

Ngauranga Triangle Strategy Study

APPENDIX OF LONG OPTIONS ASSESSMENT



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Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
Draft A	24/04/2009	Neil Trotter	Andrew Bell	23/04/2009	Update from Workshop
Final	06/11/2009	Andrew Bell	Tony Innes	06/11/2009	Issue to Client



Distribution of copies

Revision	Copy no	Quantity	Issued to
Draft A	1	7	Client group
Final	1 x Electronic	1	NZTA

Printed:	2 August 2010
Last saved:	5 November 2009 03:55 PM
File name:	I:\ZBIFW\Projects\ZB00938\Deliverables\ZB00938W0149.docx
Author:	Thomas Small
Project manager:	Tony Brennand
Name of organisation:	NZ Transport Agency
Name of project:	Ngauranga Triangle Strategy Study
Name of document:	Appendix of Long Options Assessment
Document version:	Final
Project number:	ZB00938

1. Introduction

This document is an Appendix to the Ngauranga Triangle Long Options Report and must only be read in conjunction with this report.

The purpose of this document is to demonstrate a wide-ranging consideration of all study projects and options. This allows for 'fatal flaws' in any options to be readily identified so that they can then be eliminated from further consideration in the option short list.

The tables in this appendix evaluate each of the identified projects against and agreed evaluation criteria with and appropriate high level scoring and corresponding colour coding. A full explanation of this process is contained within the Long Options report.



2. Ngauranga to Tawa

(Note the study is within the area between the Ngauranga Interchange and the SH1/Takapu intersection)



Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Impacts on the Ngauranga to Tawa corridor if the Grenada to Petone Link Road (GP Link) is constructed	0		0		0		0		0		0	
Bus Lane (Peak Period) on existing infrastructure	+	Benefit of improved public transport services between Tawa and Ngauranga, therefore creating better connectivity for people and access to employment/community facilities.	0	Bus lane will be within the existing road corridor so will not disturb any significant features.	0	Bus lane will be on existing road reserves so there will be no net loss in vegetation etc.	0	Noise and vibration effects are likely to be neutral based on the existing high volume of traffic already using the route.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of a bus lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Bus Lane (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	+	Benefit of improved public transport services between Tawa and Ngauranga, therefore creating better connectivity for people and access to employment/community facilities.	0	Bus lane will be within the existing road corridor so will not disturb any significant features.	0	Bus lane will be on existing road reserves so there will be no net loss in vegetation etc.	0	Noise and vibration effects are likely to be neutral based on the existing high volume of traffic already using the route.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of a bus lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Truck Way (Peak Period) on existing infrastructure	0	N/A	0	Truck way will be on existing road reserve so will not disturb any significant features.	0	Truck way will be on existing road reserves so there will be no net loss in vegetation etc.	0	Noise and vibration effects are likely to be neutral based on the existing high volume of traffic already using the route.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of truck way will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Truck Way (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	0	N/A	0	Truck way will be on existing road reserve so will not disturb any significant features.	0	Truck way will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential vibration will be increased.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of truck Lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
High Occupancy Vehicle (HOV) Lane 2+ (peak period)	0	N/A	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	+	Unlikely that potential noise and vibration will be increased. Potential for a small reduction in noise and vibration effects from reduced volumes on the state highway.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of high occupancy lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.

Objectives		Assist economic and regional development										
		Maintain or reduce average peak period journey times and improve journey time reliability . <i>Model KPI used = travel time between Ngauranga and Johnsonville and return</i>		Supports redevelopment in the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD <i>Model KPI used = total traffic volume on The Esplanade</i>		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>		
	Score	Comments		Score	Comments		Score	Comments		Score	Comments	
Impacts on the Ngauranga to Tawa corridor if the Grenada to Petone Link Road (GP Link) is constructed	+	The introduction of the Grenada to Petone link decreases the travel time considerably on SH1 southbound between Johnsonville and the Ngauranga interchange in the AM peak and shows a minor decrease in the IP peak. Provision of an additional route between Grenada and Petone will ensure improved journey time reliability.		0			0			--	The traffic model indicates that the introduction of a Petone to Grenada link increases the traffic on The Esplanade. Given that at this stage of analysis a fixed trip matrix has been assumed, the modelled increase is likely to underestimate the true increase once the additional connection to Petone is in place.	
Bus Lane (Peak Period) on existing infrastructure	--	Provision of a bus lane will improve bus travel times and reliability, but the reduction in the number of lanes results in more congestion for general traffic. There are currently very few bus services using SH1 north of Johnsonville / Newlands so the benefits to bus movements on this section of the highway would be negligible. <i>Comparing the options with and without a bus lane shows a large increase in travel time and travel time variability in the AM peak and IP travel time for light vehicles on SH1 southbound between Johnsonville and Ngauranga interchange. Changes in the northbound direction in AM and IP are minor.</i>		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on redevelopment in the Seaview Area.		0	Option will not pass this development.		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on flows in Petone	
Bus Lane (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	--	Provision of a bus lane will improve bus travel times and reliability, but the reduction in the number of lanes will result in more congestion. There are currently very few bus services using SH1 north of Johnsonville / Newlands so the benefits to bus movements on this section of the highway would be negligible. <i>With the Grenada to Petone link in place the dedication of one of the lanes as a bus lane shows a large increase in the travel times and travel time variability in the AM peak although not as large as without the Grenada Petone link in place. This is due to the loss of capacity on SH1 due to the dedicated bus lane being greater than the amount of traffic that the Grenada Petone link removes from SH1.</i>		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on redevelopment in the Seaview Area.		0	Option will not pass this development.		--	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on flows in Petone other than those due to the inclusion of the Grenada to Petone link.	
Truck Way (Peak Period) on existing infrastructure	--	The Ngauranga Gorge has a gradient of approximately 8%, this means that HCV's are extremely slow and hold up other traffic. Moving HCV's to a separate lane will mean that the light vehicles can maintain a higher speed although congestion will develop as a result of reduction in general traffic lanes. This will have a negative impact on the travel time / reliability. <i>The traffic model indicates that on SH1 southbound between Johnsonville and Ngauranga interchange the travel time increases considerably in the AM and moderately in the IP peak when a truck way is introduced and therefore travel time variability is also increased.</i>		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on redevelopment in the Seaview Area.		0	Option will not pass this development.		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on flows in Petone	
Truck Way (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	--	The Ngauranga Gorge has a gradient of approximately 8%, this means that HCV's are extremely slow and hold up other traffic. Moving HCV's to a separate lane will mean that the light vehicles can maintain a higher speed. Congestion will develop as a result of reduction in general traffic lanes. This will have a negative impact on the travel time / reliability. <i>As with the bus lane, the travel time on SH1 southbound between Johnsonville and Ngauranga interchange increases greatly in the AM peak and indicates no change for the IP peak due to the decrease in capacity on SH1 being greater than the reduction in traffic due to the Grenada Petone link. Again, the increases in travel times are not as considerable as in the option without the link road.</i>		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on redevelopment in the Seaview Area.		0	Option will not pass this development.		--	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on flows in Petone other than those due to the inclusion of the Grenada to Petone link	
High Occupancy Vehicle (HOV) Lane 2+ (peak period)	0	Generally 30% of traffic on the network is HOV 2+, because there are only three lanes through this section, it is likely that the traffic will be redistributed and have little impact on the existing travel times and travel time reliability.		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on redevelopment in the Seaview Area.		0	Option will not pass this development.		0	The proposed network modification is between Ngauranga and Tawa and is therefore unlikely to have a significant impact on flows in Petone	

Objectives	Assist in Safety and Personal Security			
	Reduced VKT		Reducing the volume of heavy vehicles on The Esplanade	
	Model KPI used: total VKT		Model KPI used = HCV volume on The Esplanade	
	Score	Comments	Score	Comments
Impacts on the Ngauranga to Tawa corridor if the Grenada to Petone Link Road (GP Link) is constructed	+	The traffic model indicates that the introduction of a Grenada to Petone link compared to the current network reduces the overall vehicle kilometres travelled in the AM and the IP peak.	-	The traffic model show an increase in HCV flows on The Esplanade due to the release of bottlenecks at Ngauranga
Bus Lane (Peak Period) on existing infrastrucutre	0	Increased travel time reliability and improved peak travel times on buses will induce mode shift from existing light vehicle drivers. This will reduce the overall VKT. The traffic model indicates that the introduction of a bus lane causes a minor reduction in VKT in the AM peak with no changes to the IP. Note that the reductions are likely to be due to the additional congestion on SH1 causing a significant bottleneck restricting light vehicle travel.	0	This option will have no significant impact on the volume of heavy vehicles on The Esplanade. The traffic model shows that the HCV flows on The Esplanade in each direction and each peak are not impacted on by the bus lane.
Bus Lane (Peak Period) on existing infrastrucutreand the inclusion of the Grenada to Petone Link Road	+	Increased travel time reliability and improved peak travel times on buses will attract current motorists. This would reduce the overall VKT. The traffic model indicates that the introduction of a bus lane in addition to the Grenada to Petone link reduces the overall vehicle kilometres travelled in the AM and in the IP. This is also mainly caused by the link road and not by other measures in place.	0	This option will have no significant impact on the volume of heavy vehicles on the Petone Esplanade. The traffic model indicates slightly lower increases than when the Grenada Petone link is in place without the lane reduction on SH1.
Truck Way (Peak Period) on existing infrastructure	0	The VKT when introducing a truck way shows minor reductions in the AM and IP peaks. Again, those reductions are most likely due to the additional congestion on SH1 causing a significant bottleneck restricting light vehicle travel.	-	There will be an increase in HCV's along The Esplanade as development occurs in the Seaview area. The HCV flows on The Esplanade in the AM peak increase slightly due to the inclusion of a truck way relieving bottlenecks at Ngauranga.
Truck Way (Peak Period) on existing infrastructureand the inclusion of the Grenada to Petone Link Road	+	The traffic model indicates that the introduction of a truck way in conjunction with the Grenada to Petone link reduces the overall VKT in both the AM and IP periods.	-	The traffic model indicates slightly higher increases compared to when the Grenada Petone link is in place without the truck way on SH1.
High Occupancy Vehicle (HOV) Lane 2+ (peak period)	0	Due to the current number of HOV2+ vehicles on the network there is unlikely to be a reduction in VKT.	0	This option will have no significant impact on the volume of heavy vehicles on The Esplanade.

