

Before the Board of Inquiry
Waterview Connection Project

in the matter of: the Resource Management Act 1991

and

in the matter of: a Board of Inquiry appointed under s 149J of the Resource Management Act 1991 to decide notices of requirement and resource consent applications by the NZ Transport Agency for the Waterview Connection Project

Statement of evidence of John Gottler (Construction / Temporary Traffic)
on behalf of the **NZ Transport Agency**

Dated: 12 November 2010

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STATEMENT OF EVIDENCE OF JOHN GOTTLER ON BEHALF OF THE NZ TRANSPORT AGENCY

INTRODUCTION

- 1 My full name is John Peter Gottler.
- 2 I am a Principal Transportation Engineer for Aurecon, a global engineering consultancy company. I have an Auckland and national role within the company and am also the international champion for transportation safety in design for our global company activities. I have been working within the Auckland transport industry for over 20 years. I have over 34 years experience in roading and transportation throughout New Zealand and internationally.
- 3 Academically I have achieved the New Zealand Certificate in Engineering, Registered Engineering Associate and Post Graduate Transportation Planning Management and Control from the University of New South Wales. I am a Technical Member of the Institute of Professional Engineers, member of the Australasian and South Pacific Association of Collision Investigators, a Registered Australian Senior Road Safety Auditor, NZ Road Safety Audit Team Leader, certified Level 2 and Level 3 motorways Code of Practice for Temporary Traffic Management and control, Life Member of the NZ Traffic Institute and Vice President of Trafinz.
- 4 I am currently a National Safety Audit Advisor for the NZ Transport Agency (*NZTA*). I have previously been the City Traffic Engineer for Manukau City Council during the 1990's and was delegated the responsibility for all temporary traffic management and controls. During major special events, I was also delegated the responsibility for all traffic management co-ordination and operational control of State Highway 20 (e.g. Rally New Zealand) by the Regional Manager of Transit (now *NZTA*).
- 5 From 2002 to 2006, I was the Auckland Regional Traffic Management Co-ordinator for all motorways and State Highways as a member of the Network Management and Operational team for the *NZTA* (then Transit New Zealand). In this role, I led a team that was responsible for 55,000 temporary traffic controls and events annually (on average, this is approximately 150 - 200 events per day across the network). This occurred during a major period in the redevelopment, maintenance and operation of the Auckland motorway and State highway network. My team was responsible for co-ordinating all temporary traffic management operations on a daily basis 24 hours per day throughout the year.
- 6 In addition in this role, I was also responsible for the testing and the certification of trained practicing Site Traffic Management Supervisors (*STMS*). I also issued notices of non-compliance and

recommended certification removal. My team undertook a 5% audit of the daily temporary traffic operations and attended all fatal and serious road crashes, as well as major incidents on Auckland's State highway network. This demonstrates my comprehensive role in temporary traffic management for the Auckland Motorways and State Highways.

- 7 I have provided expert evidence at Council and Environment Court hearings for development proposals that impact on State highways and construction traffic management.
- 8 I have extensive experience in the impacts and design of transportation networks for the movement of people and goods for all current public transportation modes (including for ports, airports, ferries, trams, trucking, personal vehicles, cycling, walking and impaired users) and have a comprehensive understanding of the New Zealand Road Safety Strategy 2010 (*NZRSS*) and the new 2020 Safer Journeys Strategy.
- 9 I was part of the National Working Group that developed the NZ Code of Practice for Temporary Traffic Management (*CoPTTM*). I have provided expert input and been a member of national working groups that have developed a number of standards, specifications, codes, procedures and guidelines for traffic engineering within New Zealand and Australia over the last two decades.¹
- 10 I was the leader of the team that designed and structured all the transportation and integrated transport management aspects of the 1999 APEC World Leaders Conference in Auckland. This was the largest temporary traffic management event that has been delivered in NZ. My involvement, as a consultant for the design and as the Manukau City Council representative for the operational delivery, was recognised by the then Prime Minister (The Right Hon. Ms Shipley).² My contribution to road safety delivery was further recognised in 1999, when I was awarded life membership to the NZ Transport Institute.
- 11 Over Christmas 2010, the Papatoetoe implementation of the Auckland Rail Electrification Project will take place. I have led a team that has provided a comprehensive Indicative Temporary Traffic Management Plan (*ITTMP*) document for the contractors to tender and to then reconstruct road-over-rail bridges, which are critical east-west connections for the local roads of Papatoetoe.

¹ For example, Transfund Road Safety Audit Procedures for Projects 1993, Manual of Traffic Signs and Markings guide to rural and urban speed thresholds and Auckland City Council Requirements for Major Urban Arterial Centre Speed Gating Devices.

² I was provided a personal letter thanking me for my contributions to the temporary traffic management design, safety and the secure transport integration of the successful delivery of APEC 1999 in Auckland.

- 12 Currently in operation is my team's ITTMP guidance for the reconstruction of the Sturges Road road-over-rail bridge in Waitakere. This temporary management and control plan has been in place for about six months and is operating at optimum efficiency and safety for the public and the local community.
- 13 In 2007, the design team I led was awarded the NZ Rooding Excellence Award for Infrastructure Delivery for our design of New Zealand's first signalised roundabout at the SH20 / Hillsborough interchange. This innovative temporary traffic management control enabled the construction of major new infrastructure while maintaining high levels of service for vehicular traffic, buses, a safe facility for pedestrians and cyclists and enabling the community to engage with this complex exciting project. It provided safe access to the site for construction workers, pedestrians, vehicles, materials and plant. It incorporated very effective temporary traffic management for the delivery of enhanced multimodal travel, safety, personal security and sustainability for the four year major reconstruction of SH20. (The design was developed through a similar process as that proposed by the Construction Traffic Management Plan for this Project.)
- 14 My evidence is given in support of notices of requirement and applications for resource consents lodged with the Environmental Protection Authority (*EPA*) by the NZTA on 20 August 2010 in relation to the Waterview Connection Project (*Project*). The Project comprises works previously investigated and developed as two separate projects, being:
- 14.1 The State Highway 16 (*SH16*) Causeway Project; and
- 14.2 The State Highway 20 (*SH20*) Waterview Connection Project.
- 15 I am familiar with the area that the Project covers, including both the local and the State highway rooding network in the vicinity of the Project.
- 16 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2006), and agree to comply with it. In preparing my evidence, I have not omitted to consider material facts known to me that might alter or detract from my opinions expressed.

SCOPE OF EVIDENCE

- 17 My evidence will deal with the following:
- 17.1 Executive summary;
- 17.2 Background and role;

- 17.3 Summary of assessment of traffic and transportation effects arising from construction activities;
- 17.4 My opinion of the assessment of traffic and transportation effects arising from construction activities;
- 17.5 Post-lodgement events;
- 17.6 Comments on submissions; and
- 17.7 Proposed temporary traffic conditions.

EXECUTIVE SUMMARY

- 18 The Assessment of Temporary Traffic Effects Report (*ATTE Report*) provides an assessment of the traffic and transportation effects of the construction works on the pedestrian, cycle, passenger transport and road networks. It also outlines traffic management methodologies and techniques to mitigate these temporary effects. The ATTE Report is based on a peak of construction traffic movements, assuming that all construction work areas of the Project are being undertaken simultaneously (which in my view is a conservative approach), and the modelled data includes all qualitatively forecasted construction traffic associated with the Project.
- 19 It is my experience that to effectively manage temporary traffic impacts on roading networks the construction programme, the communications plan, the network requirements and the temporary traffic management design need to integrate in an appropriate structured planning process.
- 20 To achieve this for this Project the NZTA has developed various traffic management processes and techniques within the Construction Traffic Management Plan (*CTM Plan*), which is appended to the ATTE Report. The CTM Plan covers the temporary traffic management rules and principles for the Project as a whole, and is intended to be a 'live' document that will direct the NZTA through the delivery of this Project.
- 21 The CTM Plan establishes a Traffic Management Project Co-ordination Group (*TMPCG*), which includes temporary traffic management representatives from each of the Project sectors and is an 'advisory group' for the development of the Site Specific Temporary Management Plans (*SSTMPs*). The TMPCG will collaboratively develop strategy and co-ordinate integration of temporary traffic management activities across the Project.
- 22 The CTM Plan also requires the creation of a Traffic Management Project Governance Group (*Governance Group*), which will be

responsible for decisions and feedback of the Project's temporary traffic management outcomes and identified traffic management issues to be resolved. The Governance Group will be made up of key stakeholders, being the Auckland Council, Auckland Transport, the Traffic Management Coordinator (*TMC*) from both road controlling authorities (Auckland Motorway Alliance for State highways and Auckland Transport for local roads), the NZ Police and the NZTA.

- 23 The CTM Plan requires SSTMPs to be developed by the NZTA's contractor team (once appointed). These plans will be independently verified by a senior qualified safety engineer, and submitted to the relevant TMC for the local and state highway networks for their network coordination approval. The TMCs will provide operational co-ordination of this Project into their respective local and regional network operations.
- 24 The ATTE Report anticipates that the construction traffic effects will increase delays and create some disruption for the local community and road users at various stages of the construction. These effects can be appropriately mitigated if the rules and procedures outlined in the CTM Plan process are implemented. This process has a proven track record on large projects in Auckland and integrates with network operations on a daily basis. I therefore consider that the CTM Plan process will enable these impacts to be managed so as to be no greater or unusual in comparison with other major road construction projects completed in the Auckland region in the last five to ten years.
- 25 It is my opinion, based on the investigations provided in the ATTE Report and my review of the CTM Plan process, that the Project's temporary traffic effects will be appropriately mitigated under this successful process. It will provide balanced and appropriate mitigation through effective SSTMPs that integrate with the local and motorway networks' daily operations.
- 26 I have also recommended some additional measures that should be considered for input into the CTM Plan process by the Governance Group at its first iteration and update of the CTM Plan.

