

**In Confidence**

Office of the Minister of Finance  
Office of the Minister of Transport  
Cabinet

**The New Zealand Upgrade Programme - an update on programme options****Purpose**

- 1 This paper seeks a Cabinet decision on changes to the transport components of the New Zealand Upgrade Programme (the Programme).

**Background**

- 2 On 29 January 2020, the Government announced it would invest \$12 billion to future proof and grow our economy including \$6.8 billion in transport projects.
- 3 This significant capital investment reflects the Government's commitment to addressing our nation's infrastructure deficit, while also providing vital economic stimulus to firms and households.
- 4 The Programme is making good progress with four projects already under construction (SH1 Papakura to Drury South Stage 1, SH58 Safety Improvements Stage 2, Papakura to Pukekohe electrification, Wiri to Quay Park). A further nine transport projects under the Supporting Regions Programme funded by the New Zealand Upgrade Programme have started construction and five of those have already been completed.
- 5 As at the end of April 2021, the Papakura to Pukekohe and Wiri to Quay Park projects employ 278 FTE staff and contractors, and there is an estimated 800 people, employed both part time and full time, working across the 20 state highway projects and providing programme support. Collectively, these jobs continue to support our recovery from COVID-19.
- 6 Since the Programme was first announced, a number of significant changes have occurred, not least increases in construction costs and the more fiscally constrained environment following the impacts of COVID-19.
- 7 The Climate Change Commission (CCC) issued its draft report in February which places a major onus on reducing transport sector emissions. Transport contributes 47 percent of CO<sub>2</sub> emissions and New Zealand will not reach our net-zero objective by 2050 without significant transport decarbonisation.
- 8 The CCC draft report recommends that transport emissions need to be halved by 2035, on the way to being largely eliminated by 2050. Consistent with existing government policy on urban development, the CCC recommends that urban growth be largely supported by access to high quality public transport

and safe walking and cycling options as part of a strategy to ‘avoid’ emissions when growth occurs. The CCC’s advice was not available at the time that the Programme was developed and Ministers believe it is important to take it into account as options are now considered.

*A baselining exercise was undertaken to better understand the state of the Programme*

- 9 When the Programme was developed and announced, some projects were in the early stages of development, with detailed project information still being established.
- 10 Delivery agencies, with support from the Programme Oversight Group’s independent advisors, undertook a baselining exercise to seek better information on what was being delivered, when, and for how much.
- 11 It is common that, as infrastructure projects develop, a better understanding of risk and cost is gained over time.
- 12 The Programme, as announced, is now forecast to cost up to \$13.1 billion, and cannot be fully delivered within the fixed funding envelope of \$6.8 billion (as outlined in table 1 below). The increase in forecast cost estimates are driven by a range of factors including scope changes, the increased cost of property acquisitions, changes in designs based on updated standards and assumptions, and construction price inflation. The updated cost estimates also include significant contingency to mitigate against the risk of future cost increases.
- 13 Due to the increase in cost, and in light of the CCC’s advice, it is appropriate for Cabinet to consider how best the Programme should be taken forward.
- 14 In trying to navigate through this issue, we considered how to reprioritise the Programme while balancing the following objectives:
  - 14.1 Delivery certainty for the sector and communities
  - 14.2 Ensuring value for money
  - 14.3 Meaningful benefits, including housing and managing emissions impacts
  - 14.4 Managing calls on Crown funding.
- 15 There is therefore a need for Cabinet to provide some certainty now in order for the delivery agencies to take the Programme forward. There are two options for Cabinet to consider.

**Option 1: Agree to provide additional Crown funding of \$4.4 to \$6.3 billion to deliver the full Programme (not preferred)**

- 16 The latest cost estimates for the individual projects in the Programme are shown in Table 1.

*Table 1: Option 1 funding requirements*

Project	Original allocation (\$ million)	Latest cost estimate P50 <sup>1</sup> (\$ million)	Latest cost estimate P95 (\$ million)
1. SH58	59	105	130
2. SH1/29	58	40	50
3. Takitimu North Link Stage 1	478	655	740
4. Papakura to Drury South	423	1,165	1,320
5. Canterbury Package	159	218	300
6. Queenstown Package	90	115	145
7. Wiri to Quay Park	315	305	318
8. Papakura to Pukekohe electrification	371	356	375
9. Wellington Railway Station safety	70	82	88
10. Wairarapa Rail Upgrades	126	145	156
11. Capital Connection Interim replacement rolling stock	15	24	26
12. Drury Rail Stations (three stations)	247	413	495
13. Melling	258	375	420
14. Penlink	411	740	830
15. Northern Pathway	360	650	785
16. Otaki to North of Levin	817	1,200	1,500
17. Mill Road	1,354	2,900	3,500
18. Whangārei to Port Marsden	692	1,200	1,310
19. Takitimu North Link Stage 2	455	545	630
<b>Total</b>	<b>6,758</b>	<b>11,233</b>	<b>13,118</b>

- 17 If Cabinet chose this option it would need to agree to provide additional Crown funding of \$4.433 to \$6.318 billion over and above the original funding allocation. This would be sufficient to take the full Programme forward with the projects announced in January 2020, assuming no further cost increases.

<sup>1</sup> The "P50" is a modelling estimate where 50 percent of the time final costs should be below the estimate and 50 percent of the time above. Similarly, a "P95" estimate is the modelling level at which 95 percent of costs fall below and five percent of costs fall above.

**Option 2: Agree to a revised package balancing delivery of the majority of projects in line with their original scope and managing the fiscal cost for taxpayers (preferred option)**

- 18 Given the increases in costs for the programme and bearing in mind the overall fiscal situation, we have reassessed the delivery of some projects to prioritise value for money, impact on housing and climate change and to manage the risk for the Crown.

*Table 2: Option 2 funding proposal*

Project	Project Budget appropriated (to P50)	Tagged contingency for risk (to P95) and re-scoping	Funding Allocation Total
	(\$ million)	(\$ million)	(\$ million)
1. SH58	105	0	105
2. SH1/29	40	0	40
3. Takitimu North Link Stage 1	655	0	655
4. Papakura to Drury South Stage 1	655	0	655
5. Canterbury Package	218	82	300
6. Queenstown Package	115	0	115
7. Wiri to Quay Park	305	13	318
8. Papakura to Pukekohe electrification	356	19	375
9. Wellington Railway Station safety	82	6	88
10. Wairarapa Rail Upgrades	145	11	156
11. Capital Connection Interim replacement rolling stock	24	2	26
12. Drury Rail Stations (three stations)	413	82	495
13. Milling	375	45	420
14. Penlink	740	90	830
15. Northern Pathway	650	135	785
16. Ōtaki to North of Levin	1,200	300	1,500
17. South Auckland (Papakura to Drury South and Mill Road)*	403	471	874
18. Whangārei to Port Marsden*	319	373	692
19. Takitimu North Link Stage 2	0	57	57
Portfolio Contingency	0	240	240
<b>Total</b>	<b>6,800</b>	<b>1,926</b>	<b>8,726</b>

\*Funding for these two projects is an agreed allocation for agencies rather than P50 or P95 estimates.

- 19 We propose to fully deliver projects 1–16 (above) based on updated baseline scope and forecast cost estimates. This will give communities across New Zealand greater certainty and confidence. This also includes delivering:

- 19.1 Northern Pathway (\$785 million) – The preferred option includes a new dedicated walking and cycling bridge which we propose to be funded at its P95 cost estimate. Appendix 1 includes additional detail.
- 19.2 Ōtaki to North of Levin (\$1,500 million) – We propose to proceed with the original scope of this project at its P95 baseline cost estimate. Appendix 3 includes additional detail.
- 20 We note that projects 12–16 represent a higher risk profile due to the stage in the project lifecycle and quantum of potential spending. Given this, our expectations around having levers to manage risks are higher and we expect to manage risks through allocating additional funding up to their P95 costing.
- 21 Given the scope and cost challenges, we directed officials to provide advice on options for the following high cost projects within agreed funding envelopes. We seek Cabinet endorsement to investigate these options further and report back to Cabinet on the outcome of the investigations:
- 21.1 Whangārei to Port Marsden (\$692 million) – This rescoped option includes safety improvements along the existing state highway, and a new rail line between Northport and the existing North Auckland Rail Line. The costs for this project are not baselined, but are currently indicatively estimated at \$0.632 to \$0.790 billion. Further work is required to understand scope, schedule, costs and benefits. Appendix 2 includes additional detail.
- 21.2 South Auckland projects (\$874 million) – We propose to progress with a rescoped/scaled new northern end of Mill Road (two lanes rather than four), and provide partial funding for supporting investment in the wider Drury network for local infrastructure, including active modes and public transport. This would replace the existing proposals for Mill Road and Papakura to Drury South Stage 2. The costs for this programme are not baselined and further work is required to understand scope, schedule and cost. Appendix 4 includes additional detail.
- 22 We propose not including funding for Takitimu North Link Stage 2. Stage 1 of the project will be fully funded through the Programme and will proceed immediately. For Stage 2 we propose the business case is progressed, including route protection, but not to provide construction funding through the Programme, with the expectation it will be considered through the National Land Transport Fund (NLTF) in the future.
- 23 Our preferred approach to managing Programme costs and risks (Option 2) will require total funding of \$8,726 million. This includes additional portfolio contingency of \$240 million to provide a greater level of assurance across the Programme and account for residual cost risk.
- 24 An additional \$1,926 million of Crown capital will enable Option 2 to be fully delivered.