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Impacts on the Ngauranga to Tawa corridor if the Grenada to Petone Link Road (GP Link) is constructed	0		0		+	The traffic model indicates that the introduction of the Grenada to Petone link decreases the total travel time on the network in the AM and IP periods and improves travel time reliability	0	
Bus Lane (Peak Period) on existing infrastructure	++	Provision of a bus lane will improve PT travel times and travel time reliability. This will increase PT mode share between Tawa and Ngauranga	+	There will be a small increase in cycling and walking for those getting to bus stops rather than travelling using a motor vehicle.	--	Provision of a bus lane will improve bus travel times and reliability, but the reduction in the number of lanes will result in more congestion. The traffic model indicates that the introduction of a bus lane increases the total travel time on the network and travel time variability in the AM peak considerably but with negligible changes in the IP peak.	0	This option will not provide any additional routes within the Ngauranga Triangle Area.
Bus Lane (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	++	Provision of a bus lane will improve PT travel times and travel time reliability. This will increase PT mode share between Tawa and Ngauranga	+	There will be a small increase in cycling and walking for those getting to bus stops rather than travelling using a motor vehicle.	0	Provision of a bus lane will improve bus travel times and reliability, but the reduction in the number of lanes results in more congestion. If in addition to the Grenada to Petone link, a bus lane is introduced, the decrease in total travel time reliability is minor in the AM peak and IP periods	0	This option will not provide any additional routes within the Ngauranga Triangle Area.
Truck Way (Peak Period) on existing infrastructure	0	This option will have no impact on public transport use.	0	This option will have no impact on the number of walking and cycling trips.	--	The reduction in the number of general traffic lanes results in more congestion and increases travel time variability. The traffic model indicates that the introduction of a truck way increases the total travel time on the network and travel time variability in the AM peak considerably but with negligible changes in the IP peak.	0	This option will not provide any additional routes within the Ngauranga Triangle Area.
Truck Way (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	0	This option will have no impact on public transport use.	0	This option will have no impact on the number of walking and cycling trips.	+	The traffic model indicates that the introduction of the Grenada to Petone link in conjunction with a truck way decreases the total travel time on the network in the AM and IP periods. The majority of the benefits observed with both the truck way and the Grenada to Petone Link in place are likely to be as a consequence of the Grenada to Petone Link rather than the truck way.	0	This option will not provide any additional routes within the Ngauranga Triangle Area.
High Occupancy Vehicle (HOV) Lane 2+ (peak period)	0	This option will have no impact on public transport use.	0	This option will have no impact on the number of walking and cycling trips.	0	Generally 30% of traffic on the network would qualify as HOV 2+, because there are only three lanes through this section, it is likely that the traffic will be redistributed and have little impact on the existing travel times.	0	This option will not provide any additional routes within the Ngauranga Triangle Area.

Objectives	Protect and Promote public health													
	Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>		Enhances access to regional parks		Increase numbers of walking and cycling trips		Costs		Consenting Issues		Contributes to Continuing Growth Aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Impacts on the Ngauranga to Tawa corridor if the Grenada to Petone Link Road (GP Link) is constructed	-	The traffic model shows an increase in HCV flows on The Esplanade due to the release of bottlenecks at Ngauranga	0		0		0		0		0	N/A	0	
Bus Lane (Peak Period) on existing infrastructure	0	This option will have no significant impact on the volume of heavy vehicles on The Esplanade. The traffic model shows that the HCV flows on The Esplanade in each direction and each peak are not changed by the bus lane.	0	No access points are located near regional parks.	+	There will be an increase in cycling and walking for those getting to bus stops rather than travelling using a motor vehicle.	++	Low Cost - Surfacing and Signs There will be some ongoing costs and operational difficulties with a truck way down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0	Outline plan of works will be required.	0	N/A	0	This Option will not provide any additional links and will therefore not add to the security of the current network.
Bus Lane (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	0	This option will have no significant impact on the volume of heavy vehicles on The Esplanade. The traffic model indicates slightly lower increases than when the Grenada Petone link is in place without the lane reduction on SH1.	0	No access points are located near regional parks.	+	There will be an increase in cycling and walking for those getting to bus stops rather than travelling using a motor vehicle.	++	Low Cost - Surfacing and Signs There will be some ongoing costs and operational difficulties with a truck way down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0	Outline plan of works will be required.	0	N/A	0	This Option will not provide any additional links and will therefore not add to the security of the current network.
Truck Way (Peak Period) on existing infrastructure	-	There will be an increase in HCV's along The Esplanade as development occurs in the Seaview area. The HCV flows on The Esplanade in the AM peak increase slightly due to the inclusion of a truck way relieving bottlenecks at Ngauranga.	0	No access points are located near regional parks.	0	This option will have negligible impact in increasing the number of walking and cycling trips within the study area.	++	Low Cost - Surfacing and Signs There will be some ongoing costs and operational difficulties with a truck way down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0	Outline plan of works will be required.	+	Will help develop the Seaview area.	0	This Option will not provide any additional links and will therefore not add to the security of the current network.
Truck Way (Peak Period) on existing infrastructure and the inclusion of the Grenada to Petone Link Road	0	This option will have no significant impact on the volume of heavy vehicles on The Esplanade. The traffic model indicates slightly higher increases than when the Grenada Petone link is in place without the truck way on SH1.	0	No access points are located near regional parks.	0	This option will have negligible impact in increasing the number of walking and cycling trips within the study area.	++	Low Cost - Surfacing and Signs There will be some ongoing costs and operational difficulties with a truck way down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0	Outline plan of works will be required.	+	Will help develop the Seaview area.	0	This Option will not provide any additional links and will therefore not add to the security of the current network.
High Occupancy Vehicle (HOV) Lane 2+ (peak period)	0	This option will have no significant impact on the volume of heavy vehicles on The Esplanade.	0	No access points are located near regional parks.	0	This option will have negligible impact in increasing the number of walking and cycling trips within the study area.	+	Medium Cost - Surfacing and Signs and Enforcement There will be some ongoing costs and operational difficulties down the Ngauranga. For the scheme to be successful there will be a requirement for ongoing enforcement.	0	Outline plan of works will be required.	0	N/A	0	This Option will not provide any additional links and will therefore not add to the security of the current network.

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.	Proactively limit the disturbance of significant cultural and heritage features along state highways.	No net loss of native vegetation, wetlands, critical habitat or endangered species.	Plan and design new state highways to avoid or reduce adverse noise and vibration effects.	Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.	Manage increased hazards of climate change impacts on state highway infrastructure.						
HOV Lane 2+ (peak period) and the inclusion of the Grenada to Petone Link Road	0	N/A	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential vibration will be increased.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of high occupancy lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
HOV Lane 3+ (peak period)	0	N/A	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential noise and vibration will be increased. Potential for a small reduction in noise and vibration effects from reduced volumes on the state highway.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of high occupancy lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
HOV Lane 3+ (peak period) and the inclusion of the Grenada to Petone Link Road	0	N/A	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential noise and vibration will be increased. Potential for a small reduction in noise and vibration effects from reduced volumes on the state highway.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of high occupancy lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Combined bus lane with truck way (peak period)	+	Allows greater connectivity between population services and community facilities.	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential noise and vibration will be increased.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of a bus lane and truck way will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Combined bus lane with truck way (peak period) and the inclusion of the Grenada to Petone Link Road	+	Allows greater connectivity between population services and community facilities.	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential noise and vibration will be increased.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of a bus lane/truck way will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Combined HOV 3+, bus lane and truck way (peak period)	+	Allows greater connectivity between population services and community facilities.	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential noise and vibration will be increased.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of high occupancy lane, truck way and bus lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Combined HOV 3+, bus lane and truck way (peak period) and inclusion of the Grenada to Petone Link Road	+	Allows greater connectivity between population services and community facilities.	0	Will be on existing road reserves so will not disturb any significant features.	0	Will be on existing road reserves so there will be no net loss in vegetation etc.	0	Unlikely that potential noise and vibration will be increased.	0	No new cuts will be required that could cause potential erosion or sediment deposition.	0	Provision of high occupancy truck way/bus lane will have no impact on susceptibility of infrastructure to climate change impacts, as it is not increasing any existing hazards or structures that are susceptible to hazards such as surface flooding.
Additional southbound bus lane in Ngauranga Gorge	+	An additional bus lane will reduce travel time for those using public transport and make Wellington City more accessible during peak times for those using the bus.	0	An additional bus lane will call for major excavations alongside the quarry to provide the lane required. There does not appear to be any heritage or cultural sites in the area so should not be a major issue.	0	An additional bus lane will call for major excavations alongside the quarry to provide the additional space required. There will be some minor losses in vegetation, but there are wetlands or critical habitats in this area.	0	Unlikely that potential vibration will be increased.	-	Construction of the additional lane will require significant excavation into the quarry area. This will lead to some erosion issues and cause sediment to enter streams.	0	Provision of bus lane, depending on the design of structures and excavation required may be susceptible to climate change impacts.
Tawa Interchange safety improvements.	+	Depending on the design, the interchange may support local economic activity at Tawa and Grenada through increasing the potential retail catchment capture.	0	There are no known features in the vicinity of the site.	0	There would be some loss of planted and regenerating native vegetation alongside the northern and southern curves. Effects could be mitigated by appropriate planting.	-	Further investigations would be required, but as the alignment would move closer to residential areas there could be adverse effects.	0	Further investigation would be required to determine potential impact.	0	Limited impact from climate change in this area. The site is not known for hazards such as landslides.

