whilst the route necessarily removes parts of these parks, pedestrian and cycle linkages will be maintained across the Project²⁷⁶. To mitigate access issues, a new track will be constructed for recreational users, linking Battle Hill Forest Farm Park through to Queen Elizabeth Park. Access issues are further discussed in the Traffic and Transport Effects section of this report.

[754] There will be visual effects during construction arising from removal of vegetation, construction yards, partially completed roading elements and concentrations of vehicles and machinery at construction sites. These will cause some change to the *look and feel* of neighbourhoods for the duration of those activities. Mitigation measures such as rehabilitation planting and the screen planting of construction yards have been identified. These effects are discussed further in the Landscape and Visual Assessment²⁷⁷ and in Mr Lister's evidence

Operational Effects

[755] Mr Rae also assessed the operational or on-going effects of TGP on local communities. The operational effects include the potential adverse effects arising from noise and vibration and on air quality, character and visual amenity, safety, community severance and access to community facilities. There are also a number of positive or beneficial effects such as improvements in route security, accessibility and movement and safety.

[756] Noise and vibration from road traffic were addressed in TR12. Noise mitigation is proposed in a number of areas, mainly where TGP is in proximity to urban areas. Noise options and mitigation were discussed by Dr Chiles in his evidence. Mr Rae considered that operational road noise will be able to be mitigated to an acceptable level in accordance with NZS 6806:2010²⁷⁸.

[757] Where traffic is expected to increase (e.g. at Kenepuru Drive, SH58 east of the Main Alignment, and in areas adjacent to the proposed link roads) vehicle emissions will still be within the guidelines for air quality²⁷⁹. There will be benefits in terms of improved air quality in some areas, particularly for the

²⁷⁵ NZTA.22, PCC.17.

²⁷⁶ AEE, Chapter 27, Section 27.4.8.

²⁷⁷ TR5.

²⁷⁸ EiC, para 63.

²⁷⁹ TR13.

coastal communities which will experience less traffic and consequently lower levels of vehicle emissions. This was explained in Mr Fisher's evidence.

[758] The introduction of substantial new roading elements will have an effect on the character of local communities, to varying degrees. In some instances the changes in character will be cumulative on the existing SH1 (such as at Linden and MacKays Crossing) and in other instances the changes will introduce new types of infrastructure (such as the backdrop to the eastern suburbs of Porirua). The remote and quiet character of some rural areas will also change, especially in the regional parks (e.g. Belmont Regional Park, Battle Hill Forest Farm Park)²⁸⁰.

[759] Mr Lister addressed effects on landscape and urban character. His evidence described planting and other mitigation measures to provide screening and framing of views, where appropriate. The Urban and Landscape Design Framework²⁸¹ (the Design Framework) focussed special attention on the design and landscaping measures that can be implemented in the most affected communities, so as to maintain (and where possible enhance) the character of these areas. Conditions of consent are proposed that require preparation of a Landscape and Urban Design Management Plan (LUDMP), which will be prepared in accordance with the Design Framework²⁸².

[760] Traffic safety (in particular for pedestrians and cyclists) was a key focus particularly where the proposed link roads will introduce more traffic into certain areas (e.g. at Whitby, Waitangirua, and Kenepuru). Recommendations for signalised intersections, and provisions for pedestrians and cyclists and other design measures to address potential traffic safety issues in those communities were outlined in TRs 4 and 23 and discussed in the evidence of Mr Kelly and Ms Hancock. They are addressed further in the Transport Section of this decision.

[761] There are some areas of land identified in TR16 (e.g. at the Porirua Gun Club) as having levels of soil contamination which could pose a human health risk. A Contaminated Soil Management Plan²⁸³ (CSMP) is proposed which includes practices and procedures to minimise environmental effects, and effects on human health and safety.

[762] Mr Rae told us that once TGP is operational there is the potential for community severance effects. In addition, the vulnerability of socio-economically deprived neighbourhoods to disruptions in existing linkages caused by major new roads was noted from consultation with Regional Public Health. Effects of this nature are most pertinent in Waitangirua where additional traffic movements will be introduced in the heart of the shopping area and community hub, and also at the SH58 Interchange where vital community walkways and cycle ways need to be maintained.

[763] We heard evidence that such effects were recognised in the very early stages of TGP and were key considerations at a series of urban design workshops.

²⁸⁰ EiC, para 65.

²⁸¹ TR23.

²⁸² NZTA.43 and PCC.29.

²⁸³ G.20 and PCC.46.

These workshops allowed for specialist expertise to be provided in aspects of design, engineering and community development.

- [764] The Design Framework was developed following those workshops and it contains a range of measures for each section of the route. These include safe crossing options (e.g. underpasses) to maintain the vital linkages across the road corridor so that communities may continue to function in a healthy and safe way. In addition, a condition recommended for the designations requires a LUDMP to be developed in consultation with local groups to address design issues in this community²⁸⁴.
- [765] There will be beneficial effects for communities once TGP is operational. These include overall improvements in route security, connectivity and movement. This will result in positive social impacts for people's day to day living, in terms of access to places of employment, shops, and community facilities. The increased route security, and reduced travel times, will also benefit emergency service providers and freight carriers. These benefits will extend to the coastal communities, which will experience an overall reduction in traffic and congestion on existing SH1.
- [766] We heard evidence that significant traffic safety benefits can be expected to arise from the improvements to the regional transportation network, brought about by new roads and intersections designed to the latest design and safety standards, and generally more free-flowing traffic. This is expected to be particularly apparent in relation to communities alongside the existing SH1 which will experience in some areas considerably less traffic and an overall safer environment.
- [767] We heard evidence from Mr Rae on the assessments of the potential effects of the construction and operation of TGP, and from the conclusions drawn from consultation carried out by NZTA and its advisors. We find that there is a good level of overall support in the community for TGP on social and economic grounds and this has been borne out in the consultation and submission processes. We accept that there is some opposition as well.

Porirua City Council

- [768] Ms Lawler gave evidence on behalf of PCC. She told us that the Council is supportive of TGP as a whole and has long advocated for its construction. This support is reflected in PCC's statutory and non-statutory documentation. In particular, TGP's construction has been assumed in the Council's identification of future urban areas in the Porirua Development Framework 2009 and in the District Plan²⁸⁵. Ms Lawler told us that the eventual construction of TGP is a key assumption in PCC core planning documents.
- [769] We heard evidence that during the construction of the Project the *look and feel* of some communities may change. However, Ms Lawler said, one of the premises of the Framework is that no area would be developed to the extent that the local character of a community would fundamentally change, rather

²⁸⁴ PCC.29.

²⁸⁵ EIC, para 10.

there would be pockets of development that strengthen the existing infrastructure. We accept that evidence.

[770] Ms Lawler said transport is a key element in the Porirua Development Framework. It is an essential element as the travel network links and binds different spaces and places together helping the City work as a whole. 45% of workers commute to Wellington City for work and 37% of workers in Porirua come from outside the City.

[771] Ms Lawler told us, by way of background, that in November 2005 the PCC submission on the Proposed Western Corridor Plan strongly endorsed a route through Transmission Gully over a coastal route upgrade. This was on the basis that the Transmission Gully route provides *...a superior solution to the coastal route in every significant respect; transport network, economic, environmental, and social and resilience to emergencies*²⁸⁶.

[772] We heard evidence that the PCC Village Planning Programme provides an important mechanism for communities to articulate their social, economic and environmental aspirations for the future development of their areas, as well as setting forth expectations of PCC's role in helping communities achieve their vision. Further to this, Ms Lawler considered that TGP will be beneficial to the wellbeing of coastal communities in a number of ways.

[773] TGP enhances the overall goals within village plans to foster a sense of community pride and identity;

- It will strengthen community cohesion by reducing severance and enhancing access to residences, businesses and community facilities;
- It provides opportunities to increase recreational use such as those outlined in village plans. Examples include improved opportunities for walking and cycling and improvements in landscaping to make coastal areas attractive to visit;
- It helps to meet communities' aspirations for improved safety and mobility;
- It complements village planning initiatives to protect/enhance unique characteristics of local natural environments.

[774] Ms Lawler said she believed the Village Planning Programme in Pukerua Bay, Plimmerton and Paremata will be enhanced by the construction of TGP because it will ease congestion on SH1, thereby reducing local concerns regarding safety and severance issues²⁸⁷.

[775] We heard evidence that the community of Waitangirua faces a number of socio-economic challenges. It is an area with a high density of state housing (69%), the average income in Waitangirua is \$18,000, less than two thirds of the regional average, single parents make up 40% of the families (more than twice the regional average) and the unemployment rate is significantly higher

²⁸⁶ EIC, para 67.

²⁸⁷ EIC, paras 77–90.

at 14% (regional average 5.2%). Youth unemployment is particularly high reflecting the youthful demographics of the area²⁸⁸.

[776] Ms Lawler said she believed that TGP offers positive opportunities for economic development in Waitangirua during its construction and operational phases due to the close proximity of the roads to underutilised commercial space. There is potential for revitalisation of Waitangirua to result from a combination of economic benefits from TGP and on-going community development activity efforts between Council and the local residents. Ms Lawler supported Mr Rae's evidence in this regard. Based on their evidence, we accept that TGP offers positive opportunities for economic development in Waitangirua.

[777] Submissions received from Ballinger Industries Ltd, Kapiti Coast Airport Ltd and the Automobile Association strongly supported TGP for the economic and social benefits it will bring to the region. Regional benefits were also identified and discussed in Mr Copeland's economic evidence.

[778] Submissions received from Public Transport Voice and RTS opposed TGP on the grounds that it promotes the use of private cars and there would be greater health benefits from making provision for public transport and alternative transport modes instead, although we were given no hard evidence on the ability of these modes of transport to accommodate the volume of traffic served by SH1. We heard evidence from Mr Rae that overall there will be an improvement in the access to community facilities and parks and reserves for recreation, and important linkages for cyclists and pedestrian will be maintained and in some cases enhanced²⁸⁹. Based on Mr Rae's evidence, we believe the submitters' concerns have been addressed.

[779] The Living Streets Wellington submission expressed concern that the roading changes will not in themselves remove the severance issues experienced by coastal communities along the existing SH1. Mr Rae supported Ms Lawler's response that while TGP will not remove community severance completely, significant traffic reductions (including heavy vehicle reductions) along the existing SH1 will enhance community access to local businesses, residences and facilities. We accept this evidence.

[780] Several submissions were received regarding severance in the coastal communities. The Pukerua Bay Residents Association submitted on the current problem of severance in the Pukerua Bay community. Also, Mr Phillips' submission talked of how the Paremata/Mana coastal highway *splits the community in two*.

[781] The Public Transport Voice submission was in opposition to TGP however, it acknowledged that there will be some benefits arising for coastal communities from reduced severance. We agree with this view.

[782] The Cannons Creek Residents and Ratepayers Association submission raised concerns regarding the potential impacts of the link road in Waitangirua on the Cannons Creek community. During the hearing we heard from expert

²⁸⁸ 2006 Census.

²⁸⁹ EIC, para 78.

witnesses on noise, exhaust fumes, pedestrian safety and environmental effects. Ms Lawler confirmed that PCC will continue to engage with residents' associations regarding local concerns through the village planning programme. We consider that the concerns raised in the submission have been adequately addressed.

[783] The Waitangirua Community Park Design Team submission expressed concern regarding pedestrian crossing safety on Warspite Avenue between Maraeroa Marae and Waitangirua Community Park, and safety concerns for Waitangirua Community Park users from the misuse of broken branches from TGP tree plantings. Mr Bailey addressed the safety concerns of the pedestrian crossing on Warspite Avenue which we discuss in the transport section of this decision.

[784] Ms Lawler told us that PCC has worked closely with residents from Waitangirua on the design, construction and maintenance of Waitangirua Park. PCC has had and will continue to have dialogue with the community regarding TGP landscaping in the area. Discussion to that effect has been had with Maraeroa Marae Executive and with representatives of the Tokelauan Church. It has been recommended that the Waitangirua Community Park Design Team be added to the list of stakeholders to be consulted in the detailed design phase of TGP in this area²⁹⁰. We consider that the Waitangirua Community Park Design Team concerns have been adequately addressed.

[785] Mr MacLean, on behalf of the Pukerua Bay Residents Association submission, outlined existing severance, safety and environmental issues with the coastal route. His representation spoke of Pukerua Bay being *...blighted by the ongoing fear and frustration caused by it being bisected by an overloaded state highway*. Although we understood that the Association supported TGP in principle it had concerns about potential problems during construction and subsequent operation of TGP. Mr MacLean detailed a number of alleged broken commitments made by NZTA in the past and expressed scepticism that commitments now being made would be honoured.

[786] We heard evidence from Dr O'Sullivan that poor urban design contributes to mental health problems with major roads known to disrupt social networks and reduce neighbourhood connectivity²⁹¹. Dr O'Sullivan said that the health impacts of major roading projects differentially affect poorer communities. That is, they are more vulnerable to the effects of air pollution, noise, community severance and social isolation²⁹².

[787] Mr Rae told us that it is acknowledged that the more socio-economically deprived sectors of the community may be more vulnerable to such effects as described by Dr O'Sullivan. However, these effects will be addressed through a range of mitigation measures, as described in the specialist technical reports, including retention of important walkways and cycle ways, linkages

²⁹⁰ PCC.29.

²⁹¹ EiC, para 16.

²⁹² EiC, para 21.

and access to regional parks, and through localised landscape and urban design plans to be developed for affected neighbourhood areas²⁹³.

[788] In his rebuttal evidence Mr Rae considered that Dr O'Sullivan's (and Dr Chapman's) statements of evidence do not take account of the evidence given by experts regarding the factors which are relevant to health effects and which are specific to TGP. Mr Rae referred to evidence touching on issues of concern to Dr O'Sullivan from various NZTA expert witnesses:

- Public transport evidence given by Mr McCombs;
- Accessibility and traffic safety evidence by Mr Kelly;
- Urban design and connectivity by Ms Hancock; and
- Air quality effects evidence by Mr Fisher.

We agree with Mr Rae that the evidence of these witnesses comprehensively addressed the issues raised by Dr O'Sullivan.

Main findings as to the social effects of TGP

[789] None of the evidence which we heard established any credible threat to the social wellbeing of communities from TGP. The evidence rather established the advantages which would flow from an efficiently operating regional transport system.

[790] We have some reservations about the extent to which the opportunities for economic benefits (which we have accepted TGP may create) will translate into actual benefits. Time will tell if that happens. However, the evidence which we heard satisfied us that there were no adverse effects on communities which could not be avoided, remedied or mitigated.

12.15 LANDSCAPE AND VISUAL EFFECTS

[791] It is inevitable that a project of TGP's size will have significant landscape and visual effects. Argument regarding those matters was, however, surprisingly limited in these proceedings. That is because much of the route runs through (largely) uninhabited pastoral land. The exception to that is at the northern end of TGP where it traverses the Te Puka Valley and at the southern end where it traverses urban areas.

[792] We heard expert landscape evidence on these matters from two witnesses²⁹⁴:

- Mr Lister for the Applicants;
- Ms Peake for KDC.

[793] The landscape and visual effects of TGP were assessed in TR5 which identified them (in summary) in these terms:

²⁹³ EiC, para 12.7.

²⁹⁴ Evidence of some planning and lay witnesses touched on landscape issues but the primary evidence was that of Mr Lister and Ms Peake

- Substantial earthworks must inevitably have adverse effects on landforms, streams and natural vegetation. The most significant effects in landscape terms would be in Te Puka Stream and in an area known as Lanes Flat. TGP has been *fine tuned* to reduce such effects as far as possible;
- TGP will introduce significant change to existing landscape character particularly at Te Puka Stream, Horokiri Stream and Duck Creek. However, when TGP is completed and operational, these parts of the route will have the highest amenity value for the users of the road;
- TGP will reduce landscape amenity in parts of Battle Hill Farm Forest Park and Belmont Hills Regional Park but the route will not intrude upon the most significant parts of these parks. Adverse effects would be mitigated by retaining physical connections to existing trails in both parks and by restoration planting where trails approach the Main Alignment;
- There will be adverse effects ranging between *moderate* and *very high* on some properties adjacent to TGP at Linden and at the middle sections of the route. Such adverse effects are much less than might be expected normally for a project of this size primarily because urban areas make up a relatively small proportion of the route and there has been an attempt to maintain reasonable separation distances where possible. More recently developed properties in the vicinity of TGP will have been aware of the existing designation and have tended to plan accordingly;

[794] TR5 concluded that the visual experience for road users would be largely positive as they traverse a *...bold topography, a sequence of enclosure and openness, and a contrasting sequence of landscapes from urban to natural*²⁹⁵.

[795] In addition to the above assessment TR5 noted that:

- There would be natural character effects on the streams which we have previously discussed. We take that matter no further and refer back to our section on freshwater ecology;
- The only outstanding natural feature (ONF) or outstanding natural landscape (ONL) identified in any relevant district plan which might be affected by TGP is the *foothills of the Tararua Ranges*²⁹⁶. The KCDC District Plan describes these as an *outstanding landscape* which we take to mean the same as an outstanding natural landscape. Any effects on the Ranges would be modest given the small proportion of the ONL affected by TGP, the low elevation at which TGP traverses this feature and the extent of existing modification in the vicinity.

[796] The Applicants' proposals for management of the landscape effects of TGP were based on an *Urban Design and Landscape Framework* (The Framework). The Framework was contained in TR23. The purpose of this document was to demonstrate how the design of TGP satisfied NZTA's Urban Design Policy Requirements.

²⁹⁵ TR5, para 1.1.8.

²⁹⁶ KCDC District Plan - Policy 4, C.10 : Landscape.

[797] The Framework incorporated a comprehensive analysis of the route and identified a series of principles which would inform the landscape design of TGP. The principles were (in summary):

- Project wide design principles which identified wider design issues such as creating an *open sky* highway emphasising the linear character of the highway as a landscape fault line and existing landscape patterns (Principle 4.1);
- Landscape design which included both highway and landscape design principles (Principle 4.2);
- Earthworks design principles which sought to minimise the effect of earthworks (Principle 4.3);
- Structures design principles which addressed the construction of bridges, underpasses, culverts and retaining walls (Principle 4.4);
- Planting design principles which set out planting requirements (Principle 4.5);
- Noise barrier principles which sought to minimise the effects of potentially intrusive noise control structures (Principle 4.6);
- Pedestrian and cycle links design principles which sought to provide for pedestrian, tramping, horse riding and cycle links where TGP crosses or joins local networks (Principle 4.7);
- Stormwater devices design principles which sought to minimise the environmental impacts of any failure of stormwater treatment systems (Principle 4.8);
- Highway furniture principles which addressed the design and positioning of structures such as barriers, lighting columns and the like (Principle 4.9).

[798] The Framework was to provide the foundations for a more comprehensive Landscape and Urban Design Management Plan (LUDMP) which would in some places be supplemented by Site Specific Management Plans.

[799] Volume 4 of the application documents was a comprehensive set of landscape plans (LAO1-LA21). These landscape plans illustrate mitigation measures planned by the Applicants to mitigate landscape and amenity effects of TGP works. Mr Lister recommended that reference to these plans be included in conditions as they are also to inform the Management Plans to which we have referred. We note that this recommendation has been adopted by NZTA and these plans form part of Condition NZTA.1. That condition requires that the Project shall be undertaken in general accordance with the information provided by the requiring authority in the NoRs dated August 2011 and supporting documents being the AEE report, dated 8 August 2011 plus various plan sets. Clause (vi) specifically lists Plans LA01-21 which are the landscape plans referred to by Mr Lister.

