Before a Board of Inquiry

Basin Bridge Proposal

Under the Resource Management Act 1991 (the Act)

In the matter of

a Board of Inquiry appointed under section 149J of the Act to consider the New Zealand Transport Agency's notice of requirement and five resource consent applications for the Basin Bridge Proposal.

Statement of evidence of David James Dunlop for the New Zealand Transport Agency (Transportation)

Dated 25 October 2013
STATEMENT OF EVIDENCE OF DAVID JAMES DUNLOP ON BEHALF OF THE NEW ZEALAND TRANSPORT AGENCY

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1 Introduction

1.1 My full name is David James Dunlop.

1.2 My evidence is given in relation to the Notice of Requirement (NoR) and resource consent applications lodged by the New Zealand Transport Agency (Transport Agency) for the Basin Bridge Project (Project).

Qualifications and Experience

1.3 I am a Principal Transport Planner, the Transportation Work Group Manager and a Partner at Opus International Consultants in Wellington.

1.4 I have the following qualifications and experience relevant to the evidence I shall give:

   a MSc in Planning Studies (focusing on Transportation), Oxford Brookes University in the United Kingdom (1996/97); and

   b Bachelor of Resource & Environmental Planning, Massey University in New Zealand (1992/95).

1.5 I am also a Chartered Member of The Chartered Institute of Logistics and Transport in New Zealand and an Affiliate Member of the IPENZ Transportation Group.

1.6 I have 15 years of experience in the planning, assessment and design of transportation projects in New Zealand and the United Kingdom, working for a wide range of central government organisations, local and regional authorities, and private developers, both as an employee and a consultant.

1.7 I have provided advice on transportation matters to the Transport Agency, a number of local authorities and private developers in respect of various proposed developments and plan change applications. I have provided expert transportation evidence on behalf of the Transport Agency before the Board of Inquiry for the Peka Peka to Otaki (PP2O) Project and on behalf of the Kāpiti Coast District Council before the Environment Court in relation to the Paraparaumu Airport Plan Change 73.

1.8 I have been involved in a number of significant transportation projects within the Wellington Region, including:
a Ngauranga to Airport Strategy Study and Corridor Plan 2006-08: I provided specialist public transport support and advice;

b Wellington Northern Corridor Roads of National Significance (RoNS) Business Case, 2009 and 2013 update: I led the teams that completed the 2009 Business Case and 2013 update, which involved transportation modelling, economic assessment and reporting;

c PP2O Project: I was the team leader for planning, environmental and consultation contract, and the transportation specialist through the Scheme Assessment Report Addendum phase and through to the current Board of Inquiry hearing process;

d Transmission Gully Scheme Assessment and Economic Evaluation, 2008-2012: I was the transportation specialist in the scheme assessment phase and most recently involved in the preparation of the detailed business case for the Public Private Partnership;

e Wellington Transport Strategy Model (WTSM) and Wellington Public Transport Model 2011 update and model build, 2011-2012: I was team leader for the model revalidation and creation of the public transport model;

f Wellington Cycleway Feasibility Studies (Island Bay to the CBD, Lyall Bay to Owhiro Bay and Ngauranga to Aotea), Preliminary Funding Reports 2012-13: team leader and review;

g Wellington Transport Model (SATURN) 2009 and 2011 updates: I was project director and involved in review;

h Wellington Central Area Bus Operational Review 2009: I was team leader, transport planner and public transport specialist; and

i Wellington Inner City Bypass Project Detail Design and Construction 2006-2008: I was responsible for the implementation of the traffic operational aspects of the project and specialist construction support associated with signals, public transport, walking and cycling facilities.

1.9 I have worked on a wide range of specialist public transport, pedestrian/cycle schemes and traffic engineering projects for Wellington City Council (WCC), Greater Wellington Regional Council (GWRC) and the Transport Agency.
Background and Role

1.10 I am the lead author of *Technical Report 4: Assessment of Traffic and Transportation Effects* dated May 2013, which formed part of the Assessment of Environmental Effects (AEE) lodged in support of the Project (*Technical Report 4*). I supervised the transportation modelling on which this Report is based.

1.11 Technical Report 4, and the modelling on which it is based were externally peer reviewed by Mr Tim Kelly and Transport Agency National Office staff. I supervised any updates to the transportation model that were undertaken as a result of these peer reviews.

1.12 I also supervised the preparation of the draft Construction Traffic Management Plan (*CTMP*), which forms part of the draft Construction Environmental Management Plan (*CEMP*) submitted with the application. I have also had input into the proposed draft conditions in chapter 35 of the AEE report.

1.13 I have been involved in the Project for the last five years in the capacity of Transportation Lead and Transportation Specialist. I have also been involved in the following other work directly related to the Project being:

   a Wellington Inner City Bypass Project Detail Design and Construction 2006-08: the delivery of signal management strategy, walking and cycling facilities and the design and delivery of signalised Adelaide Road / Rugby Street intersection to improve operational efficiency, network management and pedestrian / cycle facilities;

   b Adelaide Road Growth Node Report 2010: transport assessment and effects associated with four roading proposals for the Adelaide Road growth area;

   c Courtenay Place, Kent and Cambridge Terrace Bus Priority Project 2011: transport modelling and option testing for bus priority measures on Courtenay Place and Kent / Cambridge Terrace, including assessing the impact of converting zebra crossings to signalised crossings;

   d Wellington Cycleway Feasibility Studies Island Bay to the CBD Preliminary Funding Report 2012-13: route option selection and economic evaluation of cycle provision of this important link to and from Wellington CBD and the south coast;

   e Rugby Street New World, modelling on behalf of the developer with agreement from Transit NZ and WCC: testing of transport impacts
associated with the proposed New World supermarket using the 2009 Wellington CBD S-Paramics model to utilise tools accepted by road controlling authorities (Transit NZ and WCC);

f Total Corridor Transportation Technical Note 2011: Assessment of transport options which formed part of the package of improvements consisting of the Basin Reserve, Mt Victoria tunnel duplication and 4 laning of Ruahine Street;

g War Memorial Park Scoping Report 2010 – assessment of transport options and potential solutions for SH1 between Sussex Street and Cuba Street in a westbound direction; and

h Inner City Bypass Optimisation Project Feasibility Report 2011-12: identification of opportunities, options, transport modelling (SATURN and S-Paramics), costing, and assessment of three levels of intervention on the ICB (minor, moderate and major).

1.14 I was involved in the consideration of alternatives during the Inquiry By Design process, which is outlined in the evidence of Dr Wayne Stewart. I was also involved in work for WCC and the Transport Agency to consider other options developed after the scheme assessment phase (known as the grade separated Option X and the at-grade Richard Reid option) from a transport assessment and modelling perspective.

1.15 In making my investigations and preparing my evidence I have:

a undertaken numerous site visits throughout the Project area;

b undertaken and managed the assessment of different transport options and solutions for the Project;

c attended public engagement, community open days, stakeholder meetings and been involved in Councillor briefings for WCC and GWRC; and

d been involved in specialist workshops and expert meetings as appropriate.

1.16 In preparing, my evidence I have also referred to the evidence of:

a Dr Wayne Stewart (Design Philosophy and Alternatives);

b Mr Duncan Kenderdine (construction methodology);

c Mr Vince Dravitzki (noise);
d Mr Gavin Fisher (air quality);

e Mr Mike Copeland (economics);

f Ms Wendy Turvey (social effects);

g Mr Kevin Brewer (urban design);

And the associated technical reports and management plans.

**Code of Conduct**

1.17 I have read and am familiar with the Code of Conduct for Expert Witnesses in the current Environment Court Practice Note (2011), have complied with it, and will follow the Code when presenting evidence to the Board. I also confirm that the matters addressed in this Statement of Evidence and in Technical Report 4 are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

**Scope of Evidence**

1.18 This Statement of Evidence provides the following (the relevant subheading is noted in brackets in each case):

a A summary of my evidence *(Executive Summary)*;

b Transport Assessment and Methodology *(As per Technical Report 4)*

c Baseline and Forecast Conditions *(As per Technical Report 4 with update to reflect any recent information/conditions e.g. PT Spine Study)*

d Transport Alternatives *(As per Technical Report 4)*

e An overview of the key points of [the AEE] [Technical Report 4] *(Previous Report and includes Construction)*;

f Future proofing and Sensitivity Testing *(As per Technical Report 4 with update on PT Spine Study)*

g Comments on submissions lodged in relation to the Project *(Response to Submissions)*;
2 Executive Summary

2.1 My evidence is based on the Assessment of Traffic and Transportation Effects (Technical Report 4) that I prepared as part of the AEE submitted in support of the application. Technical Report 4 considers the relationships between transport and land use in the Project area, and the various forms of transport that use this area (private and public, motorised and non-motorised).

2.2 I have been involved in numerous investigations and assessments over the past five years regarding transportation improvements at the Basin Reserve, resulting in this application to grade separate west-bound SH1 traffic, thereby reducing congestion and improving the resilience of the network as a whole. The grade separation of westbound SH1 traffic through this Project, will achieve the following outcomes:

a improved pedestrian and cyclist provision;

b bus priority and enabling the delivery of future passenger transport outcomes;

c improved access for emergency services;

d removal of conflict between movements (State Highway 1 (SH1) and local) and modes (traffic, freight, bus, cycle, and pedestrians) at the Paterson Street / Dufferin Street and Rugby Street / Adelaide Road intersections;

e safety improvements through the removal of existing conflict points and an improved geometric layout;

f improved corridor definition for different modes (local roads for local activities); and

g reduced journey times and less travel time variability.

2.3 There have been a series of specialist assessments undertaken for this Project in order to ensure the extent of the existing and forecast problem is accurately understood while also ensuring the outcomes of the Project from a traffic and transportation perspective are robustly assessed. It is my opinion that the Project
transportation team have used best practice tools and expertise in carrying out this assessment.

2.4 A number of refinements to the preferred option have been made to what is now the Project in order to address community and stakeholder concerns and aspirations for the area. The final preferred scheme is the subject of this application and my evidence.

2.5 Currently the westbound SH1 and north-south local road traffic conflict at the Dufferin / Paterson Street and Rugby Street / Adelaide Road intersections, while Dufferin Street and Sussex Street each serve a shared strategic and local road function carrying approximately 25,000 to 30,000 vehicles per day. The existing problems of delay, journey time variability and congestion are not limited to traffic and freight. The movement of people around and through the Basin Reserve is important to the accessibility of the surrounding area and is affected by the current problems. The north-south corridor between Kent/Cambridge Terraces and Adelaide Road acts as a significant public transport, walking, cycling, and emergency services link. Access to and from the Mount Victoria tunnel is also particularly important for pedestrians and cyclists from the eastern suburbs.

2.6 In the future, additional traffic and transport demands within the Basin area will be influenced by WCC’s planned growth nodes in Adelaide Road, Newtown and Kilbirnie. Further, the Wellington Airport expansion plans, the proposed duplication of the Mount Victoria tunnel and the planned PTSS outcomes are all reliant on transport improvements at the Basin Reserve.

2.7 The existing problems are evident and have been well documented in a wide range of local, regional and national plans and policies such as the Ngauranga to Airport Corridor Plan and the Government Policy Statement (GPS). The removal of this existing westbound conflict zone in the transport network will not only facilitate strategic SH1 movements, but also allow for the completion of the package of improvements known as the SH1 Tunnel to Tunnel project, the entire northern Wellington Corridor RoNS, the future public transport spine and the Island Bay to CBD cycleway.

2.8 The Project will remove westbound State highway traffic from the streets around the Basin Reserve. It also reduces the length of State highway by approximately 200 meters as the westbound State highway no longer circulates the Basin Reserve and the eastbound State highway is slightly realigned. The Project also improves the provision of pedestrian and cycle facilities (including infrastructure such as the shared bridge from Paterson Street to Buckle Street), and connecting
north and south bound links into existing facilities on Adelaide Road, Buckle Street, Kent and Cambridge Terraces and the Mount Victoria tunnel.

2.9 Public transport facilities have also been provided in the form of bus lanes, bus priority and improved bus stop facilities. This will significantly improve current operations. In addition, the Project facilitates and safeguards the provision of future public transport services, including those considered in the Public Transport Spine Study (PTSS).

2.10 The Project will significantly improve journey times on SH1 and local roads in the area. Journey times\(^1\) on SH1:

a. westbound are predicted to improve by as much as 7.5 minutes in a morning peak period; and

b. eastbound are predicted to improve by approximately 1.3 minutes in the evening peak.

2.11 Journey time variability will also improve as a result of the Project, with a reduction from approximately 7.3 minutes to 2.4 minutes for westbound SH1 in the evening peak period.

2.12 The resilience of the transport network is also an important feature which has been considered in the Project’s development. This is especially relevant in terms of the ability for emergency services to pass through the Basin in congested conditions where they will be able to use bus lanes north-south to bypass traffic queues.

2.13 The transport assessment has identified some resulting adverse effects of the Project, which are associated with access changes for Hania Street, reduced parking provision and construction.

2.14 Proposed mitigation of these adverse effects includes the upgrading of the Pirie Street intersection with Kent Terrace to improve access in and out of Mount Victoria. This mitigation will also remove conflicts and safety concerns associated with the current configuration to and from Hania and Ellice Streets.

2.15 There will be a net loss of 12 parking spaces over the entire Project area. At a local level there will also be a loss of 21 parking spaces on Vivian Street between Tory Street and Cambridge Terrace in the morning and evening peak periods.

\(^1\) For the forecast 2021 year.
through the introduction of a clearway\textsuperscript{2}. Analysis of parking demand has confirmed that any reduction can be accommodated in under-utilised areas, except for St Joseph’s Church and Regional Wines and Spirits where there is a need to retain existing parking levels.

2.16 During construction there will be some temporary negative effects relevant to the operation of the transport network. To mitigate this effect and maintain an acceptable level of service for all users, the Project delivery is to be staged and sequenced to ensure improvements to the network are provided in advance of reductions in capacity associated with the construction of the bridge and associated retaining walls. Works with greater impact will be programmed to be undertaken during periods of low activity such as during school holidays, while other mitigation measures such as variable message signs, publicity and alternative transport facilities (such as passenger transport, walking and cycling) will be utilised. The specific methods and details of traffic management have been submitted in the draft CTMP. In my view, an acceptable level of use for all road users during construction can be achieved.