Objectives	Assist economic and regional development				
	Maintain or reduce average peak period journey times and improve journey time reliability . <i>Model KPI used = travel time between Ngauranga and Johnsonville and return</i>	Supports redevelopment in the Seaview-Gracefield Area	Supports development of the Lincolnshire Farms area	Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD <i>Model KPI used = total traffic volume on The Esplanade</i>	Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>
HOV Lane 2+ (peak period) and the inclusion of the Grenada to Petone Link Road	0 Generally 30% of traffic on the network is HOV 2+, because there are only three lanes through this section, it is likely that the traffic will be redistributed and have little impact on the existing travel times and travel time reliability.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	-- The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on flows in Petone other than those due to the inclusion of the Grenada to Petone link	+ The HOV lanes are unlikely to adversely affect the benefits gained from the introduction of the Grenada to Petone link <i>The traffic model indicates that the introduction of the Grenada to Petone link decreases the total travel time on the network in the AM and IP periods and improves travel time reliability. The majority of the benefits are likely to be as a consequence of the Grenada to Petone Link rather than the HOV lane</i>
HOV Lane 3+ (peak period)	- With lower than 30% of traffic falling into the 3+ HOV category it is likely that there will be increased congestion in the general traffic lanes although to not as great an extent as the bus or truck way.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on flows in Petone	0 The introduction of an HOV 3+ lane is likely to have similar effects as the inclusion of a truck way due to the lower proportion of 3+ HOV on the network
HOV Lane 3+ (peak period) and the inclusion of the Grenada to Petone Link Road	- With lower than 30% of traffic falling into the 3+ HOV category it is likely that there will be increased congestion in the general traffic lanes although to not as great an extent as the bus or truck way.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	-- The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on flows in Petone other than those due to the inclusion of the Grenada to Petone link	+ The HOV lanes are unlikely to adversely affect the benefits gained from the introduction of the Grenada to Petone link <i>The traffic model indicates that the introduction of the Grenada to Petone link decreases the total travel time and improves travel time reliability on the network in the AM and IP periods. The majority of the benefits are likely to be as a consequence of the Grenada to Petone Link rather than the HOV lane.</i>
Combined bus lane with truck way (peak period)	- Having a bus lane will attract patrons due to improved PT travel times / reliability. There are currently very few bus services using SH1 north of Johnsonville / Newlands so the benefits to bus movements on this section of the highway would be negligible. Heavy vehicles are removed from general flow meaning more constant speeds for "general" traffic, however bus / truck ways will reduce the capacity of the road for general motorists.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on flows in Petone	- The reduction in the number of general traffic lanes results in more congestion. There are currently very few bus services using SH1 north of Johnsonville / Newlands so the benefits to bus movements on this section of the highway would be negligible. The traffic model indicates that the introduction of a truck way increases the total travel time and travel time variability on the network in the AM peak considerably but with negligible changes in the IP peak.
Combined bus lane with truck way (peak period) and the inclusion of the Grenada to Petone Link Road	- Having a bus and truck way will attract patrons due to improved PT travel times / reliability. There are currently very few bus services using SH1 north of Johnsonville / Newlands so the benefits to bus movements on this section of the highway would be negligible. Heavy vehicles are removed from general flow meaning more constant speeds for "general" traffic, however bus / truck ways will reduce the capacity of the road for general motorists.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	-- The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on flows in Petone other than those due to the inclusion of the Grenada to Petone link	+ <i>The traffic model indicates that the introduction of the Grenada to Petone link in conjunction with a bus lane and truck lane decreases the total travel time on the network in the AM and IP periods. The majority of the benefits are likely to be as a consequence of the Grenada to Petone Link Road.</i>
Combined HOV 3+, bus lane and truck way (peak period)	- Having a bus lane will attract patrons due to improved travel times / reliability. Heavy vehicles are removed from general flow meaning more constant speeds for "general" traffic. The bus / truck ways will reduce the capacity of the road for general motorists. Having HOV's in this lane will result in higher travel times due to HCV's and buses being slower up the gorge - this will discourage HOV use in this lane.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on flows in Petone	0 Is unlikely to have an impact on the total vehicle hours or travel time reliability.
Combined HOV 3+, bus lane and truck way (peak period) and inclusion of the Grenada to Petone Link Road	- Having a bus lane will attract patrons due to improved travel times / reliability. Heavy vehicles are removed from general flow meaning more constant speeds for "general" traffic. The bus and truck way will reduce the capacity of the road for general motorists. Having HOV's in this lane will result in slow travel times due to HCV's and buses being slower up the gorge - this will discourage HOV use in this lane.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	-- The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on flows in Petone other than those due to the inclusion of the Grenada to Petone link	+ The traffic model indicates that the introduction of the Grenada to Petone link in conjunction with a truck way decreases the total travel time on the network in the AM and IP periods. The majority of the benefits are likely to be as a consequence of the Grenada to Petone Link Road.
Additional southbound bus lane in Ngauranga Gorge	+ Providing an additional bus lane will improve the travel times on buses. This will attract patrons who would otherwise use private vehicles and will help ease congestion on the network. There are currently very few bus services using SH1 north of Johnsonville / Newlands so the benefits to bus movements on this section of the highway would be negligible.	0 The proposed network modification is between Ngauranga and Tawa and is unlikely to have a significant impact on redevelopment in the Seaview Area.	0 Option will not pass this development.	0 Option will not pass this area.	+ Providing an additional bus lane will decrease the travel time and improve travel time reliability for buses along SH1 and this will attract new patrons who would otherwise use private vehicles. This will reduce the travel times for both buses (no longer caught in congestion) and private vehicles (less vehicles on the network due to uptake of public transport). There are currently very few bus services using SH1 north of Johnsonville / Newlands so the benefits to bus movements on this section of the highway would be negligible.
Tawa Interchange safety improvements.	0 Safety improvements, depending on the design will SLIGHTLY reduce peak travel times on the network in the IMMEDIATE area of the interchange.	0 N/A	0 May improve access to the development depending on design.	0 Option will not pass this area.	0 Safety improvements, depending on the design will SLIGHTLY reduce peak travel times on the network in the IMMEDIATE area of the interchange.

Objectives	Assist in Safety and Personal Security		
	Reduced VKT <i>Model KPI used: total VKT</i>	Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>	
HOV Lane 2+ (peak period) and the inclusion of the Grenada to Petone Link Road	+	Due to the current number of HOV2+ vehicles on the network there is unlikely to be a reduction in VKT over and above the reduction due to the inclusion of the Grenada to Petone link	0 This option will have no significant impact on the volume of heavy vehicles on The Esplanade.
HOV Lane 3+ (peak period)	0	The VKT when reducing the number of general traffic lanes are showing minor reductions in the AM and IP peaks. Again, those reductions are most likely due to the additional congestion on SH1 causing a significant bottleneck restricting light vehicle travel.	0 This option will have no significant impact on the volume of heavy vehicles on The Esplanade.
HOV Lane 3+ (peak period) and the inclusion of the Grenada to Petone Link Road	+	Due to the current number of HOV3+ vehicles on the network there is unlikely to be a reduction in VKT over and above the reduction due to the inclusion of the Grenada to Petone link	0 This option will have no significant impact on the volume of heavy vehicles on The Esplanade.
Combined bus lane with truck way (peak period)	0	The VKT when introducing a truck way are showing minor reductions in the AM and IP peaks. Again, those reductions are most likely due to the additional congestion on SH1 causing a significant bottleneck restricting light vehicle travel.	- There will be an increase in HCV's along The Esplanade as development occurs in the Seaview area. The HCV flows on The Esplanade in the AM peak increase slightly due to the inclusion of a truck way relieving bottlenecks at Ngauranga
Combined bus lane with truck way (peak period) and the inclusion of the Grenada to Petone Link Road	+	The traffic model indicates that the introduction of a truck way in conjunction with the Grenada to Petone link reduces the overall VKT in both the AM and IP periods.	- This option will have no significant impact on the volume of heavy vehicles on The Esplanade. The model indicates slightly higher increases than when the Grenada Petone link is in place without the truck way on SH1.
Combined HOV 3+, bus lane and truck way (peak period)	0	The VKT when reducing the number of general traffic lanes are showing minor reductions in the AM and IP peaks. Again, those reductions are most likely due to the additional congestion on SH1 causing a significant bottleneck restricting light vehicle travel.	- There will be an increase in HCV's along The Esplanade as development occurs in the Seaview area. The HCV flows on The Esplanade in the AM peak increase slightly due to the inclusion of a truck way relieving bottlenecks at Ngauranga.
Combined HOV 3+, bus lane and truck way (peak period) and inclusion of the Grenada to Petone Link Road	+	Due to the current number of HOV3+ vehicles on the network there is unlikely to be a reduction in VKT over and above the reduction due to the inclusion of the Grenada to Petone link	- The model indicates slightly higher increases than when the Grenada Petone link is in place without the truck way on SH1.
Additional southbound bus lane in Ngauranga Gorge	+	There will be an increase in bus patronage as a result of reduced bus travel times and travel time reliability. This will mean less private motor vehicles on the network, and will reduce the overall VKT.	0 This option is unlikely to have a significant impact on the volume of heavy vehicles on The Esplanade.
Tawa Interchange safety improvements.	0	N/A	0 This option will have no significant impact on the volume of heavy vehicles on The Esplanade.

