

IN THE MATTER OF

the Fast-track Approvals Act 2024 ("FTAA")

AND

IN THE MATTER OF

an application for approvals by **NZ Transport Agency Waka Kotahi** to construct, operate and maintain the State Highway 1 Wellington Improvements project

**STATE HIGHWAY 1 WELLINGTON IMPROVEMENTS PROJECT
TECHNICAL REPORT #1
CONSIDERATION OF ALTERNATIVES**

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1. INTRODUCTION

1. My full name is Philip Jeremy Peet.
2. I have been involved in the investigation of improvements to State Highway 1 (SH1) through Wellington for almost 10 years, beginning during the Programme Business Case phase of Let's Get Wellington Moving (LGWM) through to the current pre-implementation phase for the NZ Transport Agency's (NZTA's) SH1 Wellington Improvements Project (the Project). Most recently my role has been focussed on the assessment of options for different Project sections and elements and I also co-ordinated options assessments during LGWM (some of which remain relevant to the current Project and are discussed in this assessment).
3. This assessment refers to a wide range of option studies that have been undertaken by different parties over the last decade or more.

Qualifications and experience

4. I have the following qualifications and experience relevant to this assessment:
 - i. BE (Civil)(Hons), University of Canterbury, 1999
 - ii. CPEng (Chartered Professional Engineer), IntPE (International Professional Engineer), and MIPENZ (Member of the Institute of Professional Engineers New Zealand)
 - iii. Over 20 years of traffic engineering and transport planning for clients and consultants in New Zealand and England, including managing investigations into large scale transportation projects and, in that context, leading processes to assess alternatives. This has included technical and leadership roles on Ōtaki to North of Levin, Melling Interchange and Petone to Grenada
5. I am familiar with the area that the Project covers having visited the Project site on many occasions in a professional capacity, but also as a Wellingtonian.

Code of conduct

6. I confirm that I have read the code of conduct for expert witnesses contained in the Environment Court Practice Note 2023. This assessment has been prepared in compliance with that code, as if it were evidence being given in Environment Court proceedings. In particular, unless I state otherwise, this assessment is within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Project description

7. The Project is a Road of National Significance (RoNS) which improves SH1 in Wellington City. The Project includes the construction of improvements to SH1 within Wellington City from north of the Terrace Tunnel to Kilbirnie.
8. The Project will provide for more efficient and reliable access on SH1 and includes duplicate tunnels at The Terrace and Mt Victoria, a new layout at the Basin Reserve as well as improvements along the remainder of the SH1 corridor from north of the Terrace Tunnel to the intersection of Cobham Drive and Evans Bay Parade. The Project aims to unblock critical bottlenecks on the state highway, maintain access for local movements and active modes and enable public transport growth.

Scope of report

9. This report explains the overall process that has been undertaken by the NZTA (and its partners, as relevant) to consider alternative sites, routes and methods for undertaking the works associated with the Project, through steps undertaken during both the current Project phase and previous incarnations. The assessment of alternatives has been guided by the identified problems with the

existing state highway network, how the Project fits within the wider Wellington transport network, Part 2 of the Resource Management Act 1991 (RMA) and the Project objective (which has changed over time, as discussed below).

10. This report addresses the following matters:
 - i. Statutory requirements
 - ii. Defining the problems and setting Project objective(s)
 - iii. History of alternatives and options
 - iv. The use of multi criteria analysis (MCA) in alternatives consideration
 - v. Assessment of strategic alternatives
 - vi. Assessment of section options
 - vii. Consultation and engagement
 - viii. Conclusion
11. I note that drafts of this report were provided to the NZTA in December 2025 and in early 2026 to enable NZTA to consider whether any additional consideration of alternatives was required between then and lodgement of the application for statutory approvals for the Project under the Fast-track Approvals Act 2024 (FTAA) including, in particular, in response to any feedback that may be received through the public and stakeholder consultation and engagement process.

Assumptions and exclusions in this report

12. The following should be noted when reading this report.
 - i. This report does not seek to quantify the Project outcomes. Instead, that assessment is presented in the transport and economic assessments. However, this report does comment on the effectiveness of the options considered in relation to the Project objective
 - ii. This report does not seek to prove that the 'best' option for the Project has been chosen by NZTA, only that an appropriate range of alternatives and options has been assessed against appropriate criteria with evidence to enable informed decisions to be made by the NZTA as relevant to the Project
 - iii. This report focusses on the alternatives and options from the start of LGWM, but reference back is also made to prior assessments which closely informed the LGWM programme (including the key findings in the Basin Bridge decision, such as in respect of the significant values of the Basin Reserve area and potential effects on them)
 - iv. This report gives an overview of the key alternatives at various stages of the Project's development
 - v. This report does not outline finer-grained design refinements undertaken for the consent design, including such design changes made in response to feedback received during community engagement undertaken in late 2025 and in response to specialist assessments prepared for the current approvals process. The options considered as part of the design refinement process have been separately addressed in the design report prepared by Mr Gareth McKay¹

¹ Technical Report #4 – Design Assessment

2. EXECUTIVE SUMMARY

13. This report summarises the consideration of alternative sites, routes, and methods for the Project, covering the corridor from north of the Terrace Tunnel to Wellington Airport. The report summarises more than a decade of transport planning and optioneering, beginning with the LGWM programme and continuing through NZTA's current investigations, but also linking back further to the Ngauranga to Airport Corridor Plan and the earlier Roads of National Significance Programme. The report outlines how problems were identified, how objectives evolved over time, and how a wide range of alternatives was generated, evaluated, refined, and either progressed or discarded.
14. At the strategic level, assessments of alternatives over the years have considered different programme wide approaches, including public transport focused programmes, demand management schemes, limited state highway upgrades, alternative SH1 corridor locations, and long tunnel concepts. Programmes without significant state highway improvements were found to be unable to address current and future congestion and reliability problems on SH1. Long tunnel alternatives performed well in transport terms but had prohibitive costs and extensive construction, property, and environmental impacts. This strategic assessment identified that improvements to the existing SH1 corridor—rather than relocation or reliance on non-highway interventions—were the preferred approach to achieve the current Project objective (as well as earlier iterations) and deliver national and regional benefits.
15. At the 'Project section' level, detailed options were assessed for each part of the corridor.
 - i. For the Terrace Tunnel, options ranged from reusing or widening the existing tunnel to constructing one-, two-, or three-lane duplicates. A two-lane duplicate tunnel was identified as providing the required capacity while avoiding the larger property and construction impacts of a three-lane alternative
 - ii. In Te Aro, a large range of options was considered, including tunnels, trenches, two-way configurations, and at-grade optimisation. The assessments concluded that optimising the existing one-way pair with three lanes in each direction offered an appropriate balance of transport performance, effects, deliverability and value for money by making best use of existing at-grade assets
 - iii. The Basin Reserve section has been a particular focus of alternatives assessments due to the area's heritage, social and cultural significance, and operational complexity. At-grade options were found to have lesser transport benefits, for both state highway and local road users, than grade-separated options. At-grade options were also found to be unable to address critical movement conflicts. Moreover, many grade-separated arrangements resulted in unacceptable impacts. Refinement of a grade-separated solution at the northwest corner of the Basin has resulted in a viable option that that performs strongly against the Project objective and in terms of managing adverse effects
 - iv. For the Mt Victoria Tunnel, options included widening the existing tunnel or constructing a duplicate tunnel or tunnels on a variety of alignments. A parallel tunnel north of the existing tunnel, with a shared user path, was identified as achieving the desired transport performance with substantially fewer impacts and lower cost than a diagonal tunnel option
16. For the Eastern Connections, different widening strategies and intersection forms have been considered, with a hybrid widening approach and grade separation near Goa Street identified as the preferred approach.
17. Across all sections, alternatives were evaluated using multi-criteria analysis (MCA) informed by technical specialists, transport modelling, engineering feasibility work, and environmental and social assessments. This report explains how LGWM's processes provided a substantial foundation for the assessment of options for each section of the current Project, how assessments were revisited when the Project objective was refined, and how preferred options were further enhanced and tested.
18. In my opinion, the assessment process has been transparent and proportionate to the scale of potential effects, and has enabled the NZTA to identify and refine a preferred option in a robust and

logical way, based on sound technical information. I consider that an appropriate range of alternatives that could achieve the Project objective has been identified and evaluated against relevant considerations, including their potential effects on the receiving environment and property. Further, I am not aware of any reasonable alternative that would deliver the Project objective with materially fewer effects that has not been considered (or is not materially the same as an assessed alternative). Therefore, this report concludes that alternatives have been thoroughly considered, with the preferred Project option providing a balanced, feasible and well-reasoned response to the transport problems facing SH1 in Wellington.

3. STATUTORY REQUIREMENTS

19. This consideration of alternatives report responds to the requirements of the FTAA and RMA.
20. Schedule 5 of the FTAA requires that:
 - i. A notice of requirement (NoR) includes information on: "*any consideration of alternative sites, routes, or methods of undertaking the project or work*" (clause 12(1)(h)); and
 - ii. A panel must take into account "*the provisions of Part 8 of the Resource Management Act 1991 that direct decision making on an application for a designation (except section 170)*" (clause 24(1)(a)(ii)).
21. Part 8 of the RMA includes section 171(1)(b), and this states that the person considering an NoR must have particular regard to:

"if the requiring authority does not have an interest in the land sufficient for undertaking the work,—

 - Whether adequate consideration has been given to any alternative sites, routes, or methods of undertaking the work; and
 - Whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought"
22. Schedule 4 of the RMA also applies in relation to the resource consents being sought. Clause 6(1)(a) requires that an AEE must include a description of possible alternative locations or methods for undertaking the activity where it is likely that the activity will have a significant adverse effect on the environment.

4. HISTORY OF ALTERNATIVES AND OPTIONS

Introduction

23. There has been a long history of investigations into improving the transport efficiency of the SH1 corridor through Wellington. For example, the Terrace Tunnel was originally designed to be duplicated, and a parallel Mt Victoria Tunnel has been considered since at least the 1970s. The Ngauranga to Airport Plan in the mid-2000s and the Wellington Airport to Levin Road of National Significance (RoNS) in the late-2000s also investigated solutions in this area.
24. This section outlines the investigations into alternatives and options that have been undertaken over time, with particular focus on those initiated from the start of LGWM in 2016. The numerous investigations undertaken prior to this time also informed the assessment of alternatives undertaken as part of LGWM, which in turn has informed the assessment of alternatives undertaken for this Project.
25. A visual summary and timeline of the assessments that have been undertaken is presented below in Figure 1. This is not comprehensive but is supplied for general understanding and as a reference point for report titles referenced later in this document.
26. Figure 1 shows the passage of time from left to right and shows when investigations were undertaken at the programme level (e.g. Ngā Ūranga to Airport), at the section level (e.g. Terrace Tunnel, Basin Reserve etc) or whether they are more detailed design refinements.
27. Figure 1 also shows that most options and alternatives work at a strategic and section level was undertaken during the LGWM partnership² period of 2016 to 2023. This work typically fell into three phases (see purple dashed boxes in Figure 1):
- Programme Business Case (PBC) (2019). This presented the vision for transport and recommended a list of activities to improve the transport and urban environment from Ngā Ūranga to the Airport. This developed a Recommended Programme of Investment (RPI) for long-term improvements including mass rapid transit (MRT)³, state highway changes and city street improvements. After the RPI was identified, further work with central government focused on what could realistically be funded, financed, and staged, which led to an Indicative Package (IP) being announced and endorsed by all LGWM partners
 - State Highway Improvements and Mass Rapid Transit Indicative Business Case (IBC) (2021). This phase first considered long list options for all state highway and MRT elements of the RPI and reported in the Initial Corridor Plan (ICP), before further investigating the Basin Reserve, Mt Victoria Tunnel and Eastern Connection sections to determine a preferred option for each section. At this stage the LGWM partners endorsed the preferred option and its progression to the next phase
 - Transformational Programme Detailed Business Case (DBC) (2023). During this phase, further refinement of the state highway and MRT options within each section was carried out and reported on separately. Ultimately, the DBC was not completed and the preferred option for each section was not confirmed by LGWM prior to its dissolution. However, the assessment of alternatives carried out during this phase and associated reporting provided specialist assessments of options which are relevant to the current Project
28. After LGWM was dissolved, the NZTA took back responsibility for the state highway elements of the programme in 2024, and this project was entitled the SH1 Wellington Improvements Project. Based on the earlier work that identified that state highway relocation or reliance on non-highway interventions was unlikely to address current and/or future congestion issues, NZTA refocused the

² LGWM Partners were NZTA, Greater Wellington Regional Council and Wellington City Council.

³ MRT is a term that is used to describe high capacity and high speed public transport. In the context of LGWM this was assumed to be either light rail transit (LRT) or bus rapid transit (BRT). Both comprise large articulated vehicles on set routes, separated from other traffic where possible. LRT runs on rails and BRT uses rubber tyres.

Project objective. The NZTA then considered what was an appropriate range of options to test/retest in light of the new Project objective and then continued to test and refine the preferred option as the design progressed.

- i. In the Project scoping phase in early to mid-2024, the state highway elements of the LGWM programme (i.e. Mt Victoria Tunnel duplication, Eastern Connections and Basin Reserve improvements) were assessed against a long tunnel and also a greater upgrade of SH1 including Terrace Tunnel duplication and Te Aro improvements. Options for the alignment of the Mt Victoria Tunnel were also retested, including both parallel and diagonal tunnels. Following this assessment, a preferred base option was presented to the NZTA Board in both June and November 2024. This preferred base option was then taken forward for further testing and refinement
 - ii. During the investment case phase in 2024/2025, the preferred base option was checked and refined through a series of section-specific refinement option investigations. This led to a preferred option for the investment case being presented to the Board for approval of the investment case in mid-2025
 - iii. During the pre-implementation phase in 2025/2026, the Project design has continued to be refined through targeted section investigations, including in response to issues identified by more detailed levels of design, in specialist assessments or raised through stakeholder and public consultation and engagement
29. Accordingly, earlier options were not simply carried forward without review. NZTA reconsidered the scope of the state highway project in light of the updated Project objective, current policy direction, updated modelling, affordability and value-for-money requirements.
30. This process has not entailed using the Project objective to retrospectively justify a pre-selected option. Rather, the Project objective has provided the basis for retesting earlier decisions and determining whether previous decisions to prefer, reject or defer options remained appropriate. Wider matters such as amenity, public transport opportunity, active modes, safety, resilience, mana whenua values, heritage, property, construction disruption, Town Belt effects and environmental effects have continued to be assessed as effects, co-benefits or trade-offs, even where they are not expressed as the primary Project objective.
31. As can be seen in Figure 1 below, each phase had multiple reports and option evaluation processes. Accordingly, rather than summarising all reports, I have referenced back to these reports, summarised the themes of options considered and identified the reasons why they were discounted, including whether those reasons are still valid in relation to the current Project objective.

5. DEFINING THE PROBLEMS AND SETTING PROJECT OBJECTIVE(S)

32. The SH1 Wellington Improvements Investment Case defined the problems, objective, and scope of the Project, based on work undertaken in this and previous phases. The problem the Project addresses, as confirmed in the Investment Case, is: *“SH1 in Wellington city is heavily congested during peak times and access demands are expected to increase significantly over time, impacting on the efficient and reliable movements of people and goods and reducing access to services.”*
33. The problem has informed the Project objective which is: “To provide more efficient and reliable access on State Highway 1 from north of the Terrace Tunnel to Wellington Airport and Wellington Hospital to support regional economic growth”. Further explanation of this Project objective, as adopted by the Project team, is presented in Annexure A.
34. The Investment Case also notes that there are co-benefits of the Project. These are positive benefits that will arise from the investment, but are not being specifically pursued, due to either the NZTA not being directly responsible for investing in these outcomes as part of a state highway project (e.g. matters such as enhanced urban amenity and public transport), or the outcomes being part of the typical design outcomes from NZTA projects (e.g. safety and resilience).
35. Set out below in Table 1 is a summary of how the Project objectives have changed over time during both LGWM and the current Project phase. The wording and weighting of the Project objectives have changed over time, in response to the changing scope of investigations and changing policy focus.
36. During LGWM, travel time outcomes were assessed under the Access objective, which was always a key element of the MCA process. This was considered alongside the other objectives of Amenity and Liveability, Reduced Reliance on Private Vehicles, Safety and Resilience.
37. During the current Project phase, the Access objective was refined into the Project objective outlined above, which fits within the statutory responsibilities of NZTA and accords with the direction of the current Government Policy Statement on Land Transport 2024-2027 (GPS), which has a focus on economic growth and productivity.
38. Efficient and Reliable Access was a core objective throughout the LGWM process, and reporting against this objective differentiated between different road users. The impact on state highway access outcomes was therefore able to be distinguished from outcomes for other modes and users. This has helped demonstrate how certain options performed in relation to the current Project objective, which has also helped inform development of the Project in the current phase.
39. The change from the broader LGWM objectives to the current Project objective does not mean that earlier alternatives assessments are irrelevant or that wider transport, urban, environmental and social matters have been disregarded. The impacts and benefits of the previous objectives have still been considered in this phase to enable trade-offs to be made. Many of these have continued to be reported as co-benefits.