- 25 If Cabinet agrees Option 2, we will direct officials to finalise project cost, scope, and schedule for projects 17 and 18. This will be agreed by the Minister of Finance and Minister of Transport (Joint Ministers) before final go ahead is given.

### Reviewing the oversight and monitoring arrangements

- 26 We propose that the Programme will continue to have an appropriate degree of monitoring and oversight arrangements going forward. Up to now there has been a joint Programme Oversight Group. To protect the Crown and Joint Ministers' interests, as well as continuing to support successful delivery, these arrangements should give us sufficient oversight and assurance that the Programme is being delivered to its baselined outcomes scope, cost, schedule and benefits.
- 27 We are still working through the appropriate level of oversight and assurance for the Programme with advice from officials. This includes a robust process for drawing down the tagged contingency. A Cabinet decision will be required on the appropriate level of oversight and assurance for the Programme, and we intend to come back to Cabinet on this matter.

### Route protection

- 28 Route protection, via a designation, protects transport corridors from land development pressures which would otherwise prevent or hinder the delivery of a public work project. Route protecting future projects now also ensures efficiencies at the point in time that they are approved, and gives certainty to communities about future infrastructure. For the projects that were initially in the Programme that have been rescoped, there is a decision as to whether route protection is progressed.
- 29 For Mill Road, Papakura to Drury South stage 2, Takitimu North Link stage 2, and Whangārei to Port Marsden, the consenting and designation costs associated with route protection are expected to be around \$100–\$130 million. Once the routes are designated, some circumstances will require property purchases, which could range from \$250–\$630 million over the next few years
- 30 At this time there is uncertainty around the availability of any future funding to progress those projects where route protection is proposed. Mill Road would also require substantial property purchase - the acquisition of an estimated 727 properties which in the short term could be contrary to the Government's housing objectives. Given the focus of the Programme is on project delivery, we propose that route protection is only progressed for Takitimu North Link Stage 2 as part of the Programme.
- 31 Local communities are likely to see this as meaning that the relevant projects will not be progressed in the near future, and the Minister of Transport will work with officials to develop a communications approach.

## Financial implications

- 32 We are proposing to change the project funding allocations within the existing New Zealand Upgrade appropriations across both road and rail to reflect revised cost estimates and treatment of contingency.
- 33 Further, we seek agreement to establish a tagged capital contingency of \$1.926 billion charged to the Multi-Year Capital Allowance. The purpose of this tagged capital contingency will be to:
- 33.1 Provide sufficient funding for the agreed projects to progress at their new cost estimates;
  - 33.2 Provide additional contingency to manage residual risk for the Programme over its lifetime (\$240 million).
- 34 We seek agreement to authorise Joint Ministers to jointly draw down on this tagged capital contingency on a project-by-project basis subject to:
- 34.1 Establishing parameters for managing access to programme and project contingency, based on advice from Officials and the New Zealand Upgrade Oversight Group
  - 34.2 Climate Implications of Policy Assessments being completed for individual projects and the Programme as a whole
- 35 We also propose that more detailed changes to process relating to allocations and contingency are delegated to joint Ministers to manage based on advice from Delivery Agencies and Officials. This is consistent with the delegations provided to us to agree the final list of transport projects in the Programme [CPC-20-MIN-006 refers]. We intend to advise the Boards directly of the renewed expectations around contingency management.
- 36 This approach will keep tension in the Programme to ensure that outcomes are being delivered appropriately, and cost risks to the Crown are being managed, while also ensuring that delivery entities can confidently manage projects. It will also provide enough flexibility so that we can adjust the approach to contingency management within the Programme over time.
- 37 It is not intended for any further Crown funding to be added to the Programme in the future, beyond that proposed in Option 2. Officials' advice is that there is still risk that costs increase. If there are further increases in Programme costs, we expect for this to be managed through scope changes or within contingency. We propose that Joint Ministers agree a process for managing and allocating contingency across the Programme.

## Population implications

- 38 There are no population implications arising from this paper.

## Impact Analysis

39 Impact analysis requirements do not apply to the proposals in this paper.

## Climate Implications of Policy Assessment

- 40 The Climate Implications of Policy Assessment (CIPA) team has been consulted and confirms that the CIPA requirements apply to this proposal, as one of the objectives of the baseline and reprioritisation exercise was to consider the impacts of greenhouse gas emissions. The CIPA requirements will also likely be triggered by the emissions impacts of the Programme.
- 41 Quantification of emissions impacts is challenging for transport infrastructure and the Ministry of Transport is working with the delivery agencies to develop the necessary information to complete the CIPA for the Programme. Emissions impacts can only be quantified once the final scope of the Programme is decided, and for this reason are not currently available.
- 42 The Ministry for the Environment is supportive of the intended investment in projects that will directly reduce emissions, such as public transport, rail and walk/cycleways, however the Ministry for the Environment is also mindful that other roading related projects may increase emissions and may be inconsistent with our transition to a low emissions economy. The Ministry of Transport notes it is important to consider emissions at a system level, and not necessarily on a project-by-project basis. It is also important to weigh the imperative to reduce emissions against other outcomes.
- 43 Officials have proposed a way forward for the Programme that prioritises projects that could be delivered in a way to achieve housing benefits and address key transport network issues, while potentially resulting in less emissions than other projects.
- 44 The Ministry for the Environment is supportive of the consideration given to emissions reduction in the prioritisation exercise undertaken to develop Option 2 (preferred option), and for this reason consider it likely that this option aligns better with our intended emissions reduction targets.
- 45 Although a full CIPA has not been prepared, Waka Kotahi has undertaken an initial assessment about whether greenhouse gas (GHG) emissions from land transport will go up or down as a result of each project given their specific geographical location. It is important to note this assessment is based on the baseline scope of the projects and does not consider any changes to scope that are currently being considered.
- 46 At a Programme level, Waka Kotahi has assessed the potential for each project as originally scoped to reduce GHG emissions:
- 46.1 13 projects are likely to have a neutral or positive impact on GHG emissions as they are unlikely to materially increase vehicle kilometres travelled and may support mode shift: Canterbury Package (6

projects), Queenstown Package (3 projects), SH1/29 intersection, Melling, Northern Pathway and SH58 safety improvements.

- 46.2 The remaining eight projects are likely to have potentially negative impact on GHG emissions as they effectively increase road capacity and vehicle kilometres travelled: Whangārei to Port Marsden, Penlink, Mill Road, Papakura to Drury South Stages 1 and 2, Takitimu North Link Stages 1 and 2, and Ōtaki to north of Levin. However, it should be noted the scope of most of these projects include, where appropriate, walking and cycling pathways as well as managed lanes for public transport and high occupancy vehicles.
- 47 We believe the changes to the projects for South Auckland and Whangārei to Port Marsden proposed in option 2 will help reduce the emissions impact of these projects.
- 48 Further assessment on these eight projects will consider emissions relative to the current and expected transport network usage. This will include assessment of future network changes such as public transport and rail initiatives that may not currently have funding but are planned.
- 49 The CIPA team will work with the Ministry of Transport to assess the emissions impacts as decisions to progress projects by Joint Ministers are made.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

To maintain  
legal  
professional  
privilege

Proposed

## Human Rights

- 52 The proposals in this paper are not inconsistent with the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993.

## Consultation

- 53 This paper was prepared by the Ministry of Transport. Waka Kotahi, KiwiRail, and the Ministry for the Environment CIPA team were consulted on this Cabinet paper. The Department of the Prime Minister and Cabinet was informed.
- 54 We have engaged with Auckland Council and Auckland Transport about the proposed decisions for Auckland NZUP projects. We will engage with other affected local government partners prior to any announcement.

## Communications

- 55 There will be announcements that will need to be made regarding the proposals in this paper.
- 56 We recommend that this is delegated to Joint Ministers so that we are able to ensure the affected communities are appropriately informed of any future investment decisions made on the individual projects within the Programme.

## Proactive Release

- 57 This paper will be proactively released within 30 business days of decisions being confirmed by Cabinet. The material in this paper that is legal advice will be withheld as it is privileged information.

## Recommendations

We recommend that the Committee:

- 1 **note** that on 29 January 2020, the Government announced \$12 billion of capital investment through the New Zealand Upgrade Programme (the Programme) to future proof our economy
- 2 **note** that the Programme reflects the Government's balanced transport policy with \$6.8 billion of Crown capital investment in road, rail, public transport and walking and cycling infrastructure across New Zealand
- 3 **note** that on 21 July 2020, the Cabinet Priorities Committee (CPC-20-MIN-006 refers) noted that:
  - 3.1 the Minister of Finance and Minister of Transport had delegated responsibility to approve the Establishment Reports (outlining objectives, scope, timeframe and budget)
  - 3.2 the Minister of Finance and the Minister of Transport have the authority to make further delegations for decision making to the respective agency Boards
  - 3.3 the New Zealand Upgrade Programme Oversight Group has been established to provide Programme level assurance and regular reporting to the Minister of Finance and Minister of Transport on the delivery of the Programme
- 4 **note** that when the New Zealand Upgrade Programme was first announced, some of the more significant projects were still in early stages, with detailed project information still being developed
- 5 **agree** to provide additional Crown funding of \$1.926 billion to take forward a revised package of New Zealand Upgrade Programme transport investments that balances delivery of the majority of projects in line with their original scope and managing the fiscal cost for taxpayers
- 6 **note** that the additional Crown funding will be structured to provide the Minister of Finance and the Minister of Transport with levers to manage calls on Crown funding, support value for money, and incentivise Waka Kotahi New Zealand Transport Agency and KiwiRail to deliver in a cost efficient manner
- 7 **agree** that the additional Crown funding at recommendation 5 above includes;
  - 7.1 \$240.000 million of additional contingency to manage residual risk in the Programme
  - 7.2 \$1,686.000 to provide sufficient funding for the agreed projects to progress at their new cost estimates