[800] TR5 identified the measures proposed by the Applicants to mitigate landscape and amenity effects. It described them in these terms²⁹⁷:

9.1.8 *In total approximately 570ha (now 625ha) mitigation/restoration is planned, spread between both ecological and landscape work streams and including a range of restoration methods:*

- i. Retiring land from grazing to enable it to regenerate naturally;*
- ii. Restoring riparian vegetation along the full length of significant tributary streams (particularly in Te Puka Stream, Upper Horikiri Stream, and Duck Creek catchments) and restoring riparian vegetation over shorter distances for more minor streams where they intersect the Project;*
- iii. Enrichment planting of retirement areas;*
- iv Large scale re-vegetation (using planting and hydroseeding techniques) of highway batters and slopes within the designation. In particular including major re-vegetation of Kanuka Forest within the designation between the Pauatahanui Stream and Duck Creek catchments, and a revegetation corridor between Porirua Park Reserve and Cannons Creek;*
- v. Establishment of wetland areas to treat stormwater run-off, with a margin and riparian plantings;*
- vi. Restoration of Lanes Flat as a major wetland, with restored riparian vegetation along Pauatahanui Stream and revegetation of adjacent valley edges;*
- vii. Amenity planting with faster growing exotic trees and adjacent to the road corridor to soften the overall appearance of the road and mitigate visual effects from adjacent properties.*

[801] We do not propose to traverse the evidence of Ms Peake and Mr Lister on this topic in any detail. It is apparent from their witness conferencing statement that the witnesses agreed on many aspects of landscape issues. In particular they agreed that:

- TGP would have only limited effects on the values of the Tararua hills which are an ONL;
- The most significant adverse effect to be addressed was very high adverse effects of TGP on the natural character of Te Puka Stream. The witnesses agreed that such effects are unavoidable in order to construct TGP.

[802] We mean no disrespect to Ms Peake and Mr Lister in not providing more detailed summary of their evidence, quite the contrary. Their briefs were comprehensive and focused on relevant issues. The witnesses had clearly proceeded with their discussions in an objective fashion as required by the

²⁹⁷ TR5, para 9.1.8.

Board's instruction to expert witnesses. They were largely in agreement as to the mitigation measures proposed by the Applicants. There was however, debate between the witnesses as to various matters of detail such as treatment of batters and the form of conditions.

[803] An issue of particular concern to Ms Peake was that, although the mitigation measures proposed by NZTA were appropriate in principle, the conditions of consent proposed as part of the application gave insufficient certainty in guiding final design of the process and managing adverse effects. It was agreed that certainty could be achieved by suitable amendments to the Framework which would drive subsequent detailed landscape management plans and in the LUDMP which was to be drawn up.

[804] We understand that these concerns are reflected in condition NZTA.46 and that they generally satisfy Ms Peake's concerns.

[805] Some submitters raised site specific issues regarding effects of TGP on their properties and we will address those elsewhere in this report.

Main findings as to landscape and amenity issues

[806] We appreciate that this is a comparatively brief commentary on landscape and amenity issues which commonly figure very prominently in the consideration of projects such as TGP. In this case, the landscape impacts of TGP are influenced and minimised by the fact that most of the route runs through highly modified farm and rural land with limited numbers of affected neighbours. However, we acknowledge that TGP will become a significant landscape feature across the route and will influence the outlook and views of those who presently enjoy a primarily rural environment.

[807] In the Te Puka Valley/Stream at the northern end of TGP where there is probably the most significant adverse effect on landscape and natural values, the expert witnesses have agreed that the mitigation measures proposed by NZTA are appropriate. We acknowledge that adverse effects at Te Puka cannot be avoided. That acknowledgement must be tempered by the fact that this portion of the route is currently privately owned farm land to which the public do not have access and which can be cleared for farming purposes (indeed much of it has been). The change of route from the eastern to the western side of Te Puka Valley enables TGP to avoid the very important Akatarawa Forest which is presently subject to the existing TGP designation and where adverse effects would be much more significant.

[808] Also relevant to our considerations regarding Te Puka Valley are the terrestrial and freshwater ecology mitigation measures which we have discussed elsewhere and which include enhancement of the Wainui Stream (situated just north of Te Puka Valley). That is not a case of double counting, but rather recognising that the overall mitigation package proposed by the Applicants has sedimentation, hydrological, ecological, landscape and amenity benefits.

[809] Mr Lister and Ms Peake agreed that NZTA and PCC have taken appropriate measures to mitigate adverse effects on neighbouring properties at the Linden end of TGP and these steps are reflected in several conditions particularly the suite of conditions relating to the production of a LUDMP which is to be firstly,

appropriately informed by the Framework that has already been drafted; and secondly, submitted to the relevant territorial authorities for assessment as part of the Outline Plan process.

- [810] Having regard to all of the above matters, we find that the Applicants have planned TGP in a manner which provides a comprehensive design for mitigation of adverse landscape and amenity effects. Notwithstanding that finding, we acknowledge that there will be significant adverse landscape effects on the Te Puka Valley but consider that those effects must be assessed in light of the tempering factors set out above.

12.16 DIRECT PROPERTY EFFECTS

- [811] This section of the decision considers issues raised by submitters claiming to be subject to direct effects from TGP. We identify those submitters and briefly summarise the issues raised by them. The AEE identified that TGP is likely to have effects on land either required for or in close proximity to TGP but stated that properties potentially adversely affected have been identified and appropriate mitigation has been devised.

Mr & Mrs Senadeera

- [812] Mr & Mrs Senadeera, expressed serious noise and visual concerns about the road. One of the TGP works compounds will be just north of the submitters' property and they will be subject to heavy construction traffic daily for three years. Their property is at 55 Collins Avenue which already sits below and in close proximity to the existing SH1.
- [813] Mr Edwards submitted detailed plans²⁹⁸ showing the tie-in point between the existing motorway and TGP near the Senadeera property and an alternative layout moving that point 30m to the northwest²⁹⁹. The effect of this change is to move the proposed motorway a further 3.2m from the Senadeeras' south western boundary corner (6.5m to 9.7m) and 3.4m further west from the north western boundary corner (4.7m to 8.1m).
- [814] Ms Grinlinton-Hancock provided planning evidence for Mr and Mrs Senadeera and was involved in consultation to identify possible solutions to noise, visual and construction effects of the proposal. Ms Grinlinton-Hancock considered that conditions proposed by NZTA were a practicable means to achieve the outcomes sought by the Senadeeras' submission although Mrs Senadeera had concerns that this would not be the case.
- [815] Mr Nicholson informed the Board that an agreement had been reached with Mrs Senadeera for minor amendments to be made to the road alignment to increase separation distance from her property. Although this combined with conditions seemed to adequately address Mrs Senadeera's concerns, she advised that this was a *backstop* position and her preferred solution was for NZTA to buy a vacant lot on their property as a reserve to improve amenity for the residents of Little Collins Avenue.

²⁹⁸ Exhibits 7 (Property Access Plan SK24 - Application layout) and Exhibit 8 (Property Access Plan SK25 – Altered Tie-in point).

²⁹⁹ NoE, pg 369.

[816] NZTA contended that moving the merge area to the north by 30m would reduce the effects on the Senadeeras' property which, when combined with noise mitigation measures also proposed, would appropriately mitigate the effects of moving traffic closer to the property. Ms Grinlinton-Hancock accepted that was the case although Mrs Senadeera appeared to have a different view.

[817] We concur with the position of NZTA and Ms Grinlinton-Hancock. The reality is that the Senadeera property is already affected by presence of the dominating SH1 in its existing position. The design change and noise mitigation measures proposed by NZTA will mitigate effects of the new alignment to the greatest extent possible and ensure that the effects of the new road are little (if any) more adverse than the existing road.

Green and Whitby Coastal Estates Ltd

[818] Mr C A Green is the owner of 53A Cleat St. Part of the proposed Waitangirua Link Road alignment will extend onto the southern end of the submitters property. The Applicants have provided a plan showing a possible earthworks design solution which would ensure that physical access can be achieved between the new road and the submitter's property

[819] Whitby Coastal Estates Ltd (WCEL) noted that the proposed Whitby Link Road bisects the submitters land.

[820] An expert conferencing joint report³⁰⁰ was drafted between Mr Edwards (NZTA) and Mr R O'Callaghan (NZ Area Manager, Cardno, representing both WCEL and Mr Green) and sought to address issues raised by Mr Green and WCEL. It was agreed that:

- *An access from the Waitangirua Link Road onto the Green property is feasible and will be incorporated into the final design if required by the land owner at time of detailed design;*
- *The indicative access point as shown on Cardno drawing WO8274-CP02 Rev 1 is a suitable location as the general basis for the final design;*
- *Flexibility is achievable for the Whitby Link Road;*
- *The final design can accommodate the future residential use adjacent to the Whitby Link Road without any significant restrictions;*
- *As part of the development of the final construction management plans, it is expected that construction access will be achievable between Navigation Drive and the main project works site.*

[821] We understood that the conference statement addressed the concerns of Mr Green. Mr Bailey confirmed that PCC would continue to discuss remaining issues with Mr D Bradford (the managing director of WCEL), but that it was unrealistic that any agreement will be reached before conclusion of the

³⁰⁰ Dated 30 November 2011

hearing³⁰¹. At the hearing however, Mr Bradford changed his position on the notices of requirement from *support in part* to *oppose in part*.

[822] The PCC proposed Waitangirua-Whitby link road cuts through the WCEL land at Whitby. The land is zoned for residential development. Mr Bradford accepted that development of the WCEL land can be coordinated with development of the link road. Surprisingly, Mr Bradford's objection to the designation was that he wanted more of the WCEL land to be contained within it.

[823] Mr Bradford asked the Board to consider extending the designation to include areas of existing bush on the WCEL land referred to as Ecosite 33, although he did not suggest that the land in question was required for the road. Mr Bradford's hypothesis was that Ecosite 33 had been identified in designation plans provided by PCC as an area of conservation significance and ought be protected in order to provide a very attractive entrance to Porirua City.

[824] Ecosite 33 was not included in the areas for riparian or replenishment planting proposed by NZTA. It is not needed by PCC as part of the link road. Mr Bradford appeared to be advocating its acquisition for conservation purposes which go beyond any roading purpose. We do not propose to comment on the conservation value of Ecosite 33 other than to observe that no weight regarding that matter should be attached to its identification as an area of conservation significance on the designation plans. The designation plans are provided to identify the extent of the designation and cannot have wider purposes such as identifying areas of conservation value under the PCC District Plan. Mr Bradford acknowledged that the land on Ecosite 33 is zoned for residential development and that he is entitled to clear the existing bush if he wishes.

[825] The Board is satisfied that the designation has identified sufficient land in this vicinity to enable road construction and mitigate its effects. Extending the designation as suggested by Mr Bradford is not required for roading purposes.

Battle Hill Farm Forest Park Permanent Access

[826] Submissions were received from the Regional Council and Battlehill Eventing Incorporated (BHEI) regarding access across the proposed motorway. Mr Kennedy³⁰² advised that the Regional Council, as owner of Battle Hill Farm Forest Park, requires two accesses across the TGP route to provide for logging and recreational access across the Park.

[827] BHEI was concerned about potential restriction of access to Battle Hill Farm Park for BHEI events and loss of trails for equestrian riders. The submitter was also concerned about potential risk to riders and horses from construction traffic, noise and vibration.

[828] We understand that there has been a site access agreement for Battle Hill Farm Forest Park negotiated between NZTA and the Regional Council.

³⁰¹ NoE, pg 143-144

³⁰² EiC, paras 9-10.

Mr Kennedy confirmed during the hearing³⁰³ that the conditions that the Regional Council had originally sought were no longer necessary. The access arrangements agreed also seem to deal with the issues raised by BHEI.

Rangatira Road

[829] A series of related submissions were received from C J and A D Sheridan, G L and M O Owens, Jianfei Li, J E Gray, D C and J Barnes and S B Hill and J S Grace. The submitters all live at Rangatira Road, Tawa and were represented by Mr B Wood, an acoustics expert.

[830] The submitters had concerns regarding construction noise, dust and other amenity effects. The submitters also raised specific matters about the location and use of a proposed site compound at 11 Rangatira Road. The submitters contended that the change of site use from rural residential to industrial will change the rural environment and were concerned about additional traffic and associated safety and security concerns. Sections of Collins Avenue are used by school children from Linden School. The submissions raised general concerns about increased noise levels and visual effects.

[831] The Applicants proposed conditions requiring consultation with identified property owners along this road to occur and appropriate mitigation strategies to be implemented.

[832] Mr Lister testified that the submissions were similar and related to six rural-residential properties on a private driveway off Rangatira Road. These properties overlook the proposed Kenepuru Interchange and Link Road from the eastern side of SH1. The submissions sought conditions limiting vegetation removal and earthworks, retention of trees for visual and dust screening purposes, planting of further trees as soon as practical and returning a site compound area to a rural character following construction.

[833] Mr Lister said that while vegetation clearance and earthworks will be needed to accommodate the site compound and construction access, a proportion of a pine stand on the southern boundary of the construction site and the plantation on the northern side of the site near the Kenepuru Interchange, should be able to be retained. The semi-rural character of the area could also be restored through tree planting and following construction. Mr Lister considered that planting plans prepared through the LUDMP process would form the basis of consultation with the residents and would lead to a suitable outcome.

[834] Noise issues were also a concern for the residents. The submitters engaged Mr Wood to provide acoustic advice to them and discuss noise issues with Dr Chiles. Mr Wood conducted a detailed review of Dr Chiles acoustics assessment and was satisfied that the noise effects at Rangatira Road would be acceptable.

[835] The Board is satisfied that the concerns of these submitters will be appropriately resolved through the LUDMP process and that noise effects on their properties will be acceptable.

³⁰³ NoE, pg 855.

Deuss / Poppe/Christensen

- [836] Three submissions were lodged separately by adjoining landowners in relation to similar visual and noise related issues.
- [837] The Poppe Family Trust is the owner of 504 Paekakariki Road. The Main Alignment removes a large portion of the rear of the submitter's property. The submitter sought realignment as did nearby submitters, Deuss and Christensen.
- [838] Mr E Deuss observed that the Main Alignment cuts his property in half. He was concerned about visual and noise impact on his property. He proposed that the road be shifted about 100m to the east at the northern end of his property. Staff from NZTA had visited the property. Mr Deuss said that there appeared to be no major impediments to relocation.
- [839] D Christensen (a neighbour to the Poppe and Deuss properties) expressed concerns that the new designation brings the road significantly closer than the earlier designation to his property and about motorway noise increase and construction noise impacts.
- [840] All three submitters sought the designation alignment be shifted 100m eastward towards the original designation.
- [841] NZTA responded to these requests through the evidence of Messrs Lister, Edwards and Nicholson³⁰⁴. They explained that moving the alignment as suggested by the submitters would either shift the road some 30m up the hillside thereby increasing its prominence or would significantly increase cut heights to maintain the current gradients. Mr Nicholson noted that the design curves as proposed by NZTA in this vicinity avoid large cuts into Gasline Ridge that could require relocation of two gas mains that run through the area.
- [842] In closing submissions for NZTA, counsel noted inaccuracies with the relative distances from dwellings and boundaries contained in the respective submissions and provided amended figures based on the plans submitted as part of the application.
- [843] Dr Chiles commented on noise issues raised by the submitters and concluded that the operational noise levels would be below Category A as defined in NZS 6806 and were therefore reasonable. He also expected construction noise to comply with the construction noise standard, NZS 6803:1999 and to be significantly below the guidelines for the majority of the construction period.
- [844] Notwithstanding those comments, NZTA proposed a condition which would attempt to keep the Main Alignment of TGP as far away from these properties as possible, while staying within the designation as currently proposed.
- [845] The Board considers that the condition proposed by NZTA is a practical way to mitigate the effects on the submitters' properties, in addition to the extensive landscaping already proposed by NZTA through conditions.

³⁰⁴ EIC, paras 125-129, 107-111, and 131-132.

Powerco

[846] Powerco is the network operator of a gas pipeline in the vicinity of TGP. Its Counsel (Mr Anderson) addressed the issues of maintenance of the existing gas lines in the Transmission Gully area and possible future expansion of gas infrastructure across the road.

[847] Powerco was largely in agreement with NZTA conditions as proposed by Ms Rickard³⁰⁵ insofar as existing operations were concerned. Some minor amendments were suggested by Ms McPherson in her supplementary evidence and provided these were accepted, Powerco considers that the operation and maintenance of its gas line assets will not be affected.

[848] Mr Anderson submitted that TGP would create a significant restriction on Powerco's ability to install additional gas lines in the area for future development and that there should be provision for as many utility crossings across the road as possible.

[849] NZTA responded³⁰⁶ that it was willing to accommodate future utility requirements in the design and construction of TGP. Powerco was satisfied that a letter of intent from NZTA and separate Memorandum of Understanding to follow would address its concerns for future proofing. The Board proposes to leave the matter there.

Transpower

[850] Transpower raised dust and vehicle access issues regarding its Pauatahanui and Takapu substations due to the location of an NZTA construction compound. Its concerns were satisfied by conditions proposed by NZTA. NZTA Conditions 65 - 70 specifically deal with reverse sensitivity issues as they relate to Transpower operations.

KiwiRail

[851] KiwiRail has interests as an affected land owner as part of the area proposed for the Kenepuru Link Road is owned by the Crown for railway purposes and is administered by KiwiRail. The land is designated for railway purposes. KiwiRail supports TGP as long as it is designed and implemented so as not to interfere with KiwiRail operations. NZTA is continuing to consult with KiwiRail to ensure operations are not affected. The Board proposes to leave the matter there.

Regional Water Infrastructure

[852] Mr A McCarthy from the Regional Council outlined the effect of TGP on the region's bulk water supply. The Regional Council supplies water to the cities of Upper Hutt, Porirua, the Hutt Valley and Wellington. Approximately 50% of the water supplied to those cities is sourced from the Hutt River at Kaitoke and is treated at the Te Marua water treatment plant. It is piped along Ferguson Dr and SH58 and then south, initially following Belmont Road and then Duck Creek to emerge at the northern end of Takapu Road. The pipeline follows

³⁰⁵ Rebuttal Evidence, paras 78-79.

³⁰⁶ Rebuttal Evidence, paras 90-92.

Takapu Road to the Wellington - Johnsonville Motorway which it follows south as far as Ngauranga Gorge.

[853] Mr McCarthy noted that water supply is a critical infrastructure service, but that it is possible to shut down the bulk water pipelines for short periods up to about eight hours. In terms of possible effects, the TGP route crosses the bulk water main network at four locations:

- At point 19,100m, a 180mm diameter branch pipeline to Bradey reservoir.
- At point 19,500m, twin branch pipes to Porirua City.
- At point 20,800m a 900mm diameter trunk main.
- Distance 23,200m a 900mm diameter trunk main in a tunnel.

[854] The Bradey reservoir branch main will have to be reconstructed at a lower level to avoid the TGP formation. This will involve a special construction methodology of enclosing the pipe in a sleeve so that it can be removed for future maintenance work or replacement if required without digging up the road.

[855] The Porirua branch mains cross TGP at a point where the new road formation is approximately 18m below existing ground level. It will be necessary to relocate these pipes temporarily to enable first stage earthworks and construction of a services duct to be undertaken. The pipes would then be moved to their permanent location and the earthworks completed.

[856] The trunk main crossing at 20,800m will have to be reconstructed at a lower level prior to commencement of the earthworks for TGP. It will have to be contained in a concrete box culvert or similar structure of sufficient size to enable pedestrian maintenance access. Vehicle access through the culvert is not necessary, provided vehicle access to both ends of the crossing is readily available.

[857] At point 23,200m the trunk water main is located in a tunnel. Preliminary investigations suggest that the tunnel will be unaffected by construction of TGP.

[858] Mr McCarthy suggested a number of changes to conditions to ensure adequate time was available for the Regional Council to plan, coordinate and execute the required works to ensure unimpeded water supplies around the Wellington region.

[859] Mr Nicholson confirmed that NZTA intends to work with the Regional Council to appropriately protect the security of the bulk water mains. NZTA supports the general intent of the Regional Council's proposed changes to conditions, with some amendments to provide as much advance notice of construction as possible to all of the affected network utility owners. Mr Nicholson also proposed that some of the amendments identified by the Regional Council would be best handled by way of a signed agreement between NZTA and the Council.