Table 1: Project Objectives over time

	LGWM PBC	LGWM IBC and DBC	SH1 Wellington Improvements
Access	Provides more efficient and reliable access to support growth	A transport system that provides more efficient and reliable access for users	To provide more efficient and reliable access on State Highway 1 from north of the Terrace Tunnel to Wellington Airport and Wellington Hospital to support regional economic growth
Amenity and Liveability	Enhances the liveability of the central city	A transport system that enhances urban amenity and enables urban development outcomes	Co-benefit: User Amenity
Reliance on Private Vehicles	Reduces reliance on private vehicle travel	A transport system that reduces carbon emissions and increases mode shift by reducing reliance on private vehicles	Co-benefit: Public Transport Opportunity and Active Mode Connectivity
Safety	Improves safety for all users	A transport system that improves safety for all users	Co-benefit: Safety
Resilience	Is adaptable to disruptions and future uncertainty	A transport system that is adaptable to disruptions and future uncertainty	Co-benefit: Resilience

40. This consistency gives confidence in the option and alternative assessments that have been undertaken through the previous phases of the Project; because issues have been considered through those processes that remain relevant today, assessments from those processes have provided useful information as to option performance in relation to the benefit streams and, in particular, the current Project objective.

6. THE USE OF MULTI-CRITERIA ANALYSIS IN ALTERNATIVES CONSIDERATION

Introduction

41. MCA has been used through all assessments undertaken as part of LGWM and the current Project to compare different alternatives and options and to help inform decision making. A consistent approach to MCAs through LGWM was enabled by the development and use of MCA frameworks in the IBC (August 2021) and DBC (January 2023) phases, which was used for both the programme and section elements. These were based on best practice including the NZTA MCA User Guidance (August 2020).
42. The frameworks made it clear that MCA was just one tool that was used to inform decision makers. At later stages of LGWM, this was reinforced by the development of an Integrated Urban Design and Optioneering Framework, which formalised the reporting of other factors to decision makers such as economics, risk and policy. This ensured decision makers had a wide range of data and analysis prior to making decisions on discarding options or identifying a preferred option.
43. After the Project moved to NZTA, the methodical and consistent use of MCA processes continued, with a similar approach and similar criteria adopted, but with a shift in focus to a single Project objective and evaluation of some new criteria, such as value for money. Again, an assessment framework was developed to guide optioneering and refinements (March 2025).
44. All MCA processes were led by the Project team with technical specialist input provided by client or consultant subject matter experts (SMEs).

Criteria

45. All MCA processes considered a range of criteria under six main categories, named Project Objective(s), Effects, Mana Whenua, Feasibility, Cost/Value for Money, and Other, as shown in the table below. Not all criteria were relevant to consider in all assessments; adjustments were made as appropriate to ensure the criteria remained fit-for-purpose for that stage and scope of assessment. For example, in the PBC stage, effects were considered as a whole, whereas in later stages effects were considered separately when that level of detail was available. Similarly, Operations and Maintenance was not considered at a programme level but was only considered at a section level.
46. Additional criteria were sometimes added to assessments where warranted (in terms of their relevance to the decision being informed by the MCA). For example, Network Fit and Scalability were added when MRT options were included in the option scope. These variations are not shown in the table below for simplicity.
47. When the Project transitioned from LGWM to the NZTA, new MCA criteria were developed to reflect the new Project objective. However, as noted above in the section on Project objectives, there are a number of co-benefits that relate to aspects of the LGWM programme objectives and these were also assessed. In addition, the same potential environmental effects were assessed along with Mana Whenua Values, Feasibility, Cost, Value for Money and Other factors as shown in the table below. This is considered appropriate as it reflected the changes in governance, policy and funding environments of the time. It also reflects the change to a single Project objective and the categorisation of co-benefits as outlined in Section 5. A high-level overview of the MCA criteria applied at different stages of the Project's development is provided in Table 2 below.

Table 2: MCA criteria over time

	LGWM PBC	LGWM IBC: ICP	LGWM IBC: MRT / SHI MCA	LGWM DBC	SH1WI Scoping Phase	SH1WI Investment Case
Obj	Access to Support Growth	Access to Support Growth	Access to Support Growth	Access	Efficient and Reliable Journeys	Efficient and Reliable Journeys
	Liveability	Urban Amenity Urban Development	Urban Amenity and Urban Development	Liveability	Urban Amenity Urban Development	(See Urban Form, L&V below)
	Reduced Reliance on PMVs	Reduced Reliance on PMVs	Reduced Reliance on PMVs	Carbon Emissions and Mode Shift	Travel Choice	Co-benefit: Local Traffic, Public Transport and Active Modes
	Improved Safety	Improved Safety	Improved Safety	Safety	Safety	Co-benefit: Safety
	Resilience	Resilience	Resilience	Resilience	Resilience	Co-benefit: Resilience
Eff	Scale of RMA Requirement				Economic Growth	
		Social	Social	Social	Environmental, Social and Economic Effects	Social
		Noise and Vibration	Noise and Vibration	Noise and Vibration		Noise and Vibration
		Visual and Landscape	Visual and Landscape	Landscape and Visual		Urban Form, Landscape and Visual
		Heritage and Archaeology	Heritage and Archaeology	Heritage and Archaeology		Heritage and Archaeology
		Economic	Economic (Business Disruption)	Economic	Construction Disruption	Construction Impacts
			Contaminated Land			
					Consenting and Mitigation Requirements	
					Carbon	
MW		Tangata Whenua Values	Mana Whenua Values	Mana Whenua	Effects on Mana Whenua Values	Effects on Mana Whenua Values
Fea	Feasibility	Engineering Difficulty	Engineering Difficulty	Engineering Difficulty		Construction Difficulty and Cost
		Property Difficulty	Property Difficulty	Property Difficulty	Property	Property Difficulty
		Operational and Maintenance				
					Commercial	
Cost/ VfM	Capital Cost				Cost and Affordability	Construction Difficulty and Cost (as above)
	Operational Cost					
					BCR	Value for Money
					Pricing	
Other		Fit with Programme			Need for Future Investment	
					Risk and Timing	

Processes

48. All MCA processes utilised the decision conferencing method for scoring and evaluating options. This is a group-based assessment approach, reflecting the range of inputs required from different specialists and iwi representatives. Decision conferencing provides a structured format in a facilitated workshop setting. This exercise is undertaken on the basis of agreed assessment criteria and an agreed scoring approach. I facilitated most MCA workshops on this Project both during LGWM and the current Project phase.
49. The method involves SMEs independently (or with a small group) establishing provisional scores based on known evidence prior to the workshop. At the workshop, each SME presented their ideas and scores. These scores were then discussed, challenged and moderated (if considered appropriate by the relevant expert) during the workshop. This ensured that all attendees' views and questions were able to be included in the final scores.
50. SMEs then provided a brief report on their scores and rationale and this was incorporated into MCA reports at every stage.

Scoring and Weighting

51. During LGWM, options were typically scored using a -5 to +5 scale. A -5 score reflected significant difficulties, high costs, substantial impacts or significant adverse effects of the option compared to the existing situation (or early year Do Minimum⁴). A score of +5 reflected substantial benefits and a high degree of confidence in benefits, or significantly positive effects. In many assessments the Future Do Minimum was also scored to enable a comparison between the performance in future years between investing and not investing.
52. Comprehensive weighting analysis was typically undertaken when compiling the scores, with different weighting scenarios developed to reflect different perspectives on the relative importance of the criteria. These included scenarios that focussed on Project objectives, environmental and social factors, RMA Part 2 matters, and design, delivery and operations, amongst others. Scoring was firstly undertaken with all criteria having equal weighting (referred to as "the unweighted scores").
53. When considering RMA Part 2 matters specifically, the MCA frameworks incorporated these directly, in a couple of ways. Environmental, social, cultural and heritage effects were explicitly considered through scoring of individual criteria. Further information about the relative merits of options, if decision-makers wished to treat Part 2 matters as most influential to their decision-making, was also gathered through appropriate application of weighting systems.
54. All scoring and weighting exercises were documented in the various option reports which recorded the specific MCA processes undertaken at the time. A typical example of weighting scenarios used is displayed in Figure 2 below.

⁴ This is the minimum level of expenditure or activity needed to maintain a minimum level of service on the network, recognising that it is often not practical to do nothing. It typically comprises ongoing operations and maintenance along with committed spending.

Weighting Scenario	Liveability	Access	Reduced PMV Reliance	Safety	Resilience	Mana Whenua	Heritage and Archaeology	Social	Economic (business disruption)	Landscape and Visual	Noise and Vibration	Contaminated Land	Engineering Difficulty	Property Difficulty	Scalability of Network and Services
MRT Base weighted (adjusted with Mana Whenua and grouped effects)	9%	22%	10%	4%	4%	10%	5%	4%	5%	7%	4%	4%	4%	4%	4%
Urban Development	30%	8%	8%	4%	4%	8%	4%	4%	4%	6%	4%	4%	4%	4%	4%
Mode Share	8%	8%	32%	4%	4%	8%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Environmental and Social Impacts only						14%	14%	14%	14%	14%	14%	14%			
RMA Part 2	18%	3%	14%	3%	9%	10%	10%	10%	3%	10%	10%				
QBL: Social	18%	6%	8%	6%	6%	8%	5%	20%	2%	8%	8%			5%	
QBL: Economic	10%	25%	10%	7%	3%	3%		3%	9%			2%	15%	8%	5%
QBL: Cultural	10%	6%	12%	6%	6%	20%	10%	15%		10%	5%				
QBL: Environmental	10%		30%			20%	10%			10%	10%	10%			
Design, Delivery and Operation only													33%	33%	33%

Figure 2 - Weighting scenarios used in the LGWM Programme Short List MCA process

55. Post-LGWM, the scoring was simplified to a -3 to +3 scale. This was due to the optioneering at this stage being focussed on a comparison with, or refinements to, the base preferred option, rather than the impacts or effects of the Project (or section) as a whole, and therefore the spread of effects was smaller.
56. No formal weighting analysis was undertaken during the current Project investigations. Instead, a holistic assessment of the impacts and effects was undertaken and the full suite of scores was provided to decision-makers. How options fared against the Project objective, effects, cost and value for money was clearly reported and trade-offs between these areas were specifically highlighted to decision-makers when presenting them with a recommendation.

7. ASSESSMENT OF STRATEGIC ALTERNATIVES

Programmes of Transport Interventions for Wellington

57. The Project will result in a transformative change for Wellington. Given the scale of the Project, the assessment of alternatives includes various strategic alternatives or programmes of alternatives considered across the area from Nga Ūranga to the Airport.
58. As shown in Figure 1 above, the testing of strategic alternatives or programmes across this area has been undertaken at various times over the last 20 years, starting with the Ngauranga to Airport (N2A) Corridor Plan, which was published in 2008. The N2A Corridor Plan included elements of a similar scope to the current Project, including a duplicate Terrace Tunnel, grade separation at the Basin Reserve and duplication of the Mt Victoria Tunnel. It also included other infrastructure and non-infrastructure activities and interventions.
59. The N2A Corridor Plan has been confirmed, reviewed and reshaped regularly over the last 18 years through the following processes:
- In 2009, the Wellington Northern Corridor Road of National Significance (RoNS) confirmed the state highway elements of the N2A Corridor Plan, noting that these elements still sat within the context of that plan
 - The LGWM PBC undertook a thorough investigation of the transport problems in Wellington and considered 13 different alternative programmes
 - During the LGWM IBC phase, eight alternative programmes were assessed at a 'long list' stage and five of these were considered in more detail at a 'short list' stage
 - A further four programmes were assessed as part of the LGWM Programme Affordable Short List Report (PASLO) and the Preferred Programme Options Report (PPOR), which assessed options that met a specified investment threshold
 - Once the Project transitioned to the NZTA, three different options for state highway improvements along the SH1 corridor were reviewed against each other with this outlined in the NZTA Board Workshop presentation and paper in August and November 2024
60. In assessing different programmes during the above processes, a range of different strategic alternatives were considered, as listed here and further discussed in the paragraphs below:
- Alternative programmes focussed on public transport and active modes with no significant new state highway infrastructure
 - Alternatives that reduce demand through road pricing
 - Alternatives with limited state highway infrastructure
 - Alternatives that relocate the state highway
 - Alternatives that change demand through land use
61. Below I summarise the results of those earlier assessments, including how these different strategic alternatives perform against the current Project objective.

Alternatives with no significant new state highway infrastructure

62. Programmes without new state highway capacity were considered during the LGWM PBC. Six of the 13 PBC programmes considered did not include major state highway improvements, and one of those made it to the PBC shortlist. Similar programmes were again assessed during the LGWM IBC phase, with IBC Programme V3 being considered in the IBC Programme Short List Report and PPOR Programme iv being considered in the IBC PPOR. These became LGWM Programme 4 which was subject to public consultation.
63. None of these programmes considered during the PBC phase would perform well against the current Project objective which is “To provide more efficient and reliable access on State Highway 1 from north of the Terrace Tunnel to Wellington Airport and Wellington Hospital to support regional economic growth”. This is because, although many of the programmes provided additional people travelling capacity, they did not do enough to reduce demand on the state highway network to enable efficient and reliable access on SH1.
64. PBC Programme 3 had a high investment in three core public transport routes – Airport to Johnsonville, Island Bay to Karori and Miramar to CBD via Newtown. However, the analysis of vehicle travel time reliability changes on key routes shows that this programme would either have no change in, or lead to further deterioration of, travel time reliability on the state highway when compared to the Do Minimum and therefore would not meet the current Project objective.
65. The IBC also considered an option with no significant new state highway infrastructure through both the long list and short list phases. IBC Option V3 had MRT to Island Bay, enhanced bus services to the east and provision of a new walking and cycling tunnel through Mt Victoria. This option was updated to be PPOR Programme iv. Modelling undertaken at the time showed that this option would increase travel times for state highway trips between the Airport and Bowen Street, and between the Airport and Johnsonville, again showing that this option would not meet the current Project objective. It also would not provide the same level of public transport benefits, as the constrained capacity of the road network results in bus services being slower and less reliable when compared to options with road network improvements that would benefit private vehicles and public transport.

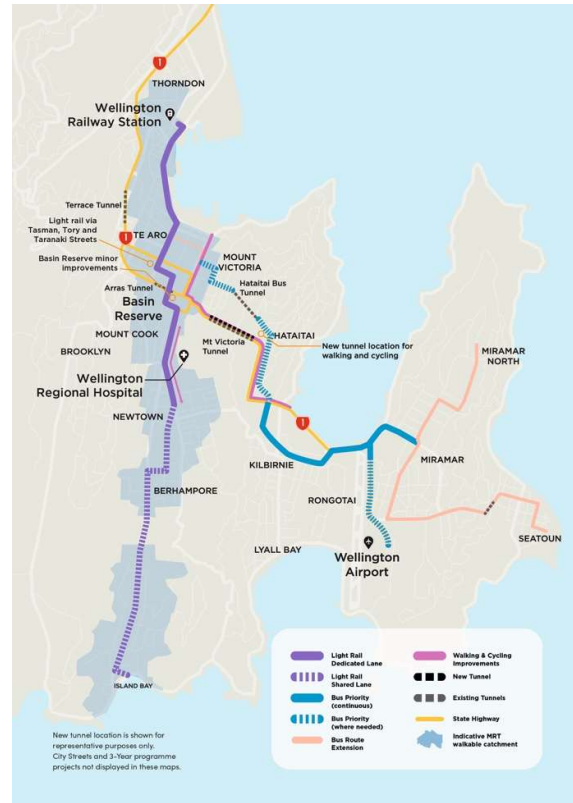


Figure 3 - LGWM Programme 4 (from Consultation Material)

Alternatives that reduce demand through road pricing

66. Consistently through the LGWM and NZTA investigation processes, options and alternatives were considered with and without some form of road pricing. Various schemes were considered, with the analysis representing these as some form of congestion charge or toll⁵.
67. The conclusion in the PBC was that a combination of infrastructure investment, service improvement and travel demand management was required to maximise delivery on the overall investment objectives. This conclusion did not change through subsequent phases even with further testing and analysis and I agree with that conclusion.
68. Modelling at the PASLO stage indicated that a congestion charge could reduce traffic entering the central city by 8%. It also indicated that such a charge could increase public transport patronage by over 2000 people per hour (with a particular increase in rail patronage from the north). While this is notable, the reduction in demand is not great enough to negate the need for road capacity improvements as part of any overall programme, particularly in the medium to long term.
69. Consideration was given to implementing higher pricing, however this was considered to result in economic and equity consequences. It would reduce the number of people attracted to the city centre which could impact on commercial operations and business viability as approximately 50% of Wellington's GDP is based in the central city⁶. It could also impact on the ability to travel, particularly for lower socio-economic groups where the cost of travel can be a significant factor in accessing goods, services and social opportunities.
70. For the current investigations, NZTA has considered whether the Project objective could be achieved by introducing congestion charging instead of implementing the Project. The findings of these initial investigations saw some decongestion of SH1 in the short term, but also saw a substantial reduction in trips into the Wellington City CBD and no significant uptake in public transport, again raising economic and equity concerns.
71. In short, charging on its own does not remove the underlying physical bottlenecks at the Terrace and Mt Victoria Tunnels and therefore cannot by itself deliver the full set of reliability and access outcomes sought by the objective underpinning this Project.
72. The outcome of all investigations into pricing has been that pricing should be a complementary measure rather than an alternative to infrastructure investment. Removal of the bottlenecks on the state highway is required to respond to the Project problems and achieve the Project objective of efficient and reliable journeys, with charging tools considered alongside to help manage demand, manage diversion effects, and optimise overall network performance.
73. The NZTA is to consult in future on tolling the Project (in line with its policy of doing so for all Roads of National Significance), to inform a decision on tolling by the Minister of Transport, and I understand that WCC is considering congestion charging via a "time of use charging" scheme. In combination, these pricing interventions can help manage demand, improve benefits and reduce whole of life costs. I understand that the Project's design enables the Project to be tolled, or for congestion charging to be implemented, noting that both are ultimately outside of NZTA's control.