- 8 **note** that Joint Ministers will advise the Boards of Waka Kotahi and KiwiRail of the processes for allocating and managing contingency across projects and the Programme
- 9 **agree in principle** that the following projects proceed to delivery with funding allocations based on the following revised cost estimates:
- 9.1 SH58 (\$105 million at P50)
  - 9.2 SH1/29 (\$40 million at P50)
  - 9.3 Takitimu North Link Stage 1 (\$655 million at P50)
  - 9.4 Papakura to Drury South Stage 1 (\$655 million at P50)
  - 9.5 Canterbury Package (\$300 million at P95)
  - 9.6 Queenstown Package (\$115 million at P50)
  - 9.7 Wiri to Quay Park (\$318 million at P95)
  - 9.8 Papakura to Pukekohe electrification (\$375 million at P95)
  - 9.9 Wellington Railway Station safety (\$88 million at P95)
  - 9.10 Wairarapa Rail Upgrades (\$156 million at P95)
  - 9.11 Capital Connection Interim replacement rolling stock (\$26 million at P95)
- 10 **agree in principle** that the following higher-risk projects proceed to delivery with funding allocations based on the following revised cost estimates:
- 10.1 Drury Rail Stations (three stations) (\$495 million at P95)
  - 10.2 Melling (\$420 million at P95)
  - 10.3 Penlink (\$830 million at P95)
  - 10.4 Northern Pathway (\$785 million at P95)
  - 10.5 Ōtaki to North of Levin (\$1,500 million at P95)
- 11 **authorise** Joint Ministers to further investigate the following rescoped projects with the following funding allocations:
- 11.1 Whangārei to Port Marsden (\$692 million)
  - 11.2 the South Auckland projects (Mill Road and SH1 Papakura to Drury South Stage 2) (\$874 million)
- 12 **authorise** Joint Ministers to make investment decisions on the rescoped projects in recommendation 11 above subject to:

- 12.1 more satisfactory information regarding scope, cost and schedule, and
- 12.2 the completion of a satisfactory Detailed Business Case for proposals within each corridor
- 12.3 consultation with the Minister of Housing in relation to the South Auckland projects
- 13 invite Joint Ministers to report back to Cabinet on the outcomes of the decisions described in recommendation 12
- 14 agree to establish a tagged capital contingency of up to the amount below in Vote Transport to provide for the policy decisions in recommendations 6 to 12:

	\$m – increase/(decrease)				
	2020/21	2021/22	2022/23	2023/24	2024/25
New Zealand Upgrade Transport Projects – Tagged Capital Contingency	-	1 926 000		-	-

- 15 authorise the Minister of Finance and Minister of Transport (as Joint Ministers) jointly to draw down the tagged capital contingency funding in recommendation 14 above on a project-by-project basis subject to:
  - 15.1 Establishing parameters for managing access to programme and project contingency, based on advice from Officials and the New Zealand Upgrade Oversight Group
  - 15.2 Climate Implications of Policy Assessments being completed for individual projects and the Programme as a whole
- 16 authorise Joint Ministers to determine processes and allocations for managing contingency in accordance with the parameters outlined in recommendation 14 above
- 17 agree that the tagged capital contingency in recommendation 14 above be charged to the Multi-Year Capital Allowance
- 18 agree that the tagged capital contingency in recommendation 14 above will expire on 30 June 2031
- 19 note that Cabinet Office Circular (20)(3) would ordinarily require a Climate Implications of Policy Assessment to have been conducted
- 20 note that officials are still completing Climate Implications of Policy Assessments for individual projects, and the Programme as a whole
- 21 note that authority of the Joint Ministers to draw down on the tagged capital contingency established in recommendation 14 is not available until the

Climate Implications of Policy Assessment work has been completed and considered by Joint Ministers and the Minister for Climate Change

- 22 **note** that, when emissions impacts are modelled for the Programme, Waka Kotahi NZ Transport Agency and KiwiRail will share the analysis with the Ministry for the Environment's Climate Implications of Policy Assessment team
- 23 **note** that there will continue to be appropriate monitoring and oversight arrangements of the Programme to protect the Crown and Joint Ministers' interests, as well as continuing to support the successful delivery of the Programme going forward
- 24 **agree** that route protection for Mill Road, Papakura to Drury South Stage 2, and Whangārei to Port Marsden is not funded from within the Programme
- 25 **agree** that route protection for Takitimu North Link Stage 2 is funded from within the Programme (\$57 million)
- 26 **agree** to delegate any communications or announcements on the Programme to the Minister of Finance and the Minister of Transport so that affected communities can be appropriately informed
- 27 **note** that an initial decision has been undertaken by Cabinet that the Programme will be monitored by the Implementation Unit and Cabinet will receive regular updates on the delivery of the Programme
- 28 **note** that there will continue to be appropriate monitoring and oversight arrangements for the Programme to protect the Crown's interests, as well as continuing to support the successful delivery of the Programme going forward
- 29 **note** that officials will report back to us on the appropriate level of oversight and monitoring arrangements for the Programme, including a robust drawdown process for the tagged contingency, and a Cabinet decision on the Programme's oversight and monitoring will be required
- 30 **invite** joint Ministers to report back to Cabinet on any revisions to the oversight and monitoring arrangements, as well as implications for the proposed parameters for accessing the tagged contingency outlined in recommendation 14 above.

Authorised for lodgement

Hon Grant Robertson  
Minister of Finance

Hon Michael Wood  
Minister of Transport

## APPENDIX ONE - NORTHERN PATHWAY

### Summary

A walking and cycling connection across the Waitematā harbour is a nationally significant project, and part of the strategic regional network that has been delivered over the last ten years. It would provide increased multi-modal accessibility across the harbour and deliver mode shift that would reduce vehicle kilometres travelled (Vkt) on the busiest section of the NZ transport system, providing a reduction in carbon.

The original scheme assumed that the proposed walking and cycling facility could be attached to the existing Auckland Harbour Bridge. However, design development, geotechnical investigations and testing determined this was not possible as the existing piers are not able to accommodate the extra weight without considerable modifications to counter balance the increased load involving additional risk to the bridge.

Alternate options were explored, with the recommended solution being a full-height separate bridge option. It presents the best performing long-term solution as it provides a dedicated 24/7 cross harbour connection, a high level of amenity for users and can meet forecasted demand (with scope for further growth in demand).



Figure 1 – potential view of dedicated walking and cycling pathway across Waitematā Harbour

This solution would take in the order of five years to be operational (including consenting and design development) and is estimated to cost between \$650 million (P50) and \$785 million (P95).

### Context

The Northern Pathway walking and cycling path is a critical missing strategic link in the Auckland active modes network. It will provide a walking and cycling link across the Waitematā Harbour, connecting the north shore of Auckland with the central isthmus, linking the extensive walking and cycling investment already made by Waka Kotahi and Auckland Transport (circa \$300-400M) on either side of the harbour. This will provide transport, environmental and user health benefits as well as providing increased access to one of the world's great harbours.

Auckland is one of the most car dominated cities in the world with around 70% of all journeys to work made by car, with many of these journeys able to be undertaken by cycling or walking.

The National and Regional transport policies are aligned in the need to increase mode choice for users and to increase active mode share, not only to address the overall performance of the transport system, but also for the health benefits of the system users. The latest RLTP is seeking that 70% of new trips are absorbed by public transport or active modes.

The Northern Pathway project was included in the NZ Upgrade Programme announced by Government in January 2020. The budget allocation for this project set out in the Establishment Report is \$360m.

The Additional Waitematā Harbour Crossing Connections joint Auckland Transport/ Auckland Council/ Waka Kotahi business case requires the Northern Pathway to be in place providing a separate walking and cycling solution, due to the need to provide relief to the existing bridge so that the increasingly onerous maintenance requirements can be undertaken whilst maintaining its operation.

The original scheme assumed that the proposed walking and cycling facility could be attached to the existing Auckland Harbour Bridge. However, work undertaken to date by Waka Kotahi and the established Northern Pathway Alliance has determined that it is not feasible to continue with this plan due to the risk it would pose to the existing bridge. The design development, geotechnical investigations, wind testing and pier drilling/testing identified adding any further structural elements (including the proposed walking and cycling path) is unacceptable to the ongoing operation and resilience of the bridge as the existing piers are not able to accommodate the extra load.

#### **Identifying alternate options for delivering safe cycling and walking across the harbour**

Before arriving at a recommended option, Waka Kotahi and the Northern Pathway Alliance explored several potential solutions. They were:

- **SkyPath:** This option did not meet the current loading standards in the bridge manual and would require restrictions to be in place to operate safely
- **Utilising existing lanes on the Auckland Harbour Bridge:** This option would require 2 lanes to be used to provide safe walking and cycling facilities, creating a significant impact on bridge traffic capacity during peak hours (20-40% capacity impact), which would also impact public transport services. Further modelling indicates the resultant congestion will encourage general traffic to uptake the alternative longer SH16 route and these emissions will exceed any reductions from users transferring to walking and cycling. An option to take a single lane was also considered, however this has considerable safety and user experience concerns and was not progressed further as a result. Officials have been asked to further investigate the potential of utilising existing lanes on a Sunday as an interim measure until the full structure can be completed.
- **A separate multi-modal structure for walking, cycling and public transport:** The current 'pinch point' for traffic in the corridor is not the bridge itself, but rather the approaches on either side, which is why dedicated bus lanes are provided either side of the bridge and not on the bridge itself. Therefore, providing additional bus lanes across the harbour on a separate multi-modal structure has reduced economic benefit. Waka Kotahi estimates an additional investment of circa \$1 billion (in addition to the new bridge) would be required for the work on either side of the proposed structure and significant additional public transport investment in the corridor would still be required.
- **Full height separate walking and cycling structure:** This is the recommended option and is outlined in more detail below.