Objectives	Improve access, mobility and reliability			
	Increase PT mode share	Increase numbers of walking and cycling trips	Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>	Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area
HOV Lane 2+ (peak period) and the inclusion of the Grenada to Petone Link Road	0 This option will have negligible impact on public transport.	0 This option will have negligible impact on the number of walking and cycling trips.	+ The model indicates that the introduction of the Grenada to Petone link decreases the total travel time on the network in the AM and IP periods.	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
HOV Lane 3+ (peak period)	0 This option will have negligible impact on public transport.	0 There will be some walking as those "sharing a ride" head to the meeting place.	0 The introduction of an HOV 3+ lane is likely to have similar effects as the inclusion of a truck way due to the lower proportion of 3+ HOV on the network	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
HOV Lane 3+ (peak period) and the inclusion of the Grenada to Petone Link Road	0 This option will have negligible impact on public transport.	0 There will be some walking as those "sharing a ride" head to the meeting place.	+ The traffic model indicates that the introduction of the Grenada to Petone link decreases the total travel time on the network in the AM and IP periods.	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
Combined bus lane with truck way (peak period)	+ The Bus Lane will increase PT mode share between Tawa and Ngauranga	+ There will be an increase in walking for those getting to bus stops rather than travelling using a motor vehicle.	- The reduction in the number of general traffic lanes results in more congestion. The traffic model indicates that the introduction of a truck way increases the total travel time on the network in the AM peak considerably but with negligible changes in the IP peak.	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
Combined bus lane with truck way (peak period) and the inclusion of the Grenada to Petone Link Road	+ Provision of a bus lane will mean better travel times and travel time reliability. This will increase PT mode share between Tawa and Ngauranga	+ There will be an increase in walking for those getting to bus stops rather than travelling using a motor vehicle.	+ The traffic model indicates that the introduction of the Grenada to Petone link in conjunction with a bus and truck way decreases the total travel time on the network in the AM and IP periods. The majority of the benefits observed with the bus and truck way and the Grenada to Petone Link in place are likely to be as a consequence of the Grenada to Petone Link rather than the bus and truck way.	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
Combined HOV 3+, bus lane and truck way (peak period)	+ Provision of a bus lane will mean better travel times and travel time reliability. This will increase PT mode share between Tawa and Ngauranga	+ There will be an increase in walking for those getting to bus stops and ride share locations rather than travelling using a motor vehicle.	0 The introduction of an HOV 3+ lane is likely to have similar effects as the inclusion of a truck way due to the lower proportion of 3+ HOV on the network	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
Combined HOV 3+, bus lane and truck way (peak period) and inclusion of the Grenada to Petone Link Road	+ Provision of a bus lane will mean better travel times and travel time reliability. This will increase PT mode share between Tawa and Ngauranga	+ There will be an increase in walking for those getting to bus stops and ride share locations rather than travelling using a motor vehicle.	+ The traffic model indicates that the introduction of the Grenada to Petone link in conjunction with a truck way decreases the total travel time on the network in the AM and IP periods.	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
Additional southbound bus lane in Ngauranga Gorge	++ Reduced bus travel times and improved travel time reliability will mean more motorists are likely to choose public transport as a mode of travel.	+ There will be an improvement in the number of walking and cycling trips as bus patrons walk / cycle to and from the bus stops.	+ Providing an additional bus lane will decrease the travel times for buses along SH1 and this will attract new patrons who would otherwise use private vehicles. This will reduce the travel times for both buses (no longer caught in congestion) and private vehicles (less vehicles on the network due to uptake of public transport)	0 This option will not provide any additional routes within the Ngauranga Triangle Area.
Tawa Interchange safety improvements.	0 This option will have negligible impact on public transport.	0 Depending on design, these improvements will make it safer to cross the motorway by cycle or walking.	0 Safety improvements, depending on the design will SLIGHTLY reduce peak travel times on the network in the IMMEDIATE area of the interchange.	0 This option will not provide any additional routes within the Ngauranga Triangle Area.

Objectives	Protect and Promote public health				Costs	Consenting Issues	Contributes to Continuing Growth Aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)
	Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>	Enhances access to regional parks	Increase numbers of walking and cycling trips						
HOV Lane 2+ (peak period) and the inclusion of the Grenada to Petone Link Road	0 This option will have no impact on the volume of heavy vehicles on The Esplanade.	0 No access points are located nearby regional parks.	0 This option will have negligible impact in increasing the number of walking and cycling trips within the study area.	+	Medium Cost - Surfacing and Signs and Enforcement There will be some ongoing costs and operational difficulties down the Ngauranga. For the scheme to be successful there will be a requirement for ongoing enforcement.	0 Outline plan of works will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
HOV Lane 3+ (peak period)	0 This option will have no significant impact on the volume of heavy vehicles on The Esplanade.	0 No access points are located nearby regional parks.	0 This option will have negligible impact in increasing the number of walking and cycling trips within the study area.	+	Medium Cost - Surfacing and Signs and Enforcement There will be some ongoing costs and operational difficulties down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0 Outline plan of works will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
HOV Lane 3+ (peak period) and the inclusion of the Grenada to Petone Link Road	0 This option will have no impact on the volume of heavy vehicles on The Esplanade.	0 No access points are located nearby regional parks.	0 This option will have negligible impact in increasing the number of walking and cycling trips within the study area.	+	Medium Cost - Surfacing and Signs and Enforcement There will be some ongoing costs and operational difficulties down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0 Outline plan of works will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
Combined bus lane with truck way (peak period)	- There will be an increase in HCV's along The Esplanade as development occurs in the Seaview area. <i>The HCV flows on The Esplanade in the AM peak increase slightly due to the inclusion of a truck way relieving bottlenecks at Ngauranga.</i>	0 No access points are located nearby regional parks.	+	++ There will be an increase in walking for those getting to bus stops rather than travelling using a motor vehicle.	Low Cost - Surfacing and Signs There will be some ongoing costs and operational difficulties down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0 Outline plan of works will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
Combined bus lane with truck way (peak period) and the inclusion of the Grenada to Petone Link Road	- <i>The traffic model indicates slightly higher increases than when the Grenada Petone link is in place without the truck way on SH1.</i>	0 No access points are located nearby regional parks.	+	++ There will be an increase in walking for those getting to bus stops rather than travelling using a motor vehicle.	Low Cost - Surfacing and Signs There will be some ongoing costs and operational difficulties down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0 Outline plan of works will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
Combined HOV 3+, bus lane and truck way (peak period)	- There will be an increase in HCV's along The Esplanade as development occurs in the Seaview area. <i>The HCV flows on The Esplanade in the AM peak increase slightly due to the inclusion of a truck way relieving bottlenecks at Ngauranga.</i>	0 No access points are located nearby regional parks.	+	++ There will be an increase in walking for those getting to bus stops rather than travelling using a motor vehicle.	Medium Cost - Surfacing and Signs and Enforcement There will be some ongoing costs and operational difficulties down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0 Outline plan of works will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
Combined HOV 3+, bus lane and truck way (peak period) and inclusion of the Grenada to Petone Link Road	- <i>The traffic model indicates slightly higher increases than when the Grenada Petone link is in place without the truck way on SH1.</i>	0 No access points are located nearby regional parks.	+	++ There will be an increase in walking for those getting to bus stops rather than travelling using a motor vehicle.	Medium Cost - Surfacing and Signs and Enforcement There will be some ongoing costs and operational difficulties down Ngauranga Gorge. For the scheme to be successful there will be a requirement for ongoing enforcement.	0 Outline plan of works will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
Additional southbound bus lane in Ngauranga Gorge	0 This option is unlikely to have a significant impact on the heavy vehicle on The Esplanade.	0 No access points are located nearby regional parks.	+	There will be an improvement in the number of walking and cycling trips as bus patrons walk / cycle to and from the bus stops.	- There will be some significant costs resulting from the purchase and excavation of the quarry land to make room for the bus lanes. There will be some additional ongoing costs for enforcement.	- Outline plan of works and possible alteration to designation will be required.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.
Tawa Interchange safety improvements.	0 This option will have no significant impact on the volume of heavy vehicles on The Esplanade.	0 No Impact.	0 Depending on design they will make it safer to cross the motorway by cycle or walking.	-	High - Depending on improvements	- Outline plan of works will be required for Grenada Section. Alteration to designation will be required for the Tawa Interchange section.	0	0	0 This Option will not provide any additional links and will therefore not add to the security of the current network.

3. Ngauranga to Dowse



Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Impacts on the Ngauranga to Dowse corridor if the Grenada to Petone Link Road (GP Link) is constructed	0		0		0		0		0		0	
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone	0	During peak times this lane could improve access between the Hutt community and the wider Wellington area. However, the project will lead to an increase in vehicles along The Esplanade which will increase severance from the foreshore to the Petone CBD.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	-	An additional lane provided for through reclamation would be affected by future sea level rise and storm surge. Use of the land side will increase potential for slips from increased storms over time, potentially resulting in landslides. Any proposed structures would need to take these future impacts into account to avoid, remedy or mitigate these effects.
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone and the inclusion of the Grenada to Petone Link Road	0	During peak times this project will improve access between the Hutt community and the wider Wellington area, however this project will lead to an increase of vehicles along The Esplanade which will increase severance of the foreshore from the Petone CBD.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	-	An additional lane provided for through reclamation would be affected by future sea level rise and storm surge. Use of the land side will increase potential for slips from increased storms over time, potentially resulting in landslides. Any proposed structures would need to take these future impacts into account to avoid, remedy or mitigate these effects.
Peak Time HOV (2+) Lane in existing carriageway	-	Using an existing lane for an HOV lane will mean that the capacity of the network is reduced for all other vehicles. This will mean that the Petone area becomes more difficult to access during the peak times.	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.
Peak Time HOV (2+) Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	-	Using an existing lane for an HOV lane will mean that the capacity of the network is reduced for all other vehicles. This will mean that the Petone area becomes more difficult to access during the peak times.	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.
Peak Period HOV (3+) Lane in existing infrastructure	---	Using an existing lane for an HOV lane will mean that the capacity of the network is reduced for all other vehicles. This will mean that Petone will become more difficult to access during the peak times.	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.
Peak Period HOV (3+) Lane in existing infrastructure and the inclusion of the Grenada to Petone Link Road	---	Using an existing lane for an HOV lane will mean that the capacity of the network is reduced for all other vehicles. This will mean that Petone will become more difficult to access during the peak times.	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.