Alternatives with limited state highway infrastructure

74. Consideration was also given to options with limited new state highway infrastructure where this investment would also benefit other modes. For example, grade separating the Basin Reserve

⁵ A congestion charge was modelled by defining a cordon around the CBD which road users would pay to enter. A toll was modelled as a road link (often a tunnel) that drivers would pay to use

⁶ Infometrics 2025

provides benefits not only to state highway traffic travelling east-west, but also to bus services which mostly travel north-south at this location.

75. Programmes with limited new state highway capacity were considered during the PBC. Two of the 13 PBC programmes contained only one state highway improvement element, which was grade separation of the state highway through Te Aro (e.g. a trench between the Terrace and Mt Victoria tunnels only to reduce conflict and increase amenity). However, this option was discounted as it was determined to be reliant on changes to the Basin Reserve and wider road network (i.e. the full state highway improvements would be required).
76. Another two PBC programmes included grade separation of the Basin Reserve as the only major state highway improvement, and this was carried through to the Short List. However, the analysis of travel time reliability changes on key routes shows that this type of programme would result in deterioration of travel time reliability on all four key traffic routes⁷ when compared to the Do Minimum, and therefore would not meet the current Project objective.
77. A similar programme was again assessed during the LGWM IBC phase, with IBC Programme V3 being considered in the IBC Programme Short List Report and PPOR Programme iii being considered in the IBC PPOR. This was similar to PPOR Programme iv above but with MRT routed via a grade separated Basin Reserve. This programme became LGWM Programme 3 which was subject to public consultation.
78. Modelling undertaken at the time showed that adding the Basin Reserve grade separation was still not enough to provide travel time benefits for trips between the Airport and Bowen Street, and between the Airport and Johnsonville, as similar delays to the Do Minimum were still occurring on other parts of the route. This shows that this option would not meet the current Project objective, and that a different programme of works is needed to obtain these outcomes.
79. It is noted that whilst the Recommended Programme of Investment (RPI) during LGWM included the Terrace Tunnel and Te Aro improvements, the Indicative Package (IP) did not, primarily due to funding constraints.
80. Whilst grade separation through Te Aro was ruled out through intermediary investigations (see Section 8), in the current Project phase, NZTA revisited the two state highway programme options of:
 - i. Terrace Tunnel, at-grade improvements through Te Aro, Basin Reserve, Mt Victoria Tunnel and Eastern Connections

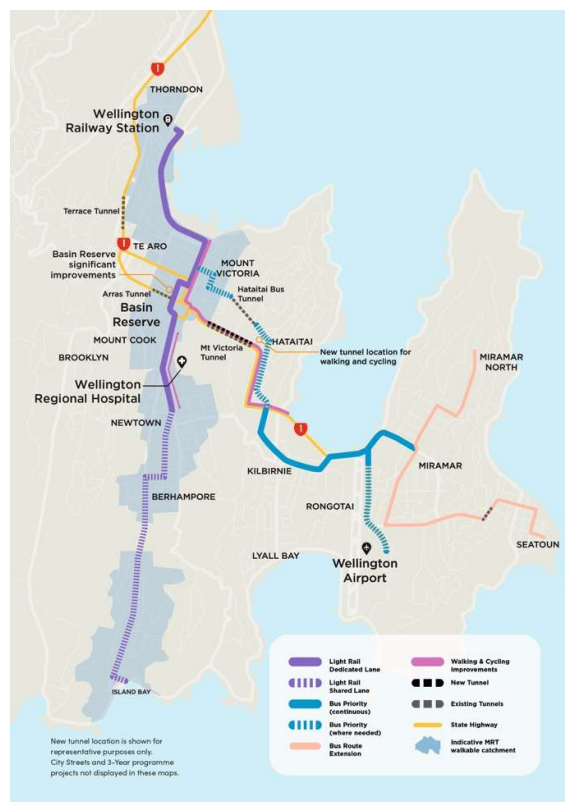


Figure 4 - LGWM Programme 3 (from Consultation Material)

⁷ The key routes used for comparative assessment throughout the PBC phase were Johnsonville to City, City to Airport, Island Bay to City, Karori to City

ii. Basin Reserve, Mt Victoria Tunnel and Eastern Connections

81. The option of just implementing the Basin Reserve, Mt Victoria Tunnel and Eastern Connections, whilst cheaper, does not contribute as much to the Project objective and may result in insufficient improvements in congestion reduction, and overall travel efficiency. Specifically, this option does not resolve the Terrace Tunnel pinch point into the city from the north via SH1, and hence travel time benefits are lower. Economic evaluation, as reported to the NZTA Board in August 2024, shows that the additional benefits obtained from duplicating the Terrace Tunnel outweigh the costs and also improve the BCR for the entire Project.

Alternatives that relocate the state highway

82. Investigations at the PBC stage considered realignment or relocation of the state highway at ground level, however it was determined that this would have much greater impacts as this would: (a) be less efficient; and (b) affect other established communities. Using existing corridors (e.g. the Harbour Quays) would involve longer routes, require lower speed limits and have greater side friction, meaning that these options would perform relatively poorly against the Project objective. These options were discounted early in the PBC phase.

83. Four interventions were identified for moving SH1 off its current alignment. These were tunnels of various lengths and alignments between Nga Ūranga and the Airport and were all discounted due to their very high costs.

84. A 'long tunnel' (albeit shorter than the ones identified in the PBC) was considered during the IBC stage and again during the Project phase in 2024. This is the only alternative of moving the state highway off its existing alignment to another location which has been considered in detail in the current Project investigations, for the reasons explained above.

85. This alternative was determined to have significant additional travel time benefits compared to both the Do Minimum and also an option similar to the current Project (i.e. duplication of both Terrace and Mt Victoria tunnels with grade separation at the Basin Reserve) and so it would meet the current Project objective. This option was investigated and designed to a concept level to enable more accurate determination of costs and benefits. The cost was expected to be almost double the current Project cost, however, and therefore was considered by the NZTA to be unaffordable and any further work was halted. While effects were somewhat lower, there were still significant identified effects including heritage, social, noise and landscape impacts in Kilbirnie and at the southern end of the Terrace Tunnel. There would also have been significant economic impacts during construction, including due to having a longer construction timeframe than the Project as now proposed.



Figure 5 - Long Tunnel Concept

Alternatives that change demand through land use

86. It can be possible to prevent future problems associated with an increasingly congested road network by initiating changes in land use to reduce development and/or encourage development in areas that are better serviced by public transport.
87. Different land use scenarios were considered throughout the LGWM and Project investigation phases. The two main land use scenarios developed reflected the Statistics NZ 'medium' forecast, which is a lower and more dispersed growth scenario, and a Sense Partners forecast, which predicts higher growth with more intensification along rapid transit corridors. The latter was undertaken as a sensitivity test to evaluate a scenario where MRT demand is maximised, in order to determine outcomes for the remainder of the transport system.
88. The current Project analysis is based on Statistics NZ growth predictions, and under this more conservative scenario, the current problems, (including levels of congestion on the state highway now and in the future) are such that this lower level of growth (even with different distributions) would not impact the choice of preferred option.
89. With implementation of a MRT solution with growth distributed along the MRT corridor, the transport modelling demonstrated that the highway investment was still needed, otherwise public transport services are delayed by state highway capacity constraints, particularly at locations like the Basin Reserve where public transport has to cross the state highway.
90. The Project has been shown to be needed not only to respond to existing issues, but to help respond to population and economic growth; this would not be possible with options that only reduce demand through land use change.

Summary

91. The assessment of strategic alternatives has shown that there is only one affordable solution that meets both elements of the Project objective; i.e. both meaningfully reduces state highway travel times and meaningfully improves economic growth and productivity.
92. Demand management schemes, including road pricing and land use change, result in fewer vehicles using the state highway network, which reduces state highway travel times. However, such schemes also reduce the number of people accessing the CBD, which decreases the economic growth and productivity benefits.
93. Delivering different combinations of upgrades to the current stretch of SH1 does not deliver as well on the Project objective as the full Project does (i.e. if an element was removed) or has too great an adverse impact (e.g. if larger scale improvements were implemented through Te Aro). Alternative routes for the state highway are either at-grade and will perform relatively poorly against the Project objective, or are tunnelled and will be unaffordable.
94. The current Project scope is one that balances outcomes, affordability and effects to enable efficient state highway traffic and improved economic growth and productivity.
95. It should be noted that the Project does not preclude other public transport, walking and cycling, pricing or demand management activities also being undertaken, in line with the Regional Land Transport Programme or previous regional programmes e.g. LGWM's Indicative Package or the Ngauranga to Airport Corridor Plan. In fact, it supports all these activities, for example by future proofing for a future mass transit solution through the Basin Reserve, enabling more route choice for public transport services, and creating an efficient highway that takes through traffic-off local roads that are best suited for local needs.

8. ASSESSMENT OF SECTION OPTIONS

96. This section summarises the assessment of options that has been carried out, as part of LGWM and the current Project phase, for each section of the current Project as identified in the Project description:
- i. Terrace Tunnel
 - ii. Te Aro
 - iii. Basin Reserve
 - iv. Mt Victoria Tunnel
 - v. Eastern Connections

Terrace Tunnel

Background

97. When the Terrace Tunnel was constructed in the late 1970s, provision was made for a duplicate tunnel. The piers that can currently be seen in the Clifton Terrace car park were constructed to support a separate carriageway on the approach to that tunnel. The second tunnel was obviously never built, but it has been regularly discussed and investigated since that time.
98. Prior to LGWM, Opus considered options in the Terrace Tunnel Duplication and Waterfront Depowering Feasibility Report (2008) and Beca considered options in 2011 as part of RoNS investigations. The options from these studies were considered during the LGWM phase.

Options considered during the LGWM Programme Business Case phase

99. The LGWM PBC included a duplicate Terrace Tunnel in many of the different programmes, as covered in the Strategic Alternatives section above. The PBC did not consider variations on the duplication due to the strategic nature of the assessment at that point in time.
100. The Terrace Tunnel duplication was included in the Recommended Programme of Investment, but was not part of the Indicative Package that was endorsed by LGWM partners, after the programme was reviewed for fundability.

Options considered during the LGWM Indicative Business Case phase

101. Consideration of options and alternatives for the Terrace Tunnel section re-started during the IBC phase of LGWM by considering all previously identified options and new ideas. Whilst it was noted that the Terrace Tunnel duplication was not part of the Indicative Package, the LGWM project team wanted to ensure that any options developed for the state highway network would not preclude the full RPI scheme being implemented in the future. Accordingly, options for the Terrace Tunnel duplication were assessed to understand the likely preferred option for this section so that the Indicative Package would not preclude development of improvements to the Terrace Tunnel section in the future.
102. This phase reviewed previous reports and considered new options that would meet the LGWM objectives. These options were compiled and categorised into groups, and assessed at a high level to enable short listing of options for further detailed assessment. A summary of this assessment is provided in the table below with a focus on the options' scores against the LGWM objectives, which are most pertinent to the current Project, as follows:
- i. Access to Support Growth, this covered a range of performance areas including proximity of people living to key destinations, travel time and travel time reliability by mode, and equitable access to transport. Where the reporting has a separate sub-score for traffic (rather than other modes) this has been used in the table below as being most representative for the current Project objective

- ii. RMA Part 2; this criterion covered all environmental effects, with a bias towards those with particular status under the purpose and principles contained within Part 2 of the RMA



Option 2.1 Tidal flow in existing tunnel

Option description: This option uses the central lane for tidal flow in the existing Terrace Tunnel. There is no room for a moveable lane barrier.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 0

IBC RMA Part 2 MCA Score: 0

Summary: Discounted. This option was discounted because it did not meet LGWM's access objective, primarily because the current flow in the tunnel is not tidal and therefore the option would reduce some of the current northbound capacity and provide little overall transport benefit. For the same reasons, this option would not meet the current Project objective.

Option 2.2 Widen existing tunnel

Option description: This option involves widening the tunnel to create an additional southbound lane to have two continuous lanes from the Terrace off-ramp to the Willis Street intersection. The northbound route remains unchanged.

Option scoring:

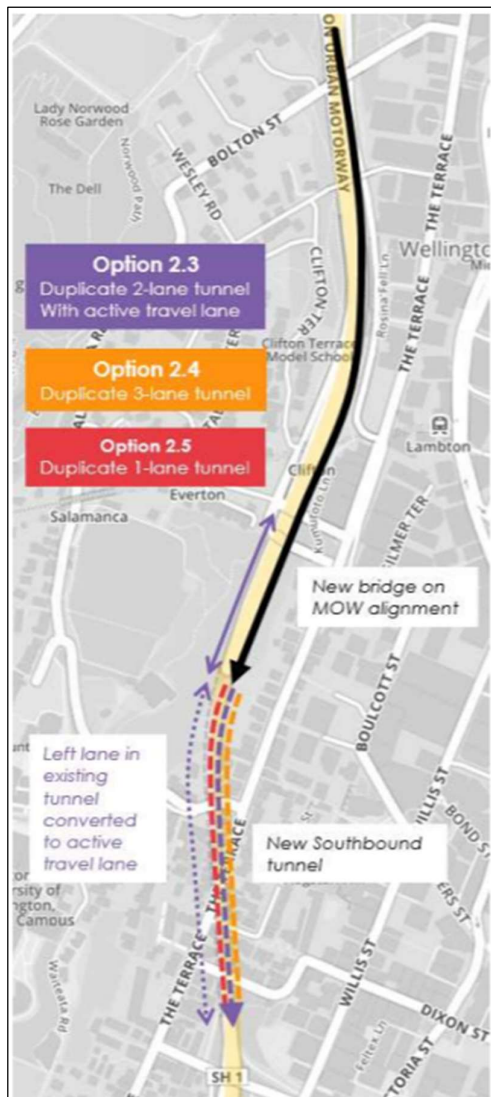
IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: 0

Summary: Discounted. Option meets both the access objective and the current Project objective, but has the greatest technical constructability challenges, and largest network disruption effects during construction.

Reallocating space within the existing tunnel

In addition to the above options, the option of providing a fourth lane within the existing tunnel by reducing lane widths and lowering speeds was also identified but was discounted as the kerb-to-kerb widths do not provide enough space for this layout.



Option 2.3 Duplicate two lane tunnel

Option description: This option duplicates the current Terrace Tunnel with two lanes in the southbound direction and with associated infrastructure on the southbound approach. The current tunnel would be two lanes northbound only (with potential provision for an active travel lane).

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: 0

Summary: Investigated further. All duplicate tunnel options were considered to have similar effects, none of which were major.

Option 2.4 Duplicate three lane tunnel

Option description: This option is similar to Option 2.3 except that it provides a duplicate tunnel with three traffic lanes in the southbound direction and the southbound lane in the current tunnel is converted to a northbound lane, resulting in 3 lanes in each direction. This option would also require additional infrastructure on the southbound approach.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 3

IBC RMA Part 2 MCA Score: 0

Summary: Investigated further. A three-lane tunnel was discounted in the LGWM stage as it did not align with the objectives of LGWM (as it increased traffic on local city streets – contrary to the Urban Amenity objective). It could, however, meet the current Project objective and so was considered again during the current Project investigations.

Option 2.5 Duplicate one lane tunnel

Option description: This option is similar to option 2.2, except that it provides only one additional lane in the southbound direction in a parallel tunnel, with the current tunnel retaining a southbound lane.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: 0

Summary: Discounted. A one-lane tunnel was discounted due to issues related to cost and safety issues associated with retaining opposing flows within a tunnel and diverging and merging of southbound traffic.