- [860] We understood that matters of concern to the Regional Council regarding these matters have been resolved by the relevant conditions proposed by the Applicants.

Cannons Creek Residents and Ratepayers Association

- [861] Cannons Creek Residents Association was concerned about noise from the large increase in traffic coming through the Waitangirua area into Cannons Creek as well as exhaust fumes and pedestrian safety along Warspite Avenue and the Waitangirua Mall.
- [862] The assessment undertaken by NZTA in TR13 showed only minor effects from noise and fumes in the Cannons Creek area. There was no substantive challenge to those assessments which we accept.
- [863] In respect of pedestrian safety, there was no detailed discussion of Warspite Avenue, but it seems apparent that if existing pedestrian facilities are safely providing for pedestrians now (as we understand they are), they will continue to do so in the future.
- [864] NZTA noted that traffic signals will be established at the intersection of the Waitangirua Link Road near the Waitangirua Mall. This design feature should appropriately provide for safe pedestrian use of the intersection.

23 Tremewan Street

- [865] Mr C S W and Mrs S E Edmonds are the owners of 23 Tremewan Street. They were concerned that the removal of houses on the opposite side of Tremewan Street will have a severe effect on visual amenity of their property. Mr and Mrs Edmonds submitted that the new road would also have severe impacts on their property during both construction and operation of TGP as the result of noise, dust, lighting and vibration. They noted that technical reports identified that the highest impacts on residential properties will be in the Linden and/or Tremewan Street areas. They complained about lack of consultation by NZTA.
- [866] Mr Nicholson advised that the property owners on the opposite side of Tremewan Street from the designation had not been specifically consulted by NZTA, but were part of the wider public engagement process (which we take as an acknowledgement that the Edmonds were not directly consulted). The part of Tremewan Street where Mr and Mrs Edmonds reside is already next to the road and is subject to existing operational effects. TR12 (Acoustic Assessment) concluded that changes to those existing effects would be minor and could be managed by sound mitigation including bunds or walls. Construction effects will be addressed by the management plans proposed by NZTA, which will include procedures to consider and address residents' concerns.
- [867] The Board considers that the management approach proposed by NZTA in this respect is appropriate and acknowledges the assessment contained in TR12.

Flightys Road

- [868] Submissions were received from four submitters on Flightys Road. These were Mr S H and Mrs C D Redit, Mr B Dowie and Ms T Maguire, Mr G Tombs and Mr D J Harris.
- [869] Mr Harris owns a property adjacent to the road. The submitter supported the proposal subject to the imposition of conditions that an earth sound barrier and a track allowing access to a paddock be constructed.
- [870] Mr Tombs submitted that TGP will have adverse visual and noise effects on his property during construction and once complete.
- [871] Ms Maguire and Mr Dowie raised the issue of effects on their rural views and tranquillity.
- [872] Mr and Mrs Redit were concerned that the road runs through the back of their property and they asked to have earthworks constructed to block views of the road and noise.
- [873] The overall thrust of these submissions pertained to maintaining rural character in the area, particularly as it relates to visibility of the road and noise issues. The edge of the designation runs along the western boundary of the properties of two of the submitters and west of the remaining properties. The alignment of the road itself would be some distance to the west and located below an intervening ridgeline.
- [874] NZTA will consult with residents along the route during the design period through the LUDMP. We consider that this will provide an opportunity to agree and implement an appropriate planting or screening regime for these particular properties which have been identified in an NZTA proposed condition in this respect (NZTA.47 - we note that reference to 247C Flightys Road was not included in the proposed condition and we have done so).

Mr Edge

- [875] Mr C Edge owns a property at 51 Paremata Haywards Road (SH58). The submitter's property is included in the designation as there are works directly opposite, within 20m of his residence. There would be noise, dust, vibration and visual concerns during construction and the property may depreciate in value.
- [876] Mr Edge's property was included within the designation as NZTA considered that effects on his property could not be adequately mitigated so that ultimately the Crown would acquire the property. Mr Nicholson³⁰⁷ acknowledged that Mr Edge was not consulted until fairly late in the process. Subsequently, Mr Edge had a number of meetings with NZTA³⁰⁸ which resulted in his concerns being addressed. This acknowledgement was presented in

³⁰⁷ EiC, para 161.

³⁰⁸ EiC, paras 161-164.

Mr Nicholson's rebuttal evidence. The Board proposes to leave the matter there.

Paremata Residents Association

[877] The Paremata Residents Association Inc represented by Mr Morrison supported the application subject to conditions. The Association sought that NZTA undertook all steps necessary to allow demolition of the Paremata Bridge with six months of TGP completion, avoided the use of tolls or maintained the ability to remove tolls at any time and sought additional sediment and contaminant mitigation measures.

[878] As confirmed by NZTA and discussed elsewhere in this decision, tolling is not proposed and is not considered material to this decision.

[879] The issue of removal of the existing SH1 bridge has been addressed in the Legal Issues section of this decision.

Main findings as to direct property effects

[880] A number of submitters discussed effects on specific properties and mitigation of possible effects of TGP. We consider that all the issues raised, except those by WCEL and the Paremata Resident's Association, are addressed by conditions and the management plans proposed by NZTA. The management plans outline how NZTA will continue to consult with affected parties to resolve remaining design issues. Given the site specific nature of many individuals' concerns and the preliminary status of the current road design, this is an appropriate way to provide suitable outcomes.

[881] In respect of the submission by WCEL, the Board does not believe that extension of the designation sought by Mr Bradford is required to address the effects of the proposed road.

[882] The Paremata Residents Association concerns relate to conditions of the existing Mana designation which may no longer apply if TGP proceeds and NZTA relinquishes the earlier designations. We understand the Association's concern in that regard although we did not hear sufficient evidence to decide whether or not removal of the second bridge as sought by the Association is an appropriate outcome. That may not be finally determined until TGP has been operating for some time. We have endeavored to draft a condition which ensures that the Association is consulted at that time as the existing condition requires.

13. THE TRANSPOWER APPLICATION

13.1 OVERVIEW AND PRELIMINARY MATTERS

[883] In this section we consider the Transpower application in total. This is an application made pursuant to the NESETA, as a restricted discretionary activity. The applications relate to the relocation of 24 transmission towers. All issues raised by submitters, the s42A reporters and the responses of Transpower counsel and witnesses are considered, evaluated and our findings presented. In doing so, we initially record that there were only minor issues arising from this particular application by Transpower. On that basis we have adopted an approach whereby we have provided a brief synopsis and analysis of the main issues emanating from the application.

[884] We also note the following preliminary matters:

- Under the heading of *Additional Consents* in the legal issues section of this decision we have already commented on a single legal issue arising from consideration of the Transpower application; namely the fact that Transpower has not applied for earthwork consents required as part of the access tracks, culverts and site works associated with tower relocations. We do not revisit that issue in this section other than to record our finding that Transpower's *failure* to have applied for those additional resource consents is understandable in the circumstances and is not fatal to these current applications.
- Furthermore, that does not preclude us from considering the effects arising from the application for the tower relocations themselves. In this respect we do have a satisfactory basis to consider the wider effects arising from the tower relocations and the immediate earthworks associated with that. We accept that the consideration of the wider earthworks associated with access tracks, culverts etc is for another day.
- A number of the particular issues associated with the Transpower application have been touched upon in other sections of this decision alongside the TGP proposal and its effects. For example, we note that NZTA made an allowance for earthworks likely to be necessary as part of the Transpower proposal and these combined effects were considered in turn by the archaeologist and ecologist who were shared witnesses between Transpower and NZTA.

[885] We return to the issue of witnesses presently. In the meantime we turn to the submissions received.

13.2 SUBMISSIONS

[886] Transpower's application was the subject of only four direct submissions. Counsel for Transpower opined that is perhaps an endorsement of the careful route selection process that Transpower has undertaken, and a pragmatic

recognition that transmission lines have been a feature of the Gully for some 80 years and are not being relocated far from their existing locations.

[887] Our brief commentary on those submissions follows.

Director General Of Conservation

[888] The concerns of the Director General were centred on whether the absence of earthworks applications prevented the Board from having the information it requires to determine this matter, or will prevent sedimentation issues from being properly assessed when later applications are made.

[889] For the record, we note that despite questioning Mr Nicholson³⁰⁹ and Ms Hopkins³¹⁰ on the issue, Counsel for the Director General did not pursue the matter in submissions. We also record that none of the other submitters provided submissions challenging Transpower's approach on subsequent earthworks consents.

[890] We note that Mr Nicholson expressed a view that Transpower appeared to endorse, namely that if for some reason Transpower is unable to secure the requisite earthworks consents, then it will be unable to proceed with the line relocation works as they are presently conceived and, by extension, NZTA may be unable to proceed with the Project as presently conceived. This is a given which we accept.

Kapiti Coast District Council

[891] Prior to the commencement of the hearing there appeared to be some concerns held by KCDC with respect of the landscape and visual amenity effects of proposed Tower 2A which is to be situated at the northern end of TGP, near its point of exit from Te Puka Valley.

[892] We note that the position advanced at the hearing was that those issues have been resolved, in that Ms Peake for KCDC and Mr Lister for Transpower have agreed that there is no better option available for the design of the line relocation works in the vicinity of proposed Tower 2A.

[893] Further, we record that Ms Thomson confirmed that (with the exception of the landscape monitoring period upon which we comment) she agreed with all of Ms Hopkins' rebuttal evidence addressing Ms Thomson's original concerns in respect of conditions. We record that this agreement has been captured in the amended conditions which were appended to Ms Hopkins' rebuttal and which have been adopted by us (see conditions heading later in this section).

Poppe Family Trust/Mr Duess

[894] The Poppe Family Trust and Mr Duess put forward an alternative alignment for the highway, and suggested that it may alter the need or scope of Transpower's line relocation works.

³⁰⁹ NoE, pg 68, line 23 onwards.

³¹⁰ NoE, pgs 304-305.

[895] We discuss this particular set of submissions later in this section. Of all the submissions in relation to the Transpower application, it was the only set that was either still relevant or unresolved by the close of the hearing.

13.3 WITNESSES

[896] Transpower and NZTA had shared witnesses on a number of topics. The full list of shared witnesses between the two Applicants were:

- Mr Bowman - built heritage;
- Mr Fuller - ecology;
- Mr Lister - landscape and visual;
- Ms Maize - contaminated land;
- Ms O’Keeffe - archaeology;
- Ms Pomare - cultural effects;
- Mr Rae - social effects

[897] We also heard evidence from the following three Transpower specific witnesses:

- Ms Hopkins – planning;
- Mr Mason -transmission line construction;
- Ms Yorke - transmission line engineering.

[898] In addition we heard from two KCDC witnesses; namely:

- Ms Peake – landscape architect;
- Ms Thomson – planner

13.4 ISSUES ARISING

[899] The key aspects of the application and the issues arising are considered under the following headings:

- Visual and landscape effects;
- Earthworks and contamination;
- Ecological effects;
- Effects on historic heritage;
- Effects on sensitive land uses;
- Clearance of trees and vegetation;
- Restoration of land / effects and timing of construction works.

13.5 VISUAL AND LANDSCAPE EFFECTS

[900] Mr Lister advised that the visual and landscape effects of the line relocation works were assessed in TR5A. In his evidence to us, he divided the visual and landscape effects into two key considerations - landscape character and effects on individual properties.

Landscape Character

[901] Mr Lister's evidence was that for the most part only relatively minor modifications are being made to the existing line, resulting in minor landscape effects relative to the existing environment. He advised that in his opinion the most significant area of change is the western deviation around Wainui Saddle (towers 8A to 12A) which will result in three towers on spurs above and to the west of the Saddle. We noted that the deviation is within an area classified as ONL and therefore we gave additional consideration as to whether the deviation is *appropriate* in terms of Section 6(b).

[902] In this respect, we note that Mr Lister give evidence that the deviation is appropriate, taking into account:

- That the existing line already traverses the ONL;
- That the proposed route is the best of the available options (given that other constraints apply both through the Saddle, and on the eastern flank of the Saddle);
- That the deviation will have little effect on the main values of the ONL as a natural backdrop to the coastal plains.

[903] We agree with and adopt that assessment as our main finding on this topic.

Effects on individual properties

[904] In terms of general effects on properties within proximity to the relocated transmission tower route, s42A writer Mr Kyle initially advised us that the visual and landscape effects assessment had identified that there will be moderate effects on seven residences arising from proposed towers 32A, 33A and 40A. We were also told by Transpower that those towers are at the same distance or further away from the relevant dwellings than the towers they replace.

[905] Mr Lister proposed that those effects can be partially mitigated by reducing the tower movement tolerances for those tower sites, and through localised planting. We generally accept Mr Lister's recommendations and have agreed that they be included as conditions on the consents.

[906] Further, we note that maintenance and upgrading of the line permitted under the NESETA could result in similar visual effects.

[907] Ms Hopkins gave evidence that she is satisfied that significant landscape effects have been generally avoided through careful route selection processes. In reliance on Mr Lister's assessment, she concluded that she is

satisfied that, with the proposed mitigation measures in place, the minor residual landscape effects are acceptable. We concur.

[908] In terms of specific effects on properties, we were told that one of the towers identified by Mr Kyle (33A) plus one other (31A) were the subject of a submission by the Poppe Family Trust and Mr Deuss. Those submitters, who are immediate neighbours, filed separate submissions and attended the hearing giving representations in support of their submissions. They were joined by another neighbour Mr Christensen, although he had not submitted on the transmission towers themselves.

[909] Of relevance to Transpower, the Poppe and Deuss submitters suggested there should be a realignment of TGP in the vicinity of their properties, which they submitted would result in no need for the movement of transmission towers 31 or 33.

[910] We agree with Counsel for Transpower that the highway alignment is not a matter for Transpower. We also note that at the hearing the transmission lines concern canvassed by those submitters was secondary to their principal thesis that the highway corridor should be moved to the east. However, like Transpower, we have given consideration to the consequences of the realignment of the highway on the line relocation works to the extent that that is possible.

[911] To this extent, we relied on Ms Yorke's rebuttal evidence that in turn drew on the unchallenged evidence of Mr Lister.

[912] Ms Yorke addressed the concerns of the submitters on the following basis:

- That even if the highway were to be realigned as suggested by these submitters, it is likely that tower 32 would have to move and may also have to increase in height, and
- That tower 31 may need to be upgraded, given the new roles that those towers would play on either side of a road crossing, and the relative clearances required between the conductors and the road as a result of that change.

[913] In short, she was clear in her appraisal that the desire of these submitters to minimise changes to the towers in the vicinity of their properties will not be achieved through the highway realignment that they propose. We agree.

[914] In addition we record that, as outlined in Section 12.16, NZTA has offered a condition for its designations requiring the detailed design of the Main Alignment to maximise the distance between the road carriageway and the Poppe, Deuss and Christensen properties within the designation corridor. If that is taken up (presumably through the subsequent outline plan process under s176A of the Act), then there may need to be an alternative design consented for the relevant tower sites (31 – 33).

[915] For the present, we accept that Transpower cannot assess what significance the adjustment to the Main Alignment might have for the tower relocation sites;

and for that reason we acknowledge Transpower's position that it seeks that consents be granted for the sites as presently designed.

- [916] In terms of the above assessment of landscape effects and in reliance on the conditions discussed the end of this section, we agree with the Transpower position and that is our main finding in that regard.

13.6 EARTHWORKS AND CONTAMINATION

- [917] Transpower earthworks will be the subject of future consent applications. However, as earthworks are a matter for which discretion is restricted (regulation 16(4)(b) NESETA), we note that Transpower was required to identify the likely scale of earthworks that the project is expected to involve. Transpower told us that this may assist the Board in understanding in a broad sense the comparative scale of the line relocation works. We acknowledge this and note the disclaimer from Transpower that the information about the likely earthworks components was put forward primarily for contextual purposes.
- [918] When consent applications are made for the earthworks associated with line relocation, it will be possible to comprehensively assess the full effects of those earthworks (including any cumulative effect they may have when added to the earthworks elements of the highway construction). We were advised by Transpower, that for a line relocation project it is common for tower sites to be consented first, followed by micro-siting of towers, followed by earthworks consents once the detailed earthworks design has developed.
- [919] The only witness who expressed a contrary view to Transpower's approach was Mr McLean, who in his s42A report raised an objection *in principle* to the separation of the earthworks consents from the other consents required.
- [920] In questioning Mr McLean acknowledged that Ms Malcolm's evidence for NZTA took into account sediment yield from Transpower's likely earthworks. Nevertheless he raised a concern that *...the actual methods for any given part of the Transpower works have not been detailed and therefore the adequacy of any proposed measures cannot be fully assessed*³¹¹.
- [921] In answers to questions from the Board on this issue³¹² Mr McLean expressed the view that this was more of a missed opportunity than a significant flaw. We tend to agree. We have already acknowledged the principle that ideally all requisite consents should be sought concurrently. However, we also accept that this is not always possible, particularly with larger-scale projects.
- [922] We also accept the argument from the Regional Council³¹³ that the current approach from Transpower will enable an appropriately cumulative assessment of effects (including the adequacy of any proposed mitigation) at a future date.

³¹¹ Peer Review of Sedimentation Mitigation Controls, January 2012, pg 23.

³¹² NoE, pg 1629.

³¹³ Memorandum of Counsel for the Regional Council, 5 March 2012, paras 1 – 10.

[923] With respect to contamination, Transpower said that the risk of encountering land which has contaminants present at a level above background or risk-based levels has been assessed based on the proposed tower sites. They referred to a report by Ms Maize which was included in support of Transpower's application (*Addendum to Technical Report 16A: Land Contamination Assessment and Investigation Report*).

[924] Ms Maize said that, with two exceptions, there are no identifiable contamination risks with any of the proposed tower sites. We were told that the two exceptions are:

- That tower 1 is located in an area with minor to medium contamination risk from past land uses, but as the tower is to be strengthened without significant disturbance of the soils, the risks are assessed as low;
- That the site of tower 25A is associated with past DDT usage, but with appropriate measures in place to manage any potentially contaminated material found during that disturbance, any adverse effects are expected to be no more than minor, and have been appropriately avoided, remedied or mitigated.

[925] We note that when earthworks consents are sought, a related assessment will also be undertaken of any potential effects related to contamination. Accordingly we do not need to take this matter any further.

13.7 ECOLOGICAL EFFECTS

[926] Mr Fuller had produced TR11A assessing the ecological effects of line relocation. He gave evidence that was:

- All but four of the proposed tower relocations lie within the extended works for the highway.
- The remainder, being towers 9A, 10A, 11A and 32A, all lie on improved pasture and are accessible by existing farm or forestry access tracks, such that no vegetation removal or clearance will be required.
- No regenerating native bush or native forest will be affected by the Line Relocation Works and no vegetation trimming for line clearance during operation is likely to be necessary, for the foreseeable future.
- No sites of ecological value identified in the Kapiti Coast District Plan or Porirua City District Plan are expected to be affected by the line relocation works.

[927] To ensure these outcomes Mr Fuller recommended that the full extent of all ecological sites of value are confirmed prior to earthworks commencing, and appropriate protections be put in place. Those recommendations were incorporated into the conditions proposed by Transpower and are accepted by us.

[928] We accept that the key mitigating factor in the avoidance, remedy and mitigation of ecological effects is that most tower locations and potential access tracks are expected to lie on flat to rolling terraces and downland. In

this respect, we agree with Mr Fuller's assessment that there are unlikely to be any issues around the prevention of erosion or management of sediment discharge.

[929] We also accept that when earthworks consents are sought in due course, those issues will be fully open to evaluation, and appropriate management.

[930] Overall, our main finding is that the line relocations can be undertaken without adverse effect on ecological values or indigenous biodiversity.