2.17 It is my opinion that the proposed Project and identified mitigation measures will be consistent with the Project objectives and will significantly improve transport provision for Wellington and the local network.

3 Previous Reports and Relevant Documentation

3.1 Subject to the contents of this Statement of Evidence, I confirm the contents of Technical Report 4.

3.2 Technical Report 4 provides a comprehensive assessment of the traffic and transportation effects of the Project, including:

a assessment approach;

b existing baseline and forecast conditions;

c transport alternatives

d transport and traffic effects;

e mitigation;

f future proofing; and

\textsuperscript{2} Note no RMA consent is required for work proposed at Vivian and Pirie Streets, however this proposed work does form part of the package of work being completed for the Project.
3.3 Since the development of Technical Report 4, the PTSS Short List Options have been announced and my evidence provides a commentary in relation to these options and how future outcomes of the PTSS might relate to the Basin Project.

3.4 Leading up to this application an extensive amount of work has been completed with a number of reports and technical notes produced. A summary of this key information relevant to the transportation assessment, option evaluation and reporting of outcomes for the Project is provided in Annexure A.

4 Planning and Policy Context

4.1 The existing transportation problem and the potential solutions have been well documented in a wide range of planning and policy documents. These are discussed by Messers Aburn and McCombs in their evidence.

4.2 The Transport Agency, GWRC and WCC have all identified that the Basin Reserve transport node is a constraint in the roading network. In particular, the Ngauranga to Airport Corridor Plan identified this existing problem and placed improvements at the Basin Reserve as a high priority with the measure being recorded as:

- Design and construct improvements at the Basin Reserve to improve passenger transport, walking and cycling by separating north-south flows from east-west traffic; and implement complementary bus priority measures on Kent Tce, Cambridge Tce and Adelaide Rd.

5 Assessment Methodology and Modelling Tools

5.1 The transport assessment methodology adopted for the Project follows national and international best practice recognising the strong relationship between land use, the urban environment in which the Project exists, and the significance of pedestrians, cyclists and public transport in the study area. This approach considers transportation in the wider context, not just traffic. As a result, population, landuse, demographics and multimodal transport have all been considered both in the baseline assessment and the option assessment.

5.2 A comprehensive range of transport modelling tools have been utilised for the assessment of the Project. This reflects the multimodal characteristics of the

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3 The range of guidance notes utilised are listed in Part 4.2 of TR4, with specific consideration given to the Integrated Transport Assessment Guidelines, November 2010 (NZTA Research Report 422).
study area and the Project objectives, the wide influence that the Basin transport node has on the transport network and on levels of congestion in and around the study area (primarily SH1 between the Terrace tunnel and Evans Bay Parade and Kent Terrace southbound). Further details as to the comprehensive modelling methodology and tools used can be found in Annexure B.

5.3 The modelling tools applied to this Project have ensured the Project assessment has been robust. These tools are acknowledged as being best practice tools in the industry and have been used for similar projects assessed as part of the Wellington bus priority programme and Wellington Northern Corridor RoNS package. These projects include various bus lanes and traffic management schemes around Wellington CBD, Transmission Gully (TG), MacKays to Peka Peka (M2PP) and Peka Peka to Otaki (PP2O) projects. The M2PP project also included detailed micro-simulation level of assessment for Kapiti Road where congested conditions exist. The three RoNS projects all went through the review of the Board of Inquiry process and were found to be robust methods of assessment. PP2O has yet to have a decision; however there was general agreement between transport experts through the hearing process.

5.4 I observe that the modelling undertaken:

a uses methodologies which have been adopted for other similar projects in Wellington and other parts of New Zealand;

b has considered the impacts at a regional, city wide and localised level;

c has undergone extensive internal review and challenge and independent peer review; and

d displays outputs consistent with those that would intuitively be expected.

5.5 My understanding of the transport network within the Project area and its performance is based on the extensive modelling work that has been undertaken for this Project. More importantly, the consistent underlying issues identified which are relevant to the existing and forecast transport requirements have been robustly assessed. Both WCC and GWRC also rely on the models utilised for this Project and they have not raised issues with the modelling undertaken as part of this Project in submissions or the extensive discussions I have had with them.
6 Existing Transport Problem

6.1 The Basin Reserve currently operates as a large gyratory with a number of capacity constraints. These constraints result in delays and journey time variability for those users entering, circulating and exiting this part of the transport network. The conflicting local road and SH1 demands impact on:

a  Passenger transport journey times and reliability;

b  Movement of people using active travel modes (walking and cycling);

c  Emergency service access to and from Wellington Hospital and south-eastern suburbs;

d  Access and severance to local communities, schools and facilities;

e  Travel times, journey time variability, congestion, reliability and route security for motorists on SH1 as a strategic link between Wellington CBD and the south eastern areas of the City, including the Wellington Airport;

f  Safety for all travel modes (walking, cycling, and vehicles); and

g  Environmental conditions associated with congestion levels.

6.2 My observations confirm issues identified, and in turn these have been confirmed in discussions I have had with other stakeholders such as WCC, Wellington Hospital, Fire, Ambulance, Police and bus operators.

6.3 The variability in journey times encountered by SH1 users is highlighted by detailed surveys of week day (recorded in 2009) and weekend (recorded in 2011) journey times. This data was collected to inform the Project and provide inputs into the development and validation of the s-Paramics and Wellington Traffic Model (WTM) Saturn models. The journey times have been presented for the key SH1 corridor between Evans Bay Parade and Willis Street in Figure 6.1 below. This figure displays the average journey times, as well as the journey time range (variability bars) for the morning and evening peaks and inter-peak period. For SH1 westbound the average journey time is between 6.5 and 15.5 minutes and in the eastbound direction the average journey time ranges between 6.5 and 13 minutes.
6.4 These existing problems are at their worst during morning and evening peak periods, school start and finish times and weekend peak periods.5

6.5 It is acknowledged that the complete journey time and variability associated with travel to and from Evans Bay Parade to Willis Street is not solely related to the problems at the Basin Reserve; however the Basin Reserve has a major influence on the variability.

6.6 In addition to the problems identified on the total SH1 corridor in Figure 6.1, data was also collected for the local road and the public transport passing through the Basin.

6.7 I have also reviewed the bi-annual Transport Agency journey time data collected by Beca for the route between the Terrace tunnel and the Airport and can confirm that there remains significant variability between the morning, interpeak and evening peak periods consistent with the information presented in Figure 6.1 above. The data also displays that the trend over time has not changed. However

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4 Black bars represent recorded variability by time period.
5 Core periods of high travel demand include: week days, AM (7-9am), PM (4-6pm) and school start and finish times (generally 8.30-9am and 2.45-3.30pm); and weekends particularly between 11am and 5pm.
6 Surveys conducted September 2009. Data collected included dwell time and the number of bus passengers boarding and alighting. Surveyed area included northbound buses between bus stop No. 7016 to bus stop No.7012 and southbound buses between bus stop No.6012 to bus stop No.6016.
7 2009 to 2013 data has been reviewed however it is acknowledged that this data is for one trip in each direction during the period of the survey period for each day of a survey week in March.
around the Basin Reserve, SH1 has improved slightly at the expense of traffic and public transport on the local road (particularly in a southbound direction during the morning peak).

6.8 Currently the movements at the Dufferin / Paterson intersection conflict and traffic signal timing must balance the time allocated to each movement. As a result, southbound users of Adelaide Road or those wishing to get onto SH1 westbound from Kent Terrace experience congestion and journey time variability as the signals struggle to balance the high demands on both SH1 and the local road. Similar issues are experienced in the weekend where demands are much less tidal than the weekday peaks resulting in congestion associated with heavy conflicting movements. These conflicting movements result in weaving and poor lane utilisation at intersections and circulation from Dufferin Street to Adelaide Road. The Adelaide / Rugby intersection is also congested; however the Paterson / Dufferin intersection is currently a bottleneck and therefore limits the volume of traffic reaching the Adelaide/Rugby intersection. Any capacity improvements to the Dufferin/ Paterson intersection would therefore result in the Adelaide / Rugby intersection becoming even more congested due to increases in traffic reaching it. Both of these intersections are critical to the safety and convenience of pedestrian movements (especially during school start and finish times) while the Adelaide / Rugby intersection is an important linkage for cyclists travelling north - south through the Basin Reserve.

6.9 Future increases in travel demand (all modes) associated with the planned growth nodes of Adelaide Road, Kilbirnie and other areas to the south, and the planned Wellington Airport Master Plan will in turn impact on SH1 and local roads. This will not only impact on the level of service for general vehicles and freight, but will also have a significant impact on bus journey times, in turn affecting the feasibility of developing a high quality north – south passenger transport corridor through the Basin Reserve area.

6.10 These problems at the Basin Reserve create a constraint for passenger transport improvements, as has been highlighted by the initial work undertaken as part of the PTSS. The PTSS states that all preferred public transport options travel through the Project area and that the preferred option, Bus Rapid Transit (BRT), relies on the completion of this Project and the future duplication of the Mount Victoria tunnel.

6.11 The Basin Reserve is located between the suburb of Newtown and the Wellington CBD. Like other inner city suburbs, up to 25% of Newtown residents walk or cycle to work, many passing through the Basin Reserve. These existing users currently
compete for time and available road space with the high number of SH1 and north-south local road traffic volumes circulating the Basin.

6.12 In general, traffic and public transport demand has remained largely constant through the Project area. However there have been increases in pedestrian and cycle demand in a north-south direction (approximately 62% over a five year period for cyclists at the John Street intersection, which is the closest annual survey point to the Basin; and 123% over a five year period for pedestrians crossing Buckle Street west of the Basin)\(^8\).

6.13 The majority of crashes around the Basin are related to the operation of the signalised intersections and the large amount of merge and weaving behaviour which occurs. The severity of the crashes is usually relatively minor due to the levels of congestion, resulting in low traffic speeds and the one way operation of SH1 and the local roads. Despite this the Adelaide / Rugby Street intersection was recently identified as Wellington’s second worst intersection for crashes, after the Courtenay Place/Taranaki Street intersection\(^9\).

6.14 Since the start of investigations for the Basin Bridge Project large amounts of data have been collected over different time periods for different transport modes and assessment purposes. The underlying transportation issues have not changed since this process began in 2009; although there have been a number of changes to the transport network.

6.15 These changes include the Mount Victoria tunnel and Terrace tunnel refurbishment projects (2010-2012), Buckle Street temporary road and underpass construction (2013 to present), John Street/Adelaide Road intersection improvements, construction of the Countdown Supermarket and changes to bus priority on Courtenay Place and Adelaide Road. Although these changes have occurred during the past 3-4 years, the information collected over this time has been checked and confirmed against present travel demands, journey times and operating conditions to ensure the information remains relevant and current.

6.16 The Basin Bridge Project is part of a package of improvements which are described as the Tunnel to Tunnel transport improvements (refer Mr Blackmore’s evidence for a full explanation), and which form part of the wider Wellington Northern Corridor RoNS. The Tunnel to Tunnel improvements includes the work currently being constructed on Buckle Street to form the Buckle

\(^8\) Source – Wellington City Council Transport Monitoring Surveys (2009 - 2013)
Street Underpass and the associated Wellington Inner City Bypass (WICB) improvements. These improvements have been considered to provide the baseline (or the ‘Do Minimum’ scenario) and will ensure that the problems which currently exist at the Basin Reserve for SH1 traffic are not simply shifted to the next intersection. The WICB is an important part of Wellington’s transport network providing access on and off SH1 at a number of key intersections (Taranaki Street, Victoria Street and Willis Street, and to a lesser extent Cuba Street). For this reason the WICB project is aimed at improving access and capacity on Karo Drive and Vivian Street. This will ensure traffic which travels on the Basin Bridge in a westbound direction can travel effectively and efficiently through the network.\textsuperscript{10}

6.17 As outlined in Annexure A, Opus was recently commissioned to update the 2009 Wellington Northern Corridor RoNS Business Case. As part of this project the 2009 WTM was updated to a 2011 WTM and associated weekend model (refer to Annexure C for modelling reports and peer reviews). My role in this work was Project Director with both the modelling and economics being undertaken by my team. As a result of this work I have decided to review the outputs in order to check and ensure accuracy of Technical Report 4. This modelling displays very similar outputs and trends\textsuperscript{11} to those from the 2009 models. What has been highlighted is that the delivery of the Basin Bridge Project, when combined with the delivery of the Buckle Street Underpass and the Inner City Bypass improvements will provide even greater benefits in traffic terms\textsuperscript{12} than previous assessments using the 2009 WTM version. Tangible transport benefits for the Basin Bridge Project were calculated to be in the order of $174.3M (when compared to the updated SAR economics which had total benefits of $129.2M). Travel time and traffic congestion contribute 80% of the $174.3M calculated benefit value. As a result the BCR has been calculated at 2.2 for the Project. The BCR is discussed further by Mr Copeland in his evidence and in my Annexure C.

6.18 Failure to address the existing problems at the Basin Reserve will not only limit the value provided by projects like the Buckle Street underpass and the WICB improvements, but will also significantly limit the effectiveness of the future east-west improvements associated with the Mount Victoria tunnel duplication which is also currently being progressed by the Transport Agency.

\textsuperscript{10} It is acknowledged that substantial east-west improvements require duplication of the Mt Victoria tunnel.

\textsuperscript{11} The only noticeable change in the project area was a reduction in demands on Adelaide Road.

\textsuperscript{12} Benefits for the Tunnel to Tunnel package are in the order of $257.1M (i.e. proportionally the Basin Project contributes to approximately 2/3 of these benefits) with a calculated BCR of 3.1. The 2013 RoNS Business Case update then uses a set of comparative assumptions (known as REMAT) to calculate a BCR of 3.2 for the Tunnel to Tunnel package.
7 Alternatives considered

7.1 Over the past 50 years many options have been considered for the Project area and the wider Wellington transport network. In the past 7 years I have been involved in designing and reviewing options to improve the transport operation around the Basin. The first of these projects was the assessment, design and delivery of the pedestrian/cycle signals at the Adelaide / Rugby intersection in 2007 to assist all modes on the south side of the Basin. I was also involved in the Ngauranga to Airport Strategy Study which looked at different strategic transport solutions and concluded that an enhanced public transport and traffic network was the right strategic decision for Wellington. Separation of north-south and east-west flows at the Basin Reserve was identified as the priority in the Corridor Plan, which has been included in the Regional Land Transport Strategy (RLTS) for transport funding in the region. Since this time I have been working with the Transport Agency, WCC and GWRC on a wide range of options for transport improvements/configurations at the Basin Reserve. Options were developed by a team (including transport planners, traffic engineers, geometric designers, urban designers, and town planners) and members of the public, resulting in the Transport Agency Board approving Option A for consideration within this process.