In addition, a single-lane tunnel is not significantly cheaper than a two-lane tunnel due to the need for wider shoulders to enable egress in emergencies.
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Walking and cycling

103. In earlier studies, consideration was given to whether an active travel facility should be provided through the Terrace Tunnel, or whether excess space in the existing tunnel should be given to active modes once the southbound lane was removed. However, it was determined that there was no demand for such a facility as there are existing routes that are more attractive. As the surrounding transport network and land use has not materially changed since this assessment, this conclusion would be the same today.

Project investigations - two lanes or three

104. The LGWM investigations recommended a two-lane tunnel, but prior investigations recommended three lanes to provide additional transport capacity and benefit. Ultimately, the LGWM programme did not include Terrace Tunnel duplication in the RPI.
105. When the Project transitioned to the NZTA, options that included Terrace Tunnel duplication were reconsidered. During the current Project phase, the different benefits and effects of the two- or three-lane options were re-examined and it was concluded that:
- i. A three-lane tunnel would have a larger construction footprint than a two-lane tunnel, resulting in large cut slopes (approx. 20m high) and property take to the north of the tunnel
 - ii. The capacity of the intersections to the south of the Terrace Tunnel (i.e. Vivian/Willis and Karo/Willis) are the limitations to the capacity on this corridor. There are no practicable options to increase the capacity of this section through widening or grade separation (see Te Aro section below) and therefore there is no benefit in providing greater capacity at the Terrace Tunnel. The new two-lane tunnel can provide capacity of 3,200 vehicles per hour (vph) compared to the capacity of the Karo/Willis intersection of 3,100 vph and the Vivian/Willis intersection of 2,700 vph
 - iii. A two-lane tunnel would be significantly cheaper due to not needing a new viaduct on the approach to the tunnel, as well as having less property take, shorter construction timeframes and less disruption during construction. Whilst the existing piers would reduce some of the viaduct cost (if they are able to be used given seismic design standards have changed significantly since they were constructed), the cost differential between the two options would still be large due to the substantive part of the structure, namely the bridge deck and associated infrastructure
106. Overall, it was concluded that a two-lane tunnel provides similar benefits to a three-lane tunnel, but with fewer effects, lower costs and better value for money.

Summary and conclusion on the Terrace Tunnel section

107. A range of alternatives for addressing one of the most significant bottlenecks on SH1 was considered. The long list of options included tidal-flow operation in the existing tunnel, widening the existing tunnel, reallocating lanes, and constructing one-, two-, or three-lane duplicate tunnels. Options relying on reconfiguring the existing tunnel were discounted due to operational limitations, safety issues, or lack of meaningful performance improvement. A single-lane duplication was also discounted because it provided limited benefit relative to cost and introduced operational and safety challenges.
108. The assessments showed that both two- and three-lane duplicate tunnels would meet the Project objective of enabling more efficient and reliable journeys along SH1. However, more detailed engineering, property and network assessments found that a three-lane tunnel would require significantly more property acquisition, large cut slopes, and a larger construction footprint, while providing little additional benefit because downstream intersections in Te Aro would remain the binding constraint on corridor capacity. A two-lane duplicate tunnel provides the required highway

capacity, offers materially similar travel-time benefits, and performs better in terms of cost, constructability, footprint, and effects.

109. Overall, a thorough assessment of alternatives has been undertaken and the analysis shows that the two-lane duplicate tunnel appropriately responds to the Project objective whilst also balancing value for money and effects.

Te Aro

Background

110. Of all the sections of this Project, Te Aro has had the most significant upgrades in the past 20 years with the Inner City Bypass (Stage 2) and the Memorial Park (Arras Tunnel) projects. These two projects comprise the current westbound route between the Basin Reserve and the Terrace Tunnel.
111. The Inner City Bypass project contemplated a future Stage 3 which would have comprised a tunnel (or trench) between the Terrace Tunnel and the Basin Reserve for both directions of traffic with limited access to the local road network. The Memorial Park project assumed that the Arras Tunnel would connect into the future Basin Bridge project (see below). However, neither of these projects has been implemented.
112. Consideration of alternatives for this section therefore started again during LGWM to ensure a cohesive approach to the transport network in this part of the city.

Options considered during the LGWM Programme Business Case phase

113. The PBC briefly investigated options to relocate SH1 traffic from Vivian Street to Karo Drive through:
 - i. A contraflow system using existing tunnels - this would reallocate one existing westbound traffic lane for eastbound through traffic (two eastbound lanes were not considered as the Arras Tunnel cannot accommodate four lanes). It was noted that there were a number of physical constraints that restrict the feasibility of this option, and also that the option would likely reduce levels of service for all modes due to making the intersections more complex
 - ii. A series of short tunnels – this would place both directions of SH1 in a trench, but with ‘lids’ over selected parts of the alignment to maintain north-south streets at grade
 - iii. A longer, continuous tunnel – this would have fewer places for traffic to move between the state highway and the local road network, so more traffic would stay on Vivian Street to access destinations in Te Aro. This option would also have very high construction costs
 - iv. A cut and cover tunnel was included in the RPI from the PBC, as it was identified that this would move traffic off Vivian Street and unlock development potential in that area. However, this section was not included in the Indicative Package that was endorsed by LGWM partners, after the programme was reviewed for fundability

Options considered during the LGWM Indicative Business Case phase

114. Consideration of options and alternatives for the Te Aro section restarted during the IBC phase of LGWM by considering all previously identified options and new ideas. Whilst it was noted that this section was not part of the Indicative Package, the LGWM project team wanted to ensure that any options developed for the state highway network would not preclude the full RPI scheme being implemented in the future. Accordingly, options for the Te Aro section were assessed to understand how the Indicative Package could integrate with other Te Aro options, if those were to be provided for in the future.
115. This phase reviewed previous reports and considered new options that would meet the LGWM objectives. These options were compiled and categorised into groups and assessed. A summary of this assessment is provided in the table below.

Options retaining one way pair



Option 3.1.1 At-grade intersection enhancements

Option description: Utilising existing layout and implementing turning restriction at some locations.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 1

IBC RMA Part 2 MCA Score: 0

Summary: Investigated further. Some minor benefits in terms of both the previous access objective and the current Project objective can be achieved with this option.

Option 3.1.2 Optimise one way pair

Option description: Utilising existing layout and implementing clearways and turning restrictions at some locations

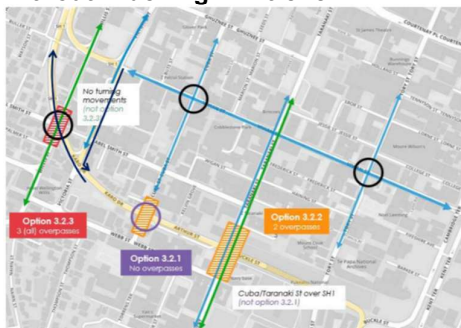
Option scoring:

IBC Access to Support Growth Traffic MCA Score: 1

IBC RMA Part 2 MCA Score: 0

Summary: Investigated further. Some traffic benefits can be achieved with this option that would contribute to the current Project objective.

Options with contraflow on Karo Drive without widening ICB trench



Option 3.2.1 Karo Drive two-way at-grade

Option description: One eastbound traffic lane diverted to Karo Drive.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: 0

Summary: Investigated further. Some moderate transport benefits can be achieved with this option, although there are some constructability challenges with the constrained space.

Option 3.2.2 Karo Drive two-way partial grade separation

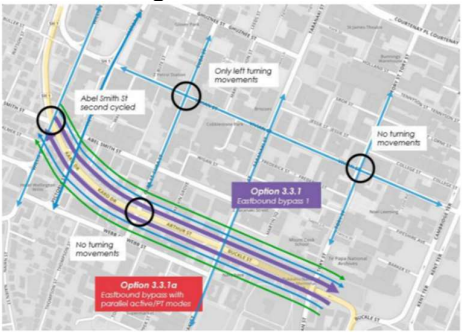
Option description: Similar to option above but Karo Drive is in a shallow trench with active modes able to cross the highway at Cuba and all modes able to cross at Taranaki.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: -1

IBC RMA Part 2 MCA Score: -1

Summary: Discounted. Determined as unlikely to have overall transport benefits as so many turning movements prevented, limiting access from the highway to city centre destinations. For the same reasons, this option would not

	meet the current Project objective as it would not contribute to economic growth as much as other options. Option 3.2.3 Karo Drive two-way partial grade separation Option description: Similar to option 3.2.2 but all modes also able to cross at Willis. Option scoring: IBC Access to Support Growth Traffic MCA Score: -1 IBC RMA Part 2 MCA Score: -1 Summary: Discounted. Determined that it was not physically possible to have grade separation at Willis but at-grade connectivity at Victoria due to the proximity of the two locations.
Options with contraflow on Karo Drive with widening ICB trench 	Option 3.3.1 Eastbound bypass 1 Option description: Widen ICB trench to 3 lanes and Karo Drive becomes two-way at grade. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -2 Summary: Discounted. This option was identified as having good traffic benefits, but also significant heritage impacts on listed buildings, archaeological values and Cuba Street heritage character. Other options deliver similar outcomes with fewer impacts. Option 3.3.1a Eastbound bypass 1a Option description: Widen ICB trench to 3 lanes and Karo Drive becomes two-way at grade and converted to widened boulevard. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -2 Summary: Investigated further. Whilst this option had significant impacts, similar to the other bypass options, this option was retained for further investigation through the LGWM phase as it would have one of the best overall outcomes when considered against the wider LGWM objectives.



Option 3.3.2 Eastbound bypass 2

Option description: Widen ICB trench to 4 lanes and Karo Drive is trenched from Terrace Tunnel to Arras Tunnel. Northbound off ramp at Victoria, northbound on ramp at Willis.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 1

IBC RMA Part 2 MCA Score: -2

Summary: Discounted. This option did not score as well as other options against the previous access objective and therefore also would not score well against the current Project objective. It also had poor outcomes for Urban Amenity and Resilience and would be very complex to construct.

Option 3.3.3 Eastbound bypass 3

Option description: As for option 3.3.2 plus on and off ramps at Taranaki Street.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 3

IBC RMA Part 2 MCA Score: -2

Summary: Discounted. This option was determined not to be feasible as the conceptual layout would require overlapping on and off ramps.

Option 3.3.4 Eastbound bypass 4

Option description: As for option 3.3.3 but with on and off ramps at Taranaki Street to avoid overlapping ramps.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: -2

Summary: Discounted. This option was identified as having good access benefits, but also significant heritage impacts on listed buildings, archaeological values and visual values. It would also be very difficult to construct. Other options deliver similar outcomes with fewer impacts.



Option 3.3.5 Eastbound bypass 4 with capped trench

Option description: Karo Drive in a trench but covered with a city park.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: -2

Summary: Investigated further. Likely to have the highest impact during construction but provides the best overall benefits post-construction due to the provision of a city park on top of the trench.

Tunnel options



3.4.1 Direct tunnel – Terrace Tunnel to Taranaki Street

Option description: New tunnel to connect the Terrace Tunnel with Taranaki Street but no connectivity in between.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: -1

Summary: Discounted. Better outcomes and fewer impacts are achieved by Option 3.4.3.



3.4.2 Direct tunnel – Terrace Tunnel to Basin Reserve

Option description: New tunnel to connect the Terrace Tunnel to the Basin Reserve but no connectivity in between.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: -1

Summary: Discounted. Better outcomes and fewer impacts are achieved by Option 3.4.3.

3.4.3 Direct tunnel – Terrace Tunnel to Ruahine Street

Option description: New tunnel to connect the Terrace Tunnel with Ruahine Street but no connectivity in between.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: -1

Summary: Investigated further. Of all the tunnel scenarios, Option 3.4.3 was identified as being the best performing with the least impact and was therefore considered further at the programme level (See Assessment of Strategic Alternatives section for Long Tunnel).

116. The options that were identified to be investigated further either during LGWM or the current Project investigations were:
- i. Grade-separated eastbound bypass (developed from Option 3.3.5)
 - ii. Eastbound bypass with widened boulevard (developed from Option 3.3.1a)
 - iii. Two-way at-grade Karo Drive (developed from Option 3.2.1)
 - iv. At-grade enhancements (developed from Options 3.1.1 and 3.1.2)

Grade-separated eastbound bypass

117. An eastbound bypass, consistent with Option 3.3.5, was considered in more detail during the Programme Long List and Programme Short List phases of the LGWM IBC. A design was developed which enabled greater insight into both the benefits and effects of such a scheme. This design is shown in the image below.
118. This scheme was evaluated as part of a wider programme (IBC Programme V1), rather than as a standalone option. However, this element was the sole differentiator between two programmes (IBC Programmes V1 vs V1A), and the evaluation showed that whilst the eastbound bypass option had better access outcomes, it had worse effects in terms of Urban Amenity and Urban Development, Heritage and Archaeology, Social, and Landscape and Visual. These effects meant that the programme with the eastbound bypass element scored the worst across all short list options.
119. A major concern with the proposal was the property impacts required to enable construction of the trench. The trench itself, plus construction working areas, plus space for a parallel road for traffic to use during construction, would impact many city blocks, and it was considered that it may take many years for development to refill this space, potentially leaving large parts of the city centre empty for many years.



Figure 6 - Grade-separated eastbound bypass. Yellow represents properties that would be required and turquoise denotes heritage properties.

Eastbound bypass with widened boulevard

120. While an eastbound bypass with a widened boulevard (Option 3.3.1a) was identified as a well-performing option during the IBC phase of LGWM, this option was not considered further during the current Project investigations.

121. Fundamentally, this option would not be able to be constructed within the current affordability envelope as it would involve widening the current ICB trench immediately south of the Terrace Tunnel as well as widening the Arras tunnel. These works would also have significant constructability challenges and construction disruption effects as they would require all westbound state highway traffic to be diverted to other routes.
122. Also, based on the Project's more recent investigations into traffic movements in this part of the city, this option is likely to have very limited traffic benefits. Putting eastbound traffic through intersections that are already capacity-constrained may in fact result in worse outcomes in relation to the Project objective of efficient and reliable journeys.

Two-way at-grade Karo Drive

123. This option involves a contraflow eastbound lane on Karo Drive rather than three eastbound lanes on Vivian Street (Option 3.2.1). This option was retested during the current Project investigations. In detail, this option comprises an eastbound lane from the Terrace Tunnel using Victoria Street to access Karo Drive and then continuing on to the Basin Reserve.
124. Traffic modelling undertaken during the current Project investigations showed that this option would have worse outcomes than doing nothing, with travel times being one minute worse for westbound traffic and one minute worse for eastbound traffic. This was due to additional weaving for eastbound traffic and reduced capacity for westbound traffic. It also did not meaningfully enable any 'depowering' of Vivian Street as Vivian Street still had to cater for the large volumes of traffic heading into the central city. The contraflow option also impacted on local road connectivity, was more expensive, and limited future options. The impact on the Project's benefits and outcomes meant that it was therefore not considered further.

At-grade enhancements

125. The above investigations resulted in those options being discounted and investigations then focused on options to optimise the existing situation. Options 3.1.1 and 3.1.2 were brought forward from the previous LGWM phases into the current Project investigations phase, and variations on these were considered to determine the optimal layout for the overall Project.
126. Three options were considered in this phase:
 - i. Option 1A: One-way pair (maximum state highway capacity). This option had three through-lanes on Vivian Street with no turns at Taranaki, Cuba or Tory Street intersections. It also had three continuous lanes on Karo Drive, including through the Te Aro trench
 - ii. Option 1B: One-way pair (connectivity retained). This option also had three through-lanes on Vivian Street, and restricted turning movements at only Cuba and Tory, while retaining turning movements at Taranaki Street. It also had three lanes on Karo Drive, including through the Te Aro trench
 - iii. Option 1C: One-way pair (optimise existing). This option had only two lanes on Vivian Street and restricted turning movements at only Cuba and Tory, while retaining turning movements at Taranaki Street. It also had only two lanes through the Te Aro trench
127. As these options were all within the existing state highway corridor, the primary consideration was how the options contributed towards achievement of the Project objective and balancing this against localised effects such as parking loss and local turning movements.
128. Options 1A and 1B were identified as having similar travel time improvements for SH1, but Option 1B has wider transport benefits due to its better connectivity with the local road network. Option 1C had significantly lower benefits.
129. A few potential impacts of the options were noted. The first was longer wait times for pedestrians, which would be dependent on final signal timing and phasing. The second was removal of off-street parking requiring drivers to divert to alternative nearby on-street or off-street parking areas. The last

was restriction of turns at Cuba Street and Tory Street, although turns would still be available at Victoria, Willis, Taranaki and Kent/Cambridge Terraces. Only the on-street parking was a differentiator between options and on balance it was considered that the travel time benefits of Option 1B outweighed the disbenefits of parking loss⁸.