13.8 EFFECTS ON HISTORIC HERITAGE

[931] The effects of the line relocation works on historic heritage were assessed in two reports that formed part of the Transpower application (TRs 19A and 20A). Evidence for Transpower was given by Mr Bowman and Ms O'Keeffe, who undertook the assessments described in those reports.

[932] Mr Bowman gave evidence that the line relocation works will not detract from the heritage values of the sole built heritage site within the vicinity of the works, being the WWII brick fuel storage tank closest to proposed towers 2A and 3A.

[933] Similarly, Ms O'Keeffe gave evidence that none of the archaeological or heritage sites from Maori occupation or past military presence in the area are to be physically affected by the works.

[934] In light of Mr Bowman and Ms O'Keeffe's assessments, no specific mitigation was considered to be necessary, but a condition of consent is proposed setting out procedures for accidental discovery of potential archaeological material (an ADP) and it is anticipated that any future earthworks consents would include similar conditions.

[935] Furthermore, we note that Transpower proposes to adopt the same ADP that NZTA developed with NZHPT and Ngati Toa Rangatira for inclusion within the Line Relocation Works CEMP. Evidence about that protocol was given for Transpower by Ms Pomare.

[936] We make the main finding on this issue that the effects of line relocation on archaeology and heritage have been adequately addressed by Transpower.

13.9 EFFECTS ON SENSITIVE LAND USES

[937] The effects of the line relocation works on sensitive land uses were assessed in TR17A. The author of that report, Mr Rae, gave evidence for Transpower.

[938] Before commenting on that evidence we note that *sensitive land use* is defined in regulation 3 of the NESETA. It *...includes the use of land for a childcare facility, school, residential building, or hospital.*

[939] Mr Rae gave evidence that the works will have no effects on any schools or childcare facilities nor on any hospitals as there are no schools or childcare facilities within the line relocation route. The closest school is the Pauatahanui Primary School, which is 1.2km from the nearest relocated tower, being tower 43A. There are no hospitals within the vicinity of the line relocation.

[940] Mr Rae identified that there are a few residential buildings in the vicinity of the relocation as follows:

- The nearest being 120m from tower 33A. That tower is to shift approximately 10m to the north from the existing tower site, but will not be located any closer than the existing tower to the residential building.
- The next closest tower to a residential building is tower 3A at a distance of 140m. Again, after relocation, the tower will not be located any closer to the nearest residential building.
- The next closest tower is tower 32A, located 220m from the nearest residential building.
- All other distances between residential buildings and towers are considerably greater, and in several locations will increase as a result of the line relocation works.

[941] Mr Rae said that the visual effects of the tower relocations on these residential buildings have been assessed as part of the landscape and visual effects assessment undertaken by Mr Lister (and Ms Peake for KCDC). With mitigation measures for those towers in place, the adverse effects have been assessed as no more than minor.

Our main finding on this topic is that with proposed mitigation in place, the effects of the entire tower relocation works on sensitive land uses will be negligible.

13.10 CLEARANCE OF TREES AND VEGETATION

[942] Ms Yorke advised us that the route selected for the relocations has resulted in towers that are sited to avoid areas of significant indigenous vegetation. Transpower is additionally offering measures by way of its own proposed CEMP that will further ensure any adverse effects of vegetation clearance are appropriately avoided, remedied or mitigated.

[943] We note the point made by Counsel for Transpower that this approach regarding the CEMP is precautionary given that:

- No clearance of significant vegetation is required for the line relocation works;
- Any vegetation clearance will be predominantly of gorse-dominated scrub and some plantation pine, the effects of which have been assessed as part of the ecological effects assessment, and found to be negligible.

[944] We accept that submission. We conclude that clearance of trees and vegetation will be re-examined as part of the later consenting of earthworks and that in the interim the CEMP will contain the appropriate safeguards.

13.11 RESTORATION OF LAND/EFFECTS AND TIMING OF CONSTRUCTION WORKS

[945] Evidence about land restoration and construction timing was given by Mr Mason, a construction manager with Transpower.

[946] His evidence on the effects and timing of construction works was not challenged and it is adopted by us. We also note that his evidence on this topic was relied upon by Transpower's planning consultant, Ms Hopkins, who concluded that the effects of construction will be minor and of short-term duration, and are well able to be managed through the proposed provisions of the CEMP. We agree.

[947] Mr Mason's evidence on land restoration was that:

- Following construction, all equipment and materials will be removed from the area, and all areas not required for following works for the highway will be reinstated by means of topsoiling and grass-seeding, or planting of native bush.
- Any access tracks not required for maintenance will be reinstated. The remaining tracks will be established to a permanent standard for continuing maintenance access.
- Mr Mason also described the restoration process that will occur at the decommissioned tower sites.

His evidence is accordingly adopted by us.

13.12 OVERVIEW OF EFFECTS ASSESSMENT

[948] Transpower submitted that the effects that are relevant under the restricted discretionary status of the Line Relocation Works have been assessed independently and to a level of detail commensurate with their environmental significance. We concur.

[949] We make the main finding that any adverse effects of line relocation which can be presently assessed are able to be avoided, remedied or mitigated to an appropriate degree on the following basis:

- Areas or sites potentially sensitive to the proposed line relocation have generally been avoided through the route selection process.
- Some of the potential effects may be disregarded as effects that could arise from permitted line relocation works under the NESETA.
- The remaining effects are limited to construction and landscape effects, all of which can be appropriately mitigated through conditions of consent.

[950] We now conclude with a brief comment on the relevant conditions.

13.13 CONDITIONS

[951] Importantly, we note that, like the application itself, the proposed Transpower conditions were (with one exception as discussed below) conceived and drafted so as to operate on a stand-alone basis, (i.e. distinct from the conditions that may attach to NZTA's and PCC's consents and designations). We endorse that approach as it recognises the relative scale of these project components.

[952] The other benefit of this approach is, as counsel for Transpower noted, that if we were of a mind to introduce any changes to NZTA or PCC conditions (which we have) it is unlikely that any corresponding change will be required to the Transpower conditions.

[953] That preliminary matter aside, the key Conditions of the Transpower application relate to the following three matters

Landscaping – Monitoring period

[954] The single exception to the stand alone approach of conditions on the Transpower application is in relation to the landscape monitoring periods where the Transpower condition is linked to the NZTA conditions. In this respect, we note that Transpower has proposed a monitoring period of three years, based on Mr Fuller's evidence. Mr Fuller's view was that a range of alternatives could be specified, but three years is appropriate. A different view was expressed by Ms Peake for KCDC, who said she would support a five year period on the basis that *longer is better*.

[955] Ultimately the Board prefers Mr Fuller's opinion and imposes a three year monitoring period. This does not raise any inconsistency between the Transpower conditions and the NZTA/PCC conditions.

Landscaping – off-site Mitigation

[956] One landscaping matter that the Board raised during the hearing is the question of possible off-site planting on submitters' properties to provide greater screening of relocated towers: specifically in relation to the properties of the Poppe Family Trust and Mr Deuss.

[957] Mr Lister's evidence on this point was that this type of off-site planting was considered, and he advised the Board that such planting is a possibility, but he said that he did not recommend it, because he did not think there was a need.

[958] It was Transpower's submission that no need has been established in the representations from the submitters themselves as follows:

- Mr Deuss and Mr Poppe (supported by their neighbour Mr Christensen) have focussed primarily on getting the road re-aligned, which they anticipate will mean that towers 31, 32 and 33 may not require relocation.
- They have not requested mitigation planting on their sites, and even when questioned about what possible mitigation they might desire if the alignment remains as proposed, none of them identified that they would wish to have mitigation planting for possible screening of towers.

[959] Therefore, we agree with Transpower's submission there is no basis for off-site mitigation planting to be required as a condition of consent.

Other Amendments

[960] A number of minor corrections were proposed in respect of the Transpower conditions, these included:

- An additional advice note that clarifies the applicability of the conditions across the Porirua City and Kapiti Coast districts;
- An additional provision describing the obligation to appoint a Project Archaeologist, which was previously absent despite a reference to the *Project Archaeologist*; and
- Several self-explanatory grammatical corrections.

[961] We have adopted those changes and the final set of conditions is included in the TL series of conditions.

13.14 MAIN FINDINGS ON TRANSPOWER APPLICATIONS

[962] Transpower seeks consents to relocate parts of its long-standing PKR-TKR A transmission line, to enable NZTA and PCC to develop TGP.

[963] Transpower's applications are made pursuant to the NESETA, as a discretionary restricted activity. All of the matters to which the Board's discretion has been restricted have been addressed in the evidence of Transpower's witnesses; and Transpower's application faced limited opposition.

[964] On the above basis, we have concluded in reliance on the largely unchallenged evidence called for Transpower, that:

- Areas or sites potentially sensitive to the proposed line relocation have generally been avoided through Transpower's route selection processes, and
- Some of the potential effects of the activity may be disregarded as effects that could arise from permitted line relocation works under the NESETA.
- Transpower's evidence is that the remainder are limited to effects of construction and landscape effects, all of which are to be appropriately mitigated through proposed conditions of consent.

[965] We also conclude, in reliance on Transpower's evidence, that the line relocation works will promote the sustainable management of natural and physical resources, and in particular will:

- Enable a route for TGP, which is in turn part of the Wellington Northern Corridor RoNS;
- Provide for the on-going operation and maintenance of a nationally significant physical resource – the National Grid – which provides for the sustainable, secure and efficient transmission of electricity.

14. MANAGEMENT PLANS

14.1 CONTEXT

[966] In our section on Legal Issues we recorded that it was apparent to the Board that the outcome of these applications and NoRs would largely depend on an assessment of their effects and how they are managed. The degree to which those potential effects will be avoided, remedied or mitigated was a significant focus of the hearing and one which directs attention squarely on the topics of adaptive management, conditions and the various management plans.

[967] At the heart of the NZTA/PCC and Transpower applications is a system of avoiding, remedying and mitigating adverse effects of TGP through the use of adaptive management techniques. The focus of those techniques is the use of management plans.

[968] Many of these management plans have been referred to in other sections of this report dealing with specific effects of the proposal. Such references generally provide that the effects under consideration will be dealt with through a management plan which will be required by a condition and which will be prepared and submitted to either the Regional Council or the relevant territorial authority.

[969] For example, in Section 12.3 on sedimentation effects, it is proposed that an Erosion and Sediment Control Plan (ESCP), Erosion and Sediment Control Monitoring Plan (ESCMP) and Site Specific Environmental Management Plans (SSEMP) (dealing with a range of topics including sediment control), would all be required to be prepared by the Applicants and submitted to the Regional Council for certification. Similar examples are cited in other sections of this report dealing with specific effects.

[970] In this section we give some consideration as to how the management plan process will work in practice to ensure that the consideration and reliance on the management plan process is well founded and appropriate.

[971] Accordingly, we briefly identify the various management plans that are embodied in the conditions including:

- The nature of each management plan;
- The inter-relationship between management plans in terms of relevant statutory provisions and content;
- The process of preparation, authorisation and implementation of such plans.

[972] To assist in this exercise, the Board has included reference to Appendix 1 to this report which is a diagrammatic depiction of the management plan arrangement proposed by the Applicants. Appendix 1 provides the following information:

- A list of the various management plans;
- Identification of which conditions are relevant to the management plans;
- Whether the management plan is to be submitted to a territorial authority or the Regional Council, or both;
- The functional relationship between the various management plans.

The commentary that follows should be read in conjunction with Appendix 1.

14.2 THE MANAGEMENT PLANS: NATURE AND CONTENT

[973] There are over 20 management and monitoring plans covered by the suite of conditions under both the NoRs and the resource consents. As discussed under the adaptive management heading in the legal issues section, the starting point for consideration of these management plans is the two *overarching* management plans which between them define the overall management plan process. Those are:

- An Outline Plan prepared by NZTA/PCC pursuant to 176A RMA for the TGP;
- A Construction Environmental Management Plan (CEMP) to be prepared by both NZTA/PCC and Transpower for their respective projects.

[974] The salient features of both categories of management plan along with a summary of our findings on them are outlined below using the above Outline Plan and CEMP division for organising our considerations.

14.3 MANAGEMENT PLANS CONSIDERED UNDER THE OUTLINE PLAN UMBRELLA

[975] The Outline Plan process is provided by the RMA to ensure territorial authority input into detailed design. We note that Section 176A RMA sets out the process whereby the requiring authority submits an Outline Plan to the Territorial Authority.

[976] In terms of the Project's management plans, the following specific plans will each form a chapter of the Outline Plan³¹⁴:

- Landscape and Urban Design Management Plan – LUDMP (NZTA.42, PCC.26)
- Heritage Management Plan - HMP (NZTA.16)
- Construction Traffic Management Plan - CTMP, (NZTA.22, PCC.17)
- Construction Noise and Vibration Management Plan - CNVMP, (NZTA.35, PCC.23)
- Construction Air Quality (Dust) Management Plan - CAQDMP, (NZTA.39, PCC.24).

³¹⁴

Rickard, 20 February 2012, para 13.

[977] The above plans cover, with the exception of one plan (the LUDMP), matters that are solely within the ambit of the functions of territorial authorities. The LUDMP is the exception because there are (as we discuss later) elements of that plan which cross over into Regional Council functions.

[978] For completeness, we note that the CAQMP would normally be a matter for the Regional Council, given that such a plan potentially covers the regional function of the discharge of contaminants to air (such as fugitive dust from construction works). In this instance, however, TGP does not trigger the need for any discharge consent under the Regional Air Plan. Instead the discharge of dust is considered solely by the territorial authority under the NoR as an amenity effect. Accordingly, although there is functional jurisdiction for input into the CAQMP by the Regional Council there is no regional consent application for the CAQMP to attach to. We note also that application has been made for air discharge consent for the concrete batching plant. Whilst a concrete batching plant management plan is not required, the discharges are managed by consent conditions.

[979] The above exceptions aside, the key features of the plans under the Outline Plan umbrella are set out below.

Landscape and Urban Design Management Plan (NZTA.42, PCC.26)

[980] The purpose of this plan is to provide for the integration of TGP's permanent works into the surrounding landscape. This involves input into matters such as:

- Earthworks contouring;
- Appearance of structures (including bridges, noise barriers etc);
- Provision of guidelines for highway furniture (e.g. signposts, lighting standards etc.);
- Identification of required landscape and visual mitigation planting;
- Coordination between landscape works and ecology works.

[981] The LUDMP must be prepared by suitably qualified landscape architects and urban designers and is required to implement a number of relevant and informing documents such as the 21 landscape plans submitted with the applications. Other key documents that the LUDMP must be informed by or give effect to include:

- The Transmission Gully Urban Landscape Design Framework (the Design Framework) and associated design principles;
- Various Transit NZ/NZTA guidelines on highway landscaping and urban design.

[982] In addition, this plan is required to include landscape and urban design details for specific parts of the project on such matters as diverse as intersection design, riparian planting, landscape treatment for pedestrian and cycle

facilities and principles relating to Crime Prevention Through Environmental Design (CPTED).

[983] The plan requires NZTA/PCC to consult with a variety of stakeholders including iwi, the Regional Council, cycle and pedestrian groups and the owners and occupiers of nominated properties including Little Collins Street and 55 Collins Avenue.

[984] The conditions volunteered by the Applicants acknowledge the need for consistency between the LUDMP and the EMMP (a plan is to be submitted to the Regional Council for certification under the CEMP umbrella as discussed later in this section) and propose that the EMMP be submitted to the relevant territorial authority for information at the same time that it is submitted to the Regional Council for certification. We return to this matter later.

Heritage Management Plan (NZTA.16)

[985] This plan, in addition to identifying and managing the effects of the Project on St Joseph's Church and the brick fuel tank containment structure, is required to identify a methodology for dealing with heritage and archaeological matters during the construction period. The plan recognises that an authority under Historic Places Act 1993 may be required for earthworks and also relates to a requirement for a conservation management plan for the brick fuel structure and an updated conservation management plan for the church.

[986] In preparing the HMP, consultation with iwi and the NZ Historic Places Trust is required and an agreed accidental discovery programme must be produced. No works are permitted to commence until the HMP has been completed and finalised as part of the Outline Plan process.

Construction Traffic Management Plan, (NZTA.22, PCC.17)

[987] The purpose of the CTMP is to manage the various traffic safety and efficiency effects associated with construction of TGP. It is required to address matters including the staging of works, construction yard access, methodology for detour routes and a process for the submission of site specific traffic management plans.

[988] This plan must be prepared in consultation with the roading asset managers of the territorial authorities. Specific requirements for inclusion in the CTMP are:

- Consultation with the owners and occupiers of nominated Rangatira Road properties;
- Methods to manage construction traffic effects of the harvesting of plantation forestry along/adjacent to the TGP route.

[989] The CTMP is required to be consistent with the NZTA Code of Practice for Temporary Traffic Management (COPTTM).

[990] A key feature of the CTMP is the requirement for Site Specific Traffic Management Plans (SSTMPs) (NZTA.28, PCC.19) to be prepared for specific parts of the Project. SSTMPs are required to describe the measures that will be taken to manage the effects associated with construction on parts of the

route prior to works being undertaken. It is likely that there will be several SSTMPs for the Main Alignment and link roads which are likely to relate to the staging of the project. Other key features of the SSTMPs are:

- They are to be certified by the relevant territorial authority;
- The principal purpose of the certification process is to ensure that the traffic management principles contained in each SSTMP are consistent with the CTMP that will have already been submitted as part of the Outline Plan process.

[991] The Board notes that the Applicant proposed that the CTMP is processed as part of the Outline Plan process, whereas the SSTMPs are to be *certified* by the territorial authorities.

[992] Specific aspects which the SSTMPs will deal with include:

- Temporary traffic management measures;
- Individual management plans for intersections;
- Access to private properties;
- Safety measures;
- Signage;
- Detours.

[993] In addition to preparing the SSTMPs (and the CTMP for that matter) both NZTA and PCC must demonstrate to the territorial authority that these traffic management plans are consistent with the NZTA Code of Practice for Temporary Traffic Management (COPTTM). That will be a consideration for the territorial authority when assessing the CTMP and SSTMPs as part of the Outline Plan process and certification process respectively.

Construction Noise and Vibration Management Plan (NZTA.35, PCC.23)

[994] The conditions on the NoRs include reference to noise standards from NZS 6803:1999 Construction Noise. That Standard specifies a range of noise limits depending on the day of the week and the time of the day. The purpose of the CNVMP is to include specific details relating to methods for the control of noise associated with all project construction works to demonstrate (as far as practicable) compliance with NZS 6803:1999.

[995] The preparation of this plan is required to be undertaken by a qualified acoustics specialist and must be prepared in consultation with the relevant territorial authority. It must demonstrate that appropriate consultation has been undertaken with a range of nominated parties including the owners and occupiers of selected Rangatira Road properties and 55 Collins Ave.

[996] A draft CNVMP was submitted with the application (dated July 2011) and the final CNVMP must be generally consistent with that draft plan.

Construction Air Quality (Dust) Management Plan (NZTA.39, PCC.24)

[997] The CAQMP is required to provide a methodology for managing the effects of dust from construction activities occurring along the route. It is required to include as a minimum:

- The identification and implementation of dust suppression measures appropriate to the sensitivity of nearby sensors;
- Identification of contingency measures (e.g. cleaning of water tanks, cleaning of houses etc).

[998] The plan requires a process of advice to and consultation with the owners and occupiers of any residential property where construction activities that have the potential to generate dust will be undertaken within 100m of a dwelling. The plan must be consistent with the draft CAQMP submitted with the application dated March 2011.

[999] We note that in addition to the above management plans directly covered by the Outline Plan process, there are other groupings of plans relating to both the NoR and other non-statutory requirements. These plans, along with the relevant conditions numbers, are as follows:

- Conservation Management Plans – St Joseph's church (NZTA.17); Brick Tank (NZTA.18);
- Network Utilities Management Plan (NZTA.57, PCC.33)
- Communications Plan (NZTA.13, PCC.12)
- Accidental Discovery Protocol (G.8, PCC.14)

Conservation Management Plans (NZTA.17 and 18)

[1000] There are two conservation management plans required as follows:

- The first relates to St Joseph's Church. This is an existing CMP that must be updated before construction works commences. It applies in the PCC district.
- The second CMP relates to the brick fuel tank containment structure. This is a new CMP and the condition relates only to the NoR served on KCDC.