BACKGROUND AND ROLE

- 27 As noted in Mr Murray's evidence, the NZTA retained Beca Carter Hollings & Ferner (*Beca*) as part of a consortia team to assist with the investigation, engineering and planning of the Project and to prepare the assessment of the environmental effects, including transport and temporary traffic effects.
- 28 An Assessment of Transport Effects (*Transport Assessment*) and the Traffic Modelling Report were prepared by a team of transportation

engineers at Beca, led by Mr Andrew Murray, Technical Director of Transportation. Section 6 of the Transport Assessment considers the potential effects of the construction works on the existing pedestrian, cycle, passenger transport and road networks, and outlines mitigation measures required to manage these effects. The Transport Assessment also considers the effects of construction traffic on the road networks.³

- 29 In addition, an Assessment of Temporary Traffic Effects Report (*the ATTE Report*) was prepared by Mr Jeremy O'Brien (Senior Transportation Engineer) and Mr Stephen Hewett (Technical Director of Transportation) both at Beca. The ATTE Report expands on Section 6 of the Transport Assessment.⁴
- 30 The ATTE Report provides a more detailed assessment of the likely traffic and transportation effects of the construction works on the pedestrian, cycle, passenger transport and road networks. It also outlines traffic management methodologies and techniques to mitigate these temporary effects. The basis of the assessment in the ATTE Report is on a peak of construction traffic movements, assuming that all construction work areas of the Project are being undertaken simultaneously (which in my view is a conservative approach). The modelled data includes all qualitatively forecasted construction traffic associated with the Project.
- 31 These various traffic management processes and techniques are set out within the CTM Plan, which is appended to the ATTE Report.⁵ The CTM Plan covers the temporary traffic management rules and principles for the Project as a whole, and is intended to be a 'live' document that directs the NZTA through the delivery of this Project.⁶
- 32 It is important to note that temporary traffic management measures are critically aligned with a project's construction programme and a project's communications plan. Hence, this evidence should be read in conjunction with Chapter 5 of the Assessment of Environmental Effects (*AEE*), which describes construction of the Project,⁷ and the evidence of Mr Hugh Leersnyder in relation to the Project's Communications Plan (part of the Construction Environmental Management Plan (*CEMP*)).

³ See AEE, Part G, Technical Report G.18, pages 134 to 153.

⁴ See AEE, Part G, Technical Report G.16.

⁵ The CTM Plan forms part of the Construction Environmental Management Plan (*CEMP*) suite of documents. The CEMP can be found in the AEE, Part G, Technical Report G.21.

⁶ The same process is currently being applied to the Newmarket Viaduct project (which I have also provided expert input into).

⁷ The evidence of Mr Andre Walter will introduce Chapter 5 of the AEE and discuss key technical issues/challenges for construction of the Project.

33 In summary, the lodged indicative construction programme is:

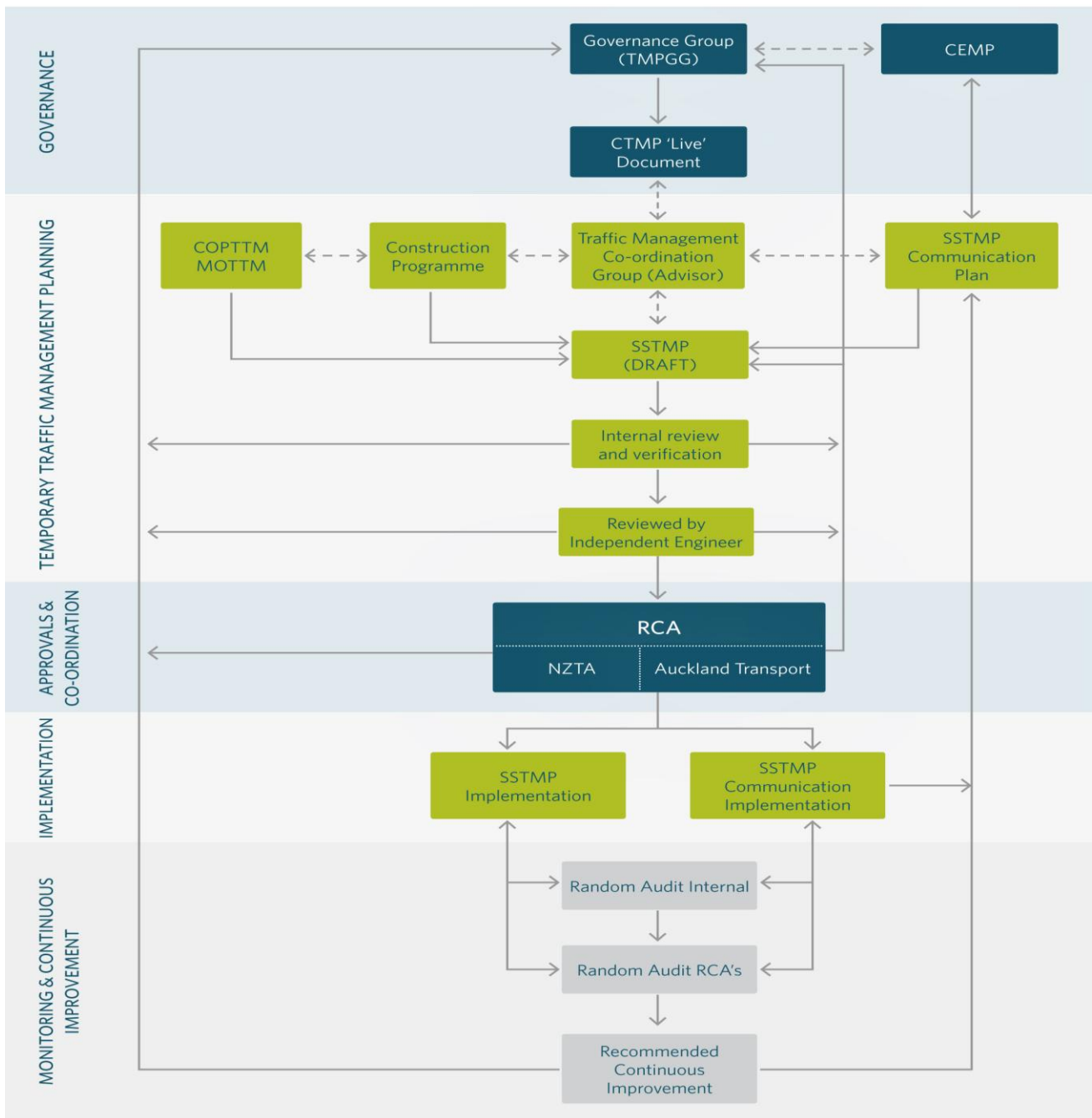
Construction Elements by Sector	Year					
	1	2	3	4	5	6
Te Atatu Interchange						
Causeway and Whau Bridges						
Great North Road Interchange						
SH16 Great North Road to St Lukes						
Tunnel						
SH20 from Tunnel to Maioro						

“Figure 2-1 Summary of Work Programme” within Section 2.1.1 Construction Duration, of the CEMP.

- 34 The lodged indicative construction programme assumes a methodology for this Project. It is acknowledged that this programme is not the only way that the Project can be successfully delivered. Once appointed, the NZTA’s contractors will be required to provide an integrated programme for the delivery of the Project. Accordingly, the CTM Plan needs to provide flexibility and adaptability, so that it can be refined and adjusted, as appropriate, during the course of the five to seven year construction programme.
- 35 The CTM Plan requires the creation of a Traffic Management Project Governance Group (*Governance Group*), which will be responsible for decisions and feedback of the Project’s temporary traffic management outcomes and identifying traffic management issues to be resolved. The Governance Group will be made up of key stakeholders, including the Auckland Council, Auckland Transport, the Traffic Management Coordinator (*TMC*) from both road controlling authorities (Auckland Motorway Alliance for State highways and Auckland Transport for local roads), the NZ Police and the NZTA.
- 36 The CTM Plan also establishes a Traffic Management Project Co-ordination Group (*TMPCG*), which includes temporary traffic management representatives from each of the Project sectors and is an ‘advisory group’ for the development of the SSTMPs. The TMPCG will collaboratively develop strategy and co-ordinate integration of temporary traffic management activities across the Project. A collaborative approach with key stakeholders will be adopted.
- 37 The CTM Plan also describes the process whereby SSTMPs will be developed by the NZTA’s contractors (once appointed). These plans will be independently verified by a senior qualified safety engineer,

and submitted to the relevant TMC (local and/or state highway networks) for their network coordination approval. The TMCs will provide operational co-ordination of this Project into their respective local and regional network operations.

- 38 In my opinion, this process has a proven track record on large projects in Auckland and integrates with network operations on a daily basis. The CTM Plan process is illustrated in the following diagram below.



My Role

- 39 Given my extensive experience and expertise in planning and managing temporary traffic controls for large projects, I have been engaged by the NZTA to provide expert evidence at this hearing. More specifically, I was engaged to provide expert guidance on the traffic and transportation effects of the Project's construction delivery on SH16 (Northwestern Motorway), the existing SH20 and the local road networks. This includes the effects of construction traffic, the levels of which are explained in the evidence of Mr Andrew Murray. I have also been engaged to provide evidence on the temporary provisions for alternative transport modes (including pedestrian, cycling and passenger transport) during the construction period.
- 40 The technical reports most relevant to my evidence are:
- 40.1 Assessment of Transport Effects (Report No. G.18); and
 - 40.2 Assessment of Temporary Traffic Effects (Report No. G.16); and
 - 40.3 Construction Traffic Management Plan, which is Annexure N to the Construction Environmental Management Plan (Report No. G.21).
- 41 The above reports were lodged with the EPA on 20 August 2010 as part of the overall AEE.