Summary and conclusion – Te Aro section

130. An extensive suite of options for the section of SH1 between the Terrace Tunnel and the Basin Reserve has been considered, reflecting both the complexity of the transport network and the significant impacts of any major intervention in a dense urban environment. Early assessments considered large-scale options such as eastbound bypasses, widened trenches, and tunnelled solutions, alongside smaller-scale operational improvements to the existing one-way pair. The large-scale options were discounted due to substantial impacts on heritage, urban form, property, construction duration, and cost, despite offering some transport benefits. Tunnel options, while providing good performance, were ultimately found to be unaffordable.
131. Options to introduce two-way operation using Karo Drive were retested in the current Project investigation phase but were found to worsen travel times and introduce significant network inefficiencies. The assessment therefore focused on optimising the existing one-way pair. Three refinement options were tested, ranging from maximum state highway capacity to variants balancing capacity with local connectivity. The preferred option (three lanes eastbound on Vivian Street and three lanes westbound on Karo Drive, combined with selective turning restrictions) achieved significantly better SH1 travel times while maintaining reasonable access to the local street network. It offered a good overall balance of performance, effects, and value for money.
132. The preferred option is a carefully designed lane reconfiguration and optimisation of the existing corridor, which removes parking to allow three lanes of traffic eastbound on Vivian Street. Overall, the assessment of alternatives shows that this is the only option assessed that performs well against the Project objective while remaining affordable, deliverable, and environmentally acceptable. This is a value-for-money solution which enables the benefits of the remainder of the Project to be unlocked without significant impacts on the urban environment of Te Aro.

Basin Reserve

Background

133. The NZTA's previous Basin Bridge Proposal was declined by a Board of Inquiry in 2014. The Board of Inquiry's decision includes a number of findings regarding the importance of the Basin Reserve area and this has influenced the approach to options assessment for the whole Project, but in particular at this location.
134. Consideration of options at the Basin Reserve has therefore been extensive, not only due to the above decision, but because it is a critical piece of transport infrastructure, and due to the area's social, cultural, heritage and economic importance within Wellington City. Identification and assessment of options in this section has involved consideration of transport outcomes as well as RMA Part 2 matters and other benefits and effects criteria.
135. Some opponents of the previous Basin Bridge Proposal criticised the focus on grade separation at this location. As a consequence, at-grade options were considered regularly throughout the LGWM phases alongside grade-separated options.

⁸ It is noted that subsequent to this decision, the turning movements between Vivian Street and Tory Street were reinstated as the alternative routes were not seen as appropriate and these movements could be retained without a significant impact on the efficiency of the intersection

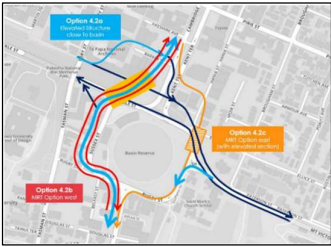
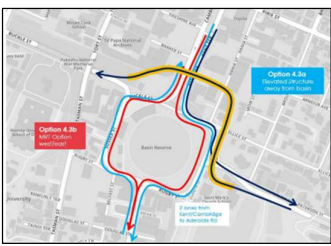
Options considered during the LGWM Programme Business Case phase

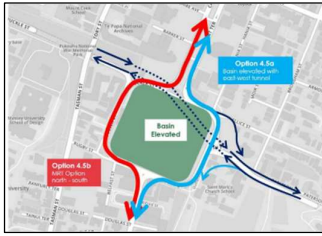
136. An at-grade option and three different grade-separated options which were anticipated to have fewer adverse effects than the Basin Bridge Proposal were assessed during the PBC phase:
- A range of at-grade changes including localised widening, the removal or relocation of a limited number of on-street parking bays, the creation of additional traffic lanes, restricting the Ellice Street exit, and giving priority for public transport at traffic signals. The changes would be designed to have minimal land take or other impacts
 - Undergrounding SH1 north of the Basin Reserve, involving putting SH1 in a cut-and-cover tunnel between Paterson St and Arras Tunnel along Buckle Street. This was identified as not being feasible due to the risks associated with the tunnel acting as a dam against the underground Waitangi Stream
 - Undergrounding SH1 south and west of the Basin Reserve, involving putting SH1 in a cut-and-cover tunnel between Paterson St and Arras Tunnel under Dufferin, Rugby and Sussex Streets. This alternative was not considered feasible due to the excessive steepening of Paterson Street that would be required to connect the undergrounded state highway to Mt Victoria Tunnel
 - Extension of Sussex Street over SH1, involving the relocation of SH1 traffic to the north of the Basin Reserve. This option responded to the LGWM objectives, including efficient and reliable journeys, was feasible, had a lower cost than the other options
137. The extension of Sussex Street option was adopted by LGWM for inclusion in both the Recommended Programme of Investment and also the Indicative Package as part of the PBC.

Options considered during the LGWM Indicative Business Case phase

138. Whilst Basin Reserve concepts were identified during the PBC phase, consideration of options and alternatives for the Basin Reserve section restarted during the IBC phase of LGWM by considering all previously identified options and new ideas.
139. A review of the many previous reports on options and alternatives at the Basin Reserve, including those that were undertaken for the Basin Bridge Proposal, was undertaken at the start of the IBC phase to inform the list of options. New ideas and options were also raised. Many options were identified so these were compiled and categorised into groups and assessed. A summary of this assessment is provided in the table below.

	Option 4.1a At-grade option: Option description: This option increases the capacity of the existing layout at-grade. Option scoring: IBC Access to Support Growth Traffic MCA Score: 1 IBC RMA Part 2 MCA Score: -1 Summary: Investigated further. Option did not sufficiently meet previous LGWM objectives or current Project objective (represented by the Access MCA score reported above). However, due to the option's low cost and low effects it was reassessed several times (see at-grade section below this table).
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	Option 4.2a Elevated structure north of the Basin Reserve Option description: Two-way state highway traffic is at-grade on the north side of the Basin Reserve connecting Arras Tunnel with Mt Victoria Tunnel. Local road traffic is on an elevated structure on the north-west corner of the Basin Reserve providing connectivity between Adelaide Road and Kent/Cambridge Terrace. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -2 / -3 Summary: Investigated further. Option met the previous Access objective and therefore the current Project objective, but had some adverse effects of significance, including in respect of RMA Part 2. Also had negative impacts on the other LGWM objective of Urban Amenity and Urban Development.
	Option 4.3a Elevated structure further north of the Basin Reserve Option description: This option provides an elevated structure away from the Basin Reserve to the north to accommodate the SH1 traffic from Mt Victoria Tunnel to Arras Tunnel. Eastbound SH1 traffic remains at Kent Terrace and Mt Victoria Tunnel. Local traffic continues in both directions around the Basin Reserve. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -3 Summary: Discounted. Greater impacts on historic heritage, Mt Victoria character, the Canal Reserve, urban amenity and urban regeneration with no additional transport outcomes or benefits over other grade-separated options.
	Option 4.4a Basin Reserve elevated over new north-south tunnel Option description: Local traffic between Adelaide Road and Kent/Cambridge Terrace is in a new tunnel located under the Basin, allowing traffic movements between the Kent/Cambridge Terrace and Adelaide Road. Two-way SH1 traffic is located on the north side of the Basin connecting Mt Victoria Tunnel and Arras Tunnel. On/off-ramps are also available to entry/exit SH1. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -3 Summary: Discounted. Greater impacts on historic heritage values (the area will no longer be a 'basin'), the Canal Reserve and the Museum Stand. Large constructability challenges with no additional transport outcomes or benefits over other grade-separated options



Option 4.5a Basin Reserve elevated over new east-west tunnel

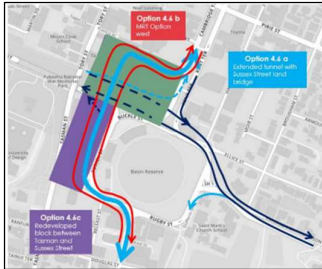
Option description: This option provides a tunnel for state highway traffic running beneath the northern side of the Basin Reserve to accommodate two-way state highway traffic between Paterson Street and Arras Tunnel. On/off-ramps are also available to enter/exit SH1. Local road traffic travelling between Adelaide Road and Kent/Cambridge Terrace is located on the east side of the Basin Reserve over top of the SH1 tunnel.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: -3

Summary: Discounted. Greater impacts on historic heritage values (the area will no longer be a 'basin'), the Canal Reserve and the Museum Stand. Feasibility issues due to the Waitangi Stream. Large constructability challenges with no additional transport outcomes or benefits over other grade-separated options



Option 4.6a Extended Arras Tunnel

Option description: Arras Tunnel extended through to Cambridge Terrace with a land bridge structure over the top. Local roads are located on the west side of the Basin Reserve connecting Adelaide Road with Kent/Cambridge Terrace via Sussex Street and a land bridge structure. Two-way SH1 traffic is on the north side of the Basin Reserve at grade. On/off-ramps are available to connect local roads and state highway traffic.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

IBC RMA Part 2 MCA Score: -2

Summary: Investigated further: Impacts on visual and heritage and archaeology, but these are less than other options. Provides similar traffic outcomes to other grade-separated options but also improves access for other modes, urban amenity, urban regeneration, safety and resilience.

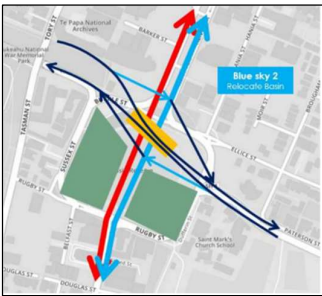


Blue Sky 1: Moving the Basin Reserve west

Option description: The Basin Reserve is relocated to its west, allowing local roads running on the eastern side of the moved Basin, and providing two-way traffic between Kent/Cambridge Terrace and Adelaide Road. Two-way SH1 traffic runs between Mt Victoria Tunnel and Arras Tunnel on the north side of the Basin Reserve and crosses local traffic at a major at-grade intersection on the north-east of the Basin Reserve.

Option scoring:

IBC Access to Support Growth Traffic MCA Score: 2

	IBC RMA Part 2 MCA Score: -3 Summary: Discounted. Has greater impacts on heritage than other options, requiring relocation of heritage buildings and items. Large constructability challenges with no additional transport outcomes or benefits over other grade-separated options.
	Blue Sky 2: Relocating the Basin Reserve Option description: Removal of the Basin Reserve. SH1 occupies the northern part of the remaining space and provides two-way traffic between Mt Victoria Tunnel and Arras Tunnel. A bridge structure will provide grade separation for SH1 over local roads. Option scoring: IBC Access to Support Growth Traffic MCA Score: 3 IBC RMA Part 2 MCA Score: Fatal Flaw Summary: Discounted. This area could no longer be used as a cricket ground. Considered to be a fatal flaw as it is contrary to the vesting of the Basin Reserve in the city council for permanent recreation use.

140. Options were considered with and without incorporating MRT facilities. The scores and outcomes reported above are for the variants of the options without MRT facilities.
141. When considered against the current Project objective, all identified grade-separated options perform well as they all separate north-south local and public transport movements from east-west state highway improvements, enabling travel time benefits. Whilst all options have some effect on RMA Part 2 matters due to the location and values of the area, many options can be discounted as their effects would be significantly greater than others.
142. Options with grade separation in the north-west corner of the Basin Reserve, like most grade-separated options, performed well from a Project objective perspective (represented by the Access to Support Growth: Traffic scores) and had fewer effects than other grade-separated options (as represented by the RMA Part 2 scores). These options were the only ones that had both an Access score of 2 or above, and an RMA Part 2 score of -2 or better.
143. This led to the confirmation of the preferred option at the end of the IBC phase being the grade separation of Sussex Street at the north-west corner of the Basin Reserve as shown in the image below (noting that there was also a variant that had southbound SH1 traffic on Hania Street –both were tested again during the current Project investigations).



Figure 7 - Basin Reserve Preferred Option from the IBC phase

144. This option was further tested and refined throughout the LGWM DBC phase and then through the current Project investigations.

At-grade options

145. The Strategic Alternatives section summarises how at-grade options at the Basin Reserve were considered as part of wider programmes and ultimately discounted. Programmes including no or limited state highway infrastructure did not enable sufficient outcomes in relation to the Project objectives, and specifically in the case of the Basin Reserve, did not enable public transport benefits. This is because the constrained capacity of the road network at the Basin Reserve results in bus services being slower and less reliable when compared to options with road network improvements that would benefit private vehicles and public transport. At-grade solutions also do not enable MRT, should that be progressed in the future.
146. Nevertheless, at-grade alternatives were regularly tested throughout the various phases of options assessment as they were significantly lower cost and had fewer impacts. At-grade options were tested throughout the PBC, IBC and DBC phases of LGWM including in the:
- i. Programme Business Case
 - ii. Initial Corridor Plan
 - iii. Programme Long List
 - iv. Programme Short List
 - v. Package Long List
 - vi. Package Short List
 - vii. Programme Affordable Short List Options
 - viii. Preferred Programme Options Report
 - ix. Basin and Mt Vic Options Assessment Report

147. In all cases, the at-grade options were shown to not significantly improve travel times on SH1 and therefore they would not perform well against the current Project objective. Specifically, the modelling and analysis undertaken during the various processes showed:
- i. The at-grade options would be operating over capacity should traffic volumes from Mt Victoria Tunnel increase, significantly reducing the benefits provided by duplicating the Mt Victoria Tunnel
 - ii. Any option where traffic shares lanes with high-capacity public transport may be challenging to incorporate, creating large and poorly performing intersections
 - iii. Providing dedicated public transport facilities in an at-grade option would have further capacity constraints, further degrading performance
148. For completeness, an at-grade option which seeks to maximise traffic capacity was again compared to the Project during the current Project investigation phase in 2026. This was based on the Basin Reserve Roundabout Enhancement Option (BRREO) that was promoted by a participant in the Basin Bridge Board of Inquiry process. It includes widening the roundabout to at least three lanes for all directions.
149. Modelling has shown that if the Project were modified to include BRREO at the Basin Reserve (rather than grade separation at the NW corner), this option would perform poorly against the Project objective of delivering efficient and reliable state highway journeys. This is primarily because the option would retain significant traffic conflicts and cannot provide consistent priority for SH1 movements at the Basin Reserve. Although BRREO adds lanes, the critical factor is not lane count but conflicting traffic volumes. Keeping heavy flows that conflict with state highway movements means BRREO cannot achieve the system-level efficiency sought by the Project.
150. A key point of high-volume conflict is the Paterson/Dufferin intersection, where signal time needs to be shared between multiple phases for competing local road, pedestrian and state highway movements. This results in higher delays to SH1 and undermines the reliability of state highway travel during peak periods.
151. By comparison, the Project removes major conflicting movements and limits SH1's interaction to only low-volume local trips and short pedestrian phases. This allows signal time to be predominantly allocated to SH1, enabling more efficient and free-flowing operation and significantly reducing congestion risk. This therefore means that the Project better supports population and economic growth when compared to at-grade solutions.
152. Modelling of the entire Project with BRREO at the Basin Reserve, rather than with grade separation, has shown that travel time savings for key journeys are, on average, only around two-thirds of that achieved by the full Project in peak periods. This means that even with all other Project elements in place, the BRREO option could significantly reduce the economic productivity otherwise enabled by the Project.
153. In summary, at-grade alternatives have been regularly and adequately assessed through all Project stages. These investigations have shown that grade separation is required for improvements to perform strongly against the Project objective.

Refinement of the preferred option

154. Since the identification of the preferred option at the end of the IBC phase, various refinements have been investigated both during the DBC phase of LGWM and the current Project investigations to improve performance, improve constructability, reduce cost, ensure the option would work without MRT (as this will not be delivered as part of the current Project) and reduce effects. All refinements went through appropriate MCA processes that balanced Project outcomes, effects and deliverability elements.

Refinements north of the Basin Reserve considered at the LGWM DBC phase

155. During the DBC phase of LGWM, sub-options were developed for layouts north of the Basin Reserve to enhance liveability and urban development. The differences between the options related to the location and alignment for a connection between the Sussex Street local arterial and Kent/Cambridge Terraces; and the alignment for a connection from SH1 eastbound (Vivian Street) and the Mt Victoria Tunnel approach.



Figure 8 - Basin Reserve North Layout Options

156. Following MCA assessment of these sub-options it was concluded that:
- The intersection between the Sussex Street extension and Cambridge Terrace should be perpendicular to provide consistency with the urban block patterns
 - The Sussex Street extension needs to intersect with Cambridge Terrace at around Fifeshire Avenue in order to have enough length for a gradient suitable for MRT; and
 - A connection from SH1 eastbound (Vivian Street) to the Mt Victoria Tunnel approach could be provided either via Kent Terrace (as at present) or via Hania Street
157. While Option 2 was identified through the Basin Reserve Options Assessments report as the best performing option at the time, it was noted that a variant of Option 1 was also a high performing option with lower costs and lower property take. Options 3 and 4 were discarded, but no formal decision was made by LGWM as to the preferred option.
158. Two variations of the Option 1 layout and a variation of the Option 2 layout were considered by the NZTA as part of the current Project investigations in 2025. The Option 2 variant that used Hania Street was discounted because it:
- Had higher costs, as it is a larger scheme
 - Had the highest property and construction impact; and
 - Had greater impacts in terms of noise and vibration (as the road would be closer to residential areas, social (as it impacts social infrastructure such as a cultural society, childcare facilities and apartment buildings) and urban form (as it impacts on the existing block structure and takes traffic away from historic principal roads)
159. While there were some benefits in terms of safety, resilience and active modes, these were considered minor in relation to the option's high cost, constructability and value for money impacts. There were also no additional benefits in relation to the Project objective, so this option was discarded and the project proceeded with Option 1 using Kent Terrace.