[1001] No approval or certification process is required for either management plan.

Network Utilities Management Plan (NZTA.57, PCC.12)

[1002] This plan is required to be produced to ensure that the enabling works, design and construction of TGP take account of and include measures to address the safety, integrity, protection and (where necessary) the relocation of existing network utilities.

[1003] This relates to existing utilities such as gas pipelines and water pipes. It also potentially covers the existing Transpower alignment although there are a series of conditions (NZTA.65-70) proposed which specifically cover that

matter and are based on a separate agreement between NZTA and Transpower.

Communications Plan (NZTA.13, PCC.12)

[1004] This plan must be prepared and implemented by NZTA/PCC prior to the commencement of the construction and enabling works.

[1005] The plan must contain a suite of provisions on matters such as construction management contact details, details of construction period and deal with concerns and incidents. Details of communication methods such as newsletters and consultation are also required.

[1006] This plan must be prepared in consultation with the owners and occupiers of certain properties such as the Rangatira Road properties and 55 Collins Avenue.

[1007] No certification of the Communications Plan is required in the conditions.

Accidental Discovery Protocol (G.8, PCC.14)

[1008] As with the HMP, the consent holder is required to consult with iwi and the NZ Historic Places Trust to prepare an Accidental Discovery Protocol (ADP) for all relevant aspects of the construction at TGP.

[1009] A copy of the ADP must be provided to the relevant territorial authority at the same time as the CEMP is submitted for certification.

14.4 MANAGEMENT PLANS CONSIDERED UNDER THE CEMP

[1010] Whereas the management plans associated with the Outline Plan process relate to the process for designations under s176A RMA, the management plans associated with the CEMP are proposed as part of conditions on regional resource consents required by NZTA/PCC. Accordingly, these management plans fall within the ambit of s108 RMA.

[1011] The CEMP is the umbrella management plan under which all of the plans associated with regional consents will be produced and considered. The purpose of the CEMP is to confirm that the final Project details, staging of works, and detailed engineering design remains within the limits and standards approved under the NoR. It is the key management plan associated with the construction process to ensure that such construction and operational activities avoid, remedy or mitigate adverse effects on the environment.

[1012] The CEMP is required to provide details of:

- The responsibilities, reporting frameworks, co-ordination and management required for project quality assurance;
- Final detailed design;
- Construction methodologies;
- Timeframes and monitoring processes and procedures.

[1013] The Applicants proposed that the CEMP be certified by the Regional Council only but that it be supplied to the relevant territorial authority for an initial consultation process with the final document to be supplied for information and display in a site office. We return to this matter later in this report.

[1014] A draft CEMP was submitted with the applications (dated July 2011) and provides the basis for the preparation of the final CEMP. That draft gave the Board an understanding of the level of detail required in the final CEMP and the other management plans falling under its umbrella.

[1015] The following specific plans fall under the CEMP:

- Erosion and Sediment Control Plan (E.11, PCCE.19)
- Erosion and Sediment Control Monitoring Plan (G.39, PCCE.41)
- Chemical Treatment (Flocculation) Plan (E.25, PCCE.33)
- Ecological Management and Monitoring Plan (G.21, PCCE.36)
- Forestry Harvesting Management Plan (E.27)
- Contaminated Land Management Plan (G.20, PCC.46)

We describe those plans below.

Erosion and Sediment Control Plan (E.11, PCCE.19)

[1016] This is an overarching management plan that includes the ESC philosophy, procedures, responsibilities, general methodologies and typical details.

[1017] As a minimum the ESCP is required to demonstrate how the requirements in Conditions E.7 and E.8 containing objectives relating to capture and treatment of sediment laden discharges from the site shall be met.

[1018] In addition, the ESCP must demonstrate compliance with a number of other requirements including:

- Ensuring appropriate control measures are installed prior to and during all construction works;
- Identification of personnel appropriately qualified and experienced in this field;
- Identification of detailed management actions required to deal with extreme weather events and exceedences of trigger levels and non-compliances;
- Provision for maintenance and monitoring review of all control devices and measures;
- Provision for decommissioning of control devices/measures.

Erosion and Sediment Control Monitoring Plan (G.39, PCCE.41)

[1019] The ESCMP is to include methods to undertake a range of monitoring as follows:

- Regular inspections of erosion control measures;
- Physical monitoring of sediment control measures including frequency, locations, performance measures (including treatment efficiency, management actions and reporting);
- Physical monitoring of catchment control points.

[1020] The purpose of the ESCMP is to ensure that the consent holder is actively and appropriately conducting monitoring indicated as above but also in relation to the following:

- Baseline sediment monitoring at the pre construction stage;
- Erosion and sediment control monitoring during construction;
- How discharge quality breaches of trigger levels are being managed and how any failures of erosion and sediment control devices are being managed.

[1021] The ESCMP must be updated and reviewed by a Sediment Management Peer Review Panel before being submitted to the Regional Council for certification.

[1022] This plan is required to be consistent with the draft ESCMP lodged with the application.

Chemical Treatment (Flocculation) Plan (E.24, PCCE.33)

[1023] Condition E 24 requires that all compliant sediment retention devices shall be chemically treated in accordance with a Chemical Treatment (Flocculation) Plan.

[1024] The CTP outlining the use dosage monitoring maintenance spill contingency and performance matters must be prepared and submitted to the Regional Council for certification prior to the commissioning of any chemical treatments for sediment management purposes.

Ecological Management and Monitoring Plan (G.21, PCCE.36)

[1025] The key objectives of the EMMP are to demonstrate how the consent holder will monitor, manage and mitigate the adverse effects of construction activities on terrestrial, freshwater and marine ecological values and their associated biodiversity values.

[1026] The EMMP must set out the methodology and process that will be used to achieve these objectives and includes but is not limited to:

- Ecological management;

- Habitat restoration;
- Ecological monitoring and adaptive management.

[1027] In preparing the plan the consent holder is required to consult with iwi, Department of Conservation and the relevant territorial authorities.

[1028] Certification of the EMMP must address the following matters:

- Whether the plan has been prepared in general accordance with the draft EMMP submitted with the application dated July 2011;
- The inclusion of performance measures, actions, methods, trigger levels and monitoring programmes to achieve the stated objectives;
- Whether consultation has been undertaken with the relevant parties.

[1029] The consent holder is also required to prepare site Specific Environmental Management Plans (SSEMPs). The purpose of such plans is to integrate design elements with environmental management and monitoring methods, into a set of plans for each stage or location, in order to demonstrate how the Project will be practically implemented on the site.

[1030] Each SSEMP is required to include a variety of information not just in relation to erosion and sediment control but also in respect to:

- Construction methodology for all works;
- Vegetation clearance and rehabilitation activities;
- Stream alignment and culverting;
- Areas and features to be avoided during construction.

[1031] SSEMPs will be critical components in implementing the specific objectives of the plans that sit under the CEMP. This is particularly so with the EMMP.

Forestry Harvesting Management Plan (E.27)

[1032] This plan requires the consent holder to prepare a plan prior to the commencement of removal of plantation pine forestry for the purposes of construction activities (including enabling works).

[1033] The FHMP is required to include a range of details on forestry issues including timing and staging, location of access tracks, details of stream crossings, erosion and sediment control methods etc.

[1034] The plan is required to be certified by the Regional Council.

Contaminated Land Management Plan (G.20, PCC.46)

[1035] This plan is a subset of the CEMP and must be certified by the Regional Council. It requires the consent holder to provide information on the measures to be undertaken in the handling, storage and disposal of all contaminated material excavated during construction works.

[1036] The measures are required to be developed in consultation with the NZ Police and NZ Defence Force and are directed towards:

- Protecting the health and safety of workers and the public;
- Controlling stormwater run-on and run-off;
- Removing and managing contaminated soil.

14.5 MANAGEMENT PLANS CONSIDERED UNDER THE TRANSPOWER APPLICATION

[1037] In addition to and separate from the Outline Plan process and the CEMP process, there are management plans associated with the Transpower resource consents lodged with KDC and PCC under the NESETA. They are as follows:

- Transpower Construction Environmental Management Plan (TL 16);
- Transpower Accidental Discovery Protocol (TL.14);
- Transpower Landscape Mitigation Plan (TL.10).

Transpower Construction Environmental Management Plan

[1038] The purpose of the CEMP is to identify the environmental management procedures to be implemented during construction of the line works relocation project to manage compliance with consent conditions and minimise adverse effects.

[1039] The plan is to be certified by the relevant territorial authority and must include a variety of details similar to the CEMP required for TGP.

Transpower Accidental Discovery Protocol (TL.14)

[1040] As with TGP, there is a requirement for Transpower to liaise with local iwi and prepare a protocol for dealing with the accidental discovery of artefacts or material of cultural significances during construction:

- A qualified archaeologist is required to oversee the ADP processes;
- Consultation with iwi and the New Zealand Historic Places Trust.

(No certification of this plan is required)

Transpower Landscape Mitigation Plan (TL.10)

[1041] This plan is required to detail the visual mitigation measures agreed to by Transpower. The plan is required to include information on the following:

- The location and pattern of all stream and amenity planting;
- Plant species and planting densities;
- Pest animal and plant management programme.

(The plan is to be submitted to the relevant territorial authority for certification)

15. CONDITIONS

15.1 CONTEXT

[1042] We emphasised earlier in this decision the importance of conditions of consent if adaptive management regimes are to operate properly. We noted that conditions need to:

- Be clear, certain and enforceable;
- Contain identifiable standards and performance criteria against which proposed management plans can be assessed and the subsequent operation of the management plans measured.

[1043] The Board has concluded that the conditions proposed by all three Applicants at the conclusion of the hearing generally achieved those objectives. Based on the above, in this section we undertake a brief overview of the following matters:

- Commentary of the Outline Plan and CEMP conditions;
- Commentary on request by submitters for new conditions to be added by the Board;
- Commentary on conditions added by the Board as a result of s42A advice.

[1044] This section should be read in conjunction with the following two documents which are contained in Volume 2 of this report:

- The schedule of consents applied for by the three Applicants and granted by the Board.
- The final schedule of conditions produced by the Board.

15.2 COMMENTARY ON OUTLINE PLAN AND CEMP CONDITIONS

[1045] The Board has generally accepted the approach of the Applicants as to processing certain management plans associated with territorial authority functions through the Outline Plan process. In the remainder of this Section we set out our understanding of how this will work and explain where we slightly depart from the Applicant on one matter.

Outline Plan Conditions and Territorial Authorities

[1046] The management plan approach allows for information on detailed design to be collected effectively into a single place³¹⁵. Mr Milne advised in his legal opinion that there is nothing unlawful in leaving management plans which are

³¹⁵ Rickard, 20 February 2012, para 13.

not linked to Regional Council consents, to be addressed under the Outline Plan process.³¹⁶

[1047] Once the Outline Plan(s) has/have been submitted to the relevant territorial authority, that council has the ability to request changes to the Outline Plan and those changes will be considered by the requiring authority³¹⁷. An Environment Court appeal process could follow if the requiring authority declines to make the changes sought. However, the evidence of Ms Rickard³¹⁸ was that this process works well in practice and this opinion was not challenged to any significant degree. As Ms Rickard explained to us, the prospect of an Environment Court appeal is a *good incentive to work things out*.³¹⁹ We agree.

[1048] Counsel for NZTA/PCC submitted that a key benefit of the designation process is the ability to successfully manage linear projects that traverse multiple territorial authority boundaries.³²⁰ In support of this the Applicants submitted that:

- The Main Alignment crosses four territorial boundaries.
- It is important that, in terms of management plans (particularly the landscape and urban design plan [LUDMP] and associated measures), a consistent or holistic approach across the entire Project route is adopted.
- This holistic approach could be jeopardised if the individual councils sought to impose differing requirements through an individual certification process³²¹. By comparison, an Outline Plan process would enable the Applicants to successfully manage any changes requested by the various territorial authorities to the five management plans under that umbrella.

[1049] We understood that the Applicants view the Outline Plan process as appropriate as it will allow for an integrated design response across the entire roading alignment, which successfully merges all of the detailed design, landscape and urban design aspects. We generally agree.

[1050] We also note that the Applicants did not seek to rely solely on the Outline Plan process. The conditions suggested by the Applicants propose a consultation process for all management plans whereby:

- There will be consultation with the applicable territorial authority prior to the formal submission of any management plan which forms part of an Outline Plan³²²;

³¹⁶ Legal Advice to the Board, 6 March 2012.

³¹⁷ Section 176A(4).

³¹⁸ Rickard, 20 February 2012, para 21.

³¹⁹ Rickard, 20 February 2012, para 21.

³²⁰ Rickard, 20 February 2012, para 15.

³²¹ Rickard, 20 February 2012, para 15; Transcript, pg 669, lines 23-30 (Rickard). See conditions NZTA.16 (NZTA.9), NZTA.23 (NZTA.33), NZTA.35, NZTA.39, and NZTA.42.

- Management plans which are to be certified by the Regional Council (e.g. the CEMP and EMMP) will be submitted to the territorial authorities for information and in some instances for comment;³²³
- NZTA will provide a programme for the submission of the Outline Plan (or Plans) to the territorial authorities for the purpose of assisting them with resourcing³²⁴.

[1051] In addition to the above, the conditions promoted by the Applicant provide that the timeframes for requesting any changes to the Outline Plans within section 176A could be extended, if required³²⁵. We understand that this was offered in recognition of concerns from KCDC about the substantial quantity of information that could be submitted with an Outline Plan.

[1052] In our view, the above proposals advanced by the Applicants and included in the conditions relating to the Outline Plan process are generally sound and represent best practice. The finer details on this process are found in the following conditions:

- The NZTA series conditions on Outline Plans in which apply to the NZTA NoR for the main alignment (particularly conditions NZTA.16, 22, 35, 39 and 42);
- The PCC series of conditions on Outline Plans in which apply to the PCC NoR for the link roads (Particularly conditions PCC.17, 23, 24 and 26³²⁶).

[1053] This arrangement is illustrated diagrammatically in Appendix 1.

[1054] The only matter in which we depart from the Applicant's position on the arrangements for those management plans being handled solely through the Outline Plan process relates to our previous determination in the legal issues section whereby we found that where management plans, impinge on both regional and territorial functions then they must be certified by both authorities.

[1055] In this respect, we conclude that, of the suite of management plans being handled by the Outline Plan process, the Landscape and Urban Design Management Plan (LUDMP) will have content which relates to the Regional Council's functions under s30(1) RMA in riparian areas. Accordingly, the relevant parts of it must also be submitted to the Regional Council for certification. We would expect that in considering the LUDMP, the Regional Council will also have regard to linkages with the Ecological Management and Monitoring Plan (EMMP) which it must certify also (under Condition G.21).

CEMP Conditions and the Regional Council

[1056] The suite of management plans associated with the CEMP and attaching to the regional consents will be authorised under s108 RMA. The Applicants

³²³ G.22, G.19A, NZTA.20, PCC.E.18A, PCC.15.

³²⁴ NZTA.8.

³²⁵ NZTA.8.

³²⁶ NB. There is no Heritage Management Plan required for the PCC conditions. This reflects the absence of heritage items on the link road corridor as compared to the main NZTA alignments which contains items such as the heritage fuel tank.

propose that all plans will be certified by the Regional Council. The Board acknowledges that and accepts this as being appropriate subject to our earlier comments about the need for certification by territorial authorities where necessary.

[1057] However, as with the LUDMP, the same situation will happen in reverse in respect to some of the management plans being certified by the Regional Council which also contain content relating to territorial authority functions. Those plans are:

- Construction Environment Management Plan (CEMP);
- Ecological Management and Monitoring Plan (EMMP);
- Site Specific Environmental Management Plans (SSEMPs).

[1058] In terms of the CEMP, we acknowledge that where matters in the CEMP were not already addressed by the plans being assessed as part of the Outline Plan process by the territorial authorities (i.e. the CTMP, CNVMP or CAQMP), the Applicants have removed them from the CEMP and created new conditions relating to light spill and dirt on roads (i.e. Conditions NZTA.33A and NZTA.41A). Notwithstanding this, to the extent that the CEMP contains these (and probably other matters) that impinge on the jurisdiction of the territorial authorities these must be certified by them as well as by the Regional Council.

[1059] In terms of the EMMP there will be a similar overlap between regional and territorial authorities. In particular, whilst we accept that the bulk of this plan will contain content of sole functional relevance to the Regional Council there will, nevertheless, be some terrestrial ecology matters (both fauna and flora) that will be relevant to the territorial authorities. Accordingly, we require certification of that plan by the relevant territorial authority also.

[1060] The above minor departures to the Applicant's position have been reflected in the final set of conditions relating to the management plans contained in Volume 2 of this report.

15.3 COMMENTARY ON REQUEST BY SUBMITTERS FOR NEW CONDITIONS TO BE ADDED BY THE BOARD

[1061] In addition to the suite of conditions volunteered and agreed by witness conferencing during the course of the hearing, the Board received several requests from submitters in respect to a range of topics. The principal requests fell into the following three groupings:

- Conditions regarding the treatment of the existing SH 1 following the operation of TGP;
- Conditions regarding cycling walking and recreation linkages;
- Previous conditions relating to Mana Expressway.

Conditions regarding the treatment of the existing SH1 following the operation of TGP

[1062] This issue was canvassed in some detail in the legal issues section of this report. KCDC had requested the imposition of a designation condition relating to the treatment of the bypassed sections of SH1³²⁷. NZTA (and PCC) did not support such a condition³²⁸. In the legal issues section we detailed our reasons for declining to do so and take that particular aspect of the KCDC request no further.

[1063] There is however a further aspect of the issue raised by KCDC which must be addressed. The Council's initial concerns were raised in the context of revocation of state highway status for parts of the coastal route. KCDC also raised the issue of safety and management of the coastal route in the period after opening of TGP but prior to any revocation of state highway status.

[1064] KCDC contended that there could be an immediate effect brought about by a reduction in vehicle numbers on the coastal route. As we understood the Council's concern, it was that congestion at busy times has a constraining effect on vehicle speeds which has safety benefits. Removal of congestion may lead to a corresponding increase in speed with resultant potential safety issues. We consider that is something which needs to be assessed.

[1065] We accept that safe management of the state highway remains the statutory function of NZTA during this interim period (or if the state highway status is not revoked at all). We do not propose to interfere with that function. We do however consider that it is necessary for there to be an assessment made on the effects which TGP has on use of the coastal route to ascertain whether or not TGP has had any effect on that route of the sort suggested by KCDC. That assessment is important both for NZTA as the roading authority and the local authorities who may have to take over management of the road if state highway status is revoked.

[1066] We consider that the NZTA designation conditions must address this issue and a condition should be imposed requiring a safety audit on the coastal route after commencement of operation of TGP. In requiring this condition we acknowledge claims by some submitters that there is a long history of slow responses by NZTA and its predecessor to issues along the coastal route. Accordingly, we have included the following condition in the NoR conditions:

No earlier than 6 months after the commencement of operation of TGP, and no later than 12 months from that date, NZTA shall complete a traffic safety audit (in accordance with the NZ Transport Agency Guidelines 'Road Safety Audit Procedures for Projects' November 2004) to ascertain the effects of reduced traffic and potentially higher environmental speeds on the coastal route resulting from the operation of TGP. The audit shall outline what measures are necessary to remedy those effects. A copy of the audit and its findings shall be sent to the relevant territorial authorities.

³²⁷ KCDC Opening Submissions, para 4.10; KCDC Closing Submissions, paras 2.14-2.15.

³²⁸ Nicholson, 20 January 2012, para 32.