SUMMARY OF ASSESSMENT OF TRAFFIC AND TRANSPORTATION EFFECTS OF CONSTRUCTION

- 42 In this section of my evidence, I will summarise the methodology used by Beca in assessing the traffic and transportation effects of construction, and outline the key points of the assessments undertaken to date.
- #### **Summary of Methodology**
- 43 The assessments undertaken in preparing Section 6 of the Transport Assessment and the ATTE Report have been developed based on an adaptive and flexible approach for the construction activities in each sector of the Project, and temporary traffic methodologies to be utilised by the NZTA to successfully facilitate the construction delivery of the Project.
- 44 The construction methodology and temporary traffic management controls to be deployed will be planned in advance, and later, dynamically linked to construction activities and the communication plan by the successful tenderer(s) when the construction contracts are awarded.

- 45 The Transport Assessment and ATTE report investigations have considered the construction effects of the activities, and provide a basis for understanding the effects on networks area-wide, within key corridors, and, in some cases, the effects on sensitive areas. The mitigation options considered have been translated into the CTM Plan, which is a 'live' document that will later be refined with direction and input from the Governance Group to integrate with community activities, the construction programme, meet environmental requirements, and be subjected to network co-ordination by the relevant road controlling authorities. This structured temporary traffic management planning and control system as outlined within the CTM Plan has proven to be highly successful in past projects by the NZTA (most recently, for the Newmarket Viaduct project).
- 46 The construction and the traffic management activities for each of the sectors have been assessed for their expected traffic effects and appropriate mitigation measures are proposed.⁸ The traffic basis for these outcomes is explained in Mr Murray's evidence.
- 47 As explained in the evidence of Mr Murray, project assignment and operational traffic models have been employed to assist the NZTA's understanding of the potential impacts of temporary construction traffic on local road and motorway networks. The effects of construction on travel times along SH16, potential voluntary diversions arising from the reduction in traffic capacity (essentially speed reductions) on the motorway and Great North Road, and the effects of possible night time detours and network wide diversions, have been considered using these tools, and are discussed in Mr Murray's evidence.⁹

Summary of SH16 construction impacts

- 48 The SH16 works include widening the motorway in each direction (between Great North Road Interchange and Henderson Creek), the upgrade of Te Atatu Interchange, and the connection of SH20 to SH16 at the Great North Road Interchange. The Project includes six sectors of construction work along SH16:
- The Te Atatu Interchange;
 - Whau River Bridge;
 - Rosebank;
 - Reclamation;

⁸ Page 3 of the ATTE Report. AEE, Part G, Technical Report G.16.

⁹ For a more detailed discussion of the traffic modelling, refer to Mr Murray's evidence and also Section 5 of the ATTE Report (pages 13 to 16), see AEE, Part G, Technical Report G.16.

- Great North Road Interchange; and
 - SH16 to St Lukes.
- 49 Temporary traffic management impacts associated with SH16 (off peak) result from the reduced traffic capacity of SH16, arising from the needs to accommodate the same number of general traffic lanes, but within a reduced cross-section. This safety requirement is for the benefit of road users and on-site contractors. It also requires the introduction of a temporary 80km/hr speed limit, which will be necessary along significant sections of SH16.¹⁰ It is important to note that the routes will be actively managed¹¹ and monitored during construction. Contingency plans will be put in place to react as soon as levels of service measures are identified as being reached to minimise transport effects. This will enable the NZTA to address traffic incidents, delays and congestion for road users.
- 50 The Transport Assessment has included the effects of a number of construction site accesses along SH16 assuming that all construction work areas of the Project are being undertaken simultaneously. Careful operational management of these accesses via the CTM Plan process will be necessary to minimise negative impacts on the motorway and local traffic by construction traffic accessing these numerous planned egresses.
- 51 As it will also be necessary to temporarily remove the bus lanes on SH16 during parts of the construction works, it is expected there will be some impact on travel times for peak bus services during the phases that this occurs. It is anticipated that the bus lanes will be affected for approximately 5 or 6 months, and that they will be reinstated as soon as is practicable.
- 52 The existing shared pedestrian and cycle way along SH16 will remain operational throughout the works. The impacts on pedestrians and cyclists along SH16 are anticipated to be minor.¹²
- 53 It is anticipated that the temporary reductions in capacity on SH16 will result in some voluntary diversion of traffic away from SH16 onto the local arterial network and other transportation modes such as cycling, buses and trains. Effects will be experienced in the immediate vicinity of the affected section, particularly where there are feasible alternative road routes that provide similar travel times

¹⁰ See page 17 of the ATTE Report (AEE, Part G, Technical Report G.16).

¹¹ Active road management is 24/7 on-site management of the temporary controls. This is the highest level of service road network management available.

¹² Page 69 of the ATTE Report (AEE, Part G, Technical Report G.16).

for road users, such as Great North Road, New North Road, Rosebank Road and Meola Road.¹³

Proposed Strategic Mitigation Strategy for SH16

- 54 Comprehensive mitigation strategies are proposed for SH16, where it is anticipated that much of the 7km between the St Lukes Interchange and the Te Atatu Interchange will be affected by temporary construction activities.
- 55 The ATTE Report proposes a preliminary mitigation strategy containing a suite of mitigation measures that will be implemented to minimise the traffic and transportation effects of construction activities on SH16 and on the local road network.¹⁴ As noted earlier, the Governance Group, using the CTM Plan process, will be responsible for how these mitigation measures are delivered by the NZTA's project teams.
- 56 The mitigation strategy is to minimise the effects of construction on SH16 and will include:¹⁵
- 56.1 Use of overhead electronic Variable Message Signs (VMS) on SH1 north and southbound and SH16 east and westbound in advance of significant changes to the road layout or capacity. The messaging strategies will take into account the strategic nature of trips that use SH16, and therefore extend across the Auckland region's road network to SH1 and SH20 where necessary. This will include messaging in advance of the changes to pre-condition motorists to the changes, and messaging during or shortly after works to minimise the safety risks;
 - 56.2 Recommendation and optimisation of voluntary alternative routes to minimise the overall network delay, particularly on Great North Road, New North Road, Meola Road and Rosebank Road.
 - 56.3 Close liaison with passenger transport agencies and operators to develop appropriate mitigation measures, including temporary or permanent relocation of local road bus stops, additional services, refinement of timetables and dissemination of passenger information.

¹³ Page 26 of the ATTE Report (AEE, Part G, Technical Report G.16).

¹⁴ Page 29 of the ATTE Report (AEE, Part G, Technical Report G.16).

¹⁵ See pages 28 and 29 of the ATTE Report. For more specific preliminary mitigation strategies for Sectors 1 to 6 of the Project, refer to Sections 7 to 12 of the ATTE Report (AEE, Part G, Technical Report G.16). I note that the ATTE Report refers to implementation of point-to-point speed enforcement (PPSE) on SH16. However, this measure is subject to legislative requirements and is currently not legally able to be implemented within the Project.

- 56.4 Close liaison with major traffic generating activities and site sensitive stakeholders in the area (such as Unitec, service providers, and local schools).
- 56.5 Extensive use of fully developed SSTMP communication strategies, which include communication campaigns aimed at voluntary rerouting, promoting temporary diversions and rerouting traffic onto planned alternative routes, modal change choice, Travel Demand Management and alternative travel times to minimise the peak levels of traffic demand through the Project area.
- 56.6 Integration with employer travel plans to promote recommended alternative routes, alternative transport modes (especially public transport), car pooling or travel times to minimise personal vehicle demand on the road networks.

Summary of SH20 construction impacts

- 57 The Project involves the northern extension of SH20 from the Maioro Street Interchange to connect with SH16 at the Great North Road Interchange. The Project includes three sectors of work on SH20, namely the Great North Road Underpass, (a cut and cover tunnel), Avondale Heights Tunnel, and the Alan Wood Reserve redevelopment.
- 58 The majority of the SH20 extension will be constructed off-line and requires minimal temporary traffic management.¹⁶ Traffic management will however be required for a section of Great North Road south of the Great North Road Interchange, a section of Richardson Road, the Maioro Street Interchange and to provide access to Construction Yards 6 to 12.¹⁷ The Communication Plan will include a strategy to reduce traffic demand on these routes at various times during the five to seven year construction period.
- 59 It is anticipated that most construction traffic at the southern end of the tunnel construction site (this essentially includes Construction Yards 8, 9, 10, 11 and 12) will use the motorway termination for access. However, some traffic will access this site from Richardson Road or the Maioro Street Interchange as per the modelled assessment. At the northern end of SH20, traffic will initially access the site (Construction Yards 6 (Waterview Park) and 7 (Oakley Creek Reserve)) via a signal controlled intersection at the relocated Herdman Street / Great North Road intersection or other appropriately controlled egresses on Great North Road.
- 60 The staged construction of the cut-and-cover tunnel beneath Great North Road is anticipated to have an impact on travel times along

¹⁶ Page 99 of the ATTE Report (AEE, Part G, Technical Report G.16).

¹⁷ Page 99 of the ATTE Report (AEE, Part G, Technical Report G.16).

Great North Road¹⁸. There will be significant numbers of site access movements to and from the construction areas to the east and west of the Project area.