- **Mid-height separate walking and cycling structure, opening or fixed:** The mid-height and opening span options would either impact navigational height requirements or affect user experience. The opening span option would also further increase the cost of the project.
- **Gondola:** This option would cost approximately as much as a new bridge and have an additional annual operating cost compared with other options. It would also require a transfer for users, and therefore not provide the seamless walking and cycling experience.
- **Operational solutions, e.g. a dedicated ferry or bus service:** Although the operational solutions could be implemented in a relatively short time period (subject to consenting) they're only considered to be an interim solution (due to capacity) as they don't provide a seamless walking and cycling connection as part of the wider Auckland active mode network. These options require a transfer for users (onto a bus or ferry to get across the harbour) and would therefore be less attractive, offer less benefits (including health related benefits) and also have operational complexities due to capacity constraints at transfer points. There is also the challenge of accommodating these services within the current fare structures on parallel services. These options would also not be 24/7 operation.

#### **Waiting for the additional Waitematā Harbour Crossing was considered**

Another option that was considered was to wait for or accelerate the long term additional Waitematā Harbour crossing elements, with the assumption that once these are in place there would be sufficient 'spare' capacity on the existing bridge to provide for walking and cycling.

The challenge with this approach (putting aside the timing delay of 15-20 years) is that with the long-term solution in place, whilst there would theoretically be sufficient spare capacity (2 lanes only) upon which to provide walking and cycling, this would result in the existing bridge having all lanes fully utilised once again.

An important driver of the long-term crossing solution is to provide relief to the existing bridge so that the increasingly onerous maintenance requirements can be undertaken whilst maintaining its operation. If all lanes were being utilised this would restrict this maintenance resulting in increased costs and delays to users. Significant disruption is anticipated if this were the case as the scale of required maintenance is not small.

The busway also needs to continue to operate on the existing bridge, again taking flexibility away from the existing bridge from day one to manage the many competing needs after the multi-billion dollar investment that the long term harbour crossing option would be is not ideal.

Putting the walking and cycling link in the proposed tunnels was also considered, however this has significant (fatal flaw) user safety challenges and would also not attract the forecast demand due to the poor user experience. This review therefore confirmed that a standalone walking and cycling structure was required even with the long term Additional Waitemata Harbour Connections in place.

#### **Recommended option – full height separate structure for walking and cycling**

The full-height bridge option is the best performing long-term solution as it provides a dedicated 24/7 cross harbour connection, a high level of amenity for users and can meet forecasted demand (with scope for further growth in demand).

This solution would take in the order of five years to be operational (including consenting and design development), which is two years later than outlined in the NZ Upgrade Programme Establishment Report.

Assessing the project against the current Investment Decision Management Framework (IDMF) shows the value of the project, with the highest rating against the GPS Alignment (Very High) and Schedule (High) criteria. This is due to the mode shift, reduced emissions and completion of a strategically important link characteristics of the project.

The preferred option is strongly aligned with the GPS and the current Waka Kotahi Investment Decision Management Framework (IDMF) due to mode shift, reduced emissions and completion of an established active mode network.

This project has the opportunity to provide a step change in mode shift and carbon emissions reduction in the country's busiest corridor. And whilst this is an expensive scheme, providing this scale of intervention for user needs to be done right to maximise the considerable opportunity to realise the step change in outcomes.

Waka Kotahi believes all modes will ultimately need to be provided for across the harbour and this is supported by all the historic studies into the AWHC and aligns with the GPS. We therefore believe this option is the most efficient way to achieve the Walking and Cycling component either now or into the future.

Figure 1 above and Figure 2 below show the potential look and feel of the stand alone structure alongside the existing Auckland Harbour Bridge.

*Figure 2 – potential view of dedicated walking and cycling pathway across Waitematā Harbour*



#### **Cost and benefit implications**

Waka Kotahi's baseline estimate for delivering the Northern Pathway as a separate structure was \$760m (P50) - \$830m (P95). It should be noted this figure was estimated before a preferred solution was identified. The recommended full height structural bridge option has a cost estimate of \$650m (P50) - \$785m (P95), subject to further design decisions.

Additional funding would be required to deliver the preferred option given the current funding allocation of \$360 million within NZ Upgrade Programme for this project. This funding gap of \$290-\$425 million (P50-P95), would require either savings to be found from across the NZ Upgrade Programme or through additional Crown investment.

While this is a significant increase in cost, when considered in the context of supporting the wider transport strategic objectives for this corridor, i.e. the Additional Waitematā Harbour Crossing (AWHC), which will be circa \$15Bn, this is an investment that supports future development.

The benefit cost ratio (BCR) for the project is currently estimated to be around 0.4-0.6. However, this assessment is based on an old assessment using traditional methodology which Waka Kotahi believes does not consider the full benefits of the current scheme. When this is reassessed, we believe the BCR will be more favourable due to the recommended option allowing improved user amenity benefits, greater resilience, increased land use forecasts and therefore demand, changes to how micro-mobility is addressed and improvements to Economic Evaluation Manual (EEM) that lengthen the benefits period.

### **The Northern Pathway Alliance – a risk if decisions are delayed**

There is a well-established Northern Pathway Alliance that has effectively worked together to get the project to this stage. The Alliance funding is due to run out at the end of May 2021. If the project is not confirmed to proceed before the end of May, the Alliance will either need to be closed down or additional funding provided to continue. The cost to extend the Alliance for a further two months is \$4 - \$5m and would enable them to continue the design progression at a pace that supports the timelines required for fast track act consent.

The recommended structure is expected to take 5 years to implement. If the project is not approved to proceed in the next month or two, there is a risk an additional 12 months will be required to complete the project. This delay would be a result of missing the fast track consenting pathway window and the need to remobilise the Alliance. This could add another \$20-25m to the project costs.

### **Implications of a decision to stop the project**

If a decision was made to stop the project completely, with a view of not doing it in the future, there would be financial and reputational impacts.

The project has already spent money and it is estimated the total sunk costs if the project were cancelled altogether would be approximately \$35 million. This would include the cost to date, and the cost to demobilise.

The reputational impact would be extreme with regards to property owners and stakeholders such as Bike Auckland, environmental groups, climate change considerations and iwi partner expectations. In addition, our Tier 1 contractors and suppliers who have bid and mobilised key resources (locally and internationally) will be extremely cautious for future procurement of this project or others of a similar nature.

This project is also a critical piece of the future Harbour Crossing Strategy, which would need to be updated along with other strategies as they assume a walking and cycling option will already be in place. This would require significant re-engagement with ATAP and other stakeholders who endorsed the current strategy.

### **Risks**

The main risks associated with the recommended option include:

- **Partner and Stakeholder Engagement:** This is a significant project in the Auckland landscape and will attract strong views and perspectives from partners (such as Iwi and Council) and the wider community. This is a risk that delays or increases the cost of the project if not managed appropriately. There would also need to be engagement with wider stakeholder groups and the community as this option is not in the public domain as yet.

- **Materials:** This is a significant structure and the availability of specialist skills and materials is a risk in the current COVID environment.
- **Statutory Approvals:** A project of this significance is not without approvals risks during the consenting phase. For this option, these include visual impacts, impacts on the harbour (ecological predominantly) and Iwi implications (particularly the Pa site on the northern landing).

### **Next Steps**

Subject to Cabinet approval of the project and the additional funding required, the next steps for the Northern Pathway project are:

- Undertake the development of a design for the entire project that will confirm the crossing's exact form (structural and architectural) and the amenity outcomes which will be delivered for users, including obtaining the necessary consents for the long-term structure.
- Engage with stakeholders and the community throughout the above steps to build support for the project and understand community concerns.
- Further explore the use of the existing Auckland Harbour Bridge on Sundays as an interim measure.

**COMMERCIAL IN CONFIDENCE****APPENDIX TWO – ŌTAKI TO NORTH LEVIN****Summary**

Palmerston North continues to grow as an economic and freight hub for the lower North Island and the population in the Horowhenua and Kāpiti area is increasing. Both are increasingly putting pressure on the transport connections to Wellington.

The original scope of the Ōtaki to North of Levin project involved upgrading 24km of new (realigned) SH1 to four lanes plus a walking and cycling path. This would include a lane in each direction utilised for public transport, electric vehicles and high occupancy vehicles, where appropriate. It was the only option assessed that delivers fully against the project objectives and also achieves the wider housing outcomes but does not decrease carbon (due to the growth forecast).

The funding allocation for this project at programme establishment was \$817 million. The preferred option (including future revocation of the existing SH1) would cost \$1,200 million (P50) - \$1,500 million (P95), requiring approximately an additional \$400 million (P50) - \$700 million (P95) in funding to the current budget allocation.

The next steps on the preferred option, including technical work and communications are completion of the business case, commencement of statutory approvals and development of the procurement strategy for implementation. Waka Kotahi will also assess the project for tolling, as per their usual policy.