7.2 In considering the existing and future year problems and the alternative options to address this problem that have been considered, my opinion is that this Project’s proposal to grade separate westbound SH1 traffic is the most effective transport outcome for all transport users and provides for the future growth aspirations of Wellington.

7.3 A number of other options have been considered, including at grade options, underpasses and alternative north-south bridge concepts. However, these options have been considered unacceptable or less so for the reasons discussed in Technical Report 19: Alternative Options Omnibus submitted with the AEE and Dr Wayne Stewart’s evidence.

8 Assessment of Transportation Effects

Walking and Cycling

8.1 The Project will significantly improve pedestrian and cycling facilities through what is a critical north-south and east-west node for users. This will be achieved through a significant reduction in at grade traffic flows. This reduces pedestrian and cycle conflict, severance and delay, while also improving the overall travelling environment.
8.2 A full comparison of the current walking and cycling provision and that proposed as a result of the Project can be found in Technical Report 4, Figures 4-21 and 4-57 respectively. These facilities include:

a a shared grade separated facility along the northern side of the bridge;
b a number of intersection improvements for both pedestrians and cyclists;
c improved existing and new crossings;
d a number of new shared paths;
e new footpaths; and
f facilities that are designed and constructed to meet the most up to date standards and guidelines for persons with disabilities.

8.3 These provisions are consistent with the Project Objective relevant to walking and cycling, discussed in Technical Report 4, Section 7.1, by providing significant benefits to walking and cycling in the area, by improving safety for persons using the State highway and supporting mobility and modal choices in the city. The planning and design of walking and cycling facilities as part of the Project has been carried out in accordance with good practice guidance which includes: the Transport Agency’s Pedestrian Planning Guide, Cycle Route and Network Route Planning Guide, and the Road and Traffic Guidelines RTS 14 Guidelines for Facilities for Blind and Vision Impaired Pedestrians. Decisions on design have been cognisant of location, current and future demands and neighbouring / adjacent projects.

8.4 The significant improvements associated with the Project will not only make the Basin more accessible and safer for pedestrians and cyclists, they will assist with the Regional Land Transport Strategy (RLTS) and WCC aims and aspirations to increase use of non-motorised modes and reduce reliance on vehicles. Messrs McCombs and Aburn’s evidence includes analysis of policies and objectives, while TR4 section 7.11 analysis the outcomes of the RLTS. These improvements will be both:

a north-south along the main desire line through the Basin Reserve; and
b east-west between the Mount Victoria tunnel and National Memorial Park currently under construction (and CBD to the northwest).
8.5 The corridor will be further enhanced following the delivery of improved capacity and facilities in the Mount Victoria tunnel in the future.

**Public Transport**

8.6 The Project delivers significant improvements to passenger transport through:

a the removal of traffic congestion at critical points in the roading network;

b utilising available road space for improved bus priority (bus lanes and bus pre-signal arrangements); and

c relocation of the southbound bus stop at the busy Adelaide Road location.

8.7 The Project will improve travel time and journey time reliability\(^1\) for the key north-south bus routes when compared to the forecast Do Minimum situation. These improvements (which could not be effectively implemented independently of the Project) will be experienced along the Adelaide / Kent / Cambridge route in particular, while other coach and out of service buses will also experience improvements on the State highway.

8.8 The predicted change in travel time for buses on the Adelaide / Kent / Cambridge route is up to a 41%\(^2\) decrease, while journey time variability will be reduced when compared to the Do Minimum. Variability between direction and time of day will be almost completely eliminated by the Project which will remove the current uncertainty for passengers and assist with scheduling and route planning on the wider network.

8.9 Bus provision will be improved for the three schools in the area (St Marks, Wellington East Girls and Wellington College) as well as for those using the large number of public bus services in the area. The improvements include the following:

a The changes to be made to the exit arrangements from Ellice Street will improve safety and access for Wellington East Girls buses getting out into the circulating lanes around the Basin to head in a south, west or northbound direction.

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\(^1\) Reference to Figure 4.61 and Figure 4.62 of Technical Report 4.

\(^2\) Based on average of multiple runs of Paramics between Kent Terrace and Adelaide Road, predicted journey time reduced by 60 seconds.
b For those buses using the existing bus stand and pick up / drop off area on Dufferin Street, the relocation of the stand to the southern kerb line on Rugby Street provides the opportunity for buses to exit the stand area once they are loaded rather than having to wait for the bus(s) in front of them to exit. The relocated bus stop will also provide a better waiting area for school students.

8.10 Discussions with Wellington East Girls College, St Marks, Wellington College, bus operators and GWRC have been ongoing and supportive of these improvements to the existing situation. In particular, these parties support the ability to get children to the kerbside on Dufferin Street in the morning and the fact that the Wellington College students will no longer congregate in front of St Marks while waiting for a bus (providing separation of younger and older students). The access benefits for buses and cars were also recognised. Discussions with St Marks and GWRC have been ongoing in order to address specific details identified in their submissions.

8.11 These provisions are consistent with the Project objectives relevant to passenger transport while also providing the ability for the public transport planners and providers to implement the improved solutions identified by the PTSS. The PTSS reporting highlighted the importance of the Basin Bridge Project in achieving the outcomes of the PT project.

8.12 Subsequent work undertaken by the Project team has confirmed that assuming buses, Bus Rapid Transit (BRT) or Light Rail Transit (LRT) travel through a Mount Victoria tunnel in the future, the Project will enable a number of options which could provide significant improvement relative to the existing situation. The reduced traffic flow on the left turn Paterson Street approach to Dufferin Street (-83%) would allow for public transport priority at the signals and the potential for dedicated road space on the Paterson Street approach, Dufferin Street, Rugby Street, and potentially Sussex Street.

8.13 Overall the separation of westbound SH1 traffic from local traffic provides improvements for bus operation and greater potential for future public transport improvements associated with the PTSS to be realised as discussed in the evidence of Mr McCombs.

State Highway Traffic

8.14 Through grade separation of westbound SH1 traffic the Project greatly reduces the conflict between local road traffic and other transport modes (pedestrians,
cycles and public transport) at the intersections of Dufferin Street / Paterson Street and Adelaide Road / Rugby Street. It creates a direct westbound link on the proposed bridge from Paterson Street to the Buckle Street Underpass which is currently being constructed.

8.15 The Project results in significant improvements in westbound SH1 journey times of approximately 7.5 minutes in the morning peak with variability reduced to approximately 3 minutes from approximately 5.5 minutes in the Do Minimum scenario\textsuperscript{15} as displayed in Figure 8.1. In an eastbound direction it is predicted there will be an approximate 1.3 minute reduction in SH1 journey times\textsuperscript{16} in the evening peak, while variability will also reduce slightly. Through the grade separation of westbound SH1 and improved journey times the network resilience and reliability is improved.

![Figure 8.1: SH1 Westbound Journey Times for 2021\textsuperscript{17}](image)

**Freight**

8.16 SH1 currently does not carry high volumes of freight due to relatively low demands to the south and east, existing levels of congestion, journey time variability/uncertainty, and the dangerous goods restriction in the tunnels. Due to these factors, freight traffic uses alternative routes in the local roading network, such as Oriental Bay.

8.17 The Project will reduce congestion and journey time variability which will encourage use of SH1 instead of alternative local road routes. Further, should freight volumes increase, as is anticipated with land use and operational changes such as the Wellington Airport Masterplan, the Wellington Airport runway

\textsuperscript{15} Based on 2021 Paramics Model outputs between Goa Street and Boulcott Street on ramp, AM Peak.

\textsuperscript{16} Based on 2021 Paramics Model outputs between Terrace off ramp and Goa Street.

\textsuperscript{17} Black bars display modelled variability in travel times for each time period.
extension, and the Mount Victoria and Terrace tunnel duplication projects, the improvements delivered in this Project (in particular, reduction of congestion and journey time variability) will ensure that these increased freight movements stay on SH1 instead of using alternative local road routes.

8.18 Provision and facilitation of safe and efficient freight movement is an important aim of the wider RoNS project which is linked to the economic development and growth of the region. Although this Project only forms a comparatively small part of this freight network, it is a critical link that includes a strategic section of State highway that connects the Airport and southern and eastern suburbs to the CBD and north.

Local Road Traffic and Access

8.19 The Project removes westbound SH1 traffic conflict with local roads and modifies the conflict with eastbound SH1 around the Basin. As a result journey times on Adelaide Road and Kent/Cambridge Terrace\textsuperscript{18} are reduced by approximately one minute (24\%) in the southbound direction in the evening peak period and northbound by nearly 2 minutes (39\%) in the morning peak.

8.20 It should be noted that these savings have been calculated taking into account forecast increases in travel demand on the Adelaide Road and Kent/Cambridge Terrace corridor, especially southbound with a 30\% increase in demand predicted by 2021. This increase is the most significant change on the local road network as a result of the Project and is largely attributed to the removal of the congestion within the Project area and traffic shifting from routes such as Webb/Taranaki/Wallace Streets.

8.21 Changes in the vicinity of the Hania / Ellice Street intersection will improve the safety and accessibility at this location. The Project includes a low speed linkage between Ellice Street and Paterson Street to ensure school buses and local traffic movements can safely exit at this location. Details of the proposed traffic routes and access to and from Hania and Ellice Streets are displayed in Figure 8.2.

\textsuperscript{18} Based on 2021 Paramics Model outputs between Hospital Road and Courtney Place.
8.22 The only movement restricted as a result of the Project will be the movement from Ellice to Hania Street. This is currently not a safe manoeuvre although a small number of drivers use it informally. In an attempt to mitigate the effect of this restriction and the impacts of construction activities in this area, significant improvements are proposed for the Pirie / Vivian Street intersection. These improvements will be achieved through the provision of two exit lanes from Pirie Street and an additional peak time lane eastbound on SH1 (Vivian Street).

8.23 Access to existing land use activities adjoining the Project area such as St Marks School, Wellington College, Government House and the Basin Reserve itself will significantly improve as a result of the removal of westbound SH1 traffic, while the Project will also help to facilitate development at identified nodes such as Adelaide Road, on the Wellington City growth spine. This has already been recognised by developments like the Nuovo Urban Village proposed at 21 – 27 Rugby Street. Such developments encourage inner city living and help to reduce trip distances and reliance on motor vehicle trips.

8.24 Overall it is my view that the Project not only provides significant short to medium term benefit to local road movements and access, but will also facilitate longer term aims and aspirations associated with projects like the Mount Victoria tunnel duplication. This is supported by the 2009 WTM network modelling in 2031\(^\text{19}\) which confirms that despite the duplication of the Mount Victoria tunnel, the restrictions within the Project area in a westbound direction (without the Project)

\(^{19}\) Refer Technical Report 4 - Appendix 4-G.
result in more than 3,000 additional vehicles using the Evans Bay Parade and Oriental Bay route to the CBD.

**Emergency Services and Network Resilience**

8.25 The general traffic and public transport improvements associated with the Project will help emergency services and the general public travelling through this area by reducing congestion generally. Moreover, the provision of bus lanes will provide greater opportunity for emergency service vehicles to bypass queues at critical locations.

8.26 Discussions held with emergency services\(^{20}\) were positive and the feedback received confirmed that the Project will improve access to and from the hospital and other locations south and east of the CBD. This is all considered to be highly desirable by these services. Examples of feedback received included comments that ambulances would utilise this area instead of alternatives such as Wallace Street once the Project was constructed. Similar comments were also received from the fire service.

8.27 The resilience of the transport network is also an important feature which has been considered in the Project development. North-south movements will be significantly improved with the removal of SH1 conflicts, however in the event that the Mt Victoria tunnel is closed, existing and future electronic signs will be utilised to divert east-west traffic via the Basin or around the bays as currently occurs.

8.28 In the evidence presented by Mr Pathmanathan Brabhaharan resilience of access is also discussed. Mr Brabhaharan notes that the Basin Bridge is designed and built to current earthquake design standards and will perform well in the event of an earthquake. The proposed bridge, together with the proposed second Mount Victoria tunnel and stabilisation works will provide a resilient access route from the Hataitai side into the City. Mr Brabhaharan also notes that there are alternative access routes through Newtown that could be available in the event of closure.

**Parking**

8.29 The Project will reduce the net number of public parking spaces within the Project area. The development of the Project did seek to avoid the removal of parking spaces however in some instances this was not possible.

\(^{20}\) Wellington Free Ambulance, Wellington City Fire Station, NZ Police and Wellington Hospital project update meetings held in May 2013.
8.30 Overall there will be a net loss of 12 public parking spaces. In addition there will be a loss of 21 morning and evening peak period parking spaces to allow for clearways on Vivian Street. I have been involved in the assessment of the capacity and demand of parking spaces in the Project area while also talking to local businesses that may be affected. I consider there is sufficient available parking capacity in close proximity to the locations in which parking spaces will be reduced to conclude that this will only have a minor effect and is consistent with WCC policy.

8.31 Additional design and scheme development work has been undertaken at St Joseph’s Church, Regional Wines and Spirits and the proposed building under the bridge. There has been no net loss in formal parking capacity at any of these locations. The current number of formal car parks at St Joseph’s Church is 44. The Project revises this parking layout and the number of formal car parks increases to 46.

Construction

8.32 I have worked closely with Mr Duncan Kenderdine in the development of the construction sequencing and assessment of effects on transport users on the wider network and site specific locations.

8.33 Having been involved in the traffic management for the WICB project when it was constructed in 2006/07, I am familiar with the importance of managing construction packages, programmes and information to the public and transport users. As discussed earlier, the Project area is a critical node in the Wellington transport network. As a result, the construction sequencing and management of the activities has been structured to ensure specific improvements occur in advance of activities which might adversely impact on transport provision.