- 61 In addition, there will be incremental impacts resulting from the reconstruction of Herdman Street, north of its existing position, staged construction of the new underpass, and the relocated signalised Herdman Street / Great North Street Intersection, which will enable construction access into Construction Yard 6 (Waterview Park) and the managed control of Construction Yard 7 (Oakley Creek Reserve).
- 62 The excavated tunnel material is described in Mr Andre Walter's evidence, and is anticipated to be removed south and north of the extended SH20 via the Construction Yards, as follows:
- 62.1 Southbound material may be deposited at an appropriate clean fill facility, such as the Three Kings quarry and/or the Wiri facility. All of this traffic will egress the site via the motorway termination at the Maioro Street Interchange, and use SH20, having minimal impact on the local roading network and the local community.
- 62.2 Northbound material may be used for the causeway construction and may either be stockpiled at the Great North Road Interchange or trucked out from the site via the SH16 motorway infrastructure. This will have minimal impact on local roading infrastructure. Mr Walter's evidence also describes a purpose built conveyance plant which may be used to further reduce the heavy vehicle trips currently anticipated with the modelled traffic.
- 63 Effectively, the remainder of the SH20 works are 'off line' and will have less than minor impacts on the local roading network.

Proposed Strategic Mitigation Strategy for SH20

- 64 The preliminary mitigation measures discussed in the ATTE Report in respect of SH20 relate to:¹⁹
- 64.1 Local voluntary diversions using dynamic VMS, where appropriate, to advise the public of alternative travel routes;

¹⁸ The Transport Assessment is based on a peak of construction traffic movements, assuming that all construction work areas of the Project are being undertaken simultaneously.

¹⁹ See page 99 of ATTE Report, and more specific preliminary mitigation strategies for Sectors 7 to 9 of the Project are contained in Sections 14 to 16 of the ATTE Report. AEE, Part G, Technical Report G.16.

- 64.2 Construction vehicle planned routing to Construction Yards and work areas via the state highways and the local arterial routes;
- 64.3 Installation of temporary traffic signals at site accesses, where appropriate;
- 64.4 Modifications to the existing signals at the intersection of Great North Road and Herdman Street to enable relocation and coordinated management of the arterial traffic, the site access movements and motorway traffic;
- 64.5 Maintaining and managing pedestrian and cycle way temporary diversions, and the local provision of temporary pedestrian refuges and signage to provide safe crossing points; and
- 64.6 Coordinated relocation of bus stops and traffic controls with local authorities (now Auckland Transport).

Construction Traffic Management Plan

- 65 The CTM Plan appended to the ATTE Report outlines the process through an overview of procedures, requirements and standards necessary for managing the temporary traffic effects of construction arising from the Project. As explained earlier, it is anticipated that the CTM Plan will be a 'live' document and will be updated as the construction methodology, regulatory environment and requirements for the implementation of traffic controls are structured and planned, for the duration of the Project.²⁰
- 66 The CTM Plan will be reviewed by the NZTA and its contractor once the detailed design is completed and further reviews will be undertaken at regular intervals. The NZTA will make revisions to the CTM Plan as directed by the Governance Group.
- 67 The CTM Plan prescribes the process whereby SSTMPs will be developed. Another important feature of the CTM Plan is the process whereby the entire Project can be monitored and tracked over time.²¹

MY OPINION ON THE ASSESSMENT OF TRAFFIC AND TRANSPORTATION EFFECTS ARISING FROM CONSTRUCTION

- 68 In this section of my evidence I provide my expert review and conclusions regarding the assessment undertaken and the

²⁰ The Governance Group will be responsible for requiring the NZTA to update the CTM Plan and to keep it 'live' and current. See page 2 of the CTM Plan, Appendix A to the ATTE Report (AEE, Part G, Technical Report G.16).

²¹ See pages 2-3 of the CTM Plan, Appendix A to the ATTE Report (AEE, Part G, Technical Report G.16).

mitigation measures proposed by the NZTA to manage the traffic and transportation effects of Project construction implementation.

Basis of my opinion

69 My opinion is based on my extensive experience in working on major projects and my operational experience as the Auckland Region 1 Traffic Management Coordinator for Auckland Motorways and State Highways. My opinion is also based on my various roles as a Temporary Traffic Management Reviewer and Auditor and the information supplied by the NZTA.²²

70 The following are relevant projects I have been directly involved with:

- SH18 Hobsonville;
- Sturges Road;
- The Northern Bus way project;
- Auckland CBD Queen Street upgrade;
- Numerous large special events (such as APEC 1999, Rally NZ, Sweetwaters, AIA Aviation show); and
- The Auckland Rail Electrification Project.²³

71 These projects have given me valuable practical experience regarding the successful application of traffic mitigation measures, their ability to influence road users positively within specific periods and for the long term benefit gains to the local community, and the need for appropriate temporary traffic controls to minimise adverse transport impacts. Conversely, I have also developed a good understanding and appreciation of those mitigation measures that work less successfully.

72 As one example, in 2007 to 2008, the Auckland City Council was experiencing major safety, temporary traffic management and passenger transport issues with the redevelopment and upgrading of Queen Street. I was engaged to assist the Council's Steering Committee to:

- Reduce the number of vehicles in Queen Street;
- Maximise safety;

²² I refer to the lodged ATTE and the CTM Plan. I also refer to my experience outlined earlier in my evidence.

²³ As noted earlier, this project is currently in the final planning stages and will be undertaken this Christmas 2010.

- Enable servicing of business activities appropriately;
- Optimise construction activities;
- Reduce the extensive delays being experienced by bus traffic;
- Improve traffic controls and parking management; and
- Train staff, parking wardens, contract managers, and Temporary Traffic Management contractors to plan well in advance and holistically apply temporary traffic management measures approved by the project Steering Committee.

73 In addition, a monitoring and continuous improvement process was added to that project's Construction Traffic Management Plan, providing the team with self regulation of their work and enabling successful practice to be included where appropriate. The results of this example show that once the Steering Committee was able to work within a systemic process (similar to that proposed for the Project), the outcomes were balanced, and were consistently achieved in alignment with the project's goals and objectives until the project was completed.

My conclusions

74 In my opinion, based on the investigations provided in the ATTE Report for this Project, and the proposed continuous engagement with the Governance Group, the NZTA will be able to develop the CTM Plan process to provide balanced and appropriate mitigation and produce effective SSTMPs that integrate with the daily operations of the local roading and motorway networks.

75 The ATTE investigations and the CTM Plan process offer key stakeholders the opportunity to be part of the construction management process, whereby shared responsibility and the balancing of needs, performance and safety outcomes can be predicted, mitigated and actioned. I consider that this process will result in the good safety and serviceability outcomes and will enable this major public works Project to be implemented successfully. The ATTE Report concludes that construction and temporary traffic effects can be managed so as to be no greater or unusual in comparison with other major road construction projects completed in the Auckland region in the last five to ten years.²⁴

76 In my opinion and from my experience in temporary traffic management planning and delivery, I support the conclusions in the ATTE Report.

²⁴ See page 118 of the ATTE Report (AEE, Part G, Technical Report G.16).

- 77 I recommend that the following additional measures be considered for input into the CTM Plan process by the Governance Group's first iteration and update of the CTM Plan. These include the following:
- 77.1 Under the Health and Safety in Employment Act 1992 and for the security of the construction sites, all construction sites and their activities should be monitored. This is normally achieved through low cost 24/7 CCTV surveillance. This information is valuable for temporary traffic management and control site monitoring and should be accessible by the Traffic Operation Centre (previously ATTOMS).
 - 77.2 That site specific contingency plans should be prepared and incorporated into SSTMPs for activation during site specific construction. (For example, on the Newmarket Viaduct project, detours were available to be used if traffic volumes on the Viaduct exceeded the planned level.) The contingency plans should be based on a risk assessment of the control to ensure the minimisation of redeployment down time.
 - 77.3 For consistency, the Governance Group should require the NZTA to provide SSTMPs for inactive construction areas,²⁵ which are also to be monitored under the Code of Practice for Temporary Traffic Management and audited, as appropriate.
 - 77.4 That the CTM Plan should include a section on Travel Demand Management that includes measures to reduce vehicle trips of construction workers and major traffic generators as a specific mitigation measure.
 - 77.5 That the process (developed within the CEMP) for members of the public to make suggestions, engage with the contractor, raise issues, and provide operational requests to the Construction Liaison Person (via the 24 hour toll free line), or via the Community Liaison Group (CLG) should be documented within the CTM Plan.
 - 77.6 That section 4.2 Traffic Management Procedures of the CTM Plan include a section on the process of construction programme planning and that this should integrate with the SSTMP Communication Plan and implementation as well as the CEMP implementation.
 - 77.7 That the temporary traffic management procedures and requirements of the newly formed Road Controlling Authority for the local road networks i.e. Auckland Transport, will also

²⁵ Inactive construction areas are those where the contractor is not working there for a period, due to the staging of construction. Such areas would remain as identified construction areas.

need to be incorporated into the CTM Plan, once these requirements are known.

POST-LODGEMENT EVENTS

Update of the CTM Plan

- 78 During the preparation of my evidence, it was discovered that the submitted CTM Plan appended to the ATTE Report contains a number of minor errors in relation to stages and restrictions.²⁶ As noted earlier, the CTM Plan is a 'live' document and any inconsistencies between it and the ATTE will be corrected as and when required. Moreover, the Governance Group will require the NZTA to update this document as needed, to ensure the Project's successful delivery of temporary traffic management and control.

Recent example of successful construction management

- 79 Since lodgement of this Project with the EPA, the Newmarket Viaduct temporary traffic closure of the SH1 motorway has been successfully implemented by the NZTA. This project involved the replacement of the Newmarket Viaduct structure using the same Construction Traffic Management Plan process as that proposed for the Waterview Connection Project.