Conditions regarding cycling walking and recreation linkages

[1067] On the matter of the pedestrian, cycling and recreational issues, RTS requested that the Board include a wide range of conditions on the NoR. In doing so RTS drew on the evidence and representations of the following:

- Mr Morgan, Project Manager at Cycling Advocates Network (who claimed expertise *...in the analysis of levels of service provided to cyclists, and determining cycling needs*³²⁹);
- Ms Thomas, of Living Streets Aotearoa as to pedestrian issues;
- Mr Gywnn for Mana Cycle Group as to effects on mountain biking;
- Mr Horne as to effects on recreational walking particularly in relation to Battle Hill Farm Forest Park.

In his closing submissions Mr Bennion put great emphasis on the status of the above as *expert witnesses* on their various subjects. We thought that a more correct expression would be *advocates* for their particular interests but nothing turns on that. We have given due consideration to their views.

[1068] In response to observations from the Board, NZTA opposed those conditions on several grounds including:

- The PCC and NZTA witnesses had assessed effects on recreational users of reserves, such as walking, cycling or horse-riding and concluded that any actual or potential effect would be adequately addressed in the proposed NZTA conditions;
- In several respects, the additional conditions pursued by RTS are either ultra vires or seek to use the RMA to intrude into the statutory responsibilities of NZTA for the operation and control of the state highway network;
- The set of conditions which RTS sought for cycling and walking facilities in relation to SH1 substantially pursue environmental compensation or benefit. They are contrary to *Newbury* principles.

[1069] NZTA submitted that the RTS conditions should be rejected. We agree (although not necessarily on all points). We consider that a number of the conditions requested by RTS are better handled through conditions relating to the Landscape and Urban Design Framework and the LUDMP. In this respect, we note the following salient points about the Design Framework and its relationship with LUDMP:

- The purpose of the Design Framework was to demonstrate how the design of TGP satisfied NZTA's Urban Design Policy Requirements. The Design Framework was included in the AEE as TR23;

³²⁹ EiC, para 2.

- The Design Framework incorporated a comprehensive analysis of the route and identified a series of principles which will inform the design of TGP.
- Principle 4.7 of the Design Framework relates to pedestrian and cycle links and includes design principles which seek to provide for pedestrian, tramping, horse riding and cycle links where TGP crosses or joins local networks
- The Design Framework is to be implemented through the LUDMP³³⁰.
- The LUDMP must demonstrate how the design principles in the Design Framework have been adhered to in the development of the design concepts.³³¹
- A future LUDMP which did not contain appropriate walking and cycle linkages would be unlikely to be *implementing* the Design Framework.

[1070] A further safeguard is that the LUDMP is to be prepared in consultation with a number of organisations, including the Mana Cycle Group³³². This will give that Group and other listed interest groups, an opportunity to voice any concerns about the adequacy of the walking and cycle paths proposed. The Applicants are obliged to report on this consultation process and explain in the LUDMP where any comments arising in consultation have not been incorporated and the reasons why³³³.

[1071] We consider that those safeguards are sufficient to address concerns with regard to walking, cycle and recreational linkages. Notwithstanding the above, we note that NZTA did present some modifications to their earlier proposed conditions in light of the RTS submissions and observations by the Board. Those modifications related to the following matters:

- SH 58 joint pedestrian and cycle path;
- References to guides and standards in conditions;
- Addressing disruption to recreational activities.

[1072] We acknowledge those modifications by NZTA and confirm that they have been captured in our decision by Condition numbers NZTA.42, 43 and 47A and PCC.29.

Existing condition regarding Mana Expressway

[1073] As discussed in our legal issues section, the Paremata Residents Association lodged a wide ranging submission which (inter alia) sought that the Board imposed a condition requiring removal of part of the Paremata Bridge.

³³⁰ NZTA.43(b) (NZTA.46).

³³¹ NZTA.46(a) (NZTA.48).

³³² NZTA.42.

³³³ NZTA.42.

[1074] For the reasons discussed previously, we have imposed a condition similar to that imposed by the Environment Court in 2000 when approving Transit New Zealand's notice of requirement for an upgrade of the Urban Section of SH1 from Plimmerton to Paremata³³⁴. That will be reflected in these conditions.

15.4 COMMENTARY ON CONDITIONS ADDED BY THE BOARD AS A RESULT OF S42A ADVICE

[1075] As part of the s42A process the Board received reports from experts in the fields of planning, sedimentation (generation and control) and acoustic noise. As a result of that advice, the Board has determined that additional conditions are required over and above those proposed by the Applicants.

[1076] The additional conditions relate to the following matters:

- Conditions regarding acoustic operational traffic noise;
- Conditions regarding the capture and treatment of sediment laden contaminants.

[1077] Again, we note that these issues have been canvassed extensively in previous sections of this report. This section focuses on the appropriate alterations to the relevant conditions.

Additional conditions regarding acoustic noise

[1078] Towards the end of the hearing and following the presentation of acoustic evidence by Dr Chiles and Mr Lloyd, the Board requested further conferencing between those two witnesses in relation to issues about conditions on road traffic noise and in particular a condition requiring a level of 40dBA $L_{Aeq(24h)}$ to be achieved inside protected premises and facilities.

[1079] The two witnesses produced a joint statement outlining the agreement that had been reached in response to operational traffic noise issues raised by the Board. They drafted a condition which, in addition to the provisions for Category C buildings, requires all Category B premises and facilities located by new roads to be assessed to achieve an internal noise level of 40dB $L_{Aeq(24h)}$ in habitable spaces. There were a number of consequential changes to other conditions also identified. Those included the addition of a condition requiring validation of the noise assessment post construction. We note that this will be undertaken via a Noise Mitigation Plan which provides for a monitoring and validation report.

[1080] We have adopted those changes to operational noise conditions in full and they appear in the final set of conditions in Volume 2 to this report.

[1081] We record that it was the position of Dr Chiles that such a condition was unnecessary but that if the Board was minded to impose such a condition then this was its appropriate form.

³³⁴ *Porirua City Council v Transit New Zealand* Decision W52/2001.

Additional conditions regarding Sedimentation

[1082] The Board issued a Minute to the parties expressing its initial views about control and discharge of sediment from TGP, on 15 February 2012. The Minute alerted the parties to the fact that the Board was considering the inclusion of conditions (should the applications be granted) relating to the capture of runoff from earthworks until stabilisation. The Board indicated that such conditions could require all runoff to be captured.

[1083] During the course of the hearing it became obvious to us that physical and practical reasons might prevent runoff from some small areas not being fully captured so an allowance of up to 5% should be made. That was reflected in a requirement that sediment laden runoff from all, or up to 95%, of the project earthworks area ought to be captured for treatment in a compliant sediment retention device.

[1084] Ultimately the Applicants proposed some amendments to conditions that gave partial recognition to our suggestion, but the explicit requirement we suggested was missing. Under a heading *Erosion and Sediment Control objectives, standards and design criteria* a condition attached to the earthworks and discharge consents numbered E.7(f) required the consent holder to *...Treat all sediment laden discharges from the site arising from the works using erosion and sediment control measures implemented in general accordance with the ESCP and any relevant SSEMP.*

[1085] As outlined in Section 12.3 of this report, we considered this condition to be close to meeting our concerns but required more precision. In that section we identified two changes to the condition proffered by the applicant as follows.

[1086] Firstly, we require all sediment laden runoff from the site arising from the works to be treated in a compliant sediment retention device. Condition E.7(f) should therefore read *...Treat all sediment laden runoff from the site arising from the works using a compliant sediment retention device together with any other erosion and sediment control measures implemented in general accordance with the ESCP and any relevant SSEMP.*

[1087] Secondly, we appreciate that in some locations it may be impractical to use a compliant sediment retention device. In these locations we accept that other methods of sediment retention may be used but only with specific acceptance by the Regional Council and only to the extent of in total 5% of the Project earthworked area. Accordingly, we have added the following condition E.7(g).

Notwithstanding the provisions of Condition E.7(f) above, other sediment retention devices may be used where it is impractical to use a compliant sediment retention device, provided the GW accepts each proposal and the total area from which sediment laden runoff emanates does not exceed 5% of the total project earthworks area."

These alterations are embodied in the conditions in Volume 2 to this decision.

16. NATIONAL AND REGIONAL/DISTRICT POLICY ASSESSMENT

16.1 RELEVANT STATUTORY DOCUMENTS

[1088] The Applicants, submitters and the section 42A authors identified a range of statutory documents relevant to the Board's consideration. We identify the following:

- National Environmental Standards for Air Quality;
- National Environmental Standard for Sources of Human Drinking Water;
- National Environmental Standards for Electricity Transmission Activities;
- National Environmental Standard for Assessing and Managing Contaminants in Soil;
- New Zealand Coastal Policy Statement 2010;
- NPS Freshwater Management 2011;
- NPS on Electricity Transmission 2008;
- Wellington RPS (operative and proposed);
- Regional Freshwater Plan for the Wellington Region;
- Regional Air Quality Management Plan for the Wellington Region;
- Regional Coastal Plan for the Wellington Region;
- Regional Soil Plan for the Wellington Region;
- Regional Plan for Discharges to Land for the Wellington Region;
- Operative Kapiti Coast District Plan;
- Operative Porirua City District Plan;
- Operative Upper Hutt City District Plan;
- Operative Wellington City District Plan.

16.2 NATIONAL ENVIRONMENTAL STANDARDS

[1089] National Environmental Standards (NES) comprise regulations issued under section 43 and 44 RMA. The following standards are in force as regulations:

- NES for Air Quality;
- NES for Sources of Human Drinking Water;

- NES for Telecommunication Facilities;
- NES for Electricity Transmission Activities (NESETA).

[1090] We have considered each of these and determined that the NES for Air Quality and the NES for Human Drinking Water are relevant to the subject applications. Additionally, the NESETA is directly relevant to the application submitted by Transpower and will be considered in that context.

NES for Air Quality (NES AQ)

[1091] The NES AQ sets the boundaries of Regional air-sheds and requirements for management of air quality within those air sheds. TR13 provides an assessment of TGP against the relevant standards and thresholds.

[1092] The Regional Council has classified eight air-sheds within the Wellington region where PM10 standards are regularly breached, or are considered to have potential to breach the NES AQ. Parts of the TGP will affect the Porirua air-shed, which is one of the air-sheds that has been identified by the Council. Any additive effects arising from TGP are however not considered to be significant on this air-shed, as there is little difference to the overall regional air quality when the *with TGP* and *without TGP* scenarios are assessed on a comparative basis. This is noted in the evidence of Mr Fisher³³⁵, where he concludes that TGP is not predicted to impact on the Regional Council's ability to issue future resource consents within the air shed as there remains space to allow further emissions without compromising the thresholds set out in the NES AQ³³⁶.

National Environmental Standard – Sources of Human Drinking Water (NES DW)

[1093] This Standard is intended to reduce the risk of contaminating drinking water sources such as rivers and groundwater. It does this by requiring regional councils to consider the effects of activities on drinking water sources in their decision making. TGP is located on the periphery and downstream of the Regional Council's drinking water collection areas.

[1094] The only known extraction point affected by TGP is at Paekakariki and this water source (a KCDC supply) will be relocated by NZTA as part of Project implementation. The evidence of Mr Wood for KCDC confirmed that subject to appropriate conditions being imposed, and subject to concluding discussions with NZTA about protecting the water supply infrastructure, he was satisfied that the KCDC's concerns about the TGP impact on the Paekakariki water supply can be resolved³³⁷.

³³⁵ EiC, para 29.

³³⁶ EiC, para 37.

³³⁷ EiC, para 3.2.

National Environmental Standards for Electricity Transmission Activities (NESETA)

[1095] The evidence of Ms Hopkins confirmed that these applications have been prepared in accordance with this Standard.

National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

[1096] This Standard came into effect on 1 January 2012. NZTA has advised that additional consents which may be required as a result will be applied for separately.

16.3 NEW ZEALAND COASTAL POLICY STATEMENT 2010 (NZCPS)

[1097] The purpose of the NZCPS is to state policies achieving the purpose of RMA in the coastal environment. The issues, objectives and policies of the NZCPS apply to both the coastal marine area (below MHWS) and the wider coastal environment (we will simply refer to the coastal environment for the balance of this discussion). Although TGP itself does not traverse the coastal environment, some elements of TGP could influence that environment, particularly at Porirua Harbour. Accordingly NZCPS is relevant to our consideration of resource consents for TGP.

[1098] The objectives and policies of NZCPS relevant to TGP were detailed in Section 32.4 of the NZTA and PCC application, and in Section 2.3 of TR21. We agree that Objectives 1, 2, 3 and 6 are particularly relevant. Policies 1, 2, 4, 6, 13, 14, 21 – 23 were also identified as being relevant to this proposal. In its Key Issues Report, the Regional Council identified Policies 3, 5, 11, 15 and 18 as also being of relevance. Effects on the coastal environment were also considered in the evidence presented by both the Applicants and submitters. The key effect of TGP on the coastal environmental stems from sediments generated by construction related activities which might enter Porirua Harbour.

[1099] Objective 1 of the NZCPS seeks:

To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystem, including marine and intertidal areas, estuaries, dunes and land.

[1100] Policy 22 is directly relevant as it seeks (inter alia) that use and development does not result in significant increase in sedimentation, and aims to reduce sediment loadings in runoff and stormwater systems through controls on land use activities.

[1101] In addition Objective 6 and Policy 6 NZCPS seek to recognise that the provision of infrastructure is important to the social, economic and cultural wellbeing of people and communities, and that there should be consideration of how built development and associated public infrastructure should be enabled, without compromising the other values of the coastal environment.

[1102] Sedimentation effects were a significant issue for a number of submitters, including the Director General. We refer to our findings in the marine ecology, hydrology and sediment sections of this Report all of which must be considered in this context.

16.4 NATIONAL POLICY STATEMENTS

National Policy Statement for Freshwater Management 2011 (NPS FM)

[1103] Objectives A1 and B1 of the NPS FM seek to safeguard the life supporting capacity of freshwater ecosystems. Objective C1 seeks to improve the integrated management of freshwater and the use and development of land in whole catchments.

[1104] It was recognised by the Applicants from the outset that there will be adverse effects on streams and freshwater ecosystems arising from habitat disturbance or removal, construction of structures, discharges, diversions, reclamations and stream realignment as a result of TGP. Mitigation measures were designed to reduce the severity of these effects. Direct effects arising from sediment discharges are to be managed by erosion and sediment control mechanisms which are to be enhanced, culverts which presently interfere with fish passage are to be improved and some 27km of streams will be restored and protected. We refer to our earlier findings in the freshwater ecology section of this report, which is again relevant to our findings under this head.

[1105] Part D of the NPS FM relates to tangata whenua roles and interests. Ngati Toa supported TGP and considered that over time the mitigation (offsetting) proposed will result in positive effects.

National Policy Statement on Electricity Transmission 2008 (NPS ET)

[1106] The NPS ET is directly relevant to TGP. The objective of the NPS is:

To recognise the national significance of the electricity transmission network by facilitating the operation, maintenance and upgrade of the existing transmission network and the establishment of new transmission resources to meet the needs of present and future generations, while:

- *managing the adverse environmental effects of the network; and*
- *managing the adverse effects of other activities on the network*

[1107] The policies that support this objective seek to:

- Recognise the benefits of electricity transmission³³⁸;
- Manage the environmental effects of electricity transmission³³⁹;
- Manage the adverse effects of third parties on the electricity transmission network³⁴⁰;

³³⁸ Policy 1.

³³⁹ Policy 2–9.

³⁴⁰ Policy 10–12.

- Set out policies for long-term strategic planning for electricity transmission assets³⁴¹.

[1108] NZTA has been working closely with Transpower about the effect of TGP on its transmission assets and agreed solutions have been achieved. Transpower supports TGP and has made applications to relocate part of its infrastructure so that TGP may proceed.

16.5 WELLINGTON REGIONAL POLICY STATEMENT

[1109] There is both an operative and a proposed regional policy statement (RPS) for the Wellington Region. Both are relevant to the consideration of this proposal. The RPS for the Wellington Region was made operative in May 1995. The proposed RPS was notified in March 2009 with a revised decisions version being released in May 2010. A total of eight appeals on the proposed RPS have been lodged with the Environment Court.

Operative RPS

[1110] The provisions of the operative RPS which are of most relevance to TGP are:

- Iwi Environmental Management System (Chapter 4);
- Freshwater (Chapter 5);
- Soils and Minerals (Chapter 6);
- Coastal Environment (Chapter 7);
- Air (Chapter 8);
- Ecosystems (Chapter 9);
- Landscape (Chapter 10);
- Natural Hazards (Chapter 11); and
- Built Environment and Transportation (Chapter 14).

[1111] These objectives and policies were summarised in TR21 and also identified in the Key Issues report prepared by the Regional Council.

Proposed RPS

[1112] The objectives and policies of the proposed RPS which are relevant to TGP are:

- Air quality (Section 3.1);
- The coastal environment (Section 3.2);
- Energy, infrastructure and waste (Section 3.3);

³⁴¹ Policy 13 and 14.

- Fresh water (including public access) (Section 3.4);
- Historic heritage (Section 3.5);
- Indigenous ecosystems (Section 3.6);
- Landscape (Section 3.7);
- Natural hazards (Section 3.8);
- Regional form, design and function (Section 3.9);
- Resource management with tangata whenua (Section 3.10); and
- Soils and minerals (Section 3.11).

[1113] These objectives and policies were summarised in TR21. In addition the Regional Council's Key Issues report contended that the following policies and/or recent amendments to policies are also relevant:

- Policy 5A – recognises the regional significance of the Porirua Harbour (including Pauatahanui Inlet and Onepoto Arm);
- Policy 6 – which has been amended to recognise the benefits from regionally significant infrastructure;
- Policy 34 – regarding the preservation of natural character and safeguarding the life supporting capacity of coastal ecosystems, is also considered relevant due to the potential impact TGP may have on the Inlet;
- Policy 46 – managing effects on indigenous ecosystems and habitats with significant indigenous biodiversity values.

[1114] The Regional Council noted that the proposed RPS also specifically refers to the importance of the Pauatahanui Inlet.

16.6 REGIONAL FRESHWATER PLAN FOR THE WELLINGTON REGION

[1115] The Regional Freshwater Plan came into effect on 17 December 1999. Since that time there have been four plan changes, all of which have been adopted. One of those plan changes, seeking to ensure that resource consent applications for TGP would be determined on their merits and not potentially precluded by the operation of s104D RMA to the TGP was the subject of discussion elsewhere in this Report.

16.7 REGIONAL AIR QUALITY MANAGEMENT PLAN FOR THE WELLINGTON REGION

[1116] The Air Quality Management Plan came into operation on 8 May 2000. NZTA requires a consent for an air discharge consent associated with a concrete batching plant, and this Plan is therefore relevant. The objectives and policies relevant to this proposal are identified in TR21.

[1117] The most notable effects on air quality from TGP will occur during construction activities. For a number of sensitive receptors (i.e. residential activities, child care facilities), which are within 100m of the construction works, these effects could be adverse.

[1118] The relevant objectives and policies of the Air Quality Management Plan seek to maintain and enhance existing air quality of the region³⁴², and to avoid, remedy or mitigate adverse effects on amenity values³⁴³. Policy 4.2.5 seeks to avoid or minimise adverse effects by managing any discharge at its source.

[1119] Mr Fisher addressed the proposed methods for managing effects on air quality. Mr Kyle noted³⁴⁴ that measures are proposed to manage adverse effects at source by dampening and rapid rehabilitation of exposed areas. Management plans are proposed to manage both dust effects and discharges arising from the concrete batching plant. In his s42A report, Mr Kyle considered that the mitigation measures promoted by Mr Fisher are appropriate but that where it was possible to do so, greater specificity should be inserted into proposed conditions (i.e. monitoring locations, triggers, how and when contingency measures will be applied). This would ensure that consistency with the general thrust of the objectives and policies, which envisages that mitigation measures will be necessary. Specific conditions were also preferred by a number of planners instead of an additional management plan relating to the concrete batching plant.