Objectives	Assist economic and regional development									
	Maintain or reduce average peak period journey times and improve journey time reliability . <i>Model KPI used = travel time between Ngauranga and Petone and return</i>		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD <i>Model KPI used = total traffic volume on The Esplanade</i>		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Impacts on the Ngauranga to Dowse corridor if the Grenada to Petone Link Road (GP Link) is constructed	++	The introduction of the Grenada to Petone link decreases the time for light vehicles on SH2 between Ngauranga interchange and Dowse southbound and northbound considerably in the AM peak. In the IP peak the traffic model indicates a slighter decrease than in the AM peak but still noticeable in both directions for light vehicles. The introduction of the link road reduces the travel time and increases travel time reliability for light vehicles considerably in comparison to the current situation.	0		0		--	The traffic model indicates that the introduction of a Petone to Grenada link increases the traffic on The Esplanade though this is dependent on where the connections are located.	+	Overall, the traffic model indicates that the introduction of the Grenada to Petone link decreases the total travel time on the network in the AM and slightly less in the IP peak.
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone	--	An additional lane will increase the peak time capacity but only between Ngauranga and Petone. The critical issue is the merge capacity of SH1 and SH2 south of Ngauranga, and traffic flows would be inefficient because capacity of merges are significantly less than single lanes.	+	Increasing capacity during peak times along the SH2 corridor will mean that the Seaview / Gracefield area is more accessible to those from the greater Wellington area. Reduced travel times will also improve commercial benefits and reduce costs of travelling to and from the area during peak times.	0	The proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	A peak lane between Petone and Ngauranga will make it easier to get onto the highway from The Esplanade, meaning vehicles using "other" accesses will now use The Esplanade. The additional reversible lane in the traffic model does not have a significant effect in the AM or IP peak due to the use of a fixed trip matrix.	--	An additional lane will increase the peak time capacity but only between Ngauranga and Petone. The critical issue is the merge capacity of SH1 and SH2 south of Ngauranga, and traffic flows would be inefficient because capacity of merges are significantly less than single lanes.
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone and the inclusion of the Grenada to Petone Link Road	--	An additional lane will increase the peak time capacity but only between Ngauranga and Petone. The critical issue is the merge capacity of SH1 and SH2 south of Ngauranga, and traffic flows would be inefficient because capacity of merges are significantly less than single lanes.	+	Increasing capacity during peak times along the SH2 corridor will mean that the Seaview / Gracefield area is more accessible to those from the greater Wellington area. Reduced travel times will also improve commercial benefits and reduce costs of travelling to and from the area during peak times.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	--	The additional reversible lane with the Grenada to Petone Link increases the total flow on The Esplanade in both the AM and IP periods.	+	The additional link with the Grenada to Petone Link noticeably decreases the overall travel time in the AM peak with negligible changes in the IP period.
Peak Time HOV (2+) Lane in existing carriageway	-	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for general traffic will be reduced .	-	Using an existing lane will improve travel to and from the area for HOV's but for all other vehicles there will be significant reductions in travel time and travel time reliability. This will have a negative impact on the development of the area as it will be less attractive for commercial vehicles and employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - It would be expected that approximately the same number of vehicles will use The Esplanade.	-	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for general traffic will be reduced .
Peak Time HOV (2+) Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	-	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for general traffic will be reduced increasing travel times and travel time variability.	-	Using an existing lane will improve travel to and from the area for HOV's but for all other vehicles, most of which are SOV (including courier vans and trucks) there will be significant reductions in travel time and travel time variability. This will have a negative impact on the development of the area as it will be less attractive for commercial vehicles and employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - It would be expected that approximately the same number of vehicles will use The Esplanade.	-	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for the majority of general traffic will be reduced increasing travel time and reducing travel time reliability.
Peak Period HOV (3+) Lane in existing infrastructure	--	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for general traffic will be reduced increasing travel times and travel time variability.	--	Using an existing lane will improve travel to and from the area for HOV's but for all other vehicles, most of which are SOV (including courier vans and trucks) there will be significant reductions in travel time and travel time variability. This will have a negative impact on the development of the area as it will be less attractive for commercial vehicles and employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - It would be expected that approximately the same number of vehicles will use The Esplanade.	--	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for the majority of general traffic will be reduced increasing travel time and reducing travel time reliability.
Peak Period HOV (3+) Lane in existing infrastructure and the inclusion of the Grenada to Petone Link Road	--	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for general traffic will be reduced increasing travel times and travel time variability.	--	Using an existing lane will improve travel to and from the area for HOV's but for all other vehicles, most of which are SOV (including courier vans and trucks) there will be significant reductions in travel time and travel time variability. This will have a negative impact on the development of the area as it will be less attractive for commercial vehicles and employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - It would be expected that approximately the same number of vehicles will use The Esplanade.	--	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride, but the capacity for the majority of general traffic will be reduced increasing travel time and reducing travel time reliability.

Objectives	Assist in Safety and Personal Security			
	Reduced VKT <i>Model KPI used: total VKT</i>		Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>	
	Score	Comments	Score	Comments
Impacts on the Ngauranga to Dowse corridor if the Grenada to Petone Link Road (GP Link) is constructed	+	The traffic model indicates that the introduction of a Grenada to Petone link compared to the current network reduces the overall VKT in both the AM and the IP peak. Slight improvements in the vehicle kilometres travelled achievable due to the link road.	-	The traffic model results show an increase in HCV flows on The Esplanade in the AM peak.
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone	0	The additional link leads to an negligible increase in the VKT in the AM peak and no change is indicated in the IP peaks.	-	The traffic model indicates that during the AM peak a slight increase in HCV flows on The Esplanade in the westbound direction.
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone and the inclusion of the Grenada to Petone Link Road	+	Providing an additional lane within and existing corridor will add capacity and this will attract motorists and increase VKT. The additional link decreases the VKT by in the AM and IP peaks due to the Grenada to Petone link.	--	A peak lane between Petone and Ngauranga will make it easier to get onto the highway from The Esplanade, meaning vehicles using "other" accesses will now use The Esplanade. The combination of an additional general purpose reversible lane and the Grenada to Petone link causes increases the HCV flow in the AM peak.
Peak Time HOV (2+) Lane in existing carriageway	+	The additional benefits offered by this project encourage a greater vehicle occupancy. There will be a reduction in the number of single occupancy vehicles which will directly reduce VKT.	0	A HOV lane on SH2 will not affect HCV movements on The Esplanade.
Peak Time HOV (2+) Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	+	The benefits offered to HOV vehicles will encourage a transfer from SOV to HOV. There will be a reduction in the number of single occupancy vehicles which will directly reduce VKT.	0	A HOV lane on SH2 will not affect HCV movements on The Esplanade.
Peak Period HOV (3+) Lane in existing infrastructure	+	The benefits offered to HOV vehicles will encourage a transfer from SOV to HOV. There will be a reduction in the number of single occupancy vehicles which will directly reduce VKT.	0	A HOV lane on SH2 will not affect HCV movements on The Esplanade.
Peak Period HOV (3+) Lane in existing infrastructure and the inclusion of the Grenada to Petone Link Road	+	The benefits offered to HOV vehicles will encourage a transfer from SOV to HOV. There will be a reduction in the number of single occupancy vehicles which will directly reduce VKT.	0	A HOV lane on SH2 will not affect HCV movements on The Esplanade.

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Impacts on the Ngauranga to Dowse corridor if the Grenada to Petone Link Road (GP Link) is constructed	0		0		+	Overall, the traffic model indicates that the introduction of the Grenada to Petone link decreases the total travel time and improves travel time reliability on the network in the AM and slightly less in the IP peak.	0	
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone	--	Adding additional capacity to the existing network will not improve public transport journey times, and likely attract SOV trips.	--	It is likely that an additional lane will lead to the removal of the existing cycleway. There will be less room for a walkway/cycleway and additional vehicles on the network and as a result of additional capacity will make it less safe to walk and cycle along the route. The greater attractiveness of car use will reduce the number of walking and cycling trips.	+	An additional lane will increase the peak time capacity. This will reduce the travel times along the network and lead to improved travel time reliability. The additional link noticeably decreases the overall travel time in the AM peak with negligible changes in the IP period.	0	Negligible impact - this proposal does not provide any additional routes, it just adds capacity to an existing route.
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone and the inclusion of the Grenada to Petone Link Road	--	Adding additional capacity to the existing network will not improve public transport journey times, and likely attract SOV trips.	--	It is likely that an additional lane will lead to the removal of the existing cycleway. There will be less room for a walkway/cycleway and additional vehicles on the network and as a result of additional capacity will make it less safe to walk and cycle along the route. The greater attractiveness of car use will reduce the number of walking and cycling trips.	+	An additional lane will increase the peak time capacity. This will reduce the travel times along the network and lead to improved travel time reliability . The additional link with the Grenada to Petone Link noticeably decreases the overall travel time in the AM peak with negligible changes in the IP period.	0	Negligible impact - this proposal does not provide any additional routes, it just adds capacity to an existing route.
Peak Time HOV (2+) Lane in existing carriageway	+	Because buses will be able to travel in the HOV lane, there will be a positive impact with reduced travel times for public transport thus leading to higher PT mode share.	+	There will be some walking increase as those "sharing a ride" travel to the meeting place.	-	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride . But the capacity for general traffic will be reduced .	0	Negligible impact
Peak Time HOV (2+) Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	0	Negligible impact	+	There will be some walking increase as those "sharing a ride" travel to the meeting place.	-	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride. But the capacity for general traffic will be reduced, increasing travel time and travel time variability.	0	Negligible impact
Peak Period HOV (3+) Lane in existing infrastructure	0	Negligible impact	+	There will be some increase in walking as those "sharing a ride" travel to the meeting place.	--	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride. But the capacity for general traffic will be reduced, increasing travel time and travel time variability.	0	Negligible impact
Peak Period HOV (3+) Lane in existing infrastructure and the inclusion of the Grenada to Petone Link Road	0	Negligible impact	+	There will be some increase in walking as those "sharing a ride" travel to the meeting place.	--	There will be a decrease in the number of single occupancy vehicles. There will be improvements in both journey time and journey time reliability for those that "share" a ride. But the capacity for general traffic will be reduced, increasing travel time and travel time variability.	0	Negligible impact