- 80 The site-specific closure of Newmarket Viaduct in early September 2010 diverted all local, interregional and national traffic onto the local roading network temporarily and is on record as a comprehensive success. The reported outcomes²⁷ were that:

- 80.1 The Governance Group's intensive pre-event planning and Communications Plan produced higher traffic reductions than were forecasted;
- 80.2 The dissemination of valuable information to the public and stakeholders provided road users with accurate choices to undertake alternative travel;
- 80.3 Stakeholder coordination and the NZTA commitment to achieving valued outcomes resulted in accurate messages to the public which were clearly understood by all users;
- 80.4 No crashes occurred within the area or on the diversions;
- 80.5 A 50% reduction in traffic volumes was achieved within the area;

²⁶ For example, there are more construction stages proposed than are currently identified in the CTM Plan.

²⁷ Provided by the NZTA's Traffic Management Unit Manager, Mark Walker. I undertook the safety audit of temporary traffic management for this project.

- 80.6 There was no congestion within the area;
- 80.7 The construction teams were able to complete the changes well ahead of programme timeframes and returned the motorway to users ahead of programme.
- 81 While the Waterview Project will not require a full motorway closure, in my opinion, the Newmarket Project outcomes demonstrate that the Construction Traffic Management Plan process (which is similar to that proposed for the Project) is capable of meeting the needs and expectations of stakeholders and the public.

COMMENTS ON SUBMISSIONS

- 82 I have read submissions lodged on the Project that raise temporary traffic or construction traffic issues relevant to my area of expertise. In this section of my evidence I will address issues raised in submissions to the extent not already covered in the preceding evidence or by other witnesses.

Auckland City Council (ACC)²⁸ Effects of construction traffic

- 83 The ACC submits that a condition should be imposed requiring the provision of comprehensive traffic management measures for the local area and surrounding roads, including further analysis of the origins and operation of expected construction traffic, and that consideration should be given to the use of alternative transport modes such as barges.²⁹
- 84 Proposed temporary traffic condition TT.1 requires the revision of the CTM Plan as part of the CEMP revision process.³⁰ In finalising the CTM Plan process, the NZTA proposes to:
- 84.1 Use advanced traffic modelling tools to better understand the effects of construction of the Project on the affected road network. I recommend a minor amendment to temporary traffic condition TT.1(a) so that it refers to "simulation modelling demonstrations" rather than "advanced traffic tools". I consider this amended wording is preferable because a demonstration of modelled outcomes provides greater clarity than advanced modelling tools would; and
- 84.2 As far as practicable, include measures to avoid road closures and restrictions of vehicle and pedestrian movements.

²⁸ Submitter No. 111.

²⁹ Paragraphs 158 and 205 of the ACC submission.

³⁰ Proposed temporary traffic condition TT.1.

- 85 Further proposed conditions require the development, approval, monitoring and review of SSTMPs for each construction activity that may affect traffic or transportation infrastructure and services.³¹
- 86 I understand that the construction methodology, discussed in Mr Andre Walter's evidence, envisages the possibility of barges to be used in the SH16 causeway construction activities as construction platforms. In so far as this impacts on temporary construction traffic this activity can be mitigated via preparation of an SSTMP. The use of barges to transport construction materials is not consented and is not practicable from a temporary traffic management perspective, as temporary access issues in loading and unloading the barges, and the changing timing restrictions required to meet the phases of the tide (which change daily) are logistically difficult to manage.
- 87 Another transport mode proposed in the construction of tunnel, at the northern end, is the use of a temporary conveyance system to move spoil from the tunnel excavation to a stock pile within Construction Yard 4. The detail of this is discussed in Mr Andre Walter's evidence. Use of this system will reduce the potential traffic effects on Great North Road by reducing the assumed number of truck movements used to test temporary traffic impacts.
- 88 The ACC submits that the assessment of the increased traffic on alternative routes (particularly Great North Road, New North Road, Rosebank Road, Maioro Street, Meola Road and Jervois Road) during construction of SH16 does not adequately consider that many of these routes are already at or approaching capacity during peak periods.³² This issue will be responded to in more detail by Mr Murray.
- 89 In terms of the temporary traffic management, detailed SSTMPs, including the use advanced traffic modelling to better understand the effects of construction of the Project on the affected road network, will be developed.³³ Proposed temporary traffic condition TT.3(a) requires SSTMPs to include measures to address and maintain traffic capacity. Furthermore, I note that Auckland Council will be part of the Governance Group and SSTMPs will be developed for specific locations and alternative routes.
- 90 When night closures are required, appropriate mitigation measures will be implemented in accordance with the CTM Plan.³⁴ Currently, this methodology is best practice for main arterial roads and

³¹ Proposed temporary traffic conditions TT.2, TT.3, TT.4, TT.5, TT.9 and TT.10.

³² Paragraph 159 of the ACC submission.

³³ See proposed temporary traffic condition TT.1.

³⁴ Typical mitigation measures are included in Table 4.1 of the CTM Plan (see **Annexure B** to my evidence).

motorways in Auckland. The use of SSTMPs for shoulder, lane and full closures to enable maintenance, reconstruction and upgrades to occur at night will minimise disruption for the public on these major transport corridors within the Auckland Region.

- 91 Also, as the sites will be actively managed, responses to traffic delays will be monitored to enable the NZTA and Auckland Transport to provide continuous improvement and address any delays as soon as is practicable, and where appropriate, through the CTM Plan process.

Cumulative construction traffic effects

- 92 The ACC seeks further consideration of the cumulative impact of construction traffic with other projects e.g. the Clark Street extension, as potentially impacting alternative routes.³⁵ As a general comment, I note that it is difficult at this time to predict the cumulative effects of other roading projects that might be undertaken during the 5 to 7 year construction period for the Project. It is also difficult to gauge if other major projects can be funded or if the current construction industry could simultaneously construct them in the same period.

- 93 In terms of the temporary traffic management within the Auckland transport network, I note that the project steering group for Clark Street, for example, (or any other local or NZTA major project) is required to operate under the relevant traffic management code of practice.³⁶ These codes require all projects to consult and co-ordinate with other operations that are active within the Auckland network. Each project will need to demonstrate its impact on the wider network. The codes envisage that the Auckland Transport TMC would identify such effects and deal with them appropriately.³⁷

Need for close liaison with major traffic generating activities and stakeholders

- 94 ACC submits that during construction there should be close liaison with major traffic generating activities and "sensitive stakeholders" (such as schools and Unitec), and support should be provided for the development of employer travel plans.³⁸ ACC also seeks that the NZTA uses travel planning to reduce traffic to construction sites.³⁹

³⁵ Paragraph 160 of the ACC submission.

³⁶ The Manual of Temporary Traffic Management is used by The ACC. The Code of Practice for Temporary Traffic Management (*CoPTTM*) is used by the former Waitakere City Council and the NZTA.

³⁷ For example, a major issue could be referred to the Governance Group, and a minor issue could be addressed by a revision to the SSTMP.

³⁸ Paragraphs 161 and 208 of the ACC submission.

³⁹ Paragraph 161 and 208 of the ACC submission.

95 In response I note that there is a suite of communication measures required by the NZTA's proposed conditions, including a Construction Liaison person, CLG and the Education Liaison Group (ELG).⁴⁰ Mitigation measures are contained in Table 4.1 of the CTM Plan. These measures (amongst others) are intended to ensure that there will be close liaison with major traffic generators and sensitive stakeholders, as would be expected in a project of this size.

96 With respect to travel plans, I consider that the CTM Plan review process, in conjunction with SSTMP Communication Plans, will enable employers and project construction traffic travel plans to be developed, which will provide guidance to employers.⁴¹

Temporary effects on rail services

97 The ACC has noted that the assessment of temporary construction effects lacks reference to effects on rail services, and notes the potential to transfer bus trips to train services.⁴²

98 In my view, modal change promotion of passenger transport services, especially the western rail services, would assist in reducing single occupant vehicular trips. The CTM Plan process includes sections that deal with Passenger Transport Services, and Traffic Management Communications.⁴³ I recommend that the Governance Group's review of the CTM Plan could emphasise the promotion of shifting single occupant private vehicle users out of their vehicles and onto the western rail services.

Construction traffic management measures to minimise effects on local businesses and the community

99 The ACC submits that the construction traffic management measures should minimise construction effects on local businesses, with plans to be submitted to Auckland Council for approval.⁴⁴ I note that some other submitters are concerned about effects on residents and the local community.⁴⁵

100 Section 8.1.2 of the CTM Plan details a range of specific requirements that could be implemented through the development of the SSTMPs to address construction traffic impacts on local businesses and the community. In addition, the mitigation measures set out in Table 4.1 of the CTM Plan, and the

⁴⁰ Proposed public information conditions PI.1 and PI.5 and proposed social condition SO.5.

⁴¹ See Table 4.1 of CTM Plan for communication measures.

⁴² Paragraphs 192 and 216 of the ACC submission.

⁴³ Sections 8.1.2.5 and 8.1.2.8 of the CTM Plan.

⁴⁴ Paragraph 209 of the ACC submission.

⁴⁵ Including Submitter Nos. 135, 88, 62, 46 and 197.

communication measures discussed previously, will in my view assist in minimising such impacts.

- 101 As explained earlier in my evidence, the Governance Group (which Auckland Council will be part of) and the Auckland Transport TMC will have appropriate roles within the CTM Plan process. No additional approval process would be required.