**Context**

Palmerston North continues to grow as an economic and freight hub for the lower North Island and the population in the Horowhenua and Kāpiti area is increasing. Both are increasingly putting pressure on the transport connections to Wellington.

State Highway 1 (SH1) is New Zealand's primary national corridor, but the section between Ōtaki and Levin is afflicted by several serious safety, efficiency and resilience problems.

The importance of this section of SH1 is characterised by its function in connecting Wellington to the North Island, where no other resilient route exists. It also provides an essential economic connection to Palmerston North (via SH57), the largest freight node in central New Zealand.

KiwiRail also operates a daily PN-WGTN-PN service "The Capital Connection" which uses diesel hauled carriages. The renewal of this fleet (an interim solution) is a separate and approved NZUP project.

***Original option announced in January 2020***

The scope of the original option is:

- New 24km offline SH1 alignment from North Levin to Ōtaki
- two of the four lanes will be for general traffic and where appropriate, two lanes will prioritise public transport, high occupancy vehicles and potentially freight
- separated walking and cycling path along the entire length of the new alignment

**COMMERCIAL IN CONFIDENCE**

- alignment with the Safe Network Programme to reduce the number of deaths and serious injuries along the existing corridor.

**Outcomes sought**

The key outcomes sought by the investment in this project are:

- **Safety** – to save lives and to reduce the risks of deaths or serious injuries
- **Resilience** – to enhance the resilience of the state highway network by reducing the number and duration of journeys affected by closures and delays
- **Regional Growth** – support inter regional growth and productivity through the efficient movement of people and freight (and improving reliability of journey times)
- **Provide connections** that integrate the state highway and local road network which serves the growth in urban areas
- **Mode shift and mode choice** – prioritise public transport, higher occupancy vehicles, freight vehicles and access to multi modal connections.

**Investment options**

Investment options considered in the preparation of this paper are:

- Option 1: Proceed with the currently proposed option (Joint Ministers' recommended option)
- Option 2: Safety improvements along the existing state highway, targeted improvements on the existing state highway to facilitate development and route protection of the long-term state highway works
- Option 3: Safety improvements along the existing state highway, route protection of the long-term state highway works and upgrading of the rail services in the corridor

Further detail on the Joint Ministers recommended option is outlined below.

**Recommended Option**

Progression of the current proposed project, with additional funding allocated to the project to enable its completion.

The proposed new route is required to provide the level of safety improvements required and provide for the resilience and growth outcomes sought for the corridor. The shared user path will also increase mode choice for users in the area.

The funding allocation for this project at programme establishment was \$817 million. With this current budget allocation, approximately an additional \$400 million (P50) - \$700 million (P95) is required.

**Risks**

Risks with the preferred option are largely typical for the type of project proposed (completion of a new corridor) and its current phase (business case). Key risks include consenting and property acquisition, cost and schedule management.

**COMMERCIAL IN CONFIDENCE**

**Next steps for preferred option**

The next steps on the preferred option, including technical work and communications are completion of the business case, commencement of statutory approvals and development of the procurement strategy for implementation.

While preferred option for progression via the NZ Upgrade Programme does not include improvements to rail (beyond the Capital Connections project), it is noted that a separately funded business case is already underway, that will include consideration of the viability of enhanced passenger rail services for this area.

**COMMERCIAL IN CONFIDENCE****APPENDIX FOUR – REVISED OPTION FOR SOUTH AUCKLAND****Summary**

The original scope of the South Auckland Package included a range of projects to address existing safety, mode share, accessibility and resilience issues and support the significant scale of planned growth for this southern part of Auckland. It included rail electrification, two new rail stations, additional capacity and walk/cycle facilities on SH1 between Papakura and Drury South and the full length of the Mill Road corridor connecting existing and new communities east of SH1 between Manukau and Drury.

Joint Ministers asked for an alternative option that expanded the rail investment to three new rail stations, sought alternative options for the SH1 and Mill Road elements that could be deliverable within the original Establishment Report funding allocation for the package and could assist releasing new housing consistent with Government's decarbonisation goals.

The Joint Ministers' preferred approach for the SH1 (Papakura to Drury South) project is to progress delivery of Stage 1 of the Project (being upgrades between Papakura and Drury), but defer delivery of the section between Drury and Drury south.

The joint Ministers' preferred option for Mill Road is a smaller scale project in the north between Flat Bush and Alfriston, comprising an upgraded two-lane facility connecting into the existing urban section near Manukau and with the same targeted safety upgrades between Alfriston and Papakura. Only conceptual consideration of this option has been undertaken but indicates potential opportunity for savings that could be used for investment in local upgrades to support releasing additional housing in Drury.

The new preferred option is not as advanced as the original NZUP option and therefore carries risk around cost certainty, the scale of the likely benefits and the scale of funding able to support additional housing in Drury. More work is needed to address this risk/uncertainty. There is also stakeholder risk given the previous priorities for both the Mill Road and local Drury projects agreed through the ATAP process.

There is also a significant stakeholder risk with any reduced Mill Road option, given the long standing interest in this development from various Auckland Stakeholders and the assumption that Mill Road has been funded by a number of recently lodged Private Plan changes in the Drury Area.

Next steps for the preferred option are

Ongoing consenting and delivery of the rail and SH1 (Stage 1) elements

- Liaise with Auckland Council for land use planning around the accelerated Drury West station
- Investigation to confirm the reduced-scale element of Mill Road in the north
- Engagement with ATAP partners on the opportunity for local network upgrades to support release of additional housing in Drury West

**Context**

This corridor comprises the key strategic rail and road links entering Auckland as well as including the largest proportion of the planned greenfield growth outlined for future development within the Auckland Unitary Plan, comprising almost 100,000 people.

**COMMERCIAL IN CONFIDENCE**

There are significant growth pressures on this corridor from both brownfield intensification, inter-regional growth and new growth areas, including seven Private Plan Changes in the Drury area about to be considered for approval by an independent hearings panel.

A Business Case was approved by the Boards of both Auckland Transport and Waka Kotahi for a full-system response with staged implementation that included extensive upgrades to the rail system, complementary bus networks, a full network of separated walk and cycle facilities and new or upgraded corridors to address safety, provide wider network resilience and improve accessibility to social and economic opportunities. Reducing the need to travel and shifting to sustainable modes of travel were key elements of this system response, which included integration with Auckland Council's land use planning.

As part of the ATAP 2021-31 Programme of Investment, Drury investment was considered. The outcome of the 2021-31 investment was an allocation of \$243 million for local road route protection and roading connections.

Auckland Council are considering opportunities for developer and/or land-owner contributions to the needed upgrades for the local network however significant funding challenges mean that there remain a number of significant gaps in the local network that would either constrain the planned new developments or compromise the desired transformation to more sustainable travel and urban forms.

***Original option announced in January 2020***

- Electrification of the rail network between Papakura and Pukekohe
- Two new rail stations in Drury
- Upgrades to SH1 between Papakura and Drury South
- The full, 4-lane Mill Road corridor between Manukau and Drury South, including walking and cycling facilities and two of the 4 lanes to be managed for use by high-priority vehicles

**Outcomes sought**

Ministerial outcomes from which we have taken direction are:

- Improve safety outcomes
  - Support increased housing supply in the area in a way that is consistent with the Government's decarbonisation objectives
- Work within the original funding envelope across the South Auckland projects.

These outcomes support the overall system response outcomes for Southern Auckland (as identified by the Supporting Growth work) which are safety, mode shift and mode choice, resilience, regional growth and improving accessibility.

**Investment Options - The Recommended Option**

The Joint Ministers provided guidance on investment priorities, which confirmed (and expanded) the rail elements and confirmed delivery of only the first stage of the SH1 upgrade. Ministers were also supportive of a scaled back option for Mill Road. The Joint Ministers indicated a preference for the following option:

- Rail electrification between Papakura and Pukekohe
- Three new rail stations (two in Drury plus Paerata)

**COMMERCIAL IN CONFIDENCE**

- Upgrades to SH1, only between Papakura and Drury
- A reduced-scale of the Mill Road corridor with local investment in Drury to support release of additional housing (Option 2)

**Mill Road**

The preferred option by Ministers for Mill Road is a rescaled northern end of Mill Road with two lanes rather than four and the option also provides partial funding for supporting investment in the wider Drury network for local infrastructure, including active modes and public transport. The option includes:

1. A two lane upgrade to Mill Road in the north which will tie in to the existing dynamic lanes on Redoubt Road
2. Construction of a two lane divided facility between Redoubt Road and Alfriston (within the designation and with future proofing of significant infrastructure e.g. bulk earthworks)
3. Targeted safety treatment through Takaanini
4. Potential cost savings from approximately 2km less of road upgrade (via a tie-in to the existing urban section), a reduced speed environment, reduced earthworks, reduced road pavement and potentially reduced bridge and wall structures
5. Safety upgrades on the adjacent, high-volume 2-lane rural section of Mill Road from Alfriston to Papakura. This would be targeted at remaining within the existing 20m road reserve with a change from rural to an urban speed environment with footpaths, edge and intersection treatments.