[1120] Turning to the effects of vehicle emissions on air quality, relevant policies seek to avoid, remedy or mitigate the adverse effects of discharges to air from mobile transport sources, and to promote improved air quality by encouraging public transportation efficiencies, alternative transportation methods and an aim to reduce vehicle congestion in urban areas³⁴⁵.

[1121] Mr Fisher said that the operation of TGP will improve air quality in many parts of the Project area, due to vehicle emissions being taken off the existing congested SH1 coastal route, and arterial routes, and being dispersed in a rural location³⁴⁶. He acknowledged that in some locations there will be increased vehicle emissions but stated that these increases would be comparatively small and would comply with the NES AQ so that any adverse effects of vehicle emissions would not be significant.

16.8 REGIONAL COASTAL PLAN FOR THE WELLINGTON REGION

[1122] TGP does not require any resource consents under the Regional Coastal Plan. However, because TGP has the potential to influence the coastal marine area through discharges, the Regional Coastal Plan is of relevance to

³⁴² Objective 4.1.1.

³⁴³ Policy 4.2.7.

³⁴⁴ Mitchell Partnerships s42A Report, Part 2, pg 63.

³⁴⁵ Policies 4.2.22 and 4.2.23.

³⁴⁶ EIC, para 13.

our considerations. Section 32.10 of the AEE identifies the Objectives and Policies that are relevant to TGP.

[1123] The most relevant provisions are contained in the General Objectives and Policies in Chapter 4 of the Plan, and the Water Quality Objectives and Policies in Chapter 10. Relevant objectives seek to protect important ecosystems and other natural and physical resources in and adjacent to the coastal marine area, from inappropriate use and development³⁴⁷. Objective 4.1.23 seeks that conditions are placed on consents to avoid, remedy or mitigate adverse effects on the coastal marine area.

[1124] Policy 4.2.10 requires that the values of areas identified by the Plan as either Areas of Significant Conservation Value or Areas of Important Conservation Value shall be protected from the adverse effects of use and development. The Pauatahanui Inlet is identified as an area of Significant Conservation Value, having natural, conservation, geological, and scientific values³⁴⁸.

[1125] Relevant water quality provisions, in particular Policy 10.2.2, seek to manage the Pauatahanui Inlet and Porirua Harbour for contact recreation purposes.

[1126] Again we note that sedimentation and the effects of TGP on Porirua Harbour in particular were a key concern for a number of submitters and refer to the earlier sections of this report which have dealt with that and related issues.

16.9 REGIONAL SOIL PLAN FOR THE WELLINGTON REGION

[1127] Provisions of this Plan are particularly relevant to consideration of bulk earthwork activities. The most relevant policies relate to the involvement of tangata whenua, the management of erosion and sedimentation, water quality, monitoring, cultural effects and effects on ecology.

[1128] In particular, Objective 4.1.8 seeks that the adverse effects of accelerated erosion are avoided, remedied or mitigated. Objective 4.1.11 seeks that land management practices are adopted for the effective control of sediment runoff to water bodies. Similarly, Policy 4.2.16 seeks to ensure that recognised erosion control and land rehabilitation techniques are adopted to avoid, remedy or mitigate any adverse effects resulting from soil disturbance activities.

[1129] Once again we refer to earlier sections of this report dealing with sediment and hydrology. We accept that the mitigation and management measures agreed to by the expert witnesses will ensure consistency with the relevant objectives and policies of the Regional Soil Plan.

16.10 REGIONAL PLAN FOR DISCHARGES TO LAND

[1130] This Plan is particularly relevant for the resource consent necessary for earthworks and vegetation removal, the discharge of stormwater to land, and the use of contaminated land. Again these issues have been adequately dealt with in preceding sections of this report.

³⁴⁷ Objective 4.1.6.

³⁴⁸ Appendix 2 of the Regional Coastal Plan.

16.11 OPERATIVE KAPITI COAST DISTRICT PLAN

[1131] The Kapiti Coast District Plan (KCDP) became operative on 30 July 1999. It covers the northern most section of TGP. The application documents noted that in addition to an underlying Rural Zoning over this land, there are a number of other KCDP notations on or close to the land required for the designation including:

- Water Collection Area;
- Faultline;
- Ecological Sites K111, K139, and E17;
- Outstanding Natural Landscape; and
- Noise Contour.

[1132] The application noted that there is an existing designation in place relating to the previously proposed TGP alignment and identified objectives and policies that are relevant to the consideration of TGP. The Key Issues Report prepared by KCDC confirmed that the most relevant objectives and policies were appropriately identified in the application. These are:

- Rural Zone C2.1;
- Tangata Whenua C6.1;
- Earthworks C7.3.1;
- Heritage C8.1;
- Landscape C10.1;
- Ecology C11.1;
- Noise C14.1;
- Natural Hazards C15.1;
- Network Utilities C16.1;
- Transport C18.1.

[1133] In summary, the key issues emerging from the relevant policy matters were:

- The importance of rural landscapes and the requirement to avoid, remedy or mitigate adverse effects;
- The involvement of tangata whenua in the resource management process;
- The need to minimise effects of earthworks on outstanding landscapes;
- Management of heritage,
- Seeking to maintain the integrity of ecosystems;

- Avoid, remedy or mitigate effects on amenity values (i.e. noise);
- A need to minimise hazards that may affect a development (e.g. earthquakes);
- Management of effects on utilities.

[1134] The AEE identified numerous potential effects of TGP within the KCDC district. KCDC sought the avoidance or mitigation of potential effects from earthworks, measures to minimise potential effects on viewshafts and adequate management of noise.

16.12 OPERATIVE PORIRUA CITY DISTRICT PLAN

[1135] The Porirua City District Plan (PCDP) became operative on 1 November 1999. TGP traverses a number of zones contained in the PCDP. PCC stated in its Key Issue Report that these zones contain zone specific objectives and policies which are relevant to TGP. The zones affected by TGP include:

- Rural;
- Public Open Space;
- Suburban;
- Judgeford Hills;
- Recreation;
- Industrial.

[1136] The Whitby Landscape Protection Area overlay applies to the PCC link roads.

[1137] At Paragraph 4.33 of the PCC Key Issues Report it is noted that there is a plan change which affects land within TGP. Plan Change 12 seeks to rezone land located south of Cannons Creek from Rural to Open Space. The report notes that NZTA was a submitter to this plan change. At the time of writing this report the PCC had yet to hear and decide on submissions to this plan change.

[1138] There are four existing designations affected by this application. NZTA is the Requiring Authority for two of these existing designations.

[1139] The application identified that the objectives and policies most relevant to TGP are found in Chapter C of the PCDP incorporating:

- C1-4 Zoning Provisions;
- C5 Treaty;
- C7 Transport;
- C8 Heritage;

- C9 Landscape and Ecology;
- C11 Noise;
- C12 Natural Hazards;
- C14 Network Utilities; and
- C15 Hazardous Substances.

[1140] PCC has identified the following as key issues arising from the PCDP with respect to TGP³⁴⁹:

- Silt and sediment effects of earthworks
- Potential ecological effects stemming from the loss of indigenous vegetation, especially sites of ecological significance
- Ensuring landscape character is retained
- Residential amenity – both during construction and operation (noise & dust)
- Visual effects (especially concreting batching plant)
- Transportation provisions
- Tangata whenua
- Heritage
- Flooding & earthquake risks

[1141] Of note, the Judgeford Hills Section of this Plan has provisions which specifically refer to TGP albeit in a somewhat neutral fashion³⁵⁰. The Transport Section of the PCDP³⁵¹ explains that PCC supports the Wellington Regional Land Transport Strategy (which in turn supports the Western Corridor Plan and TGP).

16.13 OPERATIVE UPPER HUTT CITY DISTRICT PLAN

[1142] The Upper Hutt City District Plan (UHCDP) became operative on 1 September 2004. TGP transects less than 1ha of land within the territory of the Upper Hutt City. The underlying zoning of that land is Rural and it is subject to the existing designation providing for the previous TGP alignment.

[1143] Relevant objectives and policies were identified in both the application documents and the Key Issues Report prepared by Upper Hutt City.

[1144] Of particular relevance, UHCDP policies seek to avoid, remedy or mitigate the impact of earthworks and place a high value on the protection of rural amenity. These sit among a range of policies which set the direction for

³⁴⁹ Porirua City Council Key Issues Report.

³⁵⁰ Policy C4A.3.5.2 and Policy C4A.3.6.3.

³⁵¹ Objective C7.1.

amenity, ecology, hydrology, air quality and noise effects and utilities within the Upper Hutt District.

16.14 OPERATIVE WELLINGTON CITY DISTRICT PLAN

[1145] The Wellington City District Plan (WCDP) became operative on 27 July 2000. TGP affects land that is zoned Outer Residential and Rural. Both the application and Wellington City Council Key Issues Report note that there are plan changes that could potentially affect the TGP. Those identified include Plan Change 70 (now operative) and Plan Change 72 relating to earthworks and the residential chapter respectively.

[1146] There is an existing NZTA designation allowing the previous road alignment. The application and Key Issues Report identify the relevant objectives and policies relating to the proposal. The Key Issues Report identified the following key issues within the WCC territory:

- Noise;
- Rural character;
- Visual;
- Appropriate conditions; and
- Use of management plans.

We address all of those elsewhere.

16.15 RELEVANT NON-STATUTORY DOCUMENTS – OTHER MATTERS

[1147] Section 4.9 of the application identified the following as being relevant other matters to consider.

- The Government Policy Statement on Land Transport Funding 2009/10 – 2018/19;
- The National Infrastructure Plan 2011;
- The New Zealand Transport Strategy 2008;
- The Wellington Regional Land Transport Strategy 2010 – 2040 (WRLTS);
- The Western Corridor Plan 2006;
- The Wellington Regional Strategy 2007;
- The Porirua Development Framework 2009;
- The Porirua City Community Outcomes Action Plan 2009 – 2015;
- The draft Porirua Transportation Strategy;
- The Kapiti Coast Sustainable Transport Strategy;

- The Wellington Conservation Management Strategy 1996;
- The Greater Wellington Parks Network Plan 2011;
- The Pauatahanui Inlet Action Plan 2000;
- Iwi management plans – Me Huri Whakamuri Ka Titiro Whakamua 1996

[1148] The PCC's Key Issues Report also identified the Draft Porirua Harbour Catchment Strategy and Action Plan (PHCSAP) as a relevant consideration.

[1149] During expert conferencing it was agreed that TGP is an integral component of the WRLTS as approved by the Regional Transport Committee (RTC) and that such approval does not necessarily require an individual project to deliver on all of the eight outcomes of that Strategy³⁵². TGP certainly meets some of the identified outcomes.

[1150] In some instances the documents are wholly supportive of the proposed TGP³⁵³. In other cases, they are not supportive or neutral with respect to the proposal³⁵⁴. Consistency of TGP with such documents is largely dependent on the management of adverse effects and appropriately targeted conditions. As agreed during the expert conferencing, Mr Kelly provided an assessment of the Project against Key Outcomes 1.1, 2.1 and 3.1 of the WRLTS.

[1151] The TGP objectives were set in 2007, prior to the Government Policy Statement (which describes the RoNS project) which was prepared in 2009. The TGP objectives were not reframed following the preparation of the Government Policy Statement³⁵⁵.

[1152] During cross-examination, Mr Nicholson explained that the PHCSAP did not exist at the time the project was developed, however NZTA was aware that the document was in the process of being created and took into account where that document was heading³⁵⁶. In response to the propositions regarding sedimentation in the PHCSAP, NZTA believes that the project will lead to less sediment into the harbour in the long term³⁵⁷ and we have found that to be the case.

[1153] Ms Lawler stated that the PHCSAP is a relevant matter in terms of community interest³⁵⁸. Ms Lawler said that it was important that the sedimentation risk to the harbour was recognised and steps are taken to mitigate it³⁵⁹. Based on Dr De Luca's evidence, Ms Lawler was of the opinion

³⁵² Witness Conferencing Joint Report to the BOI – Traffic & Transport – 9 December 2011.

³⁵³ For example the Wellington Regional Land Transport Strategy (RLTS) 2010-2040

³⁵⁴ For example the Wellington Conservation Management Strategy 1996 and the Pauatahanui Inlet Action Plan 2000

³⁵⁵ NoE, pg 55.

³⁵⁶ NoE, pg 65.

³⁵⁷ NoE, pg 67.

³⁵⁸ NoE, pg 217.

³⁵⁹ NoE, pg 220.

that the risks are manageable and that over the long term the harbour can survive those risks and will survive those risks if they are mitigated properly³⁶⁰.

[1154] The planners' witness statement agreed that all of the relevant statutory documents had been identified in Mr Kyle's s42A report and in Ms Rickard's planning evidence. With the initial exception of Dr Solly we understood that all of the planning witnesses agreed that TGP was not precluded from obtaining the resource consents which the Applicants sought by virtue of being contrary the objectives and policies of any of the identified documents. We understood Dr Solly to also come to that position ultimately with resolution of the RTS High Court appeal against the Board's plan change decision.

³⁶⁰ NoE, pg 221.

17. APPRAISAL

[1155] In this section of the report we consider whether we ought to confirm the NoRs sought by NZTA and PCC and grant consent to the applications made by NZTA, PCC and Transpower. In doing so we will:

- Identify various factual findings as to the effects of TGP which are relevant to our determination;
- Consider the provisions of s171(1) RMA (except for Part 2 matters);
- Consider the provisions of s104D in respect of the non-complying activity resource consents;
- Consider the provisions of s104 RMA (except for Part 2 matters) in respect of the NZTA and PCC non-complying activity applications;
- Consider the provisions of ss104 and 104C RMA as they apply to the application for restricted discretionary activities consents by Transpower;
- Consider the provisions of s105 RMA in respect of any discharge permit applications;
- Undertake a Part 2 assessment on an *overall* basis;
- Determine the various requests and applications.

17.1 FACTUAL FINDINGS

[1156] We make the following factual findings which will inform our other determinations:

- The existing coastal route of SH1 provides an inadequate level of service due to issues of congestion, poor accessibility, use of inappropriate routes, safety, severance of coastal communities, vulnerability of pedestrians and cyclists and risk of closure in the event of earthquake or tsunami (refer Section 2 above);
- TGP will rectify those inadequacies by providing a new four lane route which will avoid congestion, reduce travel times and achieve consistency in travel times. The new route will be safer than the coastal route. A reduction in travel volumes on the coastal route will create the potential for the roading authorities to reduce community severance and improve walking and cycling facilities on that route. TGP will not be vulnerable to tsunami and in the event of earthquake will be repairable much more speedily than the coastal route (refer Section 12.2 above);
- A likely consequence of undertaking TGP will be an increase in sediment discharges to Porirua Harbour over the period of construction. Although there is some uncertainty surrounding the accuracy of predictive modelling, the additional sedimentation is likely to be in the order of

4 - 5% of the baseline sediment discharge without TGP. Upon completion of TGP, there will be an ongoing and permanent reduction in sediment discharge to the Harbour as a result of planting and improved management practices associated with TGP (refer Sections 12.3 and 12.7 above);

- TGP will cause adverse effects on terrestrial ecology which are more than minor. Areas of indigenous growth will be destroyed. A number of threatened species are known to be present on or near the site although the effect of TGP on such species is uncertain. There are likely to be unidentified smaller organisms of unknown significance which could be destroyed by TGP works. A comprehensive mitigation package proposed by NZTA will protect the wider habitat and will adequately mitigate these adverse effects (refer Section 12.5 above);
- TGP works will cause adverse effects which are more than minor on approximately 10km of streams on the route by destruction, modification and diversion. These effects will be mitigated by riparian improvements which will restore and protect approximately 27km of streams. Additionally, replacement of a perched culvert of the Wainui Stream will open up an additional 11km of stream from which downstream native fish are presently excluded. It is likely that the mitigation package will achieve a net gain in freshwater ecological terms (refer Section 12.6 above);
- Any adverse effects on the marine ecology of Porirua Harbour caused by additional sedimentation will be temporary and more than mitigated by the long term reduction in sediment discharge to the Harbour to which we have previously referred (refer to Section 12.7 above);
- Noise effects of TGP will be *acceptable* provided the operation of TGP is subject to a condition limiting internal noise levels at affected properties (refer Section 12.9 above);
- Potential air quality and health effects arising through construction of TGP have been adequately avoided, remedied or mitigated by the operation of conditions and management plans. No such effects will be more than minor (refer Section 12.10 above);
- There will be no adverse cultural effects on tangata whenua as a result of construction and operation of TGP (refer Section 12.12 above);
- Potential adverse effects of TGP on archaeological sites and built heritage have been adequately avoided, remedied or mitigated by the operation of conditions and management plans. No such effects will be more than minor (refer Section 12.13 above);
- Potential adverse social effects on communities arising from construction and operation of TGP have been adequately avoided, remedied or mitigated by the operation of conditions and management plans. No such effects will be more than minor (refer Section 12.14 above);
- TGP will have significant adverse landscape and visual effects in the Te Puka Valley. Those effects cannot be avoided. They have been

mitigated to the greatest extent possible. Adverse effects on other parts of the route (particularly at Linden) have been adequately avoided, remedied or mitigated by the operation of conditions and management plans (refer Section 12.15 above);

- A number of properties in the vicinity of the TGP route will be adversely affected by construction and operation of TGP to a greater or lesser degree. With two limited exceptions (which we have addressed) adverse effects have been adequately avoided, remedied or mitigated by the operation of conditions and management plans (refer Section 12.16 above);
- Potential adverse effects of Transpower's proposed line relocation have largely been avoided through the route selection process and to the extent they have not been such effects have been adequately remedied or mitigated (refer Section 13.17 above).

The above factual findings will inform our following discussion of relevant provisions of RMA.

17.2 SECTION 171(1) RMA

[1157] Section 149P RMA requires that in considering the NZTA and PCC notices of requirement the Board must have regard to the matters set out in s171(1) RMA which relevantly provides:

(1) When considering a requirement and any submissions received, a territorial authority must, subject to Part 2, consider the effects on the environment of allowing the requirement, having particular regard to -

(a) any relevant provisions of -

(i) a national policy statement;

(ii) a New Zealand coastal policy statement;

(iii) a regional policy statement or proposed regional policy statement;

(iv) a plan or proposed plan; and

(b) whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if -

(i) the requiring authority does not have an interest in the land sufficient for undertaking work; or

(ii) it is likely that the work will have a significant adverse effect on the environment; and

(c) whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; and

(d) *any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement.*

(In this case references to the territorial authority are references to the Board)

[1158] Insofar as the statutory instruments referred to in s171(1)(a) are concerned, we refer to Section 16 of this decision in which we have identified and discussed a range of national, regional and district planning instruments. We refer to our extensive discussion as to the potential effects of TGP on Porirua Harbour in light of the provisions of NZCPS and our conclusion that in the long term TGP will have a positive effect on the Harbour by reducing the overall input of sediment into it although there will potentially be an increase in sediment over the term of construction.

[1159] Overall, we conclude that TGP is not in conflict with or opposed to the outcomes sought by the instruments to which we are required to have particular regard to such an extent as to preclude confirmation of the notices of requirement. TGP is consistent with many of the instruments in question.

[1160] NZTA and PCC considered alternative sites, routes or methods of undertaking the work associated with TGP. It was agreed by all participants in the proceedings who addressed this issue that the route now proposed for TGP was the best available route within Transmission Gully itself. We have accepted NZTA's contention that TGP is preferable to upgrade and extension of the existing coastal route. Even assuming that notices of requirement could be confirmed and resource consents obtained to allow such upgrading (which is highly uncertain), upgrade of the coastal route would fail to address issues of community severance and the route would continue to be vulnerable to sea level rise, earthquake and tsunami.