Te Atatu Peninsula

- 102 A number of submitters have raised issues regarding temporary traffic management, in particular, disruption to property access, pedestrian/cycle accessibility (including access across the Te Atatu Interchange and motorway underpass), the High Occupancy Vehicle (HOV) and bus lanes, and general traffic flow. There is also concern about safety, and accessibility to Construction Yard 1 and to the Te Atatu Peninsula.⁴⁶ One submitter is specifically concerned that there are no signals controlling turning traffic into Construction Yard 1.⁴⁷
- 103 Concerns surrounding traffic management effects in Te Atatu will be addressed by the SSTMPs through specific requirements contained in section 8.1.2 of the CTM Plan and the mitigation measures set out in Table 4.1 of the CTM Plan.⁴⁸
- 104 One method of addressing property access issues in a SSTMP, as an example, would be to temporarily reconfigure the road layout to allow vehicle drivers to more safely access their properties.⁴⁹ This often occurs on roading projects of this nature and will be addressed on a case by case basis. Proposed temporary traffic condition TT.3(g) requires SSTMPs to include measures to maintain existing vehicle access, as far as practicable. Any alternative access arrangements should be provided in consultation with Auckland Council and the affected landowners.
- 105 The construction works for the pedestrian/cycle underpass can be mitigated by a schedule to minimise disruption to the local community (for example, to occur during school holiday periods, and/or at night).
- 106 Te Atatu Road will remain available in its current lane configuration capacity at peak times. I recommend the inclusion of a new temporary traffic condition TT.9 to require that the current lane configuration capacity on SH16 at the Te Atatu Interchange is maintained during peak periods (as set out in **Annexure A**).

⁴⁶ For example, Submitter Nos. 37, 64, 145, 150 and 123.

⁴⁷ Submitter No. 37.

⁴⁸ See in particular sections 8.1.2.2, 8.1.2.3, 8.1.2.5, 8.1.2.6, 8.1.2.7 and 8.1.2.8 of the CTM Plan.

⁴⁹ A range of other measures are available in Table 4.1 of the CTM Plan.

Special consideration for the needs of pedestrians, cyclists, buses, HOV and private vehicle users will be provided. I understand it is intended that construction works at Te Atatu Interchange will be undertaken using the following temporary traffic phases:

- 106.1 Phase 1 will widen the east bridge to create a new cycle and shared footpath on the city side and some additional lane capacity;
 - 106.2 In Phase 2 traffic is shifted east to enable upgrading of the existing cycle and pedestrian bridge as well as west bridge widening work;
 - 106.3 Phase 3 shifts traffic east on the bridge to enable the bridge to be extended to the west;
 - 106.4 Phase 4 creates a temporary split lane system (peninsula bound traffic) to enable further widening of the western bridge;
 - 106.5 Phase 5 is the completion of the six lane bridge and east and west shared cycle and footpath.
- 107 Proposed conditions will also ensure that the functioning of the cycleway and Te Atatu Road is maintained.⁵⁰
- 108 Communication strategies,⁵¹ both proactive (i.e. telling the public about traffic management planning), and reactive (i.e. addressing issues or feedback from the community), will further assist to address the concerns raised by submitters.
- 109 Access to Construction Yard 1 on Te Atatu Road will require various SSTMPs to be prepared, at which time a final decision will be made on the most appropriate access control (for example, signalisation, the use of a roundabout or right turn bays etc).

Construction effects on student residential village

- 110 A number of submitters are concerned that the construction works will impede access and egress to the student residential facility at 1510 Great North Road⁵² and will involve continual movement of trucks with attendant noise and vibration during the construction period.⁵³ Submitters have requested that all truck movements be

⁵⁰ Proposed temporary traffic conditions TT.6 and TT.7. The latter states that "The NZTA shall undertake construction works so as to avoid the full closure of Te Atatu Road for residents on the Te Atatu Peninsula."

⁵¹ For example, via the Construction Liaison person, CLG, and communication plans.

⁵² Located on the eastern side of Great North Road, opposite Fir Street. See Operation Scheme Plans D-N-910 Drawing 114.

⁵³ Including Submitter Nos. 72, 166, 240, 98, 106,181, 117, 125, 10 and 101.

restricted to 7am to 12 noon and 2pm to 5pm for the Project duration.⁵⁴

- 111 The access way to the student residential facility is approximately 215 metres south of the northern portal to the tunnel. Construction of the cut and cover tunnel and the driven tunnel will be undertaken off-line; that is, it will not utilise the existing road network for truck access. There may be minor peak period congestion on Great North Road during construction, as discussed in Mr Murray's evidence, and this will be managed through the implementation of SSTMPs. While the detail is yet to be determined, signalisation of the access to the construction yards at the Herdman Street / Great North Road intersection would be appropriate, to be confirmed when a SSTMP is prepared.
- 112 The material excavated from the northern end of the tunnel (near the student residential village) will be transported to the north (either for SH16 fill or to other land fill areas) by either truck on SH16 or a temporary conveyance system from Great North Road to Construction Yard 4.⁵⁵ Other truck movements will join the local road network approximately 500m north of the student residential village.
- 113 Truck traffic currently operates on Great North Road 24 hours a day. In my view, the submitters' proposed restriction to a 5 hour morning and 3 hour afternoon truck transport operational period would be wholly impractical, expensive and difficult to enforce. It would extend the Project construction duration significantly. I therefore do not agree with the proposal to restrict truck movements.
- 114 I note that proposed temporary traffic condition TT.8 restricts construction truck movements during peak periods (6.00 to 9.00am and 15.00 to 18.00). I recommend that the pm peak period referred to in condition TT.8 should be amended to 4pm to 7pm, as this better reflects the pm peak period.⁵⁶ In my opinion, any effects of construction truck movements on the student residential village will be minor.

Safety and access to St Francis School

- 115 St Francis School⁵⁷ and the St Francis Board of Trustees⁵⁸ wish to ensure safe pedestrian and cycling access to the school and that

⁵⁴ Submitter Nos. 149, 117, 240, 166, 106, 125, 72, 81 and 98.

⁵⁵ For further information on the temporary conveyance system, please refer to Mr Walters' evidence.

⁵⁶ The pm peak period of 4pm to 7pm aligns with current traffic count data, historical records and peak spreading demands of Auckland road users.

⁵⁷ Submitter No. 92.

⁵⁸ Submitter No. 93.

access from Great North Road will enable students and teachers to be in attendance by 9.00am.

- 116 St Francis School is located at 2 Montrose Street, Point Chevalier, and is bounded by Great North Road and Point Chevalier Road.⁵⁹ This is within the eastern end of the Project on the northern side of SH16. The School is in close proximity to the existing Great North Road Interchange and currently experiences significant morning peak congestion.
- 117 Most temporary construction activities in this location will be carried out via SH16 and will have little impact on the School's morning peak access. However, disruption may occur during the construction of the Great North Road underpass phases of the Project. This is because drivers on Great North Road (the general public) will be subjected to temporary changes in the alignment to enable construction of the underpass to be undertaken.
- 118 I understand that St Francis School will be consulted via the Communication Plan and the Education Liaison Group, and that special arrangements will be put in place with the School when the relevant SSTMP is prepared. This will include using the appropriate mitigation measures as outlined in Table 4.1 of the CTM Plan.
- 119 The NZTA will ensure that at least the current lane configuration capacity of two lanes each way on Great North Road is made available for traffic during peak periods.

Cycling and walking

- 120 The submitter Cycle Action Auckland⁶⁰ is concerned to ensure safety and continued connectivity on the cycle routes during the construction phases of the Project.
- 121 The NZTA has confirmed that the North Western Cycleway will remain open. To enable construction, it will need to be relocated at various times, but changes will be minimised wherever possible, and accessibility will be maintained. Proposed temporary traffic condition TT.6 requires cycling passage along the existing Northwestern Cycleway and along Great North Road to be maintained during construction phases, as far as practicable. SSTMPs will be developed and appropriate mitigation measures included (refer to Table 4.1 of the CTM Plan) to ensure the continued safe operation of cycle routes, which I consider addresses the submitter's concerns.

⁵⁹ See **Annexure B** to my evidence which shows the location of Education Facilities in the local area.

⁶⁰ Submitter No. 79.

**Ministry of Education, Auckland Kindergarten Association,
Waterview Primary School**

- 122 These submitters are concerned that construction will have effects on traffic safety and access to Waterview Primary School and the Kindergarten.⁶¹
- 123 The access for Waterview Primary School and the Kindergarten is on the west side of Herdman Street (as shown in Operational Scheme Plans Drawing D-N-910-113).⁶² The School and Kindergarten also have vehicular and footpath access via Oakley Avenue (off Great North Road and Daventry Street).
- 124 It is likely that early in the Project, Herdman Street will be reconstructed further north of its current location (and finally rebuilt when the underpass is completed). This will enable a signal controlled intersection at Herdman Street / Great North Road intersection which will also provide access to the construction sites and associated construction yards. It is anticipated that during construction of the underpass, a safer and more effective access to the School/Kindergarten will be via Oakley Avenue.
- 125 I understand that a specific Consultation and Communications Plan is to be developed for communication with Waterview Primary School and Kindergarten⁶³ and an Education Liaison Group (*ELG*) will be established as a condition of consent.⁶⁴ The ELG will be established at least two months prior to construction commencing and will meet regularly throughout the construction period. More specific detail on the role of the ELG is provided in the evidence of Ms Amelia Linzey.
- 126 Furthermore, special arrangements will be put in place via preparation of the relevant SSTMP, again using the appropriate mitigation measures outlined in Table 4.1 of the CTM Plan.

Unitec

- 127 Unitec⁶⁵ is concerned that the existing pedestrian facility located between the Unitec student residential village and the main campus (effectively the Oakley Creek Walkway) is not included within the proposed temporary traffic condition TT.6, as that facility is technically outside Great North Road. In response, I recommend an amendment to proposed temporary traffic consent condition TT.6 to include maintaining access to Oakley Creek Walkway. I also note

⁶¹ Submitter Nos. 176, 153, and 175.