The opportunity offered by this option is for savings from the reduced scope of Mill Road to be used to fund upgrades needed to release housing and associated local Centres in Drury. The scope of projects that could be considered would depend on the cost savings from Mill Road, however consideration could be given to the following:

- Projects within or crossing the State Highway corridors, to help address severance, safety and capacity issues of those corridors to release additional housing in Drury We t
- Regional (strategic) cycleways connecting communities along the rail corridor that are outside local or collector road corridors
- Arterial corridors that provide direct walk/cycle or bus access to stations to support release of new housing areas
- Local transport projects that support housing supply and Transit Oriented Development (TOD) reviewed in light of what the ATAP funding has already addressed

This additional funding and investment could help assist bringing forward further funding from other sources (i.e. developers, IFF agreements) to support release of more housing and associated local centres with the desired urban form and mode share outcomes.

**Key Risks of Preferred Option**

The reduced-scale option for Mill Road north and the funding of local projects in Drury are conceptual only and require additional investigation to understand key risks, including:

**COMMERCIAL IN CONFIDENCE**

1. **Engineering Feasibility:** The property, topography and environmental constraints in the corridor are such that the resulting design and cost of a reduced-scope project that meets the primary safety objectives may be greater than expected.
2. **Cost Savings:** Detailed investigations would be required to confirm the construction costs of the northern Mill Road project, and hence the scale of any cost savings within the available funding envelope to be reallocated to local transport infrastructure.
3. **Future-Proofing:** The 2-lane concept for Mill Road, budget constraints and immediate focus on treating safety issues may mean that decisions are required that could make future expansion of the corridor to support the planned growth complex, expensive and with potential redundancy in the interim works.
4. **Cross-jurisdictional delivery:** Although the State Highway elements of any Drury Local package could be delivered by Waka Kotahi (i.e. the SH22 urban upgrade or SH1 local crossings), other potential cycleway or station access roads would likely need delivery by Auckland Transport or KiwiRail. The opportunity to use such funding to leverage developer funding inputs could also require complex agreements and processes.
5. **Partner Alignment:** The short timeframes in which this concept option was developed mean that engagement with Auckland Council / Auckland Transport has not been possible. While the potential local Drury projects would be drawn from the projects identified in Council's Drury Infrastructure Funding and Finance (DIFF) study, the selection, funding and delivery methods for such projects would require alignment with the other parties, including Auckland Council and the Ministry of Housing and Urban Development.
6. **Urban Form.** To achieve the desired high density urban form around the rail stations requires detailed land use and master planning, which has occurred (in various forms) around the Drury Central and Paerata Stations. Land use planning immediately around Drury West Station would need to be accelerated ahead of Auckland Council's land release strategy to realise the desired outcomes. This accelerated land use may require additional local network upgrades not anticipated in the short term. This work will be integrated with the station design to optimise connectivity to the station.
7. **Redundancy of investment.** Development of this reduced scope project would require careful balancing to ensure that the design of a new 2 lane Mill Road addresses the immediate safety issues but is also able to be affordably expanded to 4 lanes in the future to provide for the surrounding growth areas
8. **Constrained Growth.** The shortened length and scope (2-lanes) of Mill Road would not provide capacity to support the planned growth in northern Papakura, Takanini, Ōpāheke or Drury east (including recent private plan changes that have been lodged with Auckland Council).
9. **Reputation:** The shortened, 2-lane version of Mill Road would improve access to the existing roads north of Papakura via intersection treatments, but would not provide any material improvement in accessibility, reliability or resilience through the corridor

**Route Protection**

The Drury-Ōpāheke Structure Plan assumes both corridors are necessary for the future development of the area. This means route protection would be required to allow for future development of these corridors at an appropriate time and using an appropriate mode.

**Risks with not Proceeding with previous Option**

**COMMERCIAL IN CONFIDENCE**

1. **Constrained Growth.** The shortened length and scope (2-lanes) of Mill Road would not provide capacity to support the planned growth in northern Papakura, Takaanini, Ōpāheke or Drury east (including recent private plan changes that have been lodged with Auckland Council).
2. **Reputation:** The shortened, 2-lane version of Mill Road would improve access to the existing roads north of Papakura via intersection treatments, but would not provide any material improvement in accessibility, reliability or resilience through the corridor

**Next Steps for Preferred Option**

Rail Electrification

- Ongoing delivery by KiwiRail

Rail Stations

- Ongoing consenting by SGA. Delivery by KiwiRail with engagement with Auckland Council on accelerated land use planning to support acceleration of the Drury West station

SH1 Papakura-Drury South

- Ongoing Delivery of stage 1 (Papakura to Drury) by Waka Kotahi

Mill Road

- Engagement with ATAP parties on the preferred option, including the opportunity for funding of local upgrades to release additional housing in Drury
- Investigation, design, consenting and delivery of the northern section by Waka Kotahi

## APPENDIX THREE – REVISED OPTION FOR WHANGĀREI TO PORT MARSDEN

### Summary

State Highway 1 (SH1) is New Zealand's primary highway, but the section between Whangārei and SH15 (being the turnoff to Marsden Point) is afflicted by a number of serious safety, efficiency and resilience problems.

The original scope of the Whangārei to Port Marsden turnoff project involved upgrading 22km of SH1 to four lanes, with a lane in each direction utilised for public transport, freight, electric vehicles and high occupancy vehicles, where appropriate. The 2021 baseline cost estimate for this was \$1,200 million (P50) to \$1,310 million (P95).

Due to the financial constraints on the wider NZ Upgrade Programme, the Joint Ministers asked for an alternative option that would provide targeted road safety and Northport Rail upgrades and be deliverable within the original Establishment Report funding allocation for the project.

The Joint Ministers' preferred option includes investment in the provision of a rail link from Northport to the North Auckland Rail line, providing increased opportunity for freight transfer to rail from road. This work would be supplemented with upgrading the section of the NAL between Otiria and Whangārei to 18 tonne axle load, safety upgrades to the existing state highway. These interventions would replace the previous option of upgrading the existing state highway.

This new preferred option would need to be properly baselined as a next phase. At this very early stage and in the limited timeframe for this paper, a high level cost estimate is \$632 million to \$790 million, being made up of:

- Rail at \$450 million to \$500 million for the Marsden Link and other enabling rail works to the north of Whangarei
- Road at \$150 million to \$250 million for safety improvements on SH1
- If route protection were to proceed, corridor route protection costs would be approximately \$32 million to 40 million, not including any property purchase. This would cover a detailed business case, the consenting process and fees and iwi and community engagement through the process.

The new preferred option is not as advanced as the original NZUP option and therefore carries significant risk around cost certainty and the exact scale of the benefits likely. For example, AECOM's 2019 business case for Northland Rail indicated a very low benefit cost ratio of 0.32 for a rail connected port option. More work is needed to address this risk/uncertainty and in light of updated and increased capital costs. There is also stakeholder risk given their strong support for the original NZUP option and the fact they have not been engaged with yet on the potential change in scope.

The next steps on the preferred option, including technical work and communications are:

#### Rail

- Further understanding of demand and supporting measures needed to achieve mode shift

**COMMERCIAL IN CONFIDENCE**

- Updated assessment of the commercials for the service, including customer projections, ongoing costs to serve and expected renewals, noting that for KiwiRail as an SOE, the service would need to be profitable.
- Updated cost estimates for rail works to create the line to Marsden Point and potential future requirement for NLTF funding for renewal and maintenance
- Updated rolling stock cost estimates
- Stakeholder engagement and commitment of Stakeholders, such as Northport, to support rail services

**Safety Improvements on SH1**

- Development of larger scale short term safety works, including updating costs and benefits to the same level as the recently baselined projects.

**Communications**

Due to significant stakeholder, partner and community interest, development of a clear communications plans will be critical and must address:

- Gaining community buy-in to any adjustments to the original scope
- Clarity on timeframes and process from here
- Providing scope certainty

**Context**

Northland is one of the fastest growing regions in the country, due in part to its proximity to Auckland. It is also one of the most deprived regions in the country.

The importance of this section of SH1 is characterised by its function in connecting Northland to the rest of the North Island, where essentially no other road route exists. It also provides an essential economic connection to Northport, the largest freight node in Northland.

Prior to the Provincial Growth Fund investments, the rail network had been poorly integrated into the wider transport system and was a clear example of “Managed Decline”. There was no rail connection to Northport.

***Original option announced in January 2020***

The scope of the original option was:

- upgrading 22km of SH1 to four lanes through a mix of offline and online improvements between Whangārei and SH15 (Port Marsden Highway), including upgrading the SH1/ SH15 intersection
- two of the four lanes would be for general traffic and where appropriate, two lanes would prioritise public transport, high occupancy vehicles and potentially freight
- separated walking and cycling path between Whangārei and SH15
- alignment with the Safe Network Programme to reduce the number of deaths and serious injuries between the Whangārei and Port Marsden turn off.

***Current status of rail***

**COMMERCIAL IN CONFIDENCE**

Recent Crown investment of \$178.5m through the Provincial Growth Fund (PGF) has enabled the following areas to be addressed:

- From 11 January 2021 the line between Whangarei and Auckland can now take conventional 9'6" shipping containers
- Post Xmas 21/22 that same section of line will be able to take an 18-tonne axle load meaning KiwiRail's standard North Island locomotive and wagon fleet can operate; whereas at present only light axle locomotives can be used
- Post Xmas 22/23 the section of line from Kauri to Otiria will be re opened for low speed operation of light axle locos

In addition, KiwiRail has been allocated \$40m from the PGF to purchase the land necessary for the connection to Northport.

The investment in the existing line helps the exporter connect to Ports of Auckland and Tauranga, but the absence of a rail connection to Northport means any export goods from Whangarei and north must either travel by road to the port, or by road/rail to ports to the south.