Refinements to cycle connectivity

160. Also during the later phases of LGWM, five cycling sub-options were developed to support a Basin Reserve grade-separated option. The five options revolved around three different themes for north-south cycle movement:

- i. Via east side of Basin Reserve and Kent Terrace
 - ii. Via Sussex Street on west side of Basin Reserve
 - iii. Via east side of Basin Reserve and Hania Street
161. The assessment determined that a connection via the east side into Kent Terrace was preferred as it provides more direct connectivity to existing paths leading to/from the Waterfront (along Cambridge Terrace) and to/from the Mt Victoria Tunnel. The Sussex Street and Hania Street options were not preferred due to steeper grades and a lack of connectivity respectively.

Access refinements

162. The preferred option from the LGWM investigations had a number of access restrictions for movements between the Basin Reserve and the surrounding local roads. During the investment case phase of the project, an alternative option was developed which removed these restrictions to determine if this would impact the overall transport benefits. The refined option allowed left-in and left-out access between Ellice Street and the Basin Reserve (rather than no access), provided access onto SH1 from Dufferin Street (rather than allowing access to Dufferin Street from SH1), and allowed left-in and left-out access between Rugby Street and the Basin Reserve (rather than no access). This option also had the benefit of a better layout for the bus stops and school pick-up and drop-off areas in front of the schools at the south-east corner of the Basin Reserve.
163. Overall, it was determined that the access improvements would result in shorter travel routes for a number of journeys without significantly affecting state highway travel times, cost or property take. The refined access option was therefore retained.

Sussex Street refinement

164. In further developing the Investment Case option for the Basin Reserve, the design and constructability teams considered options to reduce its construction related effects, which include:

- i. The need to drop the floor of the Arras Tunnel and modify the retaining walls on the approach to the Arras Tunnel; and
- ii. The need to route traffic along Old Buckle St in front of Pukeahu Memorial Park

165. An option was identified that significantly reduces the above impacts and that is also likely to have travel time benefits and a smaller property footprint.

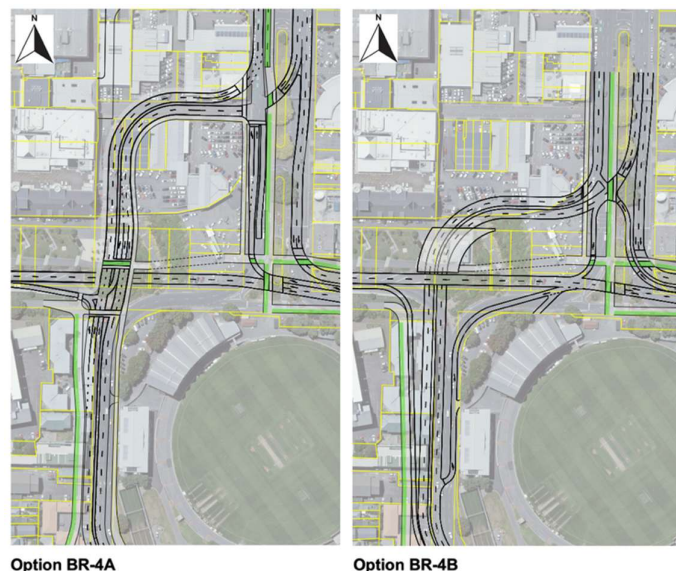


Figure 9 - Sussex Street Refinement Options

166. This new option (titled Option BR-4B) has Sussex Street going under SH1 rather than over it. This option was subjected to a comparative assessment against the previously preferred option, using the standard MCA criteria.
167. The MCA assessment showed that the alternative option (BR-4B) scored the same or better across all MCA criteria. Key points include:
- i. The two options are likely to perform similarly in relation to the Project objective; some movements on and off the highway perform slightly better in one option than the other; e.g. more

queuing is expected on Sussex Street south of SH1 in 4A than 4B, but more queuing is expected at the new Cambridge Terrace / Sussex Street intersection in 4B than 4A

- ii. The new option, particularly removal of the traffic signals on Sussex Street, would result in more efficient transport operations for local road and public transport due to improved travel times for north-south movements, including buses
 - iii. The new option would have reduced impact on and better connectivity between the Basin Reserve and Pukeahu, and reduced construction difficulty due to the reduced interaction with existing Arras Tunnel structure
 - iv. The new option would affect fewer properties, including fewer significant commercial entities
 - v. The new option is considered to have fewer effects in relation to noise (as it has a shorter construction duration and avoids traffic management diversions), heritage (as it fits better in the heritage landscape and improves connectivity to Pukeahu) and social outcomes (due to fewer impacts on Pukeahu and other properties)
 - vi. The new option was also judged to be cost neutral (compared with BR-4A) with no material change to the cost envelope as reduced property, construction and duration costs are replaced by increased cost for utility diversions
168. Overall, this option had fewer environmental effects and was neutral in terms of the Project objective and cost. It was therefore adopted as the new preferred option.

Summary and conclusion - Basin Reserve section

169. Optioneering at this location has been very broad and detailed, befitting the importance this location has, not just in the Project, but in the overall Wellington transport and urban environment. A wide range of options and alternatives has been considered, including a number of blue sky options. Investigations have repeatedly confirmed that grade separation was needed to deliver the state highway travel time benefits sought, however, at-grade alternatives were reconsidered regularly throughout the process (including retesting the 'BRREO' option in early 2026 – see paragraph 148) to be certain that a low-cost, low-effect option would not perform well against the Project objective.
170. The preferred option provides grade separation at the north-west corner of the Basin which reduces effects by using natural topography and locating the structures away from the most sensitive locations. The most recent Project investigations have considered options to optimise the design to reduce the footprint, improve constructability, reduce cost and improve overall outcomes.
171. The result is a layout that provides significant travel time benefits by separating north-south and east-west traffic, ties efficiently into the Mt Victoria Tunnel element, and minimises effects. In addition, the option will allow for future bus lanes, and/or MRT, to be delivered in this area in the future if that is decided⁹.

Mt Victoria Tunnel

Background

172. The current two lane, narrow Mt Victoria Tunnel has become a bottleneck for increasing travel demands between the eastern suburbs and the CBD. As identified in the Strategic Alternatives section, a duplicate Mt Victoria Tunnel has been identified as a key part of Wellington's future transport network since at least the 1970s, as evidenced by the 2.5m wide pilot tunnel that was drilled at that time.

⁹ The route that MRT vehicles (as defined by LGWM) would take through the project has been checked. The stretch of potential MRT route between Cambridge Terrace and south of the Museum Stand on Sussex Street, i.e. including the underpass, can accommodate MRT vehicles. The route from Sussex/Rugby intersection to Adelaide Road may require additional property in order to accommodate an MRT scheme

173. In more recent times, a duplicate Mt Victoria tunnel was investigated in detail in the early 2010s, but a notice of requirement and consents were ultimately not lodged due to the uncertainty introduced by the Basin Bridge Board of Inquiry decision. Investigations at Mt Victoria were commenced again as part of LGWM, which considered both the optioneering and consultation outcomes from the previous work, as well as considering new options.

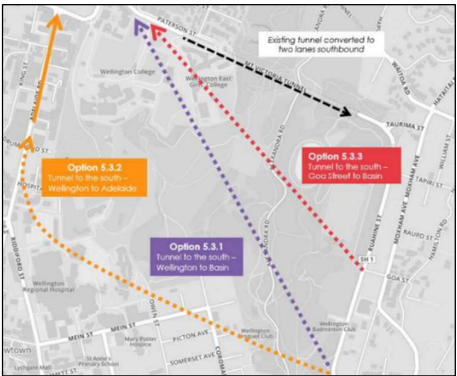
Options considered during the LGWM Programme Business Case phase

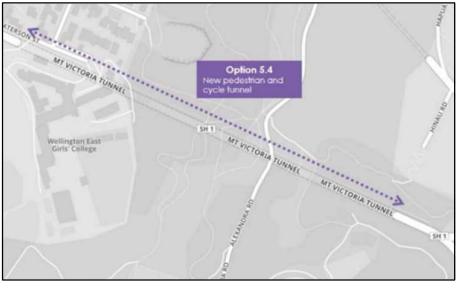
174. The PBC considered a range of different options for creating additional people moving capacity through the Mt Victoria Tunnel including a new vehicular tunnel, using/improving the Hataitai bus tunnel, creation of an additional walking and cycling tunnel, and different tunnelling methodologies such as widening the existing tunnel rather than excavating a new tunnel.
175. A duplicate Mt Victoria Tunnel, parallel to the existing tunnel, was adopted by LGWM for inclusion in both the Recommended Programme of Investment and also the Indicative Package, and it was noted that the additional capacity could be used for a number of different modes.

Options considered during the LGWM Indicative Business Case phase

176. While concepts were identified during the PBC phase, consideration of options and alternatives for the Mt Victoria Tunnel section restarted during the IBC phase of LGWM by considering all previously identified options and new ideas.
177. This phase reviewed previous reports and considered new options that would meet the LGWM project objectives. These options were compiled and categorised into groups and assessed. A summary of this assessment is provided in the table below.
178. Effects on Town Belt land was accounted for in the assessment process through the Landscape and Visual, Heritage and Archaeology, Social, Ecology and Property criteria.

	Option 5.1: Widen existing tunnel Option description: Mt Victoria tunnel widened to two lanes in each direction. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -1 Summary: Discounted. While this option would perform well in relation to the access objective, there would be significant technical challenges and network impacts associated with construction.
	Option 5.2.1: Duplication north side – parallel Option description: A duplicate Mt Victoria tunnel parallel and north of the existing tunnel providing two lanes southbound. The existing tunnel would be converted to provide two northbound lanes. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -2

	Summary. Investigated further. Option meets Access objective and is consistent with previous work. Heritage and character impacts through Mt Victoria. Option 5.2.2: Duplication north side – Pirie to Ruahine (yellow line) Option description: A duplicate Mt Victoria north of the existing tunnel but running from Pirie Street to Ruahine Street for southbound traffic. The existing tunnel would be converted to provide two northbound lanes. Option scoring: IBC Access to Support Growth Traffic MCA Score: 1 IBC RMA Part 2 MCA Score: -2 Summary: Discounted. Does not provide the same access benefits and may impact on the ability for the bus tunnel to continue to operate. Greater heritage and character impacts through Mt Victoria.
	Option 5.3.1: Duplication south side – Wellington Road to Basin (purple line) Option description: A duplicate Mt Victoria Tunnel is constructed on the south side of the existing tunnel, connecting to Wellington Road with two lanes in the northbound direction. The existing tunnel would be converted to provide two southbound lanes. Ruahine Street is converted to one way southbound. Option scoring: IBC Access to Support Growth Traffic MCA Score: 3 IBC RMA Part 2 MCA Score: -1 Summary: Investigated further. Option has best Access outcomes and limited effects on Town Belt. However, has impacts on schools near Basin Reserve and higher cost than a parallel tunnel on the northern side. Option 5.3.2: Duplication south side – Wellington Road to Adelaide Road (yellow line) Option description: A duplicate Mt Victoria Tunnel is constructed further south of the existing tunnel, connecting Wellington Road to Adelaide Road with two northbound lanes. The existing tunnel would be converted to provide two southbound lanes. Ruahine Street is converted to one way southbound. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2

	IBC RMA Part 2 MCA Score: -1 Summary: Discounted. Option meets Access objective, but discounted as subsequent consideration raised concerns about how to ensure efficient traffic flow on Adelaide Road. Potential impact on Government House and Town Belt. Option 5.3.3: Duplication south side – Goa Street to Basin (red line) Option description: This option is similar to Option 5.3.1, but the entrance of the duplicate tunnel is located at Goa Street. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -3 Summary: Discounted. Option meets Access objective but has significant additional effects on the Town Belt and activities within it compared to other options. Also has greater impacts on properties and impacts on schools near Basin Reserve.
	Option 5.4: New pedestrian and cycle tunnel Option description: This option includes a new tunnel on the north side of existing Mt Victoria Tunnel to provide a pedestrian and cycle link, potentially widening a previously drilled pilot tunnel Option scoring: IBC Access to Support Growth Traffic MCA Score: 0 IBC RMA Part 2 MCA Score: -1 Summary: Discounted as option does not meet the Access objective.

179. The two options that performed best in terms of the LGWM programme objective for Access while minimising social and environmental impact were:
- Duplication – north side (Parallel Tunnel); and
 - Duplication south side – Wellington Road to Basin (Diagonal Tunnel)
180. The diagonal tunnel option was identified by the specialist team to be the technically best performing option at the end of the IBC phase, however, there were concerns about cost. No final decisions were made on the preferred option before LGWM's dissolution. Both options were then subject to further investigation when the Project transitioned back to the NZTA.

Diagonal tunnel

181. In 2024, both the diagonal tunnel and parallel tunnel options were further developed into state highway schemes taking into account the current Project objective. This compared both options with the preferred Basin Reserve scheme and upgrades to the Eastern Connections to be able to better compare the overall performance. Both options scored similarly against the Efficient and Reliable

Journeys criteria. The diagonal tunnel would provide additional benefits due to the shorter route, but these additional benefits were in the order of around one minute per journey.

182. In further developing the design for the diagonal tunnel, it was determined that there would be significant short-term and long-term effects on Wellington College (which is the subject of a designation in favour of the Ministry of Education), St Mark's School and Kilbirnie Park:
- Widening of SH1 between the Basin Reserve and the new diagonal tunnel would be needed and this would encroach into the St Mark's School property, directly affecting a number of school buildings
 - The tunnel portal would need to be located within the Wellington College sports fields, directly impacting the cricket nets and the sports turf
 - Construction requirements would necessitate occupation of an even greater part of Wellington College sports fields, including for a construction staging area, and also require temporary relocation of the directly affected Wellington College and St Mark's facilities above
 - Kilbirnie Park would need to be the main staging area for tunnel construction, putting this park out of action for the duration of construction
183. Updated cost estimates were also developed which determined that the diagonal tunnel would likely cost \$1.2 to \$1.7B more than the parallel tunnel. This was because the tunnels are longer and two new tunnels are required (one for each direction of traffic) rather than one (to supplement the existing tunnel).
184. Overall, it was decided that the marginal improvement in transport outcomes associated with the diagonal tunnel could not be justified on the basis of the significant adverse effects on two schools and Kilbirnie Park and the increased construction cost, notwithstanding the larger area of Town Belt land required for the parallel tunnel option.

Stacked tunnel

185. The stacked tunnel concept was originally identified as a cost-saving initiative, however, after discussion with NZTA SMEs it was determined that the lower cost way of delivering this outcome would not be acceptable. Constructing a stacked tunnel was therefore identified as being more difficult, more disruptive and more costly than a parallel tunnel.

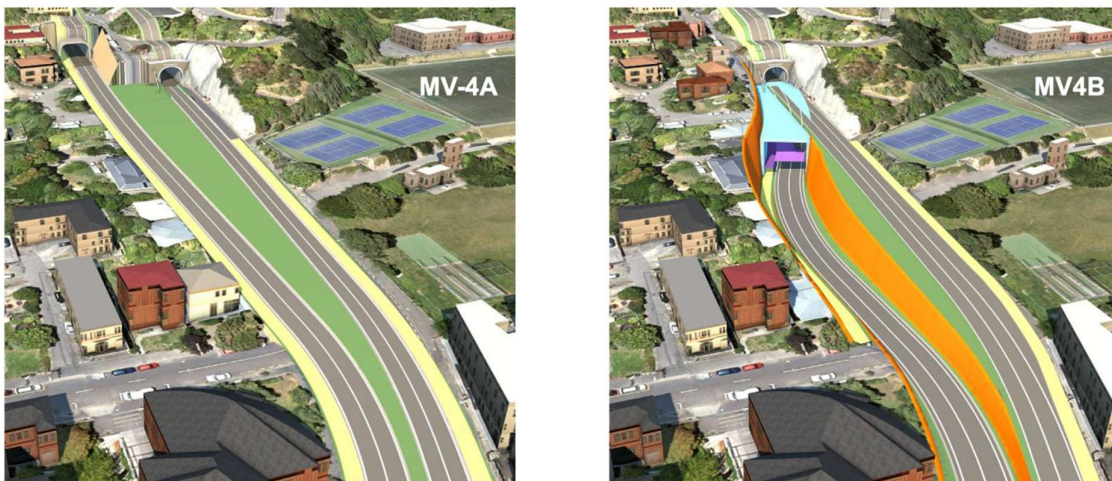


Figure 10 - Mt Victoria Tunnel Stacked Tunnel Options

186. The stacked tunnel would not improve outcomes relevant to the Project objective and, while it would have beneficial outcomes in terms of safety, heritage, noise and active modes, these are relatively minor and more than offset by negative effects. The negative effects comprise resilience, social, construction impacts, urban form, landscape and visual effects. Accordingly, the higher costs and higher impacts of the stacked tunnel means that this option was not progressed further.