Objectives	Protect and promote public health													
	Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>		Enhances access to regional parks		Increase number of walking and cycling trips		Costs		Consenting Issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Impacts on the Ngauranga to Dowse corridor if the Grenada to Petone Link Road (GP Link) is constructed	-	The traffic model shows an increase in HCV flows on The Esplanade in the AM peak.	0		0		0		0		0		0	
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone	-	A slight increase in HCV flows on The Esplanade in the westbound direction will result in AM peak.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	--	It is likely that an additional lane will lead to the removal of the existing cycleway. There will be less room for a walkway/cycleway and with additional vehicles on the network as a result of additional capacity, the safety of pedestrians and cyclists along the route will be compromised.	-	High ongoing costs - barrier machine and operating staff	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	+	Will allow better access between Petone and the greater Wellington area during peak times. This will mean that residential, commercial and industrial developments are more likely to be attracted to the Petone area.	0	Negligible impact - this does not provide any alternative routes.
Additional general purpose and reversible lane or shoulder between Ngauranga and Petone and the inclusion of the Grenada to Petone Link Road	--	A peak lane between Petone and Ngauranga will make it easier to get onto the highway from The Esplanade, meaning vehicles using "other" accesses will now use The Esplanade. The combination of an additional general purpose reversible lane and the Grenada to Petone link causes increases the HCV flow in the AM peak.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	--	It is likely that an additional lane will lead to the removal of the existing cycleway. There will be less room for a walkway/cycleway and with additional vehicles on the network as a result of additional capacity, the safety of pedestrians and cyclists along the route will be compromised.	-	High ongoing costs - barrier machine and operating staff	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	+	Will allow better access between Petone and the greater Wellington area during peak times. This will mean that residential, commercial and industrial developments are more likely to be attracted to the Petone area.	0	Negligible impact - this does not provide any alternative routes.
Peak Time HOV (2+) Lane in existing carriageway	0	Negligible impact - HOV lane on SH2 will not have a significant impact on HCVs on The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in walking as those "sharing a ride" will need to travel to the meeting place.	+	Medium - enforcement costs will be high	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	No impact - this does not provide any alternative routes.
Peak Time HOV (2+) Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	0	Negligible impact - HOV lane on SH2 will not have a significant impact on HCVs on The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in walking as those "sharing a ride" will need to travel to the meeting place.	+	Medium - enforcement costs will be high	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.
Peak Period HOV (3+) Lane in existing infrastructure	0	Negligible impact - HOV lane on SH2 will not have a significant impact on HCVs on The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although the project will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in walking as those "sharing a ride" will need to travel to the meeting place.	+	Medium - enforcement costs will be high	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.
Peak Period HOV (3+) Lane in existing infrastructure and the inclusion of the Grenada to Petone Link Road	0	Negligible impact - HOV lane on SH2 will not have a significant impact on HCVs on The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in walking as those "sharing a ride" will need to travel to the meeting place.	+	Medium - enforcement costs will be high	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Peak Time Bus and Truck Lane in existing carriageway	-	Benefit by improving existing bus services which will allow better public transport services but will reduce the capacity of the existing network.	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.
Peak Time Bus and Truck Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	-	Benefit by improving existing bus services which will allow better public transport services but will reduce the capacity of the existing network.	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway	-	Benefit by improving existing bus services which will allow better public transport services between Petone. There will be a significant reduction in capacity for the general traffic and this will reduce access to the Petone area .	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway and inclusion of the Grenada to Petone Link Road	-	Benefit by improving existing bus services which will allow better public transport services between Petone. There will be a significant reduction in capacity for the general traffic and this might reduce access to the Hutt Valley.	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure	0	Negligible impact - there will be no new infrastructure so erosion should not be a problem.	0	Negligible impact, as no new infrastructure is required. However, this option does not provide for managing future climate change impacts from sea level rise and storm surge affecting this infrastructure.

Objectives	Assist economic and regional development									
	Maintain or reduce average peak period journey times and improve journey time reliability . <i>Model KPI used = travel time between Ngauranga and Petone and return</i>		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD <i>Model KPI used = total traffic volume on The Esplanade</i>		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Peak Time Bus and Truck Lane in existing carriageway	-	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic and increased travel time variability.	-	The travel times for buses and trucks will be improved but the loss of a lane will reduce the capacity for the general traffic and this will mean that less people, most of which are SOV (including courier vans) will travel to the area for employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - it would be expected that approximately the same number of vehicles will use The Esplanade.	--	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic and reduced travel time reliability.
Peak Time Bus and Truck Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	-	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic and increased travel time variability.	-	The travel times for buses and trucks will be improved but the loss of a lane will reduce the capacity for the general traffic, most of which are SOV (including courier van) and this will mean that less people will travel to the area for employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - it would be expected that approximately the same number of vehicles will use The Esplanade.	--	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic and reduced travel time reliability.
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway	-	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic and increased travel time variability.	-	The travel times for buses and trucks will be improved but the loss of a lane will reduce the capacity for the general traffic, most of which are SOV (including courier vans) and this will mean that less people will travel to the area for employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - it would be expected that approximately the same number of vehicles will use The Esplanade.	-	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic and reduced travel time reliability.
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway and inclusion of the Grenada to Petone Link Road	-	Peak travel times on buses and HOV's will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times and variability for the general traffic.	-	The travel times for buses, HCV's and HOV's will be reduced but the loss of a lane will reduce the capacity for the general public and this will mean that less people will travel to the area for employment.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - It would be expected that approximately the same number of vehicles will use The Esplanade.	-	Peak travel times on buses and HOV's will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times and increased travel time variability for the general traffic.

Objectives	Assist in Safety and Personal Security			
	Reduced VKT <i>Model KPI used: total VKT</i>		Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>	
	Score	Comments	Score	Comments
Peak Time Bus and Truck Lane in existing carriageway	+	Improved travel times and travel time reliability at peak travel times on buses will attract current motorists.	-	Providing a truck way between Ngauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade.
Peak Time Bus and Truck Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	+	Improved travel times and travel time reliability at peak travel times on buses will attract current motorists.	-	Providing a truck way between Ngauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade..
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway	+	Improved travel times and travel time reliability at peak travel times on buses at HOV's will attract current motorists's. This will reduce the overall VKT.	-	Providing a truck way between Ngauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade.
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway and inclusion of the Grenada to Petone Link Road	+	Increased travel time reliability and improved peak travel times on buses and HOV's will attract current motorists's. This will reduce the overall VKT.	-	Providing a truck way between Ngauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade.

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Peak Time Bus and Truck Lane in existing carriageway	+	Provision of a bus lane will improve travel times and travel time reliability for buses. This will mean that PT is a more attractive option for those travelling along the route.	+	There will be an increase in walking for those travelling to bus stops rather than travelling using a motor vehicle.	--	Peak Travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic.	0	Negligible impact
Peak Time Bus and Truck Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	+	Provision of a bus lane will improve travel times and travel times reliability for buses. This will mean that PT is a more attractive option for those travelling along the route.	+	There will be an increase in walking for those travelling to bus stops rather than travelling using a motor vehicle.	--	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic.	0	Negligible impact
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway	+	Provision of a bus lane will improve travel times and travel times reliability for buses. This will mean that PT is a more attractive option for those travelling along the route.	+	There will be an increase in walking for those travelling to bus stops and meeting places rather than travelling using a motor vehicle.	-	Peak travel times on buses will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general public will mean the capacity will be significantly reduced leading to higher travel times for the general traffic.	0	Negligible impact
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway and inclusion of the Grenada to Petone Link Road	+	Provision of a bus lane will improve travel times and travel times reliability for buses. This will mean that PT is a more attractive option for those travelling along the route.	+	There will be an increase in walking for those travelling to bus stops and meeting places rather than travelling using a motor vehicle.	-	Peak travel times on buses and HOV's will be reduced and will be more reliable. Removing heavy vehicles from the general lanes will mean general traffic can maintain constant speed and this will reduce emissions. Reducing the number of traffic lanes available for the general traffic will mean the capacity will be significantly reduced leading to higher travel times for the general traffic.	0	Negligible impact

Objectives	Protect and promote public health													
	Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>		Enhances access to regional parks		Increase number of walking and cycling trips		Costs		Consenting Issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Peak Time Bus and Truck Lane in existing carriageway	-	Providing a truck way between Nauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in walking for those travelling to bus stops rather than travelling using a motor vehicle.	++	Low	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.
Peak Time Bus and Truck Lane in existing carriageway and the inclusion of the Grenada to Petone Link Road	-	Providing a truck way between Nauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in walking for those travelling to bus stops rather than travelling using a motor vehicle.	++	Low	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway	-	Providing a truck way between Nauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in cycling and walking for those travelling to bus stops rather than travelling using a motor vehicle.	+	Medium - enforcement costs of HOV will be high	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.
Peak Time Bus, Truck and HOV (2+) Lane in existing carriageway and inclusion of the Grenada to Petone Link Road	-	Providing a truck way between Nauranga and Petone will attract additional heavy vehicles to the Petone area, this will increase the number of vehicles travelling along The Esplanade.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	+	There will be an increase in cycling and walking for those getting to bus stops rather than travelling using a motor vehicle.	+	Medium - enforcement costs of HOV will be high	0	Negligible impact - this will be provided on existing infrastructure. Outline Plan of Works will be required.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Road Realignment for a 105km/h design speed	0	Increasing the speed of the route will decrease the travel times increasing connectivity to employment and community facilities.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	-	An additional lane provided for through reclamation would be affected by future sea level rise and storm surge. Use of the land side will increase potential for slips from increased storms over time, potentially resulting in landslides. Any proposed structures would need to take these future impacts into account to avoid, remedy or mitigate these effects.
Road Realignment for a 105km/h design speed and inclusion of the Grenada to Petone Link Road	0	Increasing the speed of the route will decrease the travel times increasing connectivity to employment and community facilities.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	-	An additional lane provided for through reclamation would be affected by future sea level rise and storm surge. Use of the land side will increase potential for slips from increased storms over time, potentially resulting in landslides. Any proposed structures would need to take these future impacts into account to avoid, remedy or mitigate these effects.
Road Realignment for a 120km/h design speed	0	Increasing the speed of the route will decrease the travel times increasing connectivity to employment and community facilities.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	-	An additional lane provided for through reclamation would be affected by future sea level rise and storm surge. Use of the land side will increase potential for slips from increased storms over time, potentially resulting in landslides. Any proposed structures would need to take these future impacts into account to avoid, remedy or mitigate these effects.
Road Realignment for a 120km/h design speed and inclusion of the Grenada to Petone Link Road	0	Negligible impact - increasing the speed of the route will decrease the travel times and will increase throughput.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	-	An additional lane provided for through reclamation would be affected by future sea level rise and storm surge. Use of the land side will increase potential for slips from increased storms over time, potentially resulting in landslides. Any proposed structures would need to take these future impacts into account to avoid, remedy or mitigate these effects.
Six laning of SH2 between Ngauranga and Petone												
Redesign of the Petone Interchange	+	Improves access across around Petone and add capacity beneath the Petone Overbridge depending on design.	-	There is one Historic Place identified near the proposed interchange which may be affected. Depending on the final interchange layout this will or will not be affected.	+	There are no critically endangered habitats in the area.	0	There are limited sensitive receivers in the area so effects should be minimal. This will need to be confirmed through further investigation.	0	Further investigation will be required but at this stage, the design should have minimal long term impact. There could be effects during construction.	0	Potential for the interchange to be affected by flooding.
Rail realigned for 105 km/h design speed	++	A faster service will mean that it is quicker and easier for patrons to get around greater Wellington and will improve inter-community connections.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	-	Existing asset will still be affected by storm surge during storms.
Rail realigned for 120 km/h design speed	++	A faster service will mean that it is quicker and easier for patrons to get around greater Wellington and will improve inter-community connections.	0	There are a number of historical sites along this route but an additional lane (depending on location) should be able to avoid these sites.	-	There could be potential effects on marine ecology if reclamation takes place. Depending on location there will be some loss in native vegetation if the hillside is used, as there are conservation areas identified in the Wellington District Plan which are significant ecological resources. Construction will also have an impact on the Horokiki Stream.	+	There are few settlements or residential areas so noise and vibration should not have a significant impact.	-	Erosion can be an issue along the SH2 road corridor. If the design was to have an additional lane on the land side, then erosion and sediment control would need to be carried out to minimise future erosion and sediment runoff.	+	Faster services will mean that there will be an increased use of the services.