8.34 The construction programme has been broken down into three core stages:

a Stage 1 – Vivian / Pirie Street and Taranaki/Buckle Street intersection improvements, including clearways on Vivian Street.

b Stage 2 – Layout changes around the Dufferin/Paterson/Ellice/Hania Street area during and after the construction of the eastbound SH1.

c Stage 3 – Reduced capacity on Paterson Street to one lane at the approach to the Paterson/Dufferin Street intersection.
8.35 The effects of these three core stages will be managed through the development and agreement of a Construction Environmental Management Plan (CEMP) and Temporary Traffic Management Plans (TTMPs). Transport modelling has been analysed and specific model runs completed to predict the potential impact of the Project with Stage 1 and 2 completed and Stage 3 in place. This showed there could be an increased travel time of approximately 2 minutes westbound in the evening peak.

8.36 Although there are a number of other construction matters identified in Mr Kenderdine’s evidence, the effects of these have been assessed as being manageable and having a minor impact on traffic and other transport modes. I am aware of plans to discuss construction phasing with GWRC and WCC in order to address concerns about traffic and PT.

8.37 As with projects like the WICB and the current Buckle Street Underpass, communication with the general public and directly affected parties is critical. This will allow those affected to allow slightly longer for their journey or consider using alternative travel modes/routes. The draft CEMP and CTMP identify the methods of communication and engagement with the public, transport users and the specific stakeholders in the development and delivery of these TTMPs and the construction programme. It is my recommendation that WCC should be actively involved in the planning and authorisation of the TTMPs during construction due to the strong inter-relationship between traffic control, traffic signal operation and management, and general transport provision for all users in the Project area.

9 Transportation Policy and Project Objectives

9.1 Technical Report 4 and Part E of the AEE provide a detailed assessment of the policy context for the Project.

9.2 I consider that this Project is a critical part of the Wellington Northern Corridor RoNS that forms part of the GPS. Further I consider that this Project provides an integrated transportation solution which meets public transport, walking, cycling and local accessibility objectives and outcomes set by WCC, GWRC and the Transport Agency. In reliance on the evidence of Messrs Aburn, Daysh, Brewer and Copeland (in particular), I observe that the Project provides for significantly improved land use integration and economic growth and development. This accords with my own understanding and observations.

9.3 I now proceed to discuss the transport effects of the Project as they relate to the relevant Project Objectives (refer to Table 9.1 below).
### Table 9.1: Transport effects in relation to the NZTA Project objectives

<table>
<thead>
<tr>
<th>Objective</th>
<th>To improve the resilience, efficiency and reliability of the State highway network:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- By providing relief from congestion on SH1 between Paterson Street and Tory Street;</td>
</tr>
<tr>
<td></td>
<td>- By improving the safety for traffic and persons using this part of the SH1 corridor; and</td>
</tr>
<tr>
<td></td>
<td>- By increasing the capacity of the State highway corridor between Paterson Street and Tory Street.</td>
</tr>
</tbody>
</table>

In my opinion the Project will:

- improve the efficiency of the State highway network by providing relief from congestion at the Basin Reserve through grade separation of westbound SH1 traffic from the local road network;

- improve the reliability of the SH1 route through Wellington City to the wider region by increasing the capacity of SH1 and reducing intersection conflict points around the Basin, Taranaki Street and at Vivian/Pirie Street;

- enhance road safety for all road users, cyclists and pedestrians travelling through the area; and

- improve route security and encourage strategic trips to utilise the SH1 route instead of taking alternative local roads.

<table>
<thead>
<tr>
<th>Objective</th>
<th>To support regional economic growth and productivity:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- By contributing to the enhanced movement of people and freight through Wellington City; and</td>
</tr>
<tr>
<td></td>
<td>- By in particular improving access to Wellington’s CBD, employment centres, airport and hospital.</td>
</tr>
</tbody>
</table>

In my opinion the Project will:

- support regional economic growth and productivity through improved access to the CBD, Wellington International Airport and Wellington Hospital by reducing congestion along two significant arterial transport corridors at the Basin Reserve;

- link Kilbirnie, Miramar, and Newtown with other employment centres;

- enhance the movement of freight into and out of Wellington’s CBD; and

- meet the growing transportation needs of the region and Wellington City,
and in particular future Wellington Airport Growth Plans which have a strong relationship with growth in freight movements.

**Objective:**
To support mobility and modal choice within Wellington City:
- By providing opportunities for improved public transport, cycling and walking; and
- By not constraining opportunities for future transport developments.

In my opinion the Project will:

- improve the amenity for cyclists and pedestrians by reducing the traffic volumes around the eastern, southern and western parts of the Basin Reserve;
- expand the existing cycling and pedestrian network by providing new dedicated cycling and walking facilities that are separated from vehicular traffic, accommodating commuter and leisure trips; and
- reduce journey times by improving public transport through the Basin Reserve area and enabling opportunities for future public transport developments associated with the Wellington bus review and PTSS.

**Objective:**
To facilitate improvements to the local road transport network in Wellington City in the vicinity of the Basin Reserve.

In my opinion the Project will:

- improve the efficiency of the transport network through separating westbound State highway traffic flows from local traffic in the vicinity of the Basin Reserve;
- deliver significant benefits for local roads by improving traffic flows at peak times whilst removing conflict at the Paterson/Dufferin and Rugby/Adelaide intersections;
- provide more room for dedicated public transport and will facilitate future public transport improvements; and
- improve walking and cycling facilities and the amenity for these users.
9.4 Table 4-30 of Technical Report 4 provides a summary of the RLTS outcomes and targets, and provides a commentary as to how the Project aligns with these key actions. I note that in Technical Report 4 an assessment of how the Project aligns with outcomes 6.1, 6.2 and 6.3 was not addressed. I now address these outcomes as the Project also delivers against them (see Table 9.2 below).

Table 9.2: RLTS Outcome and Project Alignment

<table>
<thead>
<tr>
<th>RLTS Outcome</th>
<th>2020 Strategic Target</th>
<th>Project Alignment with Key Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(6.1) Improved land use and transport integration (in line with the WRS and local authority urban development strategies)</td>
<td>• All new sub divisions and developments include provision for walking, cycling and public transport, as appropriate</td>
<td>• The Project facilitates development in areas such as the Adelaide growth node and in the eastern suburbs. The Project also introduces new walking and cycling facilities such as the shared path on the northern side of the bridge and bus lanes around the Basin Reserve.</td>
</tr>
<tr>
<td>(6.2) Improved integration between transport modes</td>
<td></td>
<td>• The Project improves integration between the surrounding landuse (such as schools and local development) and the different transport modes by improving existing linkages and introducing new facilities and infrastructure such as the Rugby Street bus stop and shared space on many of the existing footways surrounding the Basin.</td>
</tr>
<tr>
<td>(6.3) Sustainable economic development supported (in line with the WRS)</td>
<td></td>
<td>• The Project provides improved facilities for active and passenger transport mode choice, which will support sustainable economic growth in the area and allow greater choices.</td>
</tr>
</tbody>
</table>

9.5 It should be noted that it is unlikely that any single project will entirely fulfil all of the RLTS criteria. However in my opinion this Project will make a significant contribution to the RLTS outcomes and targets. Without this Project, land use, public transport, walking/cycling, freight, safety and general levels of congestion in the Project area and the wider city will be compromised.
9.6 At a high level the Project contributes to each of the outcomes as described below:

a Public Transport:
   i reduced journey times and less variability through reduced traffic conflict and greater bus priority.
   ii improve access to stops and facilities.
   iii enable future projects (PTSS) to deliver high quality facilities that should increase use of public transport and mode share.

b Pedestrians and Cyclists:
   i improve facilities and provide greater levels of service and improve safety for users through the reduction of circulating traffic, reduction in conflict points and the provision of a dedicated east-west shared space.

c Reduce fuel consumption:
   i reduced congestion and distance travelled, while also providing opportunity for greater update of public transport, walking and cycling.
   ii through not generating induced traffic.

d Reduced congestion and travel times:
   i through the removal of SH1 and local road conflicts resulting in reduced congestion on SH1 and the local roads.

e Improved safety:
   i through dedicated SH1 road space, removal of conflict points, and a higher design standard.
   ii Through better designed facilities for pedestrians and cyclists with fewer vehicle conflicts.

f Land Use Integration:
   i through the facilitation of access between the Adelaide Road, Newtown, and Kilbirnie growth nodes.
Through the provision of improved multimodal access provision and future opportunities.

Freight:

through the removal of congestion and journey time variability that currently discourages freight use of SH1 and travel through this area, while also contributing to the wider RoNS project.

10 Response to submissions

10.1 I have reviewed the transport related submissions and made an attempt to group these submissions into key themes in order to avoid repeating responses on similar themes. I have focused my efforts on general transportation issues raised, however also responded to points addressed by Mr Peter McCombs, Dr Wayne Stewart, Mr Duncan Kenderdine and Mr Tim Kelly where appropriate. I have referred to submissions generally and may not have addressed every point and will address further points in rebuttal evidence as necessary.

Flawed problem definition

10.2 A submission by Mr Patrick Morgan (#103373) speaks of what he considers to be a flawed problem definition and flawed traffic forecasts. The issue of traffic forecasting is addressed in paragraph 10.20.

10.3 Mr Morgan says that having travelled through the Basin twice a day for a decade, he currently encounters little traffic congestion at the Basin and feels that Ngauranga is the main point of congestion in Wellington.

10.4 I disagree. The Basin Reserve is a critical transport node for all modes in the Wellington roading network. WCC and the Transport Agency work very hard to manage traffic flows through this area to avoid grid lock.

10.5 As I have extensively discussed in my evidence the difficulties for vehicles, PT, walking and cycling getting through this area are all clearly evident now and will only worsen in the future as has been displayed by the transport modelling.
But there isn’t a problem here

10.6 A number of submitters\(^{21}\) say that in their view, the levels of congestion in and around the Basin Reserve do not justify the proposal.

10.7 The transport problems around the Basin Reserve are not new. Extensive investigations have been undertaken to look at these problems and consider solutions. The Ngauranga to Wellington Airport Corridor Plan, the GPS for Transport (2012/13 - 2021/22) and the Wellington Regional Land Transport Programme for the period 2012-15 all pointed towards this being one of the highest priority areas for improvement in the Wellington region as discussed in paragraphs 10.4 and 10.5 above and in the evidence of Mr McCombs and Mr Aburn.

Whether the works are reasonably necessary

10.8 The submission by Generation Zero (#103565) expresses a view that they do not consider there is adequate evidence that the Project will assist in achieving the stated objectives.

10.9 I disagree. As outlined in Table 9.1 above, this Project succeeds in delivering all of its objectives. The Project is necessary not just from a SH1 perspective, but also to improve facilities for public transport, walking and cycling. In discussions with Generation Zero subsequent to the submission it appears to me that this Project is consistent with their aim of reducing CO2 emissions. This is achieved by reduced travel distance, removal of congested conditions for SH1 and local north-south movements, while also providing for public transport, walking and cycling options to encourage modal shift.

10.10 Generation Zero also refer to TN24 in relation to increased vehicle travel which is discussed further in paragraphs 10.37 to 10.40 below.

Work not needed until the second Mount Victoria tunnel is built

10.11 The submission from Save the Basin Incorporated (#103493) says the Basin Bridge Project is not required to serve the existing flows, and will not be needed until the second Mount Victoria tunnel is built. They also say that this is not a

\(^{21}\) Mr Paul Bruce (103488), Ms Iona Pannett (103587), Mt Victoria Residents’ Assn (103588), Wgtn Civic Trust (103448), Ms Lora Mountjoy (103369), Mr Patrick Morgan (103373), Ms Helen Corrigan (103406), Ms Pamela Fleming (103428), Ms Patricia Kane (103422), Mr Jonathan Exley (103420), Mr Richard Parrat (103446), Ms Anne Ryan (103567), Ms Athol Pauline Swann (103497), Mr Craig Forrester (103552), Mr David Colquhoun (103593).
stand-alone project. A similar view is also held by Ms Stephanie Edmund (#103415) who seeks better public transport first.

10.12 This is a very similar submission to those identified above (paragraphs 10.7 and 10.9) regarding the need for the Project and existing levels of congestion. Technical Report 4 and my evidence explain that the Project has been assessed without duplication of the Mount Victoria tunnel duplication and found to deliver transport benefits. That is, the Project delivers benefits as a stand-alone project. In addition, the Project has been developed to fit in with the wider Wellington Northern Corridor RoNS project, which includes the plan to duplicate Mount Victoria tunnel.

10.13 I also note that the Ngauranga to Airport Corridor Plan identified improvements at the Basin Reserve (in particular, separation of east-west and north-south flows) as a priority in its own right. This is supported by the benefit calculations for the Project. There is no doubt that the duplication of the Mount Victoria tunnel results in an even greater need for the Project in order to release benefits for westbound traffic (and for public transport if the PTSS uses this corridor). This is discussed further in the evidence of Mr Blackmore and Dr Stewart. This Project also delivers benefits as a stand-alone proposition.

At-grade solutions should be used

10.14 The submission by Ms Annabel Newman (#103483) notes that:

Evidence supports that there are at-grade solutions that will neither destroy the environment nor the heritage values of the Basin. I submit that these solutions should be followed, if indeed, any change is required at all.

10.15 The Rational Transport Society (#103559) present a similar view in their submission.

10.16 Such ‘at-grade’ solutions have been explored in detail in the development of this Project. This is outlined in Technical Report 19: Alternatives Omnibus Report and Dr Wayne Stewart’s evidence. Such solutions result in conflict between SH1, local road, public transport and other modes such as walking and cycling. This conflict either requires:

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22 The project in isolation with no growth or additional projects (including the PTSS) beyond 2021 resulting in $88.5m benefits against a project with planned growth and transport improvements such as the Mt Victoria and Terrace tunnel duplication projects resulting in $175.9m in benefits over a 40 year assessment period.
a more lane capacity for options which circulate the Basin; or

b intersection and approach capacity for options which converge on one major and two smaller intersections on the north side of the Basin Reserve.

10.17 I have been involved in the assessment of at-grade options. While these options can accommodate existing traffic volumes and achieve desired outcomes for westbound SH1 traffic, they fail to address public transport, walking and cycling improvements, create severance and reduced accessibility, and do not align with future plans, including the future Mount Victoria tunnel duplication, the PTSS project and planned growth in Adelaide Road and the south-eastern suburbs of the city. I consider these project outcomes to be fundamental to an appreciation of the benefits of this Project.