⁶² AEE, Part F.2 (Operation Scheme Plans) Sheet 13.

⁶³ As proposed in Section 3.6.2.1 of the CEMP.

⁶⁴ See proposed social condition SO.5.

⁶⁵ Submitter No 160.

that appropriate mitigation measures in Table 4.1 of the CTM Plan will be included within SSTMPs to address the submitters concerns.

Cradock Street

- 128 Paul and Kathryn Davie, and Kathleen Forrest⁶⁶ are concerned that construction vehicles would have significant impacts on the usability of Cradock Street by residents. As the emergency exhaust stack is no longer proposed, there will be no construction activities requiring access to Cradock Street and I believe this addresses the submitters' concerns.

National Road Carrier INC

- 129 National Road Carrier Inc⁶⁷ is a freight handler and trucking firm which supports the Project, but is concerned that freight movements may be disrupted during construction activities.
- 130 While I acknowledge that there may be some disruption to freight transport, I consider that the CTM Plan process, as explained earlier in my evidence, will appropriately mitigate the effects of temporary construction activities on freight movements as far as practicably possible.

Auckland Regional Transport Authority (ARTA)

- 131 ARTA submits that all temporary SSTMPs should be prepared so as to minimise delays to buses in the off peak and the peak periods, and seeks that delays are avoided or at least minimised during peak periods.⁶⁸
- 132 I note that proposed temporary traffic condition TT.2 requires SSTMPs "for each construction activity that may affect traffic on transportation infrastructure and services". Proposed temporary traffic condition TT.3 requires SSTMPs to include "traffic management measures to address and maintain traffic capacity, including bus services, at traffic peak hours during weekdays and weekends."
- 133 Proposed temporary traffic condition TT.4 requires SSTMPs to include traffic management measures developed in consultation with Auckland Transport, Bus and Coach Association and Auckland Council "to address and maintain, where practicable, traffic capacity at peak hours to provide for passenger transport services on the road network." I consider that these conditions address ARTA's concern.

⁶⁶ Submitter Nos. 127 and 113.

⁶⁷ Submitter No. 99.

⁶⁸ Submitter No. 152.

PROPOSED TEMPORARY TRAFFIC CONDITIONS

134 In the documentation lodged with the AEE, the NZTA included a set of Proposed Consent Conditions (see Part E, Appendix E.1). This included proposed Temporary Traffic conditions. I consider that those conditions are appropriate, subject to some minor modifications to conditions TT.1, TT.6, and TT.10, and the insertion of a new condition TT.9 (see **Annexure A** to my evidence). Those amendments are:

- 134.1 Amend condition TT.1(a) so that it refers to "simulation modelling demonstrations" rather than "advanced traffic tools", which are to be provided when the CTM Plan is finalised. I consider this amended wording is preferable, because a demonstration of modelled outcomes provides greater clarity than advanced modelling tools would;
- 134.2 Amend condition TT.6 so that walking and cycling passage along the Oakley Creek Walkway is maintained, as far as practicable;
- 134.3 Amend condition TT.8 so that the pm peak period is 4pm to 7pm;
- 134.4 Insert a new condition TT.9 to require the NZTA to maintain at least the existing lane configuration capacity on SH16 at Te Atatu Interchange and on Great North Road during peak periods; and
- 134.5 Amend condition TT.10 (renumbered condition TT.11) to require any amendment of a SSTMP following monitoring and review to be approved by the Governance Group (which, as outlined in the CTM Plan, includes the Auckland Council).



John Gottler
November 2010

Annexures:

- Annexure A: Proposed Temporary Traffic Conditions
- Annexure B: Table 4.1 of the CTM Plan

ANNEXURE A: PROPOSED TEMPORARY TRAFFIC CONDITIONS (AMENDED)⁶⁹

TT.1	<p>The NZTA shall update and finalise the Construction Traffic Management Plan (CTMP) submitted with this application, in accordance with these conditions, and implement it through the CEMP.</p> <p>In finalising the CTMP, the NZTA shall:</p> <p>(a) Use advanced traffic Provide simulation modelling tools demonstrations to better understand the effects of construction of the Project on the affected road network; and</p> <p>(b) As far as practicable, include measures to avoid road closures and also restrictions of vehicle and pedestrian movements.</p>
TT.2	<p>The CTMP shall require the development and approval of Site Specific Traffic Management Plans (SSTMPs) for each construction activity that may affect traffic or transportation infrastructure and services.</p>
TT.3	<p>Each SSTMP shall describe the measures that will be undertaken to address as far as practicable methods of avoiding, remedying or mitigating the local and network wide effects of construction of the Project, as far as practicable. In particular, the SSTMP shall include the following matters:</p> <p>(a) Traffic management measures to address and maintain, traffic capacity, including bus services, at traffic peak hours during weekdays and weekends (in Te Atatu Road, Great North Road and Richardson Road);</p> <p>(b) Methods to manage the effects of traffic during construction including the requirement to detour or divert traffic. These methods shall seek to avoid, remedy or mitigate effects on access to and from businesses and other organisations in the area;</p> <p>(c) Any road closures that will be required and the nature and duration of any traffic management measures that will result, including any temporary restrictions, detours or diversions for general traffic and buses;</p> <p>(d) Methods to avoid, remedy or mitigate the local and network wide effects of the construction of individual elements of the project (e.g. intersections/overbridges) and the use of staging to allow sections of the Project to be opened to the traffic while other sections are still under construction;</p> <p>(e) Methods to manage the effects of the delivery of construction material, plant and machinery (including cranes and oversized trucks) during construction;</p> <p>(f) Any routes where construction traffic movements will be restricted (either for particular times for construction periods);</p> <p>(g) Measures to maintain existing vehicle access, as far as practicable, or where the existing property access is to be removed or becomes unsafe as a result of the construction works, measures to provide alternative access arrangements in consultation with the [Auckland Council] and the affected landowner; and</p>

⁶⁹ Modified from those contained in AEE, Appendix E.1, pages 9 - 11.

	(h) Measures to maintain pedestrian access with thoroughfare to be maintained on all roads and footpaths adjacent to the construction works, where practicable. Such access shall be safe, clearly identifiable, provide permanent surfacing and seek to minimise significant detours.
TT.4	The SSTMPs shall include traffic management measures developed in consultation with the Auckland Transport Authority (ATA), Bus and Coach Association and the [Auckland Council], to address and maintain, where practicable, traffic capacity at peak hours to provide for passenger transport services on the road network.
TT.5	The NZTA shall consult with the [Auckland Council] with regard to the most appropriate means for providing access on Council roads within and adjacent to the designation. The NZTA shall also coordinate and consult directly with the proponents of any major construction occurring concurrently with, and in the vicinity of the Project.
TT.6	The NZTA shall maintain, as far as practicable, continued public walking and cycling passage along the existing Northwestern Cycleway (between Te Atatu Interchange and St Lukes Interchange) and along Great North Road <u>and the Oakley Creek walkway.</u>
TT.7	The NZTA shall undertake construction works so as to avoid the full closure of Te Atatu Road for residents on the Te Atatu Peninsula.
TT.8	The NZTA shall restrict construction truck movements during peak hours (<u>6am – 9am and 4pm – 7pm</u> 6:00 to 9:00am and 15:00 to 18:00) to avoid the following: <ul style="list-style-type: none"> (a) Te Atatu Road Interchange, during both morning and afternoon peak hours (b) Great North Road Interchange, city bound during the morning peak hours (c) Great North Road Interchange, west bound and onto Great North road during the afternoon peak. <p>Construction truck movements during these hours shall only be allowed under exceptional circumstances agreed in advance with the [Auckland Council].</p>
TT.9	<u>The NZTA shall maintain at least the existing lane configuration capacity on SH16, at the Te Atatu interchange area and on Great North Road during peak periods being 6am – 9am and 4pm – 7pm for the duration of the temporary construction programme.</u>
TT.10	The NZTA shall monitor the impact of construction traffic in terms of traffic speeds and volumes on SH16, Great North Road, Te Atatu Road and Richardson Road throughout the construction period to confirm the expected traffic effects as set out in the <i>Temporary Traffic Assessment</i> (Technical Report G.16) submitted with this application. <ul style="list-style-type: none"> (a) This monitoring will be undertaken [monthly / weekly / daily]; and (b) Monitoring results will be made available to the [Auckland Council] on request.
TT.11	If monitoring undertaken pursuant to Condition TT.9 indicates that traffic volumes are significantly different from those expected, the SSTMPs will be reviewed and as appropriate amended to the satisfaction of the [Auckland Council] <u>Traffic Management Project Governance Group.</u>

ANNEXURE B: TABLE 4.1 OF THE CTM PLAN

Impacts and Mitigation of Traffic Control Activities

Table 4.1 Impact and Mitigation of Traffic Control Activities

Traffic control activity	Impact	Typical Mitigation Measures
Footpath closure	<ul style="list-style-type: none"> - Inconvenience to pedestrians and residents along route; - Disconnection of access to bus stops. 	<ul style="list-style-type: none"> - Letter drops to affected residents in advance of works in the area; - Provision of warning and advisory signage prior to and during the closure; - Project ambassadors to advise of closures in heavily trafficked areas; - Provision of convenient pedestrian detour routes well in advance of the closure to provide safe and convenient crossing; - Provision of temporary pedestrian access to property within the construction corridor.
Pedestrian crossing closure	<ul style="list-style-type: none"> - Inconvenience to pedestrians; - Reduced safety by removing access to existing crossing points 	<ul style="list-style-type: none"> - Letter drops to affected residents in advance of works in the area; - Provision of warning and advisory signage prior to and during the closure; - Project ambassadors to advise of closures in heavily trafficked areas; - Provision of convenient pedestrian detour routes well in advance and at the closed crossing to provide safe and convenient crossing; - Installation of warning signage for road users to warn of crossing location changes where necessary.
Roadside car parking closures	<ul style="list-style-type: none"> - Inconvenience to residents and businesses along route; - Congestion at existing car parking areas adjacent to the construction corridor; 	<ul style="list-style-type: none"> - Provision of temporary car parking in an area within the length of the traffic control site; - Flier drops to cars parked in affected areas in advance of works in the area; - Minimising construction parking in sensitive areas by providing sufficient parking on site or at remote locations to minimise pressure on local car parking supply;
Cycle lane closures/ detours	<ul style="list-style-type: none"> - Inconvenience to cyclists along route - Reduced safety 	<ul style="list-style-type: none"> - Letter drops to affected residents in advance of works in the area; - Provision of convenient detour routes well in advance of the closure to provide safe and convenient cycle routes; - Install signage adjacent the cycle lane prior to construction commencing to allow cyclists to alter their travel patterns;