Walking and cycling facilities

187. Consideration was given to constructing a separate walking and cycling tunnel, alongside both the existing tunnel and new parallel tunnel, so that there would be three tunnels rather than two.
188. Assessments undertaken did not identify any significant benefits in constructing a separate walking and cycling tunnel compared to having walking and cycling sharing a tunnel with general traffic. This is presuming that pedestrians and cyclists can be appropriately separated from traffic for safety and noise reasons. However, it was determined that the cost of building two tunnels rather than one is significantly greater, and there are greater impacts due to higher cuts being required into the Town Belt on the northern side of the eastern portal.
189. During the current Project phase, consideration was given to providing either a 3.6m, 4.6m or 6.0m width facility. As these options were not considered to have any significantly different impacts in terms of RMA effects, they were assessed against the Project objective, access, construction impact, cost and value for money.
190. This assessment resulted in the Project adopting a 3.6m wide facility. While wider options have greater levels of service and greater ability to support future growth in active mode numbers, the greater construction impacts (in terms of construction time needed) and physical work cost does not result in value for money. They also do not contribute more to the Project objective or significantly improve access over the substantial improvement that the 3.6m path provides compared to the existing 1.4m path in the existing tunnel.

Summary and conclusion – Mt Victoria Tunnel section

191. Investigations have considered a comprehensive range of options for providing additional capacity through the Mt Victoria corridor, drawing on historic investigations, previous consultation, and the work undertaken through LGWM and the current Project phase. The options assessed include widening the existing tunnel, constructing duplicate tunnels on the north or south side, varying tunnel lengths and portal locations, and providing a separate walking and cycling tunnel. Widening the existing tunnel was discounted due to major construction complexity and disruption.
192. Two options emerged as technically feasible and high-performing: a parallel tunnel north of the existing one, and a diagonal tunnel connecting Wellington Road to the Basin area. Further technical development confirmed that although the diagonal tunnel offered slightly higher transport performance due to a shorter route, it would require two new tunnels, create major impacts on Wellington College, St Mark's School and Kilbirnie Park, and cost \$1.2–\$1.7 billion more than the parallel tunnel option. These significant additional effects and costs could not be justified relative to the marginal transport gains. Providing a separate walking and cycling tunnel was also discounted due to high additional cost and greater Town Belt impacts, given that active modes can be safely accommodated within a new parallel tunnel. Other design variants, such as stacked-tunnel arrangements or wider active-mode corridors, were found to have higher costs and greater impacts without materially improving achievement of the Project objective.
193. The analysis concludes that a parallel duplicate tunnel on the north side of the existing tunnel is the preferred way to provide additional capacity (which can be used by all vehicular traffic) to achieve the Project objective while providing a better walking and cycling connection and appropriately balancing effects, Town Belt impacts, property, community facilities, cost, and constructability.

Eastern Connections

Background

194. The Eastern Connections section was an integrated part of the Mt Victoria Tunnel section of the Project for much of the Project's development. This is because the benefits of duplicating the Mt Victoria Tunnel may not be realised if four lanes were not provided between the tunnel and Evans

Bay Parade. A wide range of options was considered depending on the Mt Victoria Tunnel alignment and layout. This section focusses on the options that were complementary to the parallel tunnel only, as it is the tunnel that dictates the requirements for the Eastern Connections section, rather than the other way around, primarily due to the high cost of the tunnel.

195. It is noted that during the assessment of the parallel and diagonal Mt Victoria Tunnel options, the benefits, costs and impacts of the different options on the entire stretch of SH1 from the Basin Reserve to Evans Bay were assessed. This ensured that the flow-on effects of different tunnel alignments in this section were adequately considered.¹⁰

Options considered during the LGWM Programme Business Case phase

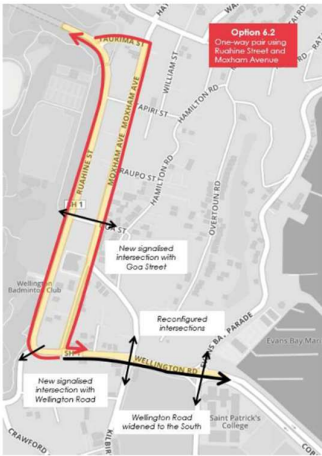
196. The LGWM PBC included the option of widening of Wellington Road and Ruahine Street to increase capacity on SH1 through this section. The Indicative Package also included this widening and noted that this would enable part of the road corridor to be allocated for public transport and/or high occupancy vehicles, if desired.

Options considered during the LGWM Indicative Business Case phase

197. While a range of options had been identified and assessed during the PBC phase of LGWM, consideration of options and alternatives for the Eastern Connections section restarted during the IBC phase. This included reconsidering all previously identified options and identifying and assessing new options.

	Option 6.1.1: Widening into Town Belt Option description: Closing Taurima Street access to/from SH1. Widening Ruahine Street to the west and Wellington Road to the south to provide two lanes in each direction. At-grade upgrades to other intersections to improve traffic flow and access. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -3 Summary: This option was identified to have greater impacts than the others in terms of Ecology, and Landscape and Visual due to the greater encroachment into the Town Belt. However, this option performed well on Access and would be the least expensive due to lower property costs.
	Option 6.1.2: Widening into private property Option description: Same as Option 6.1.1 except Ruahine Street is widened to private properties to the east rather than west into the Town Belt. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -2 Summary: This option performed as well as Option 6.1.1 on Access and had overall less effects. However, it also had greater urban

¹⁰ The diagonal tunnel option required grade separation at Kilbirnie Crescent to ensure traffic efficiency and reduce the chance of queueing within the tunnel. This grade separation would have significant costs and impacts

	development and social impacts than the others due to the greater property take, as well as a higher cost.
	Option 6.2: One-way pair Option description: Provides two lanes in the southbound direction on Moxham Avenue and converts the existing southbound lane on Ruahine Street to northbound. The one-way pair connects the eastern side of existing Mt Victoria Tunnel to Wellington Road. Option scoring: IBC Access to Support Growth Traffic MCA Score: 2 IBC RMA Part 2 MCA Score: -1 Summary: While this option scored well for Access and had fewest RMA Part 2 effects, it also had the potential to create significant local access, severance, noise, public transport, walking and cycling issues on Moxham Avenue and was therefore discounted.
Hybrid of 6.1.1 and 6.1.2	Option E1.1.1H: Hybrid option Option description: Same road layout as options 6.1.1 and 6.1.2 but rather than widening Ruahine Street on one side or the other, it widens into private properties at either end of Ruahine Street and into Town Belt land around Goa Street. Option scoring (noting that this was scored at a later date as it was raised late in the original Initial Corridor Plan process): Access to Support Growth Traffic MCA Score: 2 (same as the original options) RMA Part 2 weighting outcome: Best weighted score of the three options¹¹. Summary: This option performed the same for Access as options 6.1.1 and 6.1.2 above as the layout is the same. This option was identified as being slightly better performing overall as it moderated the effects across the different criteria.

198. The hybrid option was identified as the preferred option at the end of the IBC phase, but it was noted that further design may result in changes in future stages.
199. Effects on Town Belt land were considered throughout the assessment process through the Landscape and Visual, Heritage and Archaeology, Social, Ecology and Property criteria.

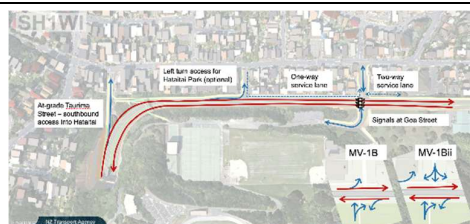
Refinement of the preferred option

200. Following the IBC phase of LGWM, a number of options were identified and further assessed during the DBC phase. These different options related to the Mt Victoria Tunnel options, which were also further assessed during the DBC phase. For example, a diagonal Mt Victoria Tunnel does not require widening along Ruahine Street, whereas a parallel Mt Victoria tunnel dedicated to public transport requires widening and different layouts at the key intersections.

¹¹ As this was scored at a later date, there was not a single RMA Part 2 MCA criterion; a wide range of effects criteria were considered and the weighting scenario is reported here to reflect the overall RMA effect considerations

201. A preferred Mt Victoria Tunnel option was not identified during the DBC phase before the LGWM partnership was ended. Accordingly, a preferred option for the Eastern Connections section was also not identified during this phase.
202. Following the dissolution of LGWM, the NZTA undertook further assessment of Mt Victoria Tunnel and Eastern Connections options. As explained in the previous section, the NZTA identified a parallel Mt Victoria Tunnel as the preferred option for that section. Accordingly, the NZTA commenced further investigations on the IBC preferred option for the Eastern Connections section, that is, the hybrid option (Option E1.1.1H).
203. During that scoping phase in early to mid-2024, and in response to the updated Project objective, it was determined that grade separation of the movement(s) to and from Hataitai would be needed to enable efficient and reliable journeys. For the scoping work during that phase, an option with grade separation at Taurima Street was used as a proxy to enable a comparison of Parallel, Diagonal and Long Tunnel options, however it was also identified that the local road intersections with SH1 through Hataitai would need to be further reviewed during the Investment Case.
204. Accordingly, the current Project investigations have considered a range of different intersection options. As with earlier options assessment processes, both access (transport) and other environmental effects have been considered, as well as property implications (including Town Belt), cost and other factors. This phase of options assessment has focussed in particular on intersection forms (including grade separation at various locations) to ensure the option is fit for purpose for projected traffic demands with a parallel Mt Victoria Tunnel, while limiting potential adverse effects, including potential effects on Town Belt and private property.
205. As this assessment was considering a smaller part of the Project, a comparative MCA was undertaken, which used the same MCA criteria as earlier assessment processes, but has grade separation at Taurima as the baseline option (as this was the proxy option adopted before the Investment Case) with other options scored relative to that option.
206. As with earlier options assessment processes, different effects on Town Belt land were considered and assessed through the Landscape and Visual, Heritage and Archaeology, Social, Ecology and Property criteria.

	Option MV-1A: Grade separation at Taurima Option description: This was the baseline option against which the refinement options were assessed. It reflects the hybrid option with traffic signals at Goa Street (with limited movements) and a grade-separated on-ramp from Taurima Street into the Mt Victoria Tunnel in the eastbound direction. Option scoring: As this was the baseline option, it was given a score of 0. Summary: This option was identified as having adequate outcomes for transport but with opportunities for improvement particularly with access to and from Hataitai. The grade-separated structure at Taurima was also identified as having impacts on noise, landscape and visual and built heritage.
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Option MV-1B: At-grade at Taurima with signals (limited movements) at Goa

Option description: Similar to Option MV-1A but has an at-grade left turn from SH1 into Taurima Street (rather than a grade-separated right turn out of Taurima Street to SH1). Traffic exiting Hataitai would access SH1 at Hamilton Road. Traffic signals are provided at Goa Street (with limited movements).

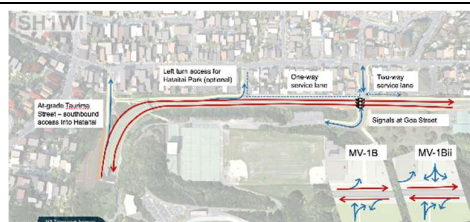
Option scoring (relative to Option MV-1A):

Efficient and Reliable Journeys: -1

Local Traffic, Public Transport and Active Modes: -3, -3 and +2

Summary:

This option performs worse in transport outcomes because egress from Hataitai is restricted to Hamilton Road. The option also increases delay to SH1 traffic and is much worse for local traffic and buses due to delays at Hamilton Road. Has fewer impacts on heritage, noise, social, landscape and visual due to removal of grade separation at Taurima.



Option MV-1Bii: At-grade with signals (full movements) at Goa

Option description: Similar to Option MV-1B but provides full movements at Goa Street to enable egress from Hataitai at this location.

Option scoring (relative to Option MV-1A):

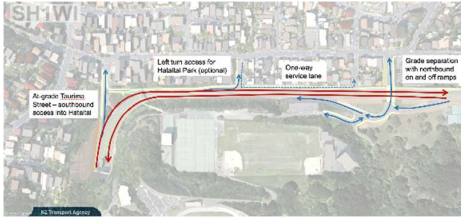
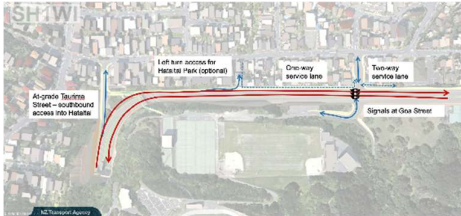
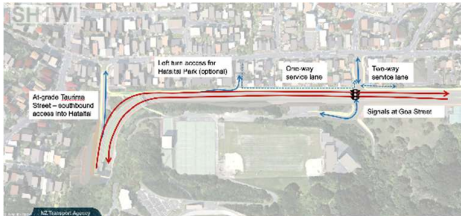
Efficient and Reliable Journeys: -1

Local Traffic, Public Transport and Active Modes: -2, -1 and +2

Summary:

This option performed worse in transport outcomes because the right turn out movements at the Goa Street signals introduce delays to state highway movements, and there is more congestion on local road network affecting buses.

The option has fewer impacts on heritage, noise, social, landscape and visual due to removal of grade separation at Taurima.

	MV-1C: Grade separation near Goa Street Option description: This option includes a new grade-separated connection near Goa Street (chosen due to natural topography and Hataitai Park access) to enable a right turn out of Hataitai and better access to and from Hataitai Park.. Access into Hataitai is still provided from SH1 to Taurima Street by an at-grade left hand turn. Option scoring (relative to Option MV-1A): Efficient and Reliable Journeys: +1 Local Traffic, Public Transport and Active Modes: +2, 0 and +3 Summary: This option performs better than the baseline in transport outcomes and best of all options because there are fewer movements that conflict with SH1 traffic and improved local connectivity, including to/from Hataitai Park. The option also had less effects in terms of landscape and visual than the baseline, but other effects were similar.
	MV-1D: At-grade with additional lanes at Goa Street – widening into Town Belt Option description: Similar to Option MV-1Bii but increased capacity on SH1 to attempt to improve transport performance and better achieve the Project objective by providing additional lanes and widening into the Town Belt along Ruahine Street. Option scoring (relative to Option MV-1A): Efficient and Reliable Journeys: -1 Local Traffic, Public Transport and Active Modes: -1, -1 and 0 Summary: Transport performance slightly worse than baseline due to additional delays to state highway movements and additional delays on Moxham Ave. Fewer impacts on heritage, noise, social, landscape and visual due to removal of grade separation at Taurima. However, increased effects on Town Belt.
	MV-1E: At-grade with additional lanes at Goa Street – widening into private property Option description: Similar to Option MV-1D but widening into private property rather than the Town Belt. Option scoring (relative to Option MV-1A): Efficient and Reliable Journeys: -1

	Local Traffic, Public Transport and Active Modes: -1, -1 and 1 Summary: Transport performance the same as MV-1D and slightly worse than baseline due to additional delays to SH1 movements and additional delays on Moxham Ave. Active modes score was slightly better due to path crossing fewer driveways. Significantly greater effects compared to both the baseline option and the widening into Town Belt option in relation to Heritage and Archaeology, Noise and Vibration and Social Greater impacts due to impact on residential houses, apartments and a church on Ruahine Street.
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207. All options assumed the same layout for the Mt Victoria Tunnel and the intersections at Ruahine St/Wellington Rd, Wellington Rd/Hamilton Rd/Kilbirnie Crescent and Wellington Rd/Evans Bay Parade, with the exception that Option 1B included a right turn from Hamilton Rd onto SH1, which is not present in the other options.
208. This assessment showed that none of the at-grade options provided good transport outcomes either in relation to state highway traffic or for access to/from Hataitai. Some of the at-grade options would have less adverse effects, but at the expense of the desired transport outcomes. In addition, some of the at-grade options required greater Town Belt land take to provide additional lanes on Ruahine Street and a larger intersection at Goa Street.
209. Grade separation near Goa Street provides better outcomes when compared to grade separation at Taurima. It is slightly more expensive but is better value for money because the grade separation provides the best state highway journey times (as it removes delays to state highway traffic) and the location and form of the grade separation provides much improved access to and from Hataitai and Hataitai Park.
210. Overall, the effects of grade separation near Goa Street were assessed to be of a similar level, although better from a landscape and visual effects perspective due to natural topography at Goa Street and the larger impact of the structures and cuts required for grade separation at Taurima.