These intentions are not consistent with the RLTS

10.18 A number of submissions\(^2\) say the Project is inconsistent with the intention of the RLTS. As outlined in paragraphs 9.5 and 9.6 of my evidence and in detail in Section 7.11 of Technical Report 4, the Project contributes to almost all of the RLTS outcomes in some way. In my experience, this is unique for a Project of this nature.

Incorrect Forecasting – Traffic Volumes

10.19 26 submissions\(^4\) stated that they thought the traffic forecasting used was incorrect and that traffic volumes will decrease rather than increase.

10.20 As documented in Section 5 above and section 3.2.1 of Technical Report 4, traffic forecasts are primarily driven by population and economic growth and associated modal splits. Wellington has a significantly higher public transport and non-motorised user modal split and this has been reflected in the traffic forecasting for the Project. The traffic forecasts for the Project are based on the same tools used for other regional projects (such as the PTSS and the other RoNS projects) and is considered appropriate. The traffic forecasts do show little growth through the area until the duplication of the Mount Victoria tunnel. However, even without any

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\(^2\) Mr Paul Bruce (103488), Ms Iona Pannett (103587), Mt Victoria Residents’ Assn (103588), Newtown Residents’ Assn (103515), OraTaiao: The New Zealand Climate and Health Council (103532), Rational Transport Society (103559), Generation Zero (103565), Ms Liz Springfield (103560)

\(^4\) Mr Paul Bruce (#103488), Ms Natasha Naus (#103507), Ms Iona Pannett (#103587), Mr John Harding (#103452), Ms Elaine Hampton (#103517), Mr Patrick Morgan (#103373), Ms Patricia Kane (#103422), Ms Marie Kearney (#103426), Mr Timothy Jones (#103444), Mr Richard Parrat (#103446), Ms Anna Cottrell (#103496), Mr Demetrius Christoforou (#103526), Ms Lucy Bailey (#103559), Ms Liz Springfield (#103560), Mr Peter Skrzynski (#103541), Mr Ethan Tucker (#103464), Mr David Voss (#103538), Mr Denis Foot (#103503), Mr David McCrone (#103528), Ms Judith Graykowski (#103482), Ms Katherine Lindsay (#103514), Mr Michael Hartley (#103574), Mr Chris Horne (#103586), Ms Jocelyn Brooks (#103597).
forecast growth, there is an existing problem associated with congestion, travel
time variability and diversion effects. These existing problems impact on other
modes such as public transport, walking and cycling and local accessibility.

Incorrect Forecasting – General

10.21 Ms Stephanie Edmund (#103415) suggests that there is finite room on the
Miramar Peninsula for growth so there is no need to cater for an increase in
traffic.

10.22 As is outlined in the evidence of Mr Aburn, the WCC’s Urban Growth Strategy,
as described in the Transport Strategy (2006), Urban Development Strategy
(2006) and Adelaide Framework (2008) identifies a ‘growth spine’ which
envisages a transit-oriented intensification of employment and housing along a
corridor or spine of growth extending from Johnnsville in the north to Adelaide
Road/Newtown and Kilbirnie in the south and east. The Project has been
developed to respond to this planning imperative, rather than growth on the
Miramar Peninsula alone. Regardless, I note that locations such as Shelly Bay
and the former Mount Crawford prison site are locations on the Peninsula in
which growth may occur in the future.

10.23 In their submission, Regional Public Health (#103460) suggest that 2021
forecasting was chosen to avoid assessing effects associated with other RoNS
projects which will increase traffic volumes.

10.24 Section 3.3.3 of Technical Report 4 documents the ‘Do Minimum’ assumptions for
the Project and how the Project is assessed against this scenario. This includes
consideration of other parts of the Wellington Northern Corridor RoNS (and other
local authority projects). This project considers the effects of other projects where
they are considered to be built prior to the Project being delivered (e.g. ICB
improvements and Buckle Street Underpass project). The assessment
undertaken confirms that the Project results in very little induced traffic as
discussed in paragraph 10.138.

10.25 Ms Brittany Peck (#103475) states that the benefits of this Project are reliant
upon other unconsented projects which may never happen.

10.26 The benefits for the project are extensive (as documented in Technical Report 4
and other technical reports) and do not just include quantified transport benefits.
Assessment work has been carried out using 2021 demands with no growth in
traffic or further projects in the future (capped demands) which demonstrate the
project still has a BCR above 1.0. It is also important to note that this project is
part of a package. The BCR for the package is discussed in more detail in the evidence of Mr Copeland.

10.27 Mr David Smyth (#103549) queried whether sensitivity tests had been carried out to take into account higher fuel prices.

10.28 Higher fuel prices are accounted for in the medium growth scenario for the WTSM model through the use of Ministry for the Environment and Ministry for Economic Development projections for costs of fuel and vehicle efficiency\(^{25}\). As discussed in paragraph 10.26 above, sensitivity testing has also been undertaken for capped demands in 2021 which has a similar impact in terms of traffic demand associated with population growth and development. It should also be noted that this does not negate the importance of the Project from a public transport, walking and cycling perspective.

10.29 Mr David Voss (#103538) suggests that time savings are claimed for only 2 hours per day, without considering the slowing effects of other Project elements during the remaining 22 hours.

10.30 Travel times reported in Technical Report 4 focus on the worst periods of the day in which a transport model can be reasonably and efficiently built. Other periods have been considered in the assessment (inter peak, off peak and weekends) to capture benefits and ensure that the Project will operate effectively.

10.31 Ms Leonie Reynolds (#103486) claims that time savings are shown between Goa Street and Boulcott Street, not just for the Basin Reserve area, and are therefore irrelevant.

10.32 The assessment for the Project looks at the same section of road both with and without the Project, so the net result is the effect of the Project’s improvements around the Basin Reserve. This is explained in greater detail in section 7 of Technical Report 4.

10.33 In their submission the Architectural Centre (#103578) raises the following issues regarding traffic forecasting:

\[
\text{Whether the impact of future technologies such as 3D printers and ultra-fast broadband on the delivery of goods has been analysed; and} \\
\text{whether any analysis has been carried out of the sociological issues exacerbating congestion around the Basin Reserve such as parents driving their children to school.}
\]

\(^{25}\) Refer 2011 WTSM Model, TN15 Input Parameters.
10.34 As outlined in paragraph 5.1 of my evidence, the forecast demands are based upon a regionally accepted approach and assumptions relating to external factors.

10.35 In their submission Living Streets Aotearoa (#103566) claim that inadequate pedestrian data has been used in the assessment.

10.36 I disagree with this statement. In February 2009 pedestrian and cyclist counts were carried out around the Basin Reserve over an 11-hour time period. This was followed by intercept surveys of 1129 pedestrians and cyclists in March and April 2012. These surveys have given us a clear picture of pedestrian and cyclists demand and desire lines. Further details can be found in section 5.4 and Appendix 4-E of Technical Report 4.

**Dominion Post Article**

10.37 Nine submitters\(^{26}\) mentioned an article in the Dominion Post newspaper on 2 September 2013 quoting an Opus / ARUP / GWRC report stating that building RoNS projects would increase congestion on Wellington’s roads.

10.38 The report referenced is a December 2012 report for Greater Wellington Regional Council, *The Wellington Transport Models TN24: Baseline Forecasting Report*, in which the consultants (Opus and Arup) identified the RoNS as a major influence on traffic.\(^{27}\)

10.39 I was involved in the project in which this report was developed. I emphasise that this work was carried out to test the operational capability of the WTSM model, and to ensure it was reacting in the way that was expected. This testing was undertaken for the entire Wellington Northern Corridor RoNS (from Wellington Airport to Levin), plus a number of other transport improvements in the region (including planned public transport improvements) and was not an assessment of the Project or the RoNS as a whole. The tests were undertaken for future years (2021 and 2031) and did not provide any assessment of trips with and without specific projects included.

10.40 This article was incorrect and unhelpful. The correct conclusion to be drawn from the report was that the WTSM model was reacting in a way which is consistent with expectation and that the analysis showed travel patterns and network

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\(^{26}\) Generation Zero (#103565), Mr Paul Bruce (#103488), Ms Natasha Naus (#103507), Ms Julie Gunn (#103546), Mr Lindsay Shelton (#103453), Mr Chris Greenwood (#103435), Mr Tony Simpson (#103436), Mr Ron Beemink (#103510), Mr Charlie Devenish (#103512) and Mr Vincent Schumacher (#103534).

\(^{27}\) SKM Baseline Forecasting Report 2008. Prepared for GWRC.
performance between 2011 and 2041 to be generally in line with results detailed in the Baseline Forecasting Report from 2008. There was one exception (between 2011 and 2021) where there was a much higher growth in public transport demand as opposed to highway demand. The reasons for this were increased levels of congestion and forecast vehicle operating costs (VoC) increasing at a faster rate than public transport fares. In the context of the Basin, this report does not analyse the impact in isolation and this Project will reduce congestion, while providing the opportunity for increased modal shift to passenger transport, walking and cycling.

**Public Transport**

10.41 Five submitters\(^2\) support the improvements to public transport that result from the project.

10.42 Public transport improvements as a result of the Project include:

   a Travel time and variability improvements due to the reduction in general traffic delay and congestion;

   b Improved bus stop for southbound services on Rugby Street, with widened footpath;

   c Provision of bus lanes;

   d Bus pre-signal will be improved for better bus detection at Kent Terrace, ensuring buses travelling in convoy get priority; and

   e Removal of a significant amount of traffic at the southern end of the Basin Reserve which allows for existing road space to be re-allocated to public transport.

10.43 McDonalds (#103584) support the termination of the northbound bus lane on Adelaide Road at its current location rather than carrying it through the Adelaide/Rugby intersection.

10.44 Both the northbound bus stop and bus lane on Adelaide Road are not proposed to be modified by the Project as they form part of the local road network. Further modifications were considered however in my view the proposed modifications to

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\(^2\) McDonalds (#103584), Wellington Employers’ Chamber of Commerce (#103509), Wellington International Airport (#103557), Automobile Association (#103434) and Mr Cameron Rose (#103504).
the Rugby Street / Adelaide Road intersection as part of the Project provide the optimum solution for traffic, buses, pedestrians and cyclists.

10.45 St Mark’s School (#103516) and the Mt Victoria Residents’ Association (#103588) support the reconfiguration of bus stops on Dufferin Street and Foodstuffs (#103596) supports the proposed relocation of the bus stop on Adelaide Road to Rugby Street.

10.46 The reconfiguration plans for the school bus stops on Paterson Street have been developed in conjunction with St Mark’s School and Wellington College and I have been involved in a number of pre-hearing meetings with the schools in order to better understand their needs and aspirations for bus operation. The plans allow for the same number of buses that currently service the schools and do not restrict buses departing earlier if they are not in front of the queue. Currently buses are restricted by the layout to wait until the first in the queue departs. The reconfiguration will improve safety as it will deter students from crossing areas where parents are parking.

10.47 The proposed relocation of the Adelaide Road southbound bus stop to Rugby Street will also improve the spacing of the southbound bus stops and also relocate the bus stop so that it is closer to the local schools. The proposed bus stop location will also be in a safer location to encourage pedestrians to use the Adelaide Road / Rugby Street formal crossings as opposed to informal crossing of Adelaide Road, which a number of pedestrians currently do.

10.48 Seven submitters²⁹ felt that the Project would deliver little or no benefits to public transport.

10.49 I refer to sections 7.2 and 9.1 of Technical Report 4 and paragraphs 8.6 to 8.13 of my evidence above. The Project design has been developed together with WCC and GWRC to accommodate a range of public transport options that align with future policies and current outcomes for public transport facilities in the area. In particular it will allow road space which is currently utilised by SH1 traffic to be used for passenger transport.

10.50 17 submitters³⁰ felt that public transport solutions such as light rail, offered a better solution, and that the design should allow for these options.

²⁹ Mr Paul Bruce (#103488), Ms Natasha Naus (#103507), Newtown Residents’ Association (#103515), Ms Averil Taylor (#103412), Ms Hayley Robinson (#103425), Ms Liz Springford (#103560), Ms Linda Grieve (#103561) and Mr Roy Glass (#103523).
10.51 I refer to this issue in section 9.1 of Technical Report 4 and paragraphs 8.11 to 8.13 in my evidence above. The Ngauranga to Airport Plan looked at a range of different transport options for the City and it was agreed that there needed to be a balanced set of solutions (traffic, public transport, walking, cycling and landuse integration). One of the key objectives of the Project is to facilitate the development of an improved passenger transportation spine between Adelaide Road and Kent / Cambridge Terraces. The Project removes a significant amount of traffic from around the Basin Reserve which allows for existing road space to be set aside for passenger transport usage. The Project has also been designed to accommodate a range of passenger transport options around the Basin Reserve in the future. It is important to appreciate that by utilising spare traffic lanes as bus lanes induced traffic is avoided. If these lanes were retained for traffic once the Project is completed it would make it difficult to remove capacity in the future, which would impact on the effective operation of a Passenger Transport Spine through this area. Therefore this assists in securing both short and longer term public transport benefits.

10.52 In his submission, Mr Charlie Devenish (#103512) claims that public transport improvements could be secured without the Project, and that the pinch-point for buses is conflict between south and east-bound traffic which will not be altered by the Project.

10.53 As documented earlier in my evidence, the removal of SH1 traffic from Dufferin Street allows allocated time at the Paterson Street signals to favour the southbound movement and provide the ability to install bus lanes, addressing the pinch-point Mr Devenish is claiming the Project will not alter.

10.54 The Rational Transport Society (#103559) submit that there are alternative routes that bypass the Basin Reserve that could be used to reduce problems for the public transport system, and that there is no commitment from the Transport Agency to implement other changes needed for the public transport system in Wellington such as a dedicated spine, improved network design and operational efficiencies.

10.55 The Ngauranga to Airport Wellington Corridor Plan adopted by GWRC in October 2008 specifically refers to the passenger transport spine travelling through the Basin Reserve. In addition, I note that the Transport Agency is working closely
with GWRC and WCC to consider other options such as the use of Mount Victoria tunnel and Ruahine Street to access Kilbirnie. This spine also relies, however, on relieving congestion at the Basin Reserve. I also understand that the PTSS study to date has been funded by the NZTA. I strongly disagree with this submitter’s statement.