Traffic control activity	Impact	Typical Mitigation Measures
Bus lane closures	<ul style="list-style-type: none"> - Increased travel times - Lower reliability - Inconvenience to public transport users 	<ul style="list-style-type: none"> - Early liaison with ARTA and bus companies; - Public notification in local publications (Western Leader, Auckland City Harbour News, etc) and regional publications (NZ Herald) where necessary; - Communication requirements such as signage in buses and at bus stops
Property access closures	<ul style="list-style-type: none"> - Inconvenience to residents and businesses along route. 	<ul style="list-style-type: none"> - Letter drops to affected residents and businesses in advance of works in the area; - Provision of temporary car parking in an area within the length of the traffic control site; - Provision of metal-plate crossings into properties where feasible and safe; - Scheduling of works during holiday or low-demand periods of the year;
Intersection part closure (which may include installation of lane closures on the approaches to the intersection to safely divert traffic around the works).	<ul style="list-style-type: none"> - Diversion of traffic away from the closure onto inappropriate routes such as residential streets, past schools or other sensitive facilities. - Inconvenience to road users; - Inconvenience to residents and businesses within closed road segment; 	<ul style="list-style-type: none"> - Scheduling of works during holiday or low-demand periods of the year; - Use of VMS for recommending alternative routes. Where possible, alternative routes will be recommended at a cordon around the closure well in advance in such a way to allow traffic to avoid following the prescribed detour route and finding a more convenient route to their intended destination. - Consultation with TMU where phasing of lights or induction loop systems are impacted upon by the works; - Review and optimisation of traffic signals on detour and alternative routes where necessary;
Intersection full closure (which may include installation of full closures on the approaches to the intersection to safely divert traffic around the works).	<ul style="list-style-type: none"> - Disconnection of bus routes; - Disconnection of access to bus stops. - Inconvenience to road users; - Inconvenience to residents and businesses within closed road segment; - Congestion on detour routes. 	<ul style="list-style-type: none"> - Public notification in local (Western Leader, Auckland City Harbour News, etc) and regional publications (NZ Herald) where necessary; - Advertising on radio or through internet where necessary; - Consultation with Auckland Council and the TMU to develop detour routes and optimise bottle-necks on detours; - Consultation with TMU where phasing of lights or induction loop systems are impacted upon by the works. - Provision of temporary stops where necessary, which will require consultation with ARTA and Auckland Council to determine <ul style="list-style-type: none"> ▪ Communication requirements such as signage in buses, at bus stops or letter drops to residents; ▪ Feasible locations for temporary bus stops. - Scheduling of works during holiday or low-demand periods of the year;

Traffic control activity	Impact	Typical Mitigation Measures
		<ul style="list-style-type: none"> - Review and optimisation of traffic signals on detour and alternative routes where necessary; - Provision of warning and advisory signage prior to and during the closure;
Shoulder closures	<ul style="list-style-type: none"> - Reduced safety - No room for incident management, breakdowns etc. - Increased severity of recurrent and non-recurrent congestion 	<ul style="list-style-type: none"> - Install a temporary speed limit - Monitor the environment using the CCTV cameras - Implement an enforcement strategy with the Police - Investigate a towing company supply agreement
<p>Lane closure – alternating flow operation</p> <hr/> <p>Lane closure – contra-flow operation</p> <hr/> <p>Lane closure – one-direction closure</p>	<ul style="list-style-type: none"> - Reduced traffic capacity through site as a result of: <ul style="list-style-type: none"> ▪ Fewer lanes than existing corridor; ▪ Increased side-friction resulting from narrowed lanes and reduced shoulders; ▪ Construction activities visible to motorists resulting in ‘rubber necking’; ▪ Reduced capacity across a link due to stop-go operations. - Diversion of traffic away from the closure onto inappropriate routes such as residential streets, past schools or other sensitive facilities. - Disconnection of bus routes; - Disconnection of access to bus stops. 	<ul style="list-style-type: none"> - Public notification in local publications (Western Leader, Auckland City Harbour News, etc) and regional publications (NZ Herald) where necessary; - Letter drops to residents and / or businesses (where necessary), which are located: <ul style="list-style-type: none"> ▪ within the closure length; ▪ along detour routes; ▪ along approaches to the corridor that may experience congestion or queues. - Installation of concrete / water-filled barriers along site to isolate the site from public; - Installation of sight screens to reduce ‘rubber necking’; - Installation of secondary detour routes where necessary; - Review and optimisation of traffic signals on detour and alternative routes where necessary; - Use of VMS for recommending alternative routes. Where possible, alternative routes will be recommended at a cordon around the closure, well in advance, in such a way to avoid traffic following the prescribed detour route where an alternative is a more convenient route to their intended destination. Install such signage in advance of the closure (i.e. a month prior, to inform road users). - Provision of temporary bus services (routes and / or stops) where necessary, which will require consultation with ARTA and WCC / ACC to determine <ul style="list-style-type: none"> ▪ Communication requirements such as signage in buses, at bus stops or letter drops to residents; ▪ Feasible diversions for bus routes; ▪ Feasible locations for temporary bus stops. - Provision of access via a temporary corridor or narrow lane within the closure for residents and businesses

Traffic control activity	Impact	Typical Mitigation Measures
		within construction corridor, where possible.
Road closure / diversions	<ul style="list-style-type: none"> - Inconvenience to road users; - Inconvenience to residents and businesses within closed road segment; - Congestion on detour routes; - Congestion on alternative routes; - Diversion of traffic away from the closure onto inappropriate routes such as residential streets, past schools or other sensitive facilities. - Disconnection of bus routes; - Disconnection of access to bus stops. 	<ul style="list-style-type: none"> - Public notification in local publications (Western Leader, Auckland City Harbour News, etc) and regional publications (NZ Herald) where necessary; - Advertising on radio or through internet where necessary; - Letter drops to residents and / or businesses (where necessary), which are located: <ul style="list-style-type: none"> ▪ within the closure length; ▪ along detour routes; ▪ along approaches to the corridor that may experience congestion or queues. - Installation of secondary detour routes where necessary; - Review and optimisation of traffic signals on detour and alternative routes where necessary; - Use of VMS for recommending alternative routes. Where possible, alternative routes will be recommended at a cordon around the closure, well in advance, in such a way to avoid traffic following the prescribed detour route where an alternative is a more convenient route to their intended destination. Install such signage in advance of the closure (ie a month prior, to inform road users). - Scheduling of works during holiday or low-demand periods of the year; - Staging of works to require night time or weekend full-closures only; - Consultation with Auckland Council and the TMU to develop detour routes and optimise bottle-necks on detours; - Provision of barricades on the approaches to the closure to prevent public access and visibility to activities within the site; - Extension of closures to intersections with arterial routes with access to residents only on the approaches to the works. - Provision of temporary bus services (routes and / or stops) where necessary, which will require consultation with ARTA and Auckland Council to determine: <ul style="list-style-type: none"> ▪ Communication requirements such as signage in buses, at bus stops or letter drops to residents; ▪ Feasible diversions for bus routes;

Traffic control activity	Impact	Typical Mitigation Measures
		<ul style="list-style-type: none"> ▪ Feasible locations for temporary bus stops. - Provision of access via a temporary corridor or narrow lane within the closure for residents and businesses within construction corridor, where possible.
Closures for installation of the work site / traffic control measures	<ul style="list-style-type: none"> - Congestion through closure as discrete closures are required for installing the work site; 	<ul style="list-style-type: none"> - Installation of temporary work sites that require temporary barriers etc to occur during night time or off-peak periods.
Site access	<ul style="list-style-type: none"> - Truck movements reducing traffic capacity through a closure; - Reduced traffic safety due to truck reversing movements / manoeuvring in or out of the closure; - Impact on capacity of access routes arising from higher proportion of trucks - Increased traffic on access routes resulting in congestion and increased travel times 	<ul style="list-style-type: none"> - Provision of site accesses at the end of the closure only; - Development and distribution of site access plans which specify permitted access movements, times and procedures; - Limiting site access movements / plant deliveries to off-peak periods or night time; - Site access movements / plant deliveries to occur under discrete closures during night time; - Consultation with Auckland Council and the TMU to agree HCV routes and operation procedures; - Optimise intersection arrangements and signal phasing along affected routes to maintain efficiency; - Avoid peak traffic flow periods where possible;
Temporary speed limit	<ul style="list-style-type: none"> - Inconvenience to road users; - Slower operating speeds; 	<ul style="list-style-type: none"> - Public notification in local publications (Western Leader, Auckland City Harbour News, etc) and regional publications (NZ Herald) where necessary; - Monitor and review use of Temporary Speed Limits to ensure the speed limit is appropriate for the environment.