Development of a rail enabled export port at Marsden Point needs to be viewed in context of the overall supply chain system. For Marsden Point the defining question is whether:

- The Port is seen as primarily serving the Northland export base with some additional competition driven capture of import/export traffics from Ports of Auckland (or)
- The Port investment is additionally intended as part of the strategy to materially diminish operations in Ports of Auckland (Downtown) and distribute its business elsewhere (the Government has not yet determined its preferred approach to port relocation).
- Certain of the system investments will be similar, others will differ both in scope and timing depending on the answer to those questions. The rail investments proposed under this NZUP package are equally applicable to both scenarios and coupled with investments by Northport in its load and unload facilities will provide the baseline fixed infrastructure in order to achieve the first objective.

None of the investment is redundant if a subsequent decision is taken to pursue the second objective.

KiwiRail believes there is a real opportunity to increase volume on rail through the expansion of the port and servicing further container ship calls.

This has been seen through recent experience with the role of rail in responding to the disruption to the NZ supply chain.

### **Outcomes sought**

The key outcomes sought by the investment in these improvements are:

- **Safety** – to save lives
- **Resilience** - to support growth in the Northland region and improve the resilience of New Zealand's supply chain through rail access to port infrastructure.

**COMMERCIAL IN CONFIDENCE**

- **Economic growth** – to enhance the movement of freight between Whangarei, Ruakaka and the rest of New Zealand and connecting growth areas of Whangarei and Ruakaka. Rail investment will contribute to reduction in the cost of moving freight (including increased productivity), employment and jobs, Northport throughput, business growth and number of new businesses.
- **Efficiency** - To reduce the cost and impact of transport for Northland-based businesses and New Zealand more generally and to encourage better use of existing infrastructure.
- **Mode shift** – particularly in the Whangārei urban area. Rail investment would increase the proportion of Northland freight moved by rail and reduce truck movements on constrained parts of the State Highway system. Rail produces 70% fewer emissions than heavy road freight transport per tonne of freight carried.

**Investment options**

Investment options considered in the preparation of this paper are:

- **Option 1:** Proceed with the currently proposed option. This option has a very low level of confidence of completing the full project within the \$692 million initial funding allocation.
- **Option 2:** Safety improvements along the existing state highway, and the completion of the first (urban) stage of the current state highway project. This option has a medium level of confidence of delivery within the \$692 million initial funding allocation.
- **Option 3:** Safety improvements along the existing state highway, construction of a new rail link to Northport and further upgrade of the existing line from Whangarei to Otiria. This option has a medium level of confidence of delivery within \$692 million initial funding allocation. This is the Joint Ministers recommended option.

Further detail on the Joint Minister's recommended option is outlined below:

**The recommended option**

The recommended option includes both road and rail components.

**Rail**

As noted above, the rail investment option is linked to broader supply chain considerations. It assumes the network investment is matched by investment in port infrastructure coupled with a shift of some Upper North Island containerised export traffics to enable benefits to be achieved.

With respect to road traffic from the Far North, and in particular forestry exports, there would need to be pricing arrangements or other commercial constructs that discouraged logging trucks from making the journey directly from cutting face to port. Updated work on commercials would need to be completed.

Under current commercial and economic settings direct road from cutting face to port, will be cheaper to the exporter on many occasions. The type of model that needs to be embedded if there is to be mode shift, reduce demand and improve safety on SH1 is:

- Truck - cutting face to rail head

**COMMERCIAL IN CONFIDENCE**

- Rail – from railhead to port

For trucking operators to have a viable business operating a short haul business, capital investment in improvements outlined above will need to be matched with changes to operation and contract forms.

In summary, the rail option involves completing the Marsden Point Link, noting Port Grid development would be required (co-funded by Port Company), upgrading the line between Otiria to Whangarei to 18 tonne axle capability, and yard/CT sites/Log Loading areas.

The total high level estimated cost of the rail components (excluding the Port grid) is \$450-500m.

#### **1. Marsden Point Connection**

The corridor must be delivered in full to have any value (i.e. there is no halfway option).

The most recent estimate KiwiRail has is \$289m (excluding land purchase) which was pre-Covid and based on an assumption of works commencing 1 July 2020. This estimate is from 2018 and would need to be updated, with escalation expected. A very indicative updated estimate (including escalation and 25% contingency) could be c\$400m

The connection traverses some significant hilly and unstable terrain and coastal marine areas which will require specialist civil construction resources that are in short supply. In addition, parties would need to consider whether the marine causeway was developed solely for rail or to enable the future roadway, as this would influence cost estimates.

#### **2. Port Grid**

To maintain the free and frank expression of opinions

The costs of the Marsden Point connection indicated above exclude the on-port rail grid which is assumed to be funded by the Port Company as part of the development. [REDACTED]

[REDACTED] This would need to be further tested.

#### **3. Rail Connections from the Far North to the Marsden Point Link**

The current Northland PGF project funds the opening the section from Otiria in the Far North to Kauri as a minimum viable product, which translates to a slow-moving low axle weight operation.

If the goal is to make a material shift of forestry and containerised export freight off SH1 and through the urban areas to connect to Northport, then this segment of the line needs to be upgraded to an 18-tonne axle. KiwiRail had previously advised the cost of this from Otiria to Kauri and then on to Whangarei yard would be c\$60m. Again, this cost estimate would need to be refined.

If this work was to be funded, KiwiRail recommends re-purposing \$8m of PGF funds to achieving 18 tonne axle loads as the PGF funded work it is shortly to embark on in this section would be totally redundant.

#### **4. Yards/CT Sites/Log Loading Areas**

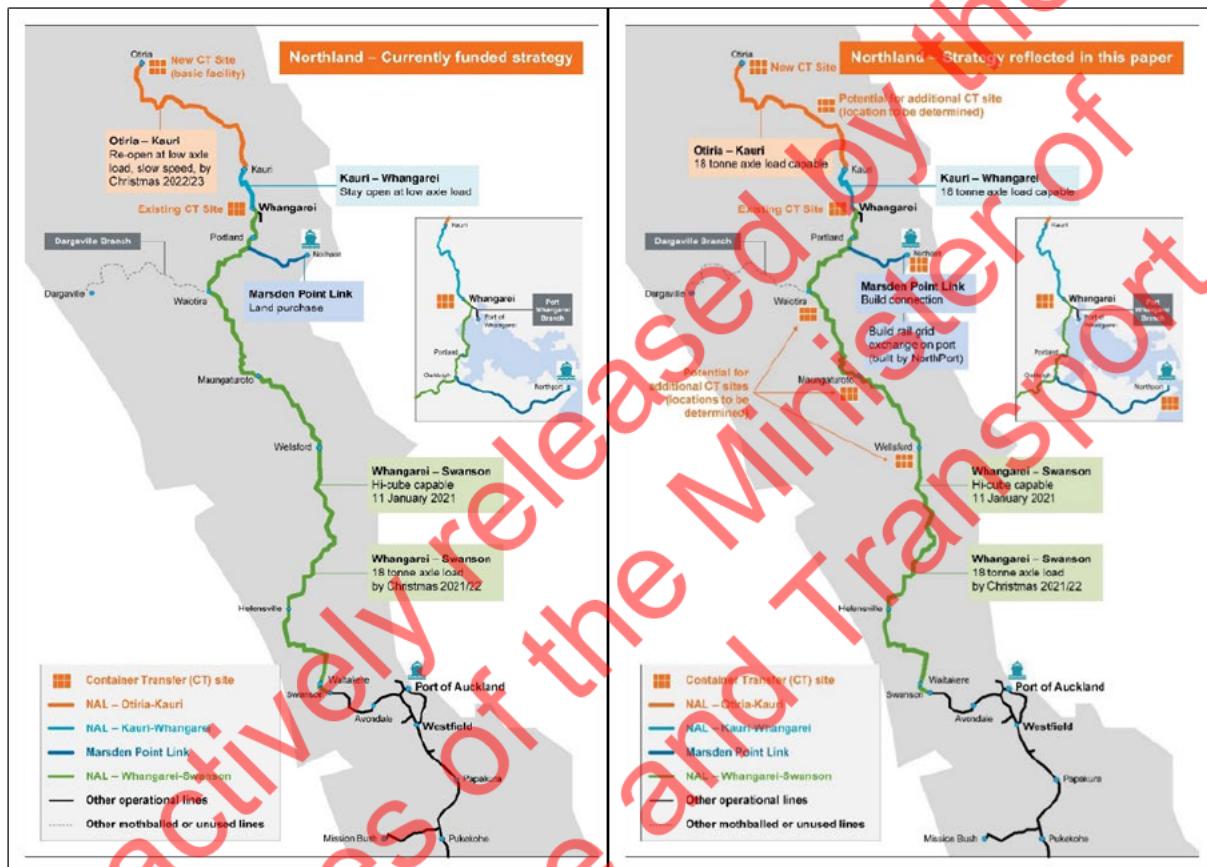
In addition, there are other system investments required. This includes basic log loading areas plus improvements to the Whangarei CT yard plus an expansion of the proposed Otiria Yard and other nodes on the corridor. Costing for these investments would need to be confirmed (high level estimate \$20-30m).

**COMMERCIAL IN CONFIDENCE****5. Other cost considerations**

Ongoing cost of the network (such as renewal and maintenance) would need to be funded through the NLTF – this would require an increase from current levels in the rail activity class.

In addition, the business case would need to show that commercials could support investment in locomotives and wagons for the above rail service.