[1161] Accordingly, we find that adequate consideration has been given to alternative sites.

[1162] We find that the work and designation are reasonably necessary to achieve the objectives of NZTA and PCC. We refer to the findings which we made in the Legal Issues section of this report in that regard. We also accept the contents of paragraphs 244-245 of the Applicants' opening submissions.

[1163] We have identified a range of non statutory documents which might be considered under the head of *any other matter*. We consider that TGP is broadly consistent with those documents to the extent that they are relevant to our considerations.

17.3 SECTION 104D RMA

[1164] NZTA and PCC have applied for a number of resource consents from the Regional Council. These resource consents relate to water diversions, the discharge of water to land and water and undertaking of works such as culverts in the beds of rivers. These activities are governed by the provisions of the Freshwater Plan and are non-complying activities in terms of that plan. The grant of non-complying activity consents is subject to particular restrictions contained in s104D RMA which relevantly provides:

(1) *Despite any decision made for the purpose of section 95A(2)(a) in relation to adverse effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either -*

(a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(a)(ii) applies) will be minor; or

(b) the application is for an activity that will not be contrary to the objectives and policies of -

(i) the relevant plan if there is a plan but no proposed plan in respect of the activity; or

(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or

(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.

[1165] The above provisions contain what is referred to as the *gateway test* which requires that consent to a non-complying activity application may be granted only if it passes through one of the following gateways:

- Either the adverse effects of the activity on the environment are minor;
- Or, the activity is not contrary to the objectives and policies of a relevant plan or proposed plan.

[1166] In this case the Applicants have conceded from the outset that adverse effects of the activities for which resource consents were sought would be more than minor. The TGP applications accordingly fail to pass through the first gateway of s104D. In order to grant consent to the applications, the Board must be satisfied that the applications pass through the second gateway, namely that they are not contrary to the objectives and policies of the Freshwater Plan.

[1167] Somewhat unusually for an issue of such significance in these proceedings, that issue can be determined relatively succinctly.

[1168] We have concluded that the activities for which non-complying activity consent is sought are not contrary to the objectives and policies of the Freshwater Plan. That was the ultimate conclusion of the expert planning witnesses (including Dr Solly who initially considered otherwise).

[1169] The issue of whether or not TGP was contrary to the objectives and policies of the Freshwater Plan was the subject of detailed consideration in the Board of Inquiry Report into changes to the Freshwater Plan. The Board concluded that arguably TGP was contrary to the objectives and policies contained in the Freshwater Plan at the time of that inquiry³⁶¹. The Board further concluded that TGP was of such significance that it was appropriate that any resource

³⁶¹ Paras 162 - 166 Report of Board of Inquiry into NZTA Transmission Gully Plan Change Request.

consent applications to enable it ought be subject to a full appraisal having regards to its beneficial as well as adverse effects and not be precluded from consideration by virtue of the operation of s104D. That Board accordingly approved a number of policy changes to Policies 4.2.10, 7.2.1 and 7.2.2 of the Freshwater Plan to provide that adverse effects on waterways affected by TGP were to be considered in accordance with a new Policy 4.2.33A.

[1170] Policy 4.2.33A contains the following provisions relating to management of adverse effects of TGP under the Freshwater Plan:

4.2.33A To manage adverse effects of the development of the Transmission Gully Project, in accordance with the following management regime:

- (1) Adverse effects are avoided to the extent practicable;*
- (2) Adverse effects which cannot be avoided are remedied or mitigated.*

Explanation: *This policy recognises that the Transmission Gully Project is identified in various statutory and policy documents as having both national and regional significance. In achieving the sustainable management objectives of the Act, resource managers and decision makers have the option of applying avoidance, remediation and mitigation in managing adverse effects. Accordingly, the adverse effects of aspects of the Project may be acceptable, even though they cannot be completely avoided, remedied, or mitigated.*

Remedying or mitigating can include the concept of offsetting. "Offsetting" means the provision of a positive effect in one location to offset adverse effects of the same or similar type caused by the Transmission Gully Project at another location with the result that the overall adverse effects on the values of the waterbodies are remedied or mitigated.

Where offsetting is to be applied, there should be a clear connection with the effect and the offsetting measure. The offsetting measure should preferably be applied as close as possible to the site incurring the effects. Hence, there should be a focus on offsetting occurring within the affected catchments along the Transmission Gully route and to specifically address the effects at issue.

Offsetting should, as far as can be achieved maintain and enhance the particular natural values affected by the Project when assessed overall.

The adequacy of a proposed offsetting measure should be transparent in that it is assessed against a recognised methodology.

In this policy "to the extent practicable" requires consideration of the nature of the activity, the sensitivity of the receiving environment to adverse effects, the financial implications and adverse effects of the measure considered compared with other alternative measures, the current state of technical knowledge and the likelihood that effects can be successfully avoided, remedied or mitigated.

[1171] Determination of whether or not a proposal is contrary to objectives and policies of a plan requires consideration of plan objectives and policies as a whole, rather than individual policies in isolation. However, where particular objectives or policies are directed to a specific end it may sometimes be the case that those objectives or policies are particularly significant in determining whether or not a proposal is contrary to objectives and policies. Policy 4.2.33A is such a policy.

[1172] In our view, the TGP proposal is in accordance with Policy 4.2.33A and cannot be said to be contrary to the objectives and policies of the Freshwater Plan. A key thrust of the evidence which we considered when considering the effects of TGP was the attempt made by the Applicants to avoid adverse effects of TGP in their route selection, specifically the choice of the western alignment along Te Puka Valley. To the extent that adverse effects could not be avoided the Applicants have sought to remedy or mitigate them by a comprehensive package of mitigation proposals. With limited exceptions, the adequacy of those mitigation proposals was accepted by all relevant witnesses and the Board considers that package to be comprehensive and appropriate.

[1173] Accordingly we are satisfied to the extent TGP requires consents under the Freshwater Plan, it is not contrary to the objectives and policies of that Plan and is not precluded from obtaining such consents by the provisions of s104D RMA. Insofar as any other relevant regional plans are concerned, we accept the evidence and conclusions of Ms Rickard contained in paragraphs 14-24 of her statement of evidence dated 16 November 2011.

17.4 SECTIONS 104 & 105 RMA

[1174] Having determined that the NZTA and PCC resource consent applications have passed through one of the gateways of s104D, they must be considered in accordance with the provisions of ss104 and 105 RMA. Section 104 relevantly provides:

- (1) *When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to –*
 - (a) *any actual and potential effects on the environment of allowing the activity; and*
 - (b) *any relevant provisions of –*
 - (i) *A national environmental standard;*
 - (ii) *other regulations,*
 - (iii) *a national policy statement;*
 - (iv) *a New Zealand coastal policy statement;*
 - (v) *a regional policy statement or proposed regional policy statement;*

(vi) a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

[1175] Insofar as the issue of actual and potential effects on the environment is concerned we refer to the summary of factual findings which we previously made and which are set out in Section 17.1 above. We consider that those findings accurately identify the actual and potential effects of TGP which will be determinative in our considerations.

[1176] The relevant provisions of the various instruments specified in s104(1)(b)(i-vi) have been identified in Section 16 of this report. Highly pertinent considerations under those instruments arise out of the NZCPS insofar as effects of TGP on Porirua Harbour are concerned and the relevant provisions of the Freshwater Plan which we have previously discussed. The fact that any temporary increase in sedimentation caused by TGP works will be counter balanced in the long term by an ongoing reduction in sediment discharged to the Harbour from TGP catchments, is a significant consideration under NZCPS. The comprehensive package of avoidance, remedy and mitigation of adverse effects is similarly a significant consideration under the Freshwater Plan.

[1177] We consider a number of the instruments identified in Section 16.13 of this report under the head *any other matter*. The WRLTS and the Western Corridor Plan 2006 both of which are highly supportive of TGP are relevant in that regard. We have also given consideration to the draft PHCSAP in this context. As with all of our considerations in respect of Porirua Harbour, the fact that TGP associated land rehabilitation works will ultimately bring about a reduction in volume of sediment being discharged to the harbour is a significant factor in our considerations.

[1178] In addition to the consideration of s104 (above), applications for discharge permits are subject to the provisions of s105 RMA which relevantly provides:

(1) If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—

(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and

(b) the applicant's reasons for the proposed choice; and

(c) any possible alternative methods of discharge, including discharge into any other receiving environment.

(2) If an application is for a resource consent for a reclamation, the consent authority must, in addition to the matters in section 104(1), consider whether an esplanade reserve or esplanade strip is appropriate and, if so, impose a condition under section 108(2)(g) on the resource consent.

[1179] Insofar as the matters set out in s105 are concerned, we refer to our comprehensive discussion on those matters in Sections 12.3, 12.4, 12.6, 12.7 and 12.10 of this report and adopt the various findings made in those Sections having regard to the evidence of the witnesses on those matters.

17.5 PART 2 RMA

[1180] Our considerations pursuant to ss171(1) (NoRs) and 104(resource consents) RMA are in each case subject to Part 2 RMA. Part 2 identifies the purpose and principles of the Act. In deciding these requests and applications it is necessary for us to determine whether or not confirming the requirements and granting the resource consents achieves the purpose of the Act.

[1181] Section 5 RMA defines its purpose in these terms:

5 Purpose

- (1) *The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) *In this Act, **sustainable management** means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –*
 - (a) *Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) *Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
 - (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

[1182] In order to inform our considerations under s5, we are obliged to consider the provisions of ss6, 7 and 8 RMA. We consider those provisions sequentially.

[1183] Section 6 RMA provides:

6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- (a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers*

and their margins, and the protection of them from inappropriate subdivision, use, and development:

- (b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- (c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- (d) The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
- (e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*
- (f) the protection of historic heritage from inappropriate subdivision, use, and development.*
- (g) the protection of protected customary rights.*

[1184] We are required to consider the matters identified in section 6(a)-(g) as matters of *national importance*. A number of them are relevant in this case:

- The preservation of the natural character of Porirua Harbour appeared to us to be the most significant single issue arising out of the TGP proposal. We have found that there will be a temporary increase in sedimentation as a result of TGP works. We have accepted that the increase might be somewhere in the order of 4 - 5% per annum above present levels for the six year life of the Project. Once construction works have been completed, there will be a permanent reduction in the volume of sediment entering Porirua Harbour from the TGP catchments in the order of 3 - 4% per annum on an ongoing basis. That is a beneficial effect of TGP and clearly contributes towards the preservation of the Harbour's natural character;
- We accept that TGP will have adverse effects on the natural character of the streams (rivers) in its course. Those effects have been avoided to the extent possible. The comprehensive mitigation package proposed for sedimentation control and ecological purposes adequately addresses those effects.
- TGP might conceivably have some minor adverse effects on the Tararua foothills which are identified as an ONL in the KCDP. Any such effects are so limited in scope that they do not render TGP an inappropriate development;
- Although Te Puka Valley was described as an *ecological hotspot* in the ecological witness' caucusing statement it did not appear to us to constitute an area of significant indigenous vegetation or significant habitat of indigenous fauna. In terms of vegetation, TGP will bring about the destruction of scattered remnants of forest on the western side of the Te Puka Valley. In our view those remnants cannot be regarded as

significant when compared with the Akatarawa Forest on the eastern slopes. No significant habitats of indigenous fauna were identified to us;

- None of the evidence which we heard indicated that TGP would unduly affect public access to the coastal marine area or the streams which we have discussed. TGP includes comprehensive access proposals by the provision of walking, cycling and horseriding paths as part of landscape development.
- TGP will not interfere with the relationship of Maori with their ancestral lands, water, sites, Waahi Tapu and other Taonga. Ngati Toa supports the proposal. Its representative indicated in very clear terms that Ngati Toa would strongly oppose the alternative suggested possibility of extension of the coastal route;
- Historic heritage will be protected by NZTA's proposals in respect of St Joseph's Church and the WWII fuel storage site.

[1185] We do not consider that the TGP proposal runs counter to any of the provisions of s6 RMA. The reduction in sediment discharge into Porirua Harbour in the long term promotes preservation of the harbour and accords with the provisions of s6(a).

[1186] Section 7 RMA provides:

7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to –

(a) Kaitiakitanga:

(aa) The ethic of stewardship:

(b) The efficient use and development of natural and physical resources:

(ba) The efficiency of the end use of energy:

(c) The maintenance and enhancement of amenity values:

(d) Intrinsic values of ecosystems:

(e) Repealed:

(f) Maintenance and enhancement of the quality of the environment:

(g) Any finite characteristics of natural and physical resources:

(h) The protection of the habitat of trout and salmon:

(i) The effects of climate change:

(j) The benefits to be derived from the use and development of renewable energy.

[1187] We are required to consider the matters identified in section 7(a)-(j) as matters to which we must have particular regard. A number of them are relevant to our considerations in this case:

- Ngati Toa has determined to exercise Kaitiakitanga in this case by supporting TGP;
- Stewardship by community groups other than Ngati Toa has been addressed through the consultation process and in some cases by conditions requiring consultation with specific groups as TGP proceeds.
- TGP promotes the efficient use and development of natural resources by rectifying inadequacies in the existing coastal route. Those inadequacies include congestion, accessibility issues, use of inappropriate routes, safety concerns, severance of coastal communities, danger to pedestrians and vulnerability to closure in the event of earthquake or tsunami. Although there was considerable issue taken by some parties as to how that efficiency was measured in terms of BCR applying NZTA guidelines, we have some reservations about their relevance to our considerations;
- TGP will have adverse effects on the amenity values of a number of persons living near the route. For persons living in what are presently quiet rural areas, the TGP expressway will become a very prominent feature of their environment. NZTA has sought to mitigate adverse effects as much as possible through the route selection process and will seek to make further improvements as design proceeds. Except for the request to move the route further uphill and to the east as requested by submitters Poppe Family Trust, Deuss and Christensen we heard of no other tangible mitigation suggestions. Ultimately, we accept that there will be adverse amenity effects on some people if TGP proceeds;
- There will be adverse effects that are more than minor on intrinsic values of ecosystems, particularly in the Te Puka Valley and Stream and in the other streams which we have identified. Those adverse effects will be adequately remedied or mitigated by the Applicants' mitigation proposals;
- Some aspects of the environment will not be maintained or enhanced by TGP. Those aspects largely relate to the Te Puka Valley and the various streams which we have identified. We consider that the Applicants have offset those adverse effects through their extensive suite of mitigation measures. The long-term reduction of sediment discharge into Porirua Harbour constitutes an enhancement of the quality of the environment.
- It appeared to us that the most significant effect of climate change which we should consider related to possible impacts of sea level rise, tsunami and storm events on the viability of the coastal route, although we heard little evidence on those matters. The other relevant aspect of climate change related to the hydrological estimates where the evidence which we heard was that the construction timeframe would be within the inherent variability of the existing climate.

We consider that TGP is substantially in accord with the provisions of s7 RMA, although not in all respects.

[1188] Section 8 RMA addresses Treaty of Waitangi issues. It provides:

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

[1189] We were not advised of any Treaty issues that arose in this context. We note Ms Pomare's evidence that the Applicants had responded appropriately to s8 issues and that the principles of the Treaty of Waitangi had been taken into account by the MoU between NZTA and Ngati Toa.

17.6 CONCLUSION ON PART 2 CONSIDERATIONS

[1190] Our overall conclusion in respect of Part 2 matters is that approval of the notices of requirement and resource consents to enable TGP to proceed will promote the sustainable management of natural and physical resources. Providing a safe, alternative inland route to the existing coastal route for SH1 will enable people and communities to provide for their social and economic wellbeing and for their health and safety. Although there are a number of adverse effects we do not consider that the scale of those effects outweighs the benefits which we have identified. TGP has avoided adverse effects on the environment to the greatest extent possible and where avoidance is not possible proposes remedial or mitigatory measures which in some instances constitute environmental gains.

Outcome

[1191] When regard has been had to all of the matters above, including Part 2 considerations, we determine that it is appropriate that the notices of requirement sought by NZTA and PCC be confirmed and that the resource consents applied for be granted subject to the imposition of appropriate conditions.

17.7 SECTION 104C RMA

[1192] The Transpower resource consent applications must be determined in accordance with the provisions of s104C RMA which provides as follows:

(1) *When considering an application for a resource consent for a restricted discretionary activity, a consent authority must consider only those matters over which –*

- (a) *a discretion is restricted in national environment standards or other regulations;*
- (b) *it has restricted the exercise of its discretion in its plan or proposed plan.*

(2) The consent authority may grant or refuse the application.

(3) *However, if it grants the application, the consent authority may impose conditions under section 108 only for those matters over which –*

(a) a discretion is restricted in national environmental standards or other Regulations;

(b) it has restricted the exercise of its discretion in its plan or proposed plan.

[1193] Transpower's applications were made pursuant to the NESETA. All of the matters to which the Board's discretion has been restricted were addressed in the evidence of Transpower's witnesses and the Transpower application faced limited opposition.

[1194] We have concluded, relying on the evidence called for Transpower that:

- Areas or sites potentially sensitive to the proposed line relocation have generally been avoided through Transpower's route selection process;
- Some potential effects of the relocation may be disregarded as effects which could arise from permitted line relocation works under the NESETA;
- Transpower's evidence was that remaining effects are limited to the effects of construction and landscape effects all of which may be appropriately mitigated through proposed conditions of consent.

[1195] We also conclude, relying on Transpower's evidence, that the line relocation works will promote the sustainable management of natural and physical resources, and in particular will:

- Enable development of TGP which we have found will promote a sustainable management of natural and physical resources;
- Provide for the ongoing operation and maintenance of the National Electricity Grid which is a nationally significant physical resource providing the sustainable, secure and efficient transmission of electricity.

Outcome

[1196] For these reasons we conclude it is appropriate to grant the resource consents sought by Transpower, again subject to the imposition of appropriate conditions.

18. DECISION

[1197] For all of the reasons set out in the foregoing sections of this report, our decision is that:

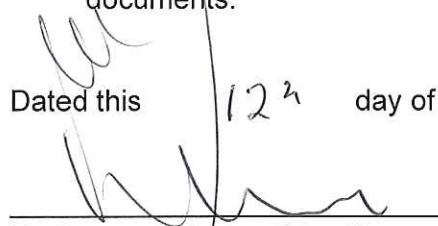
- We confirm the Notices of Requirement given by NZTA;
- We confirm the Notices of Requirement given by PCC;
- We grant the resource consents applied for by NZTA;
- We grant the resource consents applied for by PCC;
- We grant the resource consents applied for by Transpower.

[1198] In each case, the respective confirmations and grants are to be subject to the relevant conditions contained in Volume 2 to this report.

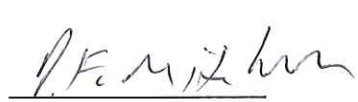
[1199] This is the final decision and report issued by the Board in accordance with the provisions of s149(R)(1) RMA. The Board issued a draft report and decision on these matters on 30 April 2012. That document was the subject of comment from various persons pursuant to the provisions of ss149Q(4) and (5) RMA (although a number of the comments went substantially beyond the ambit of those provisions). The Board has considered those comments in producing this final report and making these decisions. A summary of the comments and the Board's consideration of them is available on the EPA website.

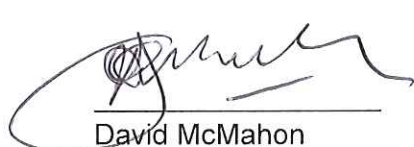
[1200] Contemporaneously with this report and decision we will execute Notices of Requirement and resource consents giving effect to the decisions which we have made. We record that draft Notices of Requirement and consent documents were submitted to EPA by the Applicants and circulated to other parties for comment. No comments were received on the form of those documents.

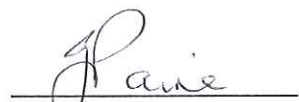
Dated this 12th day of June 2012


Environment Judge Brian Dwyer


Environment Commissioner Russell Howie


David Mitchell


David McMahon


Glenice Paine

APPENDIX 1