10.56 Regional Public Health (#103460) would like to see on-going investment in active modes and public transport to mitigate increased traffic volumes.

10.57 This Project provides significant investment in facilities for active modes and public transport. It reflects a balanced and appropriate approach.

Why not favour public transport?

10.58 A submission from Ms Averill Taylor (#103412) says ‘Wellington used to be [a] city known in NZ for its good public transport. Why is public transport not at the forefront of this discussion?’ While Mr Jae Warrander (#103419) makes a similar point, saying:

This money could be spent on bike paving and better public transport relieving any such congestion that occurs around the Basin... The flyover will cut the city off from Newtown forcing the public to drive instead of walk or bike.

10.59 As outlined in my evidence above and in Technical Report 4, public transport, walking and cycling facilities have been front of mind in considering options and developing the Project as proposed. The grade separation of westbound SH1 traffic provides the opportunity to improve facilities for public transport, walking and cycling which will assist with current operation and future PTSS options.

There will be a detrimental effect on public transport

10.60 Several submissions\(^3\) say that the Project will have negative effects on public transport.

10.61 In responding to these submissions, I note that the Project will actually have the reverse effect and will benefit public transport. This is supported by GWRC’s submission and the recent work undertaken by Aecom for the PTSS which highlights the assumption that the Basin Bridge Project will be completed to facilitate public transport options in the future.

\(^3\) Mr Paul Bruce (#103488), Newtown Residents’ Assn (#103515), Ms Averil Taylor (#103412), Ms Hayley Robinson (#103425), Ms Liz Springford (#103560), Mr Roy Glass (#103523).
New public transport initiatives and possibly light rail would be better

10.62 A number of submissions\(^{32}\) say that other public transport solutions, including light rail, should be preferred.

10.63 As discussed above and earlier in my evidence, the Transport Agency, GWRC and WCC are looking at other options for public transport as part of the PTSS and this Project will help to facilitate such options in the future. Further the Ngauranga to Airport Corridor Plan agreed the need for a multimodal transport package of improvements for Wellington, as outlined in the evidence of Mr McCombs and Dr Wayne Stewart.

Bus lanes reduce capacity for other traffic

10.64 The New Zealand Automobile Association Incorporated (103434) submission, while in support, expresses a concern that the intended provision of bus lanes in Dufferin Street and in Sussex Street serving south and northbound buses will reduce the capacity and performance available to other traffic in accessing Adelaide Road or Buckle Street.

10.65 In a meeting with the Automobile Association subsequent to this submission, I described the different Project Objectives and advised that provision for public transport was an important outcome for the Project. Traffic in a north or south bound direction will experience significantly reduced delay while the removal of approximately 15,000 vehicles from the circulating lanes of the Basin, allows this space to be utilised for bus lanes, improvements outside St Marks School, a bus stop, intersection and pedestrian/cycling improvements.

10.66 The provision of bus lanes is consistent with the wider north-south bus priority improvements planned by WCC and the region while safeguarding road space for future PTSS improvements in the future.

Pedestrian and Cyclist Facilities

10.67 The Automobile Association (#103434) and Cycle Aware Wellington (#103490) support the inclusion of the elevated pedestrian/cycleway.

10.68 The elevated pedestrian/cycleway will have a number of benefits, including:

\(^{32}\) Mr Paul Bruce (#103488) and Mr John Harding (#103452).
a encouraging walking and cycling by removing the need to drop and climb eight vertical metres and undertake multiple road crossings, which is currently required along this route;

b improving safety and reduce severance caused by at-grade traffic; and

c improving connectivity.

10.69 11 submitters\(^{33}\) felt that the Project offers little benefit for pedestrians and cyclists and would make it harder for them to travel through the area.

10.70 As per section 7.1 of Technical Report 4 and paragraph 8.2 in my evidence above, the benefits of the Project to pedestrians and cyclists include:

a Reduction in severance for pedestrian and cyclists travelling at-grade (refer to paragraph 8.23 above);

b More time for pedestrians and cyclists to cross at signalised crossings;

c Traffic diverted from other popular pedestrian and cyclist routes such as Oriental Parade;

d Signalised crossings on Kent and Cambridge Terraces are being relocated further south to better align with desire lines;

e Raised crossings on Ellice Street so that pedestrians do not have to dismount the footpath, making crossing easier for parents with push chairs, wheel chair users and the elderly;

f A new shared space zone will be created north of the Basin Reserve, giving priority to pedestrians in this area;

g A new signalised crossing will be added across Dufferin Street and east-bound State Highway 1;

h Reduced crossing distance on Rugby Street with three lanes of traffic being reduced to just one;

i Dropped kerbs provided at the Sussex/Buckle intersection; and

\(^{33}\) Mr Paul Bruce (#103488), Ms Emma Alcock (#103429), Ms Katy Brown (#103430), Ms Lucy Bailey (#103558), Mr Michael Hartley (#103574), Ms Natasha Naus (#103507), Ms Pamela & Mr Russell Tregonning (#103568), Clyde Quay School (#103575), St Mark’s School (#103516), Rational Transport Society (#103559) and Newtown Residents’ Association (#103515).
j New paths created linking with Memorial Park.

10.71 Five submitters raise concerns about wind levels on the elevated walk/cycleway. Cycle Aware Wellington (#103490) also raise concerns that the proposed cable and mesh fence on the elevated walk/cycleway is an ineffective shelter from the wind and is a hazard.

10.72 Both of these issues are addressed in the evidence of Mr Neil Jamieson. It should however be noted that the Project will not only provide the shared facility on the bridge, it will also improve the facilities at grade giving greater choices and allowing users to make decisions based upon conditions (wind, rain, sun). The concern raised in relation to the fence on the north side of the pedestrian / cycle bridge will need to be considered as part of the detail design, however, I am of the view that the holes in the proposed mesh fence would be too small to catch handlebars. The final specification of the mesh will be subject to a safety audit which will ensure issues such as this are addressed.

10.73 St Joseph’s Church (#103592) and other submitters in this area state that they do not see the need for the elevated walk/cycleway attached to the bridge, and do not feel that the benefits outweigh the loss of their land.

10.74 As per section 7.1.2 and 7.1.3 of Technical Report 4 and paragraph 9.3 in my evidence above, the Project seeks to achieve a number of outcomes. These include improving safety for traffic and persons using the SH1 corridor and providing improved walking and cycling facilities. The provision of a shared path along the northern side of the bridge delivers these objectives. Although it is possible to exclude the pedestrian and cycle facility from the Project and retain just at grade facilities, this is inconsistent with a number of other submitters’ requests for more facilities and a greater use of non-motorised transport modes. This facility will enhance the east-west link for pedestrians and cyclists which will help to encourage a greater uptake of non-motorised travel because:

a It can be reasonably assumed that pedestrian and cyclist numbers will increase. The number of people that will walk or cycle may change if the environment is improved. Land use changes are also likely to increase demand, with a new supermarket proposed on Rugby Street and the development of Memorial Park.

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34 Mr Paul Bruce (#103488), Living Streets Aotearoa (#103566) the Newtown Residents’ Association (#103515), Mr Willemijn Vermart (#103431) and Ms Katy Brown (#103430).
b  It creates a continuous east-west link between existing shared facilities on Buckle Street and the Mount Victoria tunnel.

c  Will encourage walking and cycling by removing the need to drop and climb eight vertical metres and undertake multiple road crossings as currently required along this route.

d  Reduce severance caused by at-grade traffic and improve connectivity.

10.75  In their submission the Automobile Association (#103434) felt that an at-grade pedestrian crossing over State Highway 1 eastbound at Ellice Street was not a long term solution and requested a pedestrian bridge be built instead.

10.76  The Project team have investigated grade separation of pedestrian and cycle facilities for eastbound traffic. Such options had a number of disadvantages. Most important was the fact that pedestrians and cyclists do not like diversions and without fencing at grade areas, it would be difficult to ensure safe crossing occurs. The signals have been developed to minimise delay for motorists, link with other crossings and the Kent Terrace bus priority signal and to allow local access to occur out of Mount Victoria at the same time as pedestrian and cycle crossing movements.

10.77  In their submission Wellington City Council (#103579) seeks to ensure there are adequate pedestrian crossing facilities on desire lines from the north of the Basin Reserve to the War Memorial and across Sussex Street.

10.78  I refer to section 7.1 of Technical Report 4. This point has been discussed with WCC and Cycle Aware in the past and the Project team have investigated the provision of an additional crossing facility on the north west corner of the Basin and have concluded that the only safe solutions are for the existing Kent and Cambridge Terrace crossings to be shifted south of the existing crossing facility and the provision of an uncontrolled facility on the Sussex Street entry to the underpass (which is linked to the Memorial Park project). The landscape and urban design plan for this area has been designed to direct pedestrians and cyclists in and out of the Basin Reserve to the Kent/Cambridge crossing points via a central promenade area which will link to the new northern gate as outlined in the evidence of design witnesses.

10.79  Ora Taiao: The New Zealand Climate and Health Council (#103460) raised concerns in their submission that the introduction of the bridge will encourage car use and restrict physical activity.
10.80 In response I refer to section 7.1 of Technical Report 4, paragraphs 10.16 and 10.20 above, and my evidence generally.

10.81 Regional Public Health (#103460) would like to see on-going investments in active modes and public transport to mitigate increased traffic volumes.

10.82 In response I refer to paragraphs 10.68 and 10.70 in my evidence above.

Shared Pedestrian / Cycleway Width on the Bridge

10.83 Four submitters\(^{35}\) raised concerns over the safety of the elevated pedestrian/cycleway stating that it was unsafe as pedestrians and cyclists would be sharing the space and it was not wide enough.

10.84 As outlined in section 7.13 of Technical Report 4, the width of the shared facility has been designed following consideration of the following factors:

a. Transport Agency guidelines suggest a desirable path width of 3m with a range between 2m and 3.5m for commuters\(^{36}\);

b. The currently proposed width of the Mount Victoria tunnel shared facility is 3m and this will connect with the proposed bridge shared path, which will in turn connect with a 3m width shared path at the National War Memorial Park;

c. Alternative pedestrian and cycling facilities are being provided at grade as a part of the Project;

d. The proposed width is appropriate to meet the predicted demand\(^{37}\);

e. Movements will generally be tidal (into the CBD in the morning and out in the evening);

f. The economic justification for the facility is low and any additional costs will erode the viability of providing such a facility from an economic perspective\(^{38}\); and

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\(^{35}\) Living Streets Aotearoa (#103566), the Automobile Association (#103434), Cycle Aware Wellington (#103490) and Wellington Civic Trust (#103448).

\(^{36}\) http://www.nzta.govt.nz/resources/pedestrian-planning-guide/

\(^{37}\) Calculated for 2026 as approximately 600 pedestrians and 300 cyclists for a weekday in 2026 which would then double following the duplication of the Mt Victoria tunnel and associated improvements to the existing poor cycle and pedestrian facilities linking the south east.

\(^{38}\) Economics are only one aspect of providing transport solutions, strategic fit and effectiveness are also important considerations. Mr Daysh’s evidence notes that cost is a factor that needs to be considered in the design of projects.
The widening of the bridge has a range of other effects which are outside of my area of expertise but are important to the evaluation of the proposed solution.

I would also highlight other shared paths both here in Wellington and in Tauranga that are comparable to this proposed shared path (i.e. in terms of adjoining barriers, widths and pedestrian/cyclist demand).

The Harbour Bridge shared path is 2.5m wide. Pedestrian and cycle count data indicates an average daily demand of 324 cyclists and 119 pedestrians. I have checked crash records and there are no reported incidents on this facility. I have been advised that this facility operates well and is fit for its purpose.

Along the Wellington waterfront the width of shared facility varies. I have collected some measurements along this route which were in the range of 2.2m to 5m and at these points there were adjoining barriers on either side of the path. I would note that cycle demand along the waterfront is similar to or higher than that forecasted demand along the Basin Bridge. The pedestrian demand along the waterfront is significantly higher than that forecasted to use the Basin Bridge path.

Traffic Efficiency

Mr Paul O'Regan’s (#103518) submission claims that based on good traffic principles it cannot be right to have the left hand (east-west) traffic crossing the right hand side of the road.

Although it is unclear what Mr O'Regan’s concern is I assume it is the way in which the traffic from the bridge integrates with the traffic from Sussex Street. I observe that the merge and weave length from Sussex to Taranaki Streets was considered at great length and considered to be safe and efficient.

Wellington City Council (#103579) submission claims that some associated works along the State highway corridor that aim to improve traffic flows have layouts that are not best practice in terms of increasing efficiency of landuse.

It is not clear what is meant by this part of the WCC submission. I intend to meet with them to discuss further.

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39 Refer to Annexure D. Data provided by Tauranga City Council. Harbour Bridge Path eco counter data, period analysed Saturday 1 December to Tuesday 30 April 2013.
40 Images and measurements at different locations along the waterfront can be found in Annexure D.
The Automobile Association (#103434) submission raises concerns about reduced capacity for general traffic accessing Adelaide Rd or Buckle St with the introduction of bus lanes.

Section 7.3.6 of Technical Report 4 discusses the introduction of bus lanes and the fact that with the changes in volumes circulating around the Basin Reserve this reallocation of road space to public transport will not negatively impact on general traffic. The Project objectives seek to get a balanced transport outcome. This is consistent with WCC and GWRC’s plans and aspirations for increased public transport provision and priority north-south for public transport through the Project area.

Seven submitters\textsuperscript{41} expressed support for the Project stating that the work is an essential upgrade to the transport system.

These submissions emphasise the points made throughout Technical Report 4 in responding to the Project Objectives and the outcomes of the Ngauranga to Airport Plan.

Eleven submitters\textsuperscript{42} thought that the Project would reduce current traffic congestion and delays and improve efficiency.

Again this is consistent with Technical Report 4 and those outcomes relating to congestion and delays.

Submissions from the Wellington City Council (#103579) and the Wellington Employers’ Chamber of Commerce (#103509) supported long-term corridor planning between the Terrace tunnel and Basin Reserve which included future-proofing to allow for future growth and development of the Public Transport Spine.