*Figure 1 – comparison of currently funded rail strategy and rail strategy reflected in this paper*

**Transport Corridor**

SH1 corridor investments would be progressed, with a focus on safety improvements and securing the corridor for the long-term upgrade that will be required:

- **Focussed safety interventions along the existing route** – Including limited localised widening, but essentially providing a three barrier system along the length of the route. This will require localised widening (with property take required) and some restrictions in access for some properties. These restrictions will be resolved through turning facilities or roundabouts. The package also provides for some bridge widening to allow the barrier to continue over the bridge. These works will reduce the deaths and serious injuries (DSIs) on the route. This is estimated to cost in the order of \$150 million to \$250 million.
- **Route protection of the long-term upgrade** – The long-term upgrade will be required in the future and protecting the route now will provide stakeholders and landowners with greater certainty. It is also the most cost effective time to undertake this protection now, with costs only increasing over time. This is estimated to cost in the order of \$180-\$300 million. This includes completing the Detailed Business Case,

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Notice of Requirement and 50% to 100% of property purchase. If progressed alongside implementation of immediate safety measures, this route protection would still give some confidence that the safety measures are interim and the longer-term strategy will be progressed in the future, confirming the progression of an entire package of short to long term interventions. The Ministry and Treasury consider that while route protection might be important, it is no longer a key part of delivering the projects being included in the Programme. As the costs are high, The Ministry and Treasury consider that the funding would be better prioritised towards progressing projects that are included in the Programme. If route protection is required in the future, it will need to be funded through the National Land Transport Programme.

**Risks**

Risks with the Joint Ministers' recommended option

- **Benefits, scope, cost and timeframes for alternatives investments** – The existing information is dated and would need further work to provide an equivalent level of confidence to scope/ projects recently baselined NZUP option.
- **Economic Analysis** – operating model forecasts need to be updated to include future rail and port capital cost and operating revenue prospects including long-term costs of managing maintenance on the extension to the rail network
- **Partners and stakeholders** – there is likely to be little support from Councils and the general public for the revised option. Extensive engagement would be required to address these concerns.

Risks with not progressing the original scope:

- **Efficiency of existing corridor** – the short state highway corridor performance will continue to degrade, increasing user frustration

**Next steps for recommended option**

The next steps on the Joint Ministers' recommended option, including technical work and communications are:

**Rail**

Technical work:

- Further understanding of demand and supporting measures needed to achieve mode shift
- Updated assessment of the commercials for the service, including customer projections, ongoing costs to serve and expected renewals, noting that for KiwiRail as an SOE, the service would need to be profitable.
- Updated cost estimates for rail infrastructure works and potential future requirement for NLTF funding for ongoing renewal and maintenance
- Stakeholder engagement and commitment of Stakeholders such as Northport to support rail services

**Safety Improvements on SH1**

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- Development of larger scale short term safety works, including updating costs and benefits to the same level as the recently baselined projects.

**Communications**

Due to significant stakeholder, partner and community interest, development of a clear communications plans will be critical and must address:

- Gaining community buy-in to any adjustments to the original scope
- Clarity on timeframes and process from here
- Providing confidence/assurance decisions won't change again

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Finance and Transport

## Route protection

The following note provides a summary of benefits and costs associated with route protection. In particular, it has focused on the following corridors/ projects:

- Whangārei to Port Marden
- South Auckland (Mill Road and Papakura to Drury South Stage 2)

### Benefits of route protection - general

- Route protection via a designation, protects transport corridors from land development pressures which would otherwise prevent or hinder the delivery of a public work, project.
- Designations can be prepared in a manner which maximises flexibility for future implementation and types of corridor use.
- Enables more timely implementation in the future when the need and funding is required, as statutory approvals providing for the works are in place.
- Provides certainty to landowners, the existing community and future customers. This can minimise the risk of social disruption that can occur when infrastructure is retrospectively delivered within developing and established urban areas. It can also enable new and establishing communities to plan with more certainty (e.g. they can move to an area knowing there will be public transport travel options for them in the future).
- Enables developers to commit investment to progress infrastructure. Where a transport network affects multiple parcels of land, the certainty of route protection enables developers to commit to provision of early ‘contributing’ infrastructure, with the expectation that subsequent stages of development will complete other elements of the network.
- Provides a mechanism for Waka Kotahī to plan for future financial investment while retaining flexibility on the detailed development of the recommended future network, enabling it to respond to the pace, scale, and exact location of future growth or changes to the performance of the existing transport network. This means that projects can be delivered to meet project objectives, with the transport network in mind and gives certainty that the transport system can be operated
- Reduces future cost risk. If the corridor is protected by either early acquisition or notices of requirement, then there is an opportunity to reduce some land costs. This is in part associated with the increasing land values that occur as ‘live zones’ are implemented, and costs savings associated with the control or management that route protection can place on development on the land.
- Early route protection of a corridor provides the opportunity for early acquisition of land which has the potential to increase in value over time. This is particularly the case where there is significant growth pressure where rezoning of land will result in a significant increase in land value.
- Supports Council’s subsequent stages of land use planning and development and improves the quality of the urban environment with more certainty. For example, enabling Council to identify areas of higher density residential development in areas that will be serviced by public transport networks.

### **Benefits of route protection – Whangārei to Port Marden specific context**

- This project is part of a wider transport corridor response from Auckland to Whangarei over the next 30 years. This section is for a multi-modal transport response, including walking and cycling as well as public transport provision, providing the northern most section of the wider corridor strategy including the connection to Whangarei.
- With short term safety works proposed, undertaking long term route protection for the wider corridor at the same time will enable a single property acquisition discussion with property owners along the route. This would provide efficiency and certainty for these property owners who would otherwise need to be involved twice in the process (short term safety works and then long term eventually) which is inefficient, frustrating and likely to result in increased project costs in the long term.
- Provides other property owners in the corridor certainty on the future to allow them to make investment decisions with this long term property requirements clearly understood.
- Will provide increased confidence for stakeholders and the wider northland community that the long term solution has not been permanently discarded.
- Enables increased certainty for KiwiRail to implement the Marsden Link extension with certainty of the long term transport corridor alignment providing increased efficiency of delivery and costs for both KiwiRail and Waka Kotahi.

### **Benefits of route protection -South Auckland (Mill Road and Papakura to Drury South Stage 2) specific context**

- The joint Waka Kotahi and Auckland Transport alliance have been working towards route protection of the future urban networks since 2018, which includes Mill Road and also wider southern network.
- Corridor protection provides investment flexibility for staged delivery of the identified full-system solution for growth in southern Auckland (as it occurs), noting this full system response has been designed for net carbon-positive outcomes. A critical part of that solution involves providing corridors that connect the existing and future growth communities east of SH1. This flexibility also allows the form of the transport corridor to be confirmed closer to implementation, whilst protecting the corridor from development pressure.

It allows integration of land use and transport planning in areas like Drury West currently being considered for development, that would otherwise be blighted by uncertainty of the corridor alignment

- Allows for land use planning and staged housing release of the identified future growth areas adjacent to the corridor, such as Takanini
- It prevents against development build-out of options for needed corridors, which is a particular concern int his corridor given the growth aspirations identified.

### **Benefits of route protection – Takitimu North Link Stage 2 specific context**

- Ministers have agreed in principle this project should be funded from the National Land Transport Fund (NLTF) and not NZUP. Current pressures on the NLTF indicated Takitimu North Link Stage 2 would not be funded in the next three years and would be unlikely to be funded in the next ten years.

- To protect the route from growth (The Western BOP one of fastest growing regions in NZ and route protection would ensure the transport corridor is protected from other uses. Without route protection, it is expected developers will seek to use the land for future housing developments)
- Route protection would also provide route certainty to landowners, who have had a different option given to them three times since 2017 due to re-evaluation impacts in 2018. There are 60+ landowners in this section with a number of hardship acquisitions.
- Route certainty is also important to our Council partners and realise commitments made in the Board approved Urban Form and Transport Initiative (UFTI) which supports prioritised growth area in Omokoroa and the associated infrastructure needs. This includes Western Bay of Plenty District Council who will notify their Structure Plan this month, and move the town centre, including industrial and commercial, to the area where the designation will be
- In addition, the Ministry of Education, who are in the process of committing to school sites, and the Ministry of Housing and Urban Development for affordable housing

### Costs of route protection

The costs of route protection comprise two primary components

- **Route designation** – This includes funding for the Indicative Business Case, consenting process (lodgement, hearings), contractor and management fees, community and iwi engagement and some contingency.
- **Property purchase** – Once a designation is in place, history suggests a proportion of the total property required maybe purchased by the requiring authority prior to construction. It is assumed that most property transactions would take place in the three years prior to implementation, with approximately 20-50% of transactions taking place prior to this period (over 10-20 years).

Work undertaken by the Support Growth Alliance in Auckland (which is focussed on route protection of the future transport system in Auckland) indicates a return on investment of route protection of well over two

High level estimates for each of the projects are:

Project	Transport Corridor length	Route designation costs	Indicative Property Cost (20% property)	Indicative Property Cost (50% property)
Mill Road	22km	\$55-\$65 million	\$150 million	\$390 million
Papakura to Drury South Stage 2	2km	\$7-\$10 million	\$30 million	\$75 million
Whangarei to Port Marsden	25km	\$30-\$40 million	\$50 million	\$120 million
Takitimu North Link Stage 2	7km	\$10-\$14 million	\$18 million	\$43 million

Given the property purchase requirements for the full corridors may be realised over a number of decades it is anticipated that funding from the NLTF is likely to be required for this property liability in addition to NZUP