Objectives	Assist economic and regional development									
	Maintain or reduce average peak period journey times and improve journey time reliability . <i>Model KPI used = travel time between Ngauranga and Petone and return</i>		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD <i>Model KPI used = total traffic volume on The Esplanade</i>		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Road Realignment for a 105km/h design speed	+	Increasing the design speed along the route will mean that the journey times and travel time reliability will improve.	+	Increasing the speed and reducing the travel times will mean that the Petone area is a more attractive employment option and travel time cost reductions will have commercial benefits.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - it would be expected that approximately the same number of vehicles will use The Esplanade.	+	Increasing the design speed along the route will mean that the journey times and travel time reliability will improve.
Road Realignment for a 105km/h design speed and inclusion of the Grenada to Petone Link Road	+	Increasing the design speed along the route will mean that the journey times and travel time reliability will improve.	+	Increasing the speed and reducing the travel times will mean that the Petone area is a more attractive employment option and travel time cost reductions will have commercial benefits.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - it would be expected that approximately the same number of vehicles will use The Esplanade.	+	Increasing the design speed along the route will mean that the journey times and travel time reliability will improve.
Road Realignment for a 120km/h design speed	++	Increasing the design speed along the route will mean that the journey times and travel time reliability will improve.	+	Increasing the speed and reducing the travel times will mean that the Petone area is a more attractive employment option and travel time cost reductions will have commercial benefits.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - it would be expected that approximately the same number of vehicles will use The Esplanade.	++	Increasing the speeds through the area will mean that the flows will be smoother and this will result in greater fuel efficiency and lower emissions and improve travel time reliability.
Road Realignment for a 120km/h design speed and inclusion of the Grenada to Petone Link Road	++	Increasing the design speed along the route will mean that the journey times and travel time reliability will improve.	+	Increasing the speed and reducing the travel times will mean that the Petone area is a more attractive employment option and travel time cost reductions will have commercial benefits.	0	Negligible impact - the proposed lane does not directly pass the development, although the development can be accessed from proposed lane. Providing an additional lane during peak hours will increase the accessibility of Lincolnshire to the greater Wellington area.	0	Negligible impact - it would be expected that approximately the same number of vehicles will use The Esplanade.	++	Increasing the speeds through the area will mean that the flows will be smoother and this will result in greater fuel efficiency and lower emissions and improve travel time reliability.
Six laning of SH2 between Ngauranga and Petone	+	This option will add capacity to the highway but the majority of this capacity will be lost as a consequence of merging in and out of the additional lanes (to gain access to the on and off ramps).	0	There may be some minor increases to capacity but the majority of this will be lost by the merging. As a consequence there will be little impact on development in Seaview.	0	Negligible impact - the proposed 6 laning will have little impact on the Lincolnshire Farm development.	-	This option will not remove any vehicles from The Esplanade. It is likely that there may be a minor increase in capacity and this traffic will then travel The Esplanade if an alternative route is not provided.	+	There may be some additional capacity added to the section of road however the majority of this capacity will be taken up by merging; as a consequence there may be some minor decreases in travel time.
Redesign of the Petone Interchange	0	Safety improvements, depending on the design will slightly reduce peak travel times on the network in the immediate area of the interchange.	0	Negligible impact	0	Negligible impact	0	Negligible impact	0	Negligible impact
Rail realigned for 105 km/h design speed	+	Travel Journey times will be reduced. More people will use the train as a result, reducing the number of private motor vehicles. This will have a positive impact on travel times and travel time reliability on the highway network.	0	Negligible impact	0	Negligible impact	0	Negligible impact	+	Travel journey times will be reduced. More people will use the train as a result, reducing the number of private motor vehicles. This will have a positive impact on travel times and travel time reliability on the highway network.
Rail realigned for 120 km/h design speed	+	Travel Journey times will be reduced. More people will use the train as a result, reducing the number of private motor vehicles. This will have a positive impact on travel times on the highway network. This reduces travel costs to operate in the region and encourages development.	0	Negligible impact	0	Negligible impact	0	Negligible impact	+	Travel journey times will be reduced. More people will use the train as a result, reducing the number of private motor vehicles. This will have a positive impact on travel times and travel time reliability on the highway network.

Objectives	Assist in Safety and Personal Security			
	Reduced VKT <i>Model KPI used: total VKT</i>		Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>	
	Score	Comments	Score	Comments
Road Realignment for a 105km/h design speed	0	Negligible impact - it is not expected that increasing the design speed of the road will have an impact on the volumes of traffic. This will mean that there would be no change in the VKT.	0	It would be expected that approximately the same number of vehicles use The Esplanade.
Road Realignment for a 105km/h design speed and inclusion of the Grenada to Petone Link Road	0	Negligible impact - it is not expected that increasing the design speed of the road will have an impact on the volumes of traffic. This will mean that there would be no change in the VKT.	0	It would be expected that approximately the same number of vehicles use The Esplanade.
Road Realignment for a 120km/h design speed	0	Negligible impact - it is not expected that increasing the design speed of the road will have an impact on the volumes of traffic. This will mean that there would be no change in the VKT.	0	It would be expected that approximately the same number of vehicles use The Esplanade.
Road Realignment for a 120km/h design speed and inclusion of the Grenada to Petone Link Road	0	Negligible impact - it is not expected that increasing the design speed of the road will have an impact on the volumes of traffic. This will mean that there would be no change in the VKT.	0	It would be expected that approximately the same number of vehicles use The Esplanade.
Six laning of SH2 between Ngauranga and Petone	-	There will be a minor increase in capacity and this will result in more traffic using the link. This will increase the VKT.	-	There will be a minor increase in capacity and this will attract HCVs. Some of these HCVs will then travel along The Esplanade.
Redesign of the Petone Interchange	0	Negligible impact	0	Negligible impact
Rail realigned for 105 km/h design speed	+	Faster travel time will attract patrons to the service which will reduce private motor vehicle use and therefore reducing VKT.	0	Negligible impact
Rail realigned for 120 km/h design speed	+	Faster travel time will attract patrons to the service which will reduce private motor vehicle use and therefore reducing VKT.	0	Negligible impact

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Road Realignment for a 105km/h design speed	0	Negligible impact	0	Negligible impact	+	Increasing the design speed along the route will mean that the journey times will improve.	0	Negligible impact
Road Realignment for a 105km/h design speed and inclusion of the Grenada to Petone Link Road	0	Negligible impact	0	Negligible impact	+	Increasing the design speed along the route will mean that the journey times will improve.	0	Negligible impact
Road Realignment for a 120km/h design speed	0	Negligible impact	0	Negligible impact	++	Increasing the design speed along the route will mean that the journey times will improve.	0	Negligible impact
Road Realignment for a 120km/h design speed and inclusion of the Grenada to Petone Link Road	0	Negligible impact	0	Negligible impact	++	Increasing the design speed along the route will mean that the journey times will improve.	0	Negligible impact
Six laning of SH2 between Ngauranga and Petone	0	Negligible impact.	0	Negligible impact.	0	Negligible impact - although there will be an increase in capacity, the majority of this will be taken by the merging movements. This will result in only minor change to vehicle hours and is unlikely to have an impact on the travel time reliability.	0	Negligible impact
Redesign of the Petone Interchange	0	Negligible impact	0	Negligible impact	+	Safety improvements, depending on the design will slightly reduce peak travel times on the network in the immediate area of the interchange.	0	Negligible impact
Rail realigned for 105 km/h design speed	+	Reduced travel times will mean increase in train usage.	+	There will be an increase in the number of cycling and walking trips to and from the stations.	+	Travel journey times will be reduced which will encourage more people to take the train. The subsequent reduction in private motor vehicles on the highway network will improve travel times.	0	Negligible impact
Rail realigned for 120 km/h design speed	+	Reduced travel times will mean increase in train usage.	+	There will be an increase in the number of cycling and walking trips to and from the stations.	+	Travel journey times will be reduced which will encourage more people to take the train. The subsequent reduction in private motor vehicles on the highway network will improve travel times.	0	Negligible impact