As noted in paragraphs 8.9 to 8.13 of my evidence above, this Project has been considered in relation to future PTSS outcomes and I believe it is an essential part of future public transport improvements.

Centre Port Limited (#103461) and the Automobile Association (#103434) have made submissions stating that the Project will provide significant system-wide

\textsuperscript{41} Automobile Association (#103434), Wellington Employers’ Chamber of Commerce (#103509), Wellington International Airport (#103557), Mr Jim Norling (#103380), Mr Noel Hall (#103440), Mr Thomas Davis (#103458) and Mr Peter Cooke (#103465).

\textsuperscript{42} St Mark’s School (#103516), Foodstuffs (#103596), McDonalds (#103584), Automobile Association (#103434), Wellington Employers’ Chamber of Commerce (#103509), Wellington International Airport (#103557), Mr Mark Ashby (#103501), Mr Laurie Petherick (#103368), Mr Thomas Davis (#103458), Mr Peter Cooke (#103465) and Mr Cameron Rose (#103504).
benefits for all road users and alleviate congestion on other key routes such as Oriental Parade, Constable Street, Wallace Street and Aotea Quay.

10.101 Technical Report 4 provides a summary of the ‘system-wide’ benefits while the BCR for the project has been calculated using the city wide WTM model which captures changes as a result of the project for all trips. These benefits are considered to be significant and ‘system-wide’.

10.102 Both the Wellington Employers’ Chamber of Commerce (#103509) and the Automobile Association (#103434) requested in their submissions that construction works begin as soon as possible.

10.103 These submissions highlight the desire to see change delivered as soon as possible and this is consistent with Project outcomes, the Transport Agency’s programme of works and the importance of the implementation of the Ngauranga to Airport Plan.

It will simply move the point of congestion

10.104 A number of submissions\(^4^\) say the Project will simply move the point of congestion for westbound traffic rather than dealing with it.

10.105 This matter has been addressed in Section 3.3.3 of Technical Report 4 and paragraph 6.16 of my evidence above, when outlining the ‘Do Minimum’ for the project. This Project is part of a wider package of improvements for SH1 and the surrounding transport network.

10.106 Projects such as the Buckle Street underpass and the ICB improvements (Tunnel to Tunnel) in particular will address this concern, while future duplication of the Mt Victoria and Terrace tunnels and the wider Wellington Northern Corridor RoNS package will also contribute to addressing the concerns raised by these submissions also in a wider context.

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\(^4^\) Mr Paul Bruce (103488), Ms Iona Pannett (#103587), Mt Victoria Residents’ Association (#103588), Wellington Civic Trust (#103448), Mr Guy Marriage (103521), Mr Martin Durant (103554), Newtown Residents’ Assn, (103515), Action for the Environment (103573), Architectural Centre (103578), Mr Michael Barnett (103402), Mr John Harding (103452), Mr Lindsay Shelton (103453), Ms Irene Halakas (103457), Ms Addy Irion (103376), Mr Roger Robinson (103386), Ms Margaret Tobin (103381), Mr Michael Barnett (103402), Ms Helen Corrigan (103406), Ms Averil Taylor (103412), Ms Hayley Robinson (103425), Mr Chris Greenwood (103435), Ms Margaret Peebles (103427), Mr Noeline Gunnaway (103416), Ms Marie Kearney (103426), Mr John Harding (103452), Mr Timothy Jones (103444), Mr David Zwart (103481), Ms Janis Freegard (103476), Ms Julia Burgess (103474), Ms Anna Cottrell (103496), Mr James Green (103563), Mr Demetrius Christoforou (103526), Ms Anne Ryan (103567), Ms Liz Springfield (103560), Ms Jane Szentivanyi (103469), Mr Peter Skrzynski (103541), Mr Michael Gemmell (103513), Mr David Smyth (103549), Mr David McClone (103528), Mr Charlie Devenish (103512), Ms Katherine Lindsay (103514), Mr Ari Sargent (103525), Mr Vincent Schumacher (103534), Ms Pamela & Mr Russell Tregonning, (103568), Mr Michael Hartley (103574), Ms Sue Watt (103580), Ms Elaine Hampton (103517), Ms Jocelyn Brooks (103597).
It does nothing to address eastbound travel

10.107 A number of submissions\(^{44}\) raise concerns that the Project does nothing to improve east-bound travel.

10.108 As documented in Technical Report 4, section 7.3.3 and paragraph 8.15 of my evidence above, the Project will deliver some improvements to eastbound travel\(^{45}\) in addition to other improvements associated with other projects. This aspect of the Project and the gains for east-bound travel are enabled by the related works being undertaken along Vivian Street and at the Vivian/Kent/Cambridge/Pirie intersection (as set out at 8.22 of my evidence). In addition, planned future works, in particular the duplication of the Mount Victoria tunnel, will improve eastbound travel. However, without grade separation of westbound SH1 traffic at the Basin Reserve through this Project, the benefits associated with the Mount Victoria tunnel duplication project will be significantly reduced.

10.109 Particular details are provided at section 7.2.3 of Technical Report No 4.

Mount Victoria Traffic

10.110 Five submitters\(^{46}\) raise concerns about Mount Victoria traffic, including:

a increased traffic flows through Mount Victoria; and

b access via Ellice Street.

10.111 Wellington City Council (#103579) support restricted access to Hania and Ellice Streets to reduce potential ‘rat running’ (short-cutting).

10.112 Section 7.3.1 of Technical Report 4 and paragraphs 8.19 to 8.24 of my evidence above demonstrate that while traffic may increase on some local roads; this is offset by a significant decrease in traffic circulating the Basin Reserve and the upgrade of the Kent/Cambridge Terraces/Pirie Street intersection.

10.113 Section 7.3.6 of Technical Report 4 and paragraphs 8.21 and 8.22 of my evidence above detail the proposed access arrangements to Hania and Ellice Streets. The Project will result in very small changes to traffic flow in Mount Victoria and the improvements to the Pirie Street intersection will reduce the

\(^{44}\) Mr Craig Palmer (103571), Mr Peter Dunn (103443), Civic Trust (103448), Mr David Zwartz (103481), Ms Anna Cottrell (103496), Ms Anne Ryan (103567), Mr Paul O’Regan (103518), Mr Craig Forrester (103552), Mr Charlie Devenish (103512), Ms Jessie Munro (103569).

\(^{45}\) 77 seconds on SH1 in the PM peak between the Terrace off ramp and Goa Street.

\(^{46}\) Clyde Quay School (#103575), Regional Wines and Spirits (#103462), Mr Demetrius Christoforou (#103526), Ms Margaret Tobin (#103381) and Mr Craig Forrester (#103552).
amount of traffic travelling through Mount Victoria to avoid delays at this intersection. The changes at the Hania and Ellice Street intersections will significantly improve the current configuration in which traffic needs to cross three lanes to travel around the Basin Reserve. In addition to this, the current delays caused by the Dufferin / Paterson Street intersection result in traffic rat running through Hania Street. This will be reduced by this Project and further reduced once the Mount Victoria tunnel is duplicated, thus reducing traffic in Mount Victoria.

Accessibility/Layout

10.114 In their submission St Mark’s School (#103516) support the provision of safer access to schools on Dufferin Street and easier access to the area in general from other parts of the city.

10.115 The Project team have worked with the schools in the local area and tried to incorporate ideas and feedback into the design and Project outcomes. This has involved a number of modifications to the design to improve accessibility and associated transport facilities, such as the slow vehicle link between Ellice Street and Dufferin Street.

10.116 The New Zealand Historic Places Trust (#103577) supports the continued access to Government House via Dufferin Street with reduced flows of traffic as a result of the Project.

10.117 If the project does not go ahead then increasing traffic volumes are expected to adversely impact access to Government House. With the construction of the bridge, traffic demands on Dufferin Street will be significantly reduced. This, combined with proposed streetscape improvements to the area will considerably improve access to Government House.

10.118 There are a number of other submissions[^47] in support of changes associated with accessibility and road layouts. These highlight the concerns which currently exist and the impact that a failure to address these problems will have on movements in the area generally and future land use potential.

10.119 However, in his submission Mr Richard Parrat (#103446) raises concerns about reduced access for local journeys.

[^47]: Mount Victoria Residents’ Association (#103588), McDonald’s (#103584), Foodstuffs (#103596) and Wellington City Council (#103579)
10.120 The Project does not reduce accessibility. Instead, it is considered to improve accessibility through reduced at grade traffic movements, reduced conflicts around the Basin Reserve and improvements to intersections linking to and from Mount Victoria for the reasons discussed in section 7.8 of Technical Report 4 and paragraphs 8.19 to 8.24 in my evidence above.

**Severance**

10.121 13 submitters\(^{48}\) claim that the Basin Bridge will cause severance as it will:

- a  cut the city off from Newtown;
- b  separate nearby schools from the city and nearby amenities; and
- c  make it harder for pedestrian, cyclists and the disabled to cross the road.

10.122 As discussed in section 7.1 of Technical Report 4 and paragraphs 8.1 and 8.19 above, the reduction in traffic flows around the Basin Reserve will result in a significant reduction in the severance caused by circulating traffic and allow a greater allocation of time to be provided for both pedestrian and cycle movements at signalised crossings around the Basin Reserve. The transport improvements around the Basin Reserve also divert some traffic away from other routes such as Oriental Parade and Newtown and enhance these areas for pedestrians and cyclists. The Project also provides the opportunity to upgrade and enhance existing and implement the new transport facilities listed in paragraph 8.6 to 8.13 above.

10.123 Three submissions\(^{49}\) say the Basin Bridge project will increase severance through cutting the CBD off from Newtown. They add that by separating schools from the city and amenities, the Project will have the result of an increased number of people being forced to use cars. There is also the comment that the Project will make it harder for pedestrians and cyclists to cross traffic flows.

10.124 As outlined in detail throughout Technical Report 4 and my evidence above, the grade separation of westbound SH1 traffic significantly reduces severance and makes it easier for pedestrians and cyclists to cross traffic. The point about the schools is contrary to the St Marks School submission (103516) and other discussions I have had with schools in the area.

\(^{48}\) Living Streets Aotearoa (#103566), Cycle Aware Wellington (#103490), Zena Court (#103445), Mr Jae Warrander (#103409), Mr Timothy Jones (#103444), Mr Peter Skrzynski (#103541), Mr David Smyth (#103549), Mr David McCrone (#103528), Ms Judith Graykowski (#103482), Mr Bruce Chapman (#103530), Mr Benjamin Speedy (#103432), Ms Emma Alcock (#103429), Mr Willemijn Vermart (#103431).

\(^{49}\) Living Streets Aotearoa (103566), Cycle Aware Wellington (103490), Court, Zena (103445).
Safety

10.125 In her submission Ms Elaine Engman (#103543) raised concerns about traffic merging between the bridge and tunnel, and the downhill slope of the bridge encouraging speeding.

10.126 These issues have been addressed in the Road Safety Audit, contained in Appendix 4-K to Technical Report 4.

10.127 In his submission Mr David Zwartz (#103481) claims that the Project has no real safety benefits.

10.128 I refer to section 7.7 of Technical Report 4 and paragraphs 8.19 to 8.24 in my evidence above. The volumes of traffic travelling through at-grade intersections around the Basin Reserve are expected to decrease significantly. This reduces the potential for accidents at these locations. This is particularly relevant for the high number of cyclist conflicts which occur at the Adelaide Road / Rugby Street intersection.

10.129 Both the Newtown Residents’ Association (#103515) and Mr Timothy Jones (#103444) raise concerns that the risk to pedestrians, cyclists and drivers in the event of an accident on the bridge has not been addressed.

10.130 I disagree with this (refer section 7.7 of Technical Report 4 and paragraphs 8.19 and 8.24 of my evidence above). The Project will meet current design standards and the separation of facilities (vehicles and pedestrian/cycle) and the creation of alternatives will reduce conflict points which contribute to accidents. A road safety audit was completed in February 2012 on the scheme design for the Project, and further audits will be carried out as the project/design progresses. The road safety audit and responses are attached to Technical Report 4 in Appendix 4-K.

10.131 The Automobile Association (#103434) raise a number of safety concerns in their submission. The Project team have met with the Automobile Association and discussed the concerns raised. They feel that the shared space with a single traffic lane to the north of Basin Reserve should be closed with traffic using Cambridge Terrace to perform a u-turn. They consider it unsafe because:

a  There will be an increased numbers of cyclists likely to exit Basin at this point;

b  The pedestrian crossing and give way intersection are too close; and
The view north from giveaway intersection may be obscured by shade effects of bridge.

10.132 This issue is discussed in Technical Report 4, Section 7.3.4 (page 117). The Cambridge / Kent / Link Road shared space area has been designed to encourage much greater awareness of pedestrians and cyclists crossing in this location, while the improvements to the southbound flow will make exiting movements safer and more accessible. The link could be closed, however it is my opinion that the retention of access in this location outweighs the concerns held by the Automobile Association. As part of the detailed design and construction there will be further safety audits to ensure the final outcome is safe.

10.133 They also feel that the lane layout and overhead signage at the pedestrian crossing (south end of Kent Terrace) needs further design work as it mirrors the existing layout which they feel does not work in peak hour conditions.

10.134 Much of the existing problem with operation and signage on Kent Terrace relates to the delay and associated queues back from the Dufferin / Paterson Street intersection. Once the Project is built the allocation of green time at this intersection will shift from SH1 having priority to Dufferin Street being allocated priority. This will allow the southbound bus lane to be installed and the general traffic to be clearly signposted from Vivian Street.

10.135 The Automobile Association also raises safety concerns over access from Ellice Street to the south. Concerns are associated with existing traffic volumes and then more so with future traffic projections, assuming the duplication of the Mount Victoria tunnel proceeds.

10.136 This point is also linked to paragraphs 8.21 and 8.22 in my evidence above and referenced in Technical Report 4 sections 7.3.6 (pg 120), 7.8.2 (pg 133), 7.10.7, 8.1, which note that the improvements at the Pirie Street intersection will offset access restrictions at Hania/Ellice Streets. The pedestrian signals will assist movement onto SH1 eastbound and also onto the low volume link road. It is not expected the low volume link road from Mount Victoria will be the preferred route for vehicles travelling southbound. Rather they will be attracted to the improved Pirie Street exit.