Summary and conclusion – Eastern Connections section

211. The investigations in this section considered a wide range of options for the section of SH1 between the Mt Victoria Tunnel and Evans Bay Parade. Because the form of this section is heavily dependent on the chosen Mt Victoria Tunnel alignment, early investigations assessed multiple widening and reconfiguration concepts associated with each tunnel option. Once the parallel tunnel was confirmed as the preferred solution, the assessment focused on intersection layouts and corridor-widening strategies that could safely and efficiently accommodate the new tunnel's traffic patterns.
212. Initial LGWM assessments evaluated widening solely into the Town Belt, widening solely into private property, and constructing a one-way pair using Moxham Avenue. While all options provided similar transport performance, widening into the Town Belt generated greater ecological and landscape impacts, and widening into private property resulted in greater social, urban form and built heritage disruption. The one-way pair option offered good transport outcomes but created unacceptable severance, noise, access, and public transport issues on Moxham Avenue, and was therefore discounted. A hybrid option, which widened partially into the Town Belt and partially into private property, was identified as achieving a more balanced distribution of effects while retaining satisfactory transport performance.

213. Further refinement during the NZTA Project investigation phase examined whether grade separation or at-grade solutions should be provided at Taurima Street or at or near Goa Street. At-grade options generally reduced effects but resulted in poorer state highway performance and significantly constrained access to and from Hataitai, including significant delays for local traffic and buses. Grade separation at Taurima Street improved transport performance but required a prominent elevated structure with built heritage effects and notable landscape and noise impacts on adjacent residents. Grade separation located near Goa Street was therefore identified as the preferred option: it removes key conflicts for SH1 traffic, improves accessibility between Hataitai and Hataitai Park, improves safety, reduces impacts relative to Taurima Street, and delivers the strongest performance against the Project objective.
214. Overall, the preferred option is a combination of grade separation near Goa Street and hybrid widening which provides an appropriate balance of transport performance, effects, cost, and deliverability for the Eastern Connections section. This option meaningfully contributes to achieving the Project objective while appropriately providing for local trips and active mode connectivity and managing environmental and community effects and effects on the Town Belt.
215. This option was included in the material for consultation and engagement with the public and key stakeholders in late 2025.

9. CONSULTATION AND ENGAGEMENT

216. A number of alternatives and options were raised in feedback received from consultation and engagement with the public and stakeholders in late 2025 and early 2026, which I understand has been considered in detail by the Project's designers and the NZTA. I have reviewed and grouped these matters into the themes set out in Table 3 below.
217. The feedback provided through engagement has helpfully highlighted that the matters raised are either the same (or materially the same) as alternatives or options that have already been considered through earlier LGWM or current NZTA optioneering, or are alternatives / options that do not perform strongly against the Project objective with reduced adverse effects on private property or the environment (compared to the Project and other options already evaluated in detail).
218. Other feedback relates to more localised design refinements or operational suggestions rather than distinct alternative sites, routes or methods for undertaking the Project and these are considered in the design report prepared by Mr Gareth McKay.

Table 3: Alternatives and options raised through consultation and engagement

Alternative or option raised through consultation	Where addressed in this report	Summary of response
Congestion charging	Assessment of Strategic Alternatives Para 66 - 73	Charging on its own does not remove the underlying physical bottlenecks at the Terrace and Mt Victoria Tunnels and therefore cannot by itself deliver the full set of reliability and access outcomes sought by the objective underpinning this Project.
Reinstating the previously proposed 3-lane Terrace Tunnel arrangement, including use or replacement of the existing support columns.	Terrace Tunnel Para 105.	Use of the existing piers may not be possible and so this would not certainly result in any material cost saving. A two-lane duplicate tunnel provides the necessary capacity while avoiding the greater footprint and cost of a three-lane arrangement.
Tidal-flow or lane-changing operation in the existing Terrace Tunnel instead of constructing a second tunnel.	Terrace Tunnel Option 2.1	Existing flows are not tidal and such a solution would reduce existing northbound capacity while providing limited overall benefit.
Trenching, widening or four-laning Karo Drive so that SH1 operates in both directions on Karo Drive, including converting Vivian Street back to a local road. Also grade separation of east-west and north-south movements through Te Aro, including Willis Street, Victoria Street and Taranaki Street.	Te Aro Option series 3.2, 3.3 and 3.4. Te Aro options: paras 107–126	Options involving grade separation, trenching, tunnelling, two-way operation and widening generally provided some transport benefits, but at substantially greater cost, with greater property, heritage, urban form and construction disruption effects.
Implementing BRREO or another at-grade Basin Reserve option instead of the proposed grade-separated Basin Reserve arrangement.	Basin Reserve para145-153	At-grade Basin Reserve options, including BRREO, have been considered extensively by NZTA. They have been found not to sufficiently address the SH1 efficiency and reliability problems as they retain fundamental traffic conflicts, particularly around Paterson Street and Dufferin Street, and would deliver materially lower travel-time benefits than the full Project.
Alternative Basin Reserve layouts involving changes to Paterson Street gradients, Sussex Street, SH1 westbound/northbound movements, and different east-west/north-south separation.	Basin Reserve options: paras 127–165	A wide range of Basin Reserve options have been considered, including at-grade, elevated, trenched and hybrid arrangements, and options with SH1 located to different sides of the Basin Reserve. The specific layouts suggested through consultation are variations on those broader option families. They would not avoid the core trade-offs already identified: at-grade, or partial grade-separated options do not remove conflicts between local and state highway traffic therefore resulting in worse SH1 performance, while more extensive grade-separated options create greater structural, heritage, urban design, property and construction effects in a highly sensitive location. The Project arrangement balances SH1

		performance, local access, PT and active mode connectivity and effects.
Locating Sussex Street over SH1 rather than under SH1.	Basin Reserve Paras 164-168	Options involving different vertical arrangements at Sussex Street have been considered through the Basin Reserve design process. The option of Sussex Street passing over SH1 created impacts on the Arras Tunnel and Pukeahu Memorial Park. The Project arrangement, with Sussex Street passing beneath SH1 and a land bridge connection between Pukeahu and the Basin Reserve area, provides a more direct and legible public realm and active mode connection.
Providing greater pedestrian and traffic separation around the Basin Reserve, including pedestrian plazas or additional grade separation.	Basin Reserve options: paras 127–165	Further separation of SH1 traffic, local traffic and active modes has been considered. Additional grade separation would increase the scale of structures and effects around the Basin Reserve, which is a sensitive heritage, urban design, landscape and social environment. It would also significantly increase cost. The preferred option provides necessary grade separation for SH1 while reducing the scale and prominence of structures compared with earlier elevated options.
Providing full-time bus lanes through the Basin Reserve or on SH1 immediately.	Strategic alternatives: paras 58–61 and 89. Basin Reserve options: paras 127–165	This is primarily a road-space allocation matter rather than a separate alternative to the Project. The Project does not preclude future public transport priority changes. However, bus lanes alone would not address the Project objective, and indeed would negatively impact state highway travel times to the hospital.
Converting the existing Hataitai bus tunnel to a walking and cycling tunnel at certain times if buses are rerouted.		This was considered during LGWM. The bus tunnel was considered an unattractive walking and cycling route due to grade, proximity to destinations and personal safety issues. In addition, the bus tunnel is a key link in the public transport network that enables connections to the suburbs of Mt Victoria and Hataitai. However, the Project does not preclude this change in the future.
Constructing the LGWM diagonal Mt Victoria Tunnel, or another alternative tunnel alignment between the schools and Ruahine Street.	Mt Victoria Tunnel option set 5.3 and Para 181	Diagonal Mt Victoria Tunnel options were assessed during LGWM and retested during the current Project phase. The diagonal option, or other tunnels that take a diagonal route, would create significant effects on Kilbirnie Park and the schools next to the Basin Reserve, particularly during construction, and would be much more expensive.
Providing a wider or more separated walking and cycling facility in the new Mt Victoria Tunnel, including a 6 m facility or a facility below the traffic lanes.	Mt Victoria Tunnel options: paras 187–189.	Wider or stacked facilities would provide a higher level of service, but would increase tunnel size, construction duration, cost and associated effects. The proposed facility is considered the best value-for-money outcome.
Providing at-grade intersections along Ruahine Street instead of grade separation.	Eastern Connections options MV-1A, MV-1B, MV1Bii, MV-1D, MV-1E (Page 53-55).	At-grade intersection options were considered during the current Project phase. They perform materially worse for SH1 efficiency and reliability and for local access to and from Hataitai, including bus movements. Grade separation near Goa Street was identified as providing better overall transport outcomes and better value for money.
Providing a grade-separated connection to Wellington Road either at the intersection or from the new Hataitai Park access.		While it is acknowledged that the scheme removes the right turn in and right turn out at this location, these volumes are low and the alternate routes are not long. Grade separation or new links would have significant cost and impact, including on Town Belt and would not contribute to the Project objective.
Providing a roundabout at Goa Street / Hataitai Park Bridge.		A roundabout in this location would perform worse than both grade separation and traffic signals due to

		the unbalanced approach flows ¹² . It would also create operational and design challenges, including queue storage on Goa Street, approach gradients to Hataitai Park and greater property impacts.
Providing new local road links between Hataitai, Hataitai Park, Crawford Road, Newtown or SH1, including bridge or ramp options from Taurima Street or Hataitai Park.		Additional local road links would increase cost, property impacts and Town Belt effects and are not justified by forecast demand. The topography between Hataitai Park, Taurima Street, Ruahine Street and Moxham Avenue would make such connections difficult to design without substandard geometry or additional land take. These options are not considered to provide a better overall outcome than the preferred arrangement.
Diverting SH1 along the waterfront, or creating a harbour reclamation / barrier island / harbour bridge route to bypass the city centre.	Strategic alternatives Paras 82-85	Alternative SH1 routes have been considered at a strategic level. At-grade relocation options would generally be longer, less efficient and would affect other established communities or city functions. A waterfront, harbour reclamation, barrier island or harbour bridge route would be a fundamentally different strategic project, outside the scope of the current Project objective, and would involve very high cost, significant environmental effects, construction complexity and consenting risk.

219. In conclusion, the feedback provided through NZTA's engagement processes has reinforced my view that an appropriately broad range of alternatives and options has been considered for the Project, in an appropriately detailed and robust manner to inform NZTA's decision to progress the Project layout that is the subject of its application for approvals under the FTAA.

¹² Roundabouts can perform poorly where approach flows are highly unbalanced because dominant traffic streams create continuous circulating flow, reducing acceptable gaps for lower-volume approaches. This can result in high delay and queuing on the minor approaches. This would be the case during times when Hataitai Park is highly utilised

10. CONCLUSION

220. The assessment of alternatives for the Project has drawn on decades of detailed investigations into transport issues across the Nga Ūranga to Airport corridor. The earlier LGWM programme provided a substantial evidence base and a structured approach to identifying problems, defining objectives, and assessing a wide range of strategic and section-level alternatives. This work significantly informed the NZTA's approach in the current Project phase, ensuring continuity of analysis and enabling lessons from previous investigations, consultation, the Board of Inquiry decision, and stakeholder feedback to be fully incorporated.
221. Alternatives and options were considered both at a strategic level and at a section level. When the Project objectives were refined into the current objective in 2024, the NZTA systematically revisited earlier options, retested key decisions, and confirmed that an appropriate range of alternatives (both strategic and section-specific) had been adequately considered. This included re-examining large-scale long-tunnel concepts, network-wide programme alternatives, and multiple design variants within each Project section to ensure that the options assessment remained robust in light of updated objectives, policy direction and modelling.
222. This technical report shows that strategic alternatives that relied solely on public transport investment, demand management or limited state highway upgrades are unable to meet the Project objective of providing more efficient and reliable access on SH1. Large-scale alternatives, including alternative state highway corridors and long-tunnel alignments, performed well in transport terms but had prohibitive costs and significant construction, social and environmental impacts.
223. At the section level, a careful and deliberate process was undertaken to identify a wide range of options and thorough MCA processes were carried out to assist decision-makers in selecting the preferred options for each section: Terrace Tunnel duplication with two lanes, optimisation of the Te Aro one-way pair, grade separation at the north-west corner of the Basin Reserve, a parallel duplicate Mt Victoria Tunnel, and hybrid widening along Ruahine Street and Wellington Road, with grade separation near Goa Street. These processes have enabled decision-makers to consider the most appropriate balance between transport performance, environmental effects, property impacts (including Town Belt impacts), urban design, cost and value for money.
224. Throughout the alternatives assessment process, NZTA tested new options as they were identified or retested old options as new information became available. Preferred options shifted over time in response to updated objectives, evidence, technical inputs, consultation feedback and MCA results.
225. Compared to the Project, no reasonable alternative capable of meeting the Project objective while resulting in materially lesser environmental or property-related effects has been identified through the processes summarised in my report – other than those assessed by NZTA. All feasible or affordable alternatives with the potential to have lesser adverse effects were assessed (among many others) through the Project development lifecycle.
226. Importantly, I believe that the assessments undertaken for this Project have allowed NZTA to give adequate consideration of alternative sites, routes and methods, consistent with Schedule 5 of the FTAA and section 171 of the RMA. In each part of the corridor, a clear rationale has been documented explaining why alternatives were progressed (or not), the nature of their effects, and how they performed against the Project objective. The evidence shows that the preferred option represents a feasible and proportionate solution that meaningfully improves state highway efficiency and reliability while appropriately managing environmental, community and property effects, and cost.
227. The investigations carried out through LGWM and the current Project phase have therefore resulted in a coherent, integrated preferred option. This preferred option addresses the identified transport

problems and responds directly to the Project objective whilst appropriately considering effects and cost / value for money.

ANNEXURE A: Project Objective Discussion

1. Further commentary around the intent of the Project objective is provided below.
2. The outcome sought is to support regional economic growth and productivity by improving access through reduced travel times (efficient) and improved journey time reliability (reliable) for all traffic on SH1 through Wellington city centre. The investment is targeting SH1 in both directions between the north of the Terrace Tunnel and Wellington International Airport, and sections thereof, as this route is part of many journeys to and from the airport, the regional hospital, and the central city.
3. Modes included within the scope of the Project objective:
 - i. The scope of this work is underpinned by the direction set out in the Government Policy Statement on Land Transport 2024 (GPS). This GPS has reintroduced a focus on increasing economic growth and productivity as an overarching strategy priority for land transport expenditure, to ensure we meet our full potential as a country. The GPS also outlines expectations that investment will be tested through a “value for money” and “no frills” approach
 - ii. Core to this is the re-introduction of the RoNS programme, which the Project will be delivered through. The RoNS programme has been included in the GPS 2024 to direct investment towards vital transport links across the regions
 - iii. Through the Project, NZTA is undertaking investigations into improvements to the SH1 corridor through/around the Wellington central city to develop a transport network that enables people and freight to move around efficiently, quickly, and safely
 - iv. The primary objective underpinning the Project is improving the efficiency and reliability of general traffic trips (including freight) travelling on and along SH1 (in both directions). Improving the efficiency and reliability of the state highway will also provide opportunities for improving public transport operations (such as the airport express services)
4. What is meant by more efficient and reliable access?
 - i. In the context of the Project, this refers to a reduction in journey travel times (efficiency) and improved journey time reliability (reliable) for general traffic and freight travelling along SH1 (in both directions) between the north of the Terrace Tunnel and Wellington Airport (and sections thereof)
5. The type of trips to/from the Hospital that are within scope of the Project
 - i. Wellington Hospital is a place of local and regional significance, serving as the primary referral centre for the lower half of the North Island and the upper half of the South Island, servicing a population of about 900,000. The hospital is also a major employer for the Wellington region with approximately 4,000 staff
 - ii. Wellington Hospital is not directly connected to the state highway network, however, the state highway is used as part of the journey for many accessing the hospital, particularly for trips originating from across the Wellington region and the lower North Island. Reducing journey travel times and improving travel time reliability along SH1 will assist in improving regional access to this facility
 - iii. Effects of investment options (above the “do minimum”) on key journeys to the Hospital will be considered as part of the option assessment, and presented for consideration as part of the decision-making process
6. When and how the Project is intended to support regional economic growth:
 - i. The Project is designed to support regional economic growth by improving state highway network performance and connectivity to and from regional growth areas such as the Hutt Valley, Kāpiti Coast, and Porirua, as well as local growth areas in Wellington East. It will also improve access to Wellington International Airport, supporting domestic and international connectivity
 - ii. Although Wellington City has experienced some economic decline in recent years it hosts business head offices, the centre of the national public service and the political centre of New Zealand

- iii. Regional economic growth is multi-factored and not solely attributable to the Project, which is why 'support' has been used. Improved access and more efficient movement of people and goods implicitly results in improved economic outcomes. Increased connectivity is expected to improve efficient access and contribute towards regional economic growth through agglomeration of economies and labour force efficiency. Improved access for other SH1 trips that don't involve the Airport or Hospital, such as trips to employment or accessing suburbs (such as Miramar or Newtown) is also supported by this outcome