10.137 Ora Taiao: The New Zealand Climate and Health Council (#103532) are concerned that increasing the amount of traffic travelling through the area will increase the number of accidents.
10.138 In Technical Report 4 and earlier in my evidence I note that there will be little induced traffic as a result of the project and the reduction in traffic moving around the Basin will reduce accidents.

Parking

10.139 Wellington City Council (#103579) stated in their submission that they believe the Project is mindful of their District Plan policies to promote alternative modes of transport by restricting car parking spaces overall.

10.140 The views of WCC are important and emphasise the importance of developing a balanced transport solution consistent with the Project.

10.141 Four submitters\(^50\) raised concerns about the lack of parking on Paterson Street outside St Mark’s School and Wellington College, leading to an increase in traffic activity on nearby roads as parents look for parking spaces.

10.142 The Project does not introduce any changes to the existing parking restrictions on Paterson Street. The removal of SH1 traffic from the circulating lanes of the Basin Reserve and the changes to access arrangements for St Marks School provide a safer layout for buses and those picking up children in vehicles, while also making it more accessible to park on the currently under-utilised spaces on the inside of the Basin Reserve.

10.143 Both St Joseph’s Church (#103539) and Ms Hannah Hickey (#103539) are concerned about the loss of parking at the Church.

10.144 This is discussed in section 7.4 of Technical Report 4 and earlier in my evidence. The Project team has worked with St Joseph’s church to consider a wide range of parking options. The total number of consented parking spaces will increase from 44 to 46 as a result of the Project. It is acknowledged that greater numbers of informal parking currently occurs and this is likely to continue following the construction of the Project.

10.145 Four submitters\(^51\) raised the issue of the loss of on-street parking from various streets in and around the project.

10.146 This is also discussed in section 7.4 of Technical Report 4 and in paragraphs 8.29 to 8.31 of my evidence. There will be a net loss of 12 parks plus 21 on

\(^{50}\) St Mark’s School (#103516), Zena Court (#103445), Clyde Quay School (#103575), and Ms Lucy Bailey (#103558)

\(^{51}\) Wellington City Council (#103579), Awa Press (#103548), 9 Dufferin Street (#103582) and Graham Wigley (#103505)
Vivian Street in morning and evening peaks only. During Project development there was an assessment of the total number of available spaces and it was concluded the loss of spaces can be accommodated by the high number of under-utilised parking spaces, particularly on Kent and Cambridge Terraces.

10.147 The Automobile Association (103434) are concerned about the lack of parking for Basin Reserve and Memorial Park hosted events, especially for less mobile visitors, and in their submission claim that improvements will eliminate 28 car parking spaces.

10.148 The loss of 28 parking spaces is incorrect as noted in paragraph 10.146 above. A total of 12 parking spaces will be lost due to the Project, and none of these will be disabled car parks. Parking associated with Memorial Park is outside the scope of this Project. I understand the Transport Agency is working with WCC and the Ministry for Culture and Heritage to ensure there is an appropriate level of parking provision associated with this project.

Construction Traffic Effects

10.149 14 submitters who live and/or own property adjacent to/in close proximity to the proposed works have raised concerns about being able to access their property during construction.

10.150 This issue is covered by section 7.2.6 of the Draft Construction Traffic Management Plan which states that:

all practical steps will be taken to reduce the impact of construction activities or TTM measures on property access (vehicular and pedestrian), existing on-site parking or manoeuvring areas. Under exceptional circumstances where construction methodology or staging prevents continuous vehicle and pedestrian access to property, communications with the affected parties will be undertaken.

10.151 This is further discussed in Mr Duncan Kenderdine’s evidence.

10.152 St Mark’s School (103516), Clyde Quay School (1035575), Ari Sargent (103525) and Ms Lucy Bailey (103558) raised concerns about increased traffic on adjacent roads in Mount Victoria and to the west of the project, especially near schools.

52 Grandstand Apartments Body Corporate (103450), Ms Janice Jolly (103447), Ms Fiona & Mr John Styles (103468), Ms Maryann Nesbitt (103473), Mr Kenneth Baily (103480), Mr Graham Wigley (103505), Ms Cristina Ordinario (103505), Mr Michael & Ms Christine Cummins (103524), L Day & T Sampson (103583), Ms Rachel Matheson & Mr Julian Heath (103591), Zena Court (103445), Regional Wines and Spirits (103462), 9 Dufferin St (103582) and Ms Irene Halakas (103457).
10.153 As stated in section 7.2.8 of the draft CTMP, all practicable steps will be taken to reduce the impact of construction activities on property access (vehicular and pedestrian), on-site parking or manoeuvring areas relevant to schools. This issue is also discussed by Mr Kenderdine.

10.154 Ms Lucy Bailey (#103558) also raises concerns about the impact of construction works on pedestrians and cyclists.

10.155 As detailed in section 7.2.7 of the CTMP all practicable steps will be taken to reduce the impact of construction activities (or CTMP measures) on pedestrians and cyclists. Likely impacts upon access or mobility will be identified at the construction planning stage. Where access is impeded as a result of construction works, safe and clearly identifiable alternative access arrangements will be implemented. Draft conditions of the AEE\(^{53}\) will mean proposed routes will be subject to a Crime Prevention Through Environment Design (CTPED) review.

10.156 St Joseph’s Church (#103592) is immediately adjacent to the project and has concerns about the loss of car parking from the church during construction.

10.157 The Project team will work with the Church to minimise the loss of car parking by reducing the construction area on their site as much as practicable on Sundays.

10.158 Both Restaurant Brands (#103438), who own a KFC restaurant on Kent Terrace, and GWRC (#103546) have requested that they be consulted during the development of the Site Specific Traffic Management Plans (SSTMPs). Restaurant Brands in particular are concerned with potential impacts on the operation of their restaurant.

10.159 GWRC are listed in the CTMP as a key stakeholder and as such will be regularly consulted with throughout construction. Restaurant Brands will be consulted but will not form part of the reference group proposed to be set up for the construction phase of the Project.

10.160 In their submission, GWRC (#103546) have sought additional clarification and information to assess the adequacy of measures to manage the impact of construction on public transport routes.

10.161 As stated in section 7.2.5 of the draft CTMP all practicable steps will be taken to reduce the impact of construction activities on passenger transport services. At this stage it is anticipated that the construction methods will not prevent the

operation of public transport services, although localised diversions will need to be implemented. Provision for trolley buses will be maintained during construction and should bus stops be affected then replacement stops and access to them will be provided. Activities likely to impact upon passenger transport services will be identified at the construction planning stage to allow for methodologies to be developed that avoid or appropriately minimise impacts. Consultation with affected parties will be undertaken to determine the best way forward to reduce impacts where deemed unavoidable. This consultation has already commenced and will continue to be undertaken as part of the CTMP development process with GWRC, WCC, Wellington Cable Car Limited and Go Wellington.

11 Conditions / Mitigation

11.1 As Technical Report 4 and the AEE Section 13 have outlined, the Project has a significant number of positive transportation effects and few negative transportation effects which require mitigation and associated conditions.

11.2 Mitigation has been incorporated into the design of the Project. Many aspects which might have been considered negative now have positive outcomes from a transportation perspective. This includes examples such as the relocated island on Dufferin Street south of Paterson Street. This island provides the opportunity to improve the bus stop and stand environment on Rugby Street, while also improving safety and access to Government House and Wellington College.

11.3 The access restriction from Ellice Street to Hania Street will impact on small numbers of movements which currently occur. These movements are considered unsafe and the improvements proposed to the Pirie Street intersection will improve access into and out of Mount Victoria at this location. These intersection improvements will help to encourage the use of roads like Brougham Street and Pirie Street for access to Hania Street or the wider network. I consider that the Project will improve the safety at the Hania and Ellice Street intersections and there is no need to further mitigate the movement restriction.

11.4 The greatest effects that need to be managed and mitigated through management plans and conditions are the construction effects. As has been discussed, the Project area is a critical transport node. Table 4.33 of Technical Report 4 summarises the key effects and the proposed mitigation. The draft CEMP and CTMP have been developed to mitigate these effects and it will be essential that key stakeholders and the wider public are kept well informed of the Project construction impacts and how they will be managed. I understand WCC will need to have an authorisation role in this process to ensure that traffic
signals, signage, local access, public transport routes and walking and cycling corridors are maintained to safe and acceptable levels. Project sequencing as outlined in Mr Kenderdine’s evidence will be critical to the successful management of construction effects.

11.5 Assuming the general intent of the Project and plan set produced is delivered, I see no reason for further specific conditions relating to transportation effects associated with this Project other than those being proposed in Chapter 35 of the AEE.

12 Conclusions

12.1 The Project area is a key transport node within the Wellington network for walking, cyclists, passenger transport, emergency services and general traffic. It is currently subject to congestion, delay and journey time variability, particularly during peak periods and weekends. These problems are predicted to get worse in the future as travel demand grows in the area for all modes and changes in land use occur in the immediate vicinity (Adelaide Road) and the wider Wellington area (Wellington Airport and the southern/eastern suburbs).

12.2 The Basin Bridge Project provides intended and carefully considered transport infrastructure to the area and the Wellington Northern Corridor RoNS. The improvements will separate conflicting north-south and east-west movements, reduce traffic flows along key links, improve journey times for all modes, improve passenger transport amenities and improve walking and cycling facilities in the area.

12.3 The implementation of the Project is predicted to result in a 2021 increase of 2,200 (12%) vehicles per day on Vivian Street (resulting from increased capacity on Vivian Street between Tory Street and Cambridge Terrace) and improvements to the Vivian/Pirie/Kent/Cambridge intersection. Flows are also predicted to increase on Kent Terrace (increase of 2,600, 9%), Adelaide Road (two way flow increase of 3,500, 15%). This is attributed to the removal of State highway traffic from around the Basin Reserve, making it a more attractive local road for users travelling north–south. These increases in traffic are a consequence of rerouting from other roads in the network and not a result of induced traffic. The Project does not induce traffic.

12.4 With the separation of State highway and local road traffic the Project sees significant reductions in traffic volumes in 2021 when compared to the 2021 Do Minimum. Reductions include up to 12,500 (40%) on Rugby Street east (near the
Dufferin corner), 15,500 (73%) on Rugby Street travelling through the Adelaide Road intersection, and 14,200 (43%) on Sussex Street. This removes the severance caused by circulating traffic and associated congestion in the area.

12.5 Other links such as Oriental Bay (an alternative to SH1), Victoria Street and Willis Street see only minor changes in traffic flow due to the introduction of the Project. Although these are only minor reductions the net effect is positive as it results in reduced traffic flows along these roads, creating an improved amenity for pedestrians and cyclists. However, it is to be noted that the change on Oriental Bay westbound is significant in 2031 if the Mt Victoria tunnel is duplicated without the Basin Project – an increase of approximately 3000 vehicles per day.

12.6 The immediate reduction in traffic volumes circulating the Basin Reserve will enable WCC and GWRC to improve the passenger transport through the Project area. Transport accessibility and facilities will also be improved for pedestrians and cyclists due to there being less traffic to contend with. This work, as per this project, will be undertaken in partnership with the Transport Agency.

12.7 The reduction in local road congestion will also improve access to and from Wellington Hospital. Other emergency services (police, fire and civil defence) access will also be improved through this key node, with vehicles also being able to utilise bus lanes in the event of an emergency.

12.8 Journey times are reduced for a number of key routes, with SH1 westbound seeing the biggest reduction of up to 7.5 minutes. The variability on this route is also reduced to approximately 2.4 minutes\(^{54}\) from 7.3 minutes\(^{55}\) in the evening peak. Journey times on SH1 eastbound are also reduced by up to 1.3 minutes, with journey time variability reduces slightly.

12.9 These journey time and variability reductions will also assist with the movement of freight through the area. Although freight volumes will remain low, this is of particular importance to the future Wellington Airport Growth Plans, which have a high freight concentration.

12.10 Journey times for passenger transport are also improved for both north and southbound routes, with up to a 41% reduction for southbound buses. Journey time variability through the area is also removed as a result of the Project.

\(^{54}\) PM Peak, average of Paramics model runs variability of 144 seconds.
\(^{55}\) PM Peak, average of Paramics model runs variability of 438 seconds.
12.11 The north and southbound local traffic movements through the Basin Reserve are also reduced, with journey time savings of up to approximately 2 minutes\textsuperscript{56} and 1 minute\textsuperscript{57} respectively. Variability between the peak periods is reduced by up to 1.3 minutes for northbound and half a minute for southbound journeys.

12.12 There are queue reductions within the Project area, with significant reductions occurring on Vivian Street at the intersection with Kent Terrace, Paterson Street at the intersection with Dufferin Street, and Rugby Street at the intersection with Adelaide Road.

12.13 There are a number of intersection improvements proposed as part of the Project, including the Vivian/Cambridge/Kent/Pirie, Paterson/Dufferin, Rugby/Adelaide and Buckle/Taranaki intersections. These improvements include:

- efficiency improvements;
- improved access out of Mount Victoria with more green time provided to Pirie Street (at the Vivian/Cambridge/Kent/Pirie intersection);
- changes in signal phasing from three phases to two, which will improve public transport, pedestrian and cyclist access through the intersection (Paterson/Dufferin and Rugby/Adelaide intersections); and
- improved pedestrian provision and additional through capacity and turning lane (Buckle/Taranaki intersection).

12.14 Technical Report 4 has also identified a significant number of positive transport effects associated with the Project, while a small number of negative issues have also been identified. Mitigation measures have been developed to address these effects and these have been incorporated into the design to include; intersection improvements at the Vivian/Cambridge/Kent/Pirie intersection to improve access from Mount Victoria, a low volume link from Ellice Street to Dufferin Street; parking provision to meet existing demand and a draft construction traffic management plan that will ensure the effects of construction are appropriately managed.

12.15 I have reviewed submissions relevant to transport matters and have provided a response where appropriate. Following this review I have no reason to change my view that this project fulfils the Project objectives and provides significant transport benefits locally, regionally and nationally. These benefits are not

\textsuperscript{56} AM Peak, average of Paramics model runs journey time reduction of 118 seconds.

\textsuperscript{57} PM Peak, average of Paramics model runs journey time reduction of 64 seconds.
confined to private motor vehicles on SH1, but also those on the local road, emergency services, passenger transport, walking and cycling.

Dated 25 October 2013

David James Dunlop