Objectives	Protect and promote public health													
	Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>		Enhances access to regional parks		Increase number of walking and cycling trips		Costs		Consenting Issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Road Realignment for a 105km/h design speed	0	Approximately the same number of vehicles use The Esplanade with this project.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	0	Negligible impact	-	High	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	+	Will allow better access between Petone and the greater Wellington area during peak times. This will mean that residential, commercial and industrial development is more likely to be attracted to the Petone area.	0	Negligible impact - this does not provide any alternative routes.
Road Realignment for a 105km/h design speed and inclusion of the Grenada to Petone Link Road	0	Approximately the same number of vehicles use The Esplanade with this project.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	0	Negligible impact	-	High	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	+	Will allow better access between Petone and the greater Wellington area during peak times. This will mean that residential, commercial and industrial development is more likely to be attracted to the Petone area.	0	Negligible impact - this does not provide any alternative routes.
Road Realignment for a 120km/h design speed	0	Approximately the same number of vehicles use The Esplanade with this project.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	0	Negligible impact	--	High	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	+	Will allow better access between Petone and the greater Wellington area during peak times. This will mean that residential, commercial and industrial development is more likely to be attracted to the Petone area.	0	Negligible impact - this does not provide any alternative routes.
Road Realignment for a 120km/h design speed and inclusion of the Grenada to Petone Link Road	0	Approximately the same number of vehicles use The Esplanade with this project.	0	Negligible impact - the proposed new lane will not pass any regional parks although it will increase access by adding capacity on networks that "lead to" the regional parks.	0	Negligible impact	--	High	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	+	Will allow better access between Petone and the greater Wellington area during peak times. This will mean that residential, commercial and industrial development is more likely to be attracted to the Petone area.	0	Negligible impact - this does not provide any alternative routes.
Six laning of SH2 between Ngauranga and Petone	-	There may be a small increase in the capacity of the highway. This will lead to an increase in HCVs and some of these will travel along The Esplanade.	0	Negligible impact - the proposed new lanes will not pass any regional parks although it will increase access by adding minor capacity on networks that "lead to" the regional parks.	0	Negligible impact	--	High			0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.
Redesign of the Petone Interchange	0	Negligible impact	0	Negligible impact - the proposed new lane will not pass any regional parks although the project will increase access by adding capacity on networks that "lead to" the regional parks.	0	Negligible impact	-	High	-	Outline Plan of works required, possible alteration to designation required. Identified contaminated land in the area as well, which will require assessment.	0	Negligible impact	0	Negligible impact - this does not provide any alternative routes.
Rail realigned for 105 km/h design speed	0	Negligible impact	0	No impact - will be created on existing infrastructure.	+	There will be an increase in the number of cycling and walking trips to and from the stations.	-	High	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	0	Negligible impact	0	Negligible impact
Rail realigned for 120 km/h design speed	0	Negligible impact	0	No impact - will be created on existing infrastructure.	+	There will be an increase in the number of cycling and walking trips to and from the stations.	--	High	-	There will be significant statutory approvals, including alteration to designation and resource consents as the proposed route will require reclamation in the Coastal Marine Area.	0	Negligible impact	0	Negligible impact

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Cycles and pedestrians on train - banned from road	-	There is currently a cycleway that runs between Ngauranga and Petone. Removing this reduces cycling and will remove an option of cycling between the two areas and will create severance for those who travel by cycle.	0	Negligible impact	0	Negligible impact	0	Negligible impact	0	Negligible impact	0	Limited impact
Cycles and pedestrians use hard shoulders	0	Negligible impact - cycling is currently allowed between Ngauranga and Petone.	0	Negligible impact - any improvements to the hard shoulder to "promote" this activity will occur on existing infrastructure.	0	Negligible impact - the cycleway will be on existing infrastructure.	0	Negligible impact - the existing cycleway will be on existing infrastructure.	0	Negligible impact - the cycleway will be on existing infrastructure.	0	Limited impact
Existing pedestrian and cycleway completed	+	This will provide a continuous cycleway and walking access between Petone and Ngauranga (and then to Wellington). This will allow cyclists who are not confident cycling on the shoulders to make the journey between the two destinations.	0	Negligible impact - the construction impacts will be minimal and most likely within the current highway designation.	0	Negligible impact - the construction impacts will be minimal and most likely within the current highway designation.	0	Negligible impact - the construction impacts will be minimal and most likely within the current highway designation.	0	Negligible impact - the construction impacts will be minimal and most likely within the current highway designation.	-	Reclaimed land in the CMA would be susceptible to sea level rise and storm surge.
Pedestrians and cycles benched into hillside above SH2	+	This will provide a continuous cycleway and walking access between Petone and Ngauranga (and then to Wellington). This will allow cyclists who are not confident cycling on the shoulders to make the journey between the two destinations.	-	There are a number of historical sites along this route and further investigations and design would be needed to ensure that this option did not have a negative impact on these sites.	-	There are recognised conservation areas identified in the WCC District Plan. Further work will be required to categorise the ecological value and potential mitigation required.	0	Negligible impact - there will be some issues during construction, but these will be short term.	-	Erosion can be an issue along the SH2 road corridor. The design would require significant work to ensure long term erosion is not an issue.	-	Route into the hillside will be affected by increased storms possibly increasing erosion potential.
Purpose built pedestrian and cycleway on seaward side of rail	+	This will provide a continuous cycleway and walking access between Petone and Ngauranga (and then to Wellington). This will allow cyclists who are not confident cycling on the shoulders to make the journey between the two destinations.	0	Negligible impact - there are few cultural or heritage features on the sea side of the railway.	0	Negligible impact - if the cycleway/walkway required foundations into the sea, there will be an impact on marine life. There are no significant issues on land in this area.	0	Negligible impact - there will be some issues during construction, but these will be short term.	0	Negligible impact - there will be some erosion issues and sediment run off issues if construction alters the breakwater along SH1 / SH2	-	Reclaimed land in the CMA would be susceptible to sea level rise and storm surge.
Pedestrian and cycleway extended under Petone ramps off street between Hutt Road and rail, pedestrian and cycleway connected to facility on The Esplanade	+	This will provide better access across The Esplanade and SH2 on/off ramps for cyclists, and will encourage more novice cyclists to use the cycle route.	0	Negligible impact - there are no cultural or heritage site in this location.	0	Negligible impact - the track will need to cross minimal vegetation, but will need to pass the Korokoro Stream.	0	Negligible impact - this will be a cycleway and will not be travelled on by vehicles. There will be some issues during construction but these will be short term.	0	Negligible impact	0	Potential structure will need to cross Korokoro stream. Design will need to account for climate change.
"Beach to Bush" crossing of SH2	+	This option will provide the opportunity for cyclists / walkers to gain safe access to Balmoral Park without the need to cross a busy highway	0	Negligible impact - although there are a number of cultural and heritage sites in the location of this option, it is expected that all the consents and mitigation techniques will be dealt with as part of other projects.	0	Negligible impact - although there is some vegetation in the area, it is not expected that this will have a significant impact.	0	Negligible impact - this option will provide only a cycleway/walkway and will not be travelled on by vehicles. There will be some issues during construction but these will be short term.	0	Negligible impact	0	Potential structure will need to cross Korokoro stream. Design will need to account for climate change.

Objectives	Assist economic and regional development									
	Maintain or reduce average peak period journey times and improve journey time reliability . <i>Model KPI used = travel time between Ngauranga and Petone and return</i>		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD <i>Model KPI used = total traffic volume on The Esplanade</i>		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Cycles and pedestrians on train - banned from road	-	The current users of the cycleway will need alternative methods to travel between the Petone and the rest of greater Wellington. It is possible that these cyclists will use private motor vehicles, increasing occupancy of the network during peak times, this will lead to increase in the travel time and less reliable travel time reliability. This increases travel costs and negatively impacts on business.	-	Not allowing cycling and walking between Petone and Ngauranga will reduce the number of "transport" options available, this will lead to people choosing not to pursue employment in the area.	0	Negligible impact	0	Negligible impact	-	The current users of the cycleway will need alternative methods to travel between Petone and the rest of greater Wellington. It is possible that these cyclists will use private motor vehicles, increasing occupancy of the network during peak times, this will lead to increase in the travel time and less reliable travel times.
Cycles and pedestrians use hard shoulders	-	Although improvements to the current shoulders may attract private motorists to consider cycling it is not considered that this will be a significant number as the facilities currently exist. The shift of existing cyclists to the shoulder will cause delays as drivers are more cautious of cyclists travelling in close proximity. This increases travel costs and negatively impacts on business.	0	This facility is currently available so there will be no significant impacts on the development of the area.	0	Negligible impact.	0	Negligible impact	-	Although improvements to the current facilities may attract private motorists to consider cycling it is not considered that this will be a significant number as the facilities currently exist. The shift of existing cyclists to the shoulder will cause delays as drivers are more cautious of cyclists travelling in close proximity.
Existing pedestrian and cycleway completed	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicle or public transport. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability. This reduces travel costs to operate in the region and encourages development.	+	Providing a link between Ngauranga (and the rest of Wellington) and Petone will mean that people are more likely to travel between Wellington and Petone for employment.	0	Negligible impact	0	Negligible impact	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles or public transport. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.
Pedestrians and cycles benched into hillside above SH2	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicle or public transport. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability. This reduces travel costs to operate in the region and encourages development.	+	Providing a link between Ngauranga (and the rest of Wellington) and Petone will mean that people are more likely to travel between Wellington and Petone for employment.	0	Negligible impact	0	Negligible impact	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles or public transport. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.
Purpose built pedestrian and cycleway on seaward side of rail	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles or public transport. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability. This reduces travel costs to operate in the region and encourages development.	+	Providing a link between Ngauranga (and the rest of Wellington) and Petone will mean that people are more likely to travel between Wellington and Petone for employment.	0	Negligible impact	0	Negligible impact	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles or public transport. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.
Pedestrian and cycleway extended under Petone ramps off street between Hutt Road and rail, pedestrian and cycleway connected to facility on The Esplanade	+	Making it easier to travel between Ngauranga and Petone without having to cross SH2 or The Esplanade will increase the number of cyclists during the peak periods. This will mean that there is less private motor vehicles on the road and there will be a slight reduction in the travel times along SH2. This reduces travel costs to operate in the region and encourages development.	0	Negligible impact	0	Negligible impact	0	Negligible impact	+	Making it easier to travel between Ngauranga and Petone without having to cross SH2 or The Esplanade will increase the number of cyclists during the peak periods. This will mean that there are less private motor vehicles on the road and there will be a slight reduction in the travel times along SH2.
"Beach to Bush" crossing of SH2	0	Negligible impact - this route will not provide access to key peak time destinations.	0	Negligible impact	0	Negligible impact	+	Will improve the cycling and walking facilities between the regional park area and The Esplanade.	0	Negligible impact - this route will not provide access to key peak time destinations.

Objectives	Assist in Safety and Personal Security			
	Reduced VKT <i>Model KPI used: total VKT</i>		Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>	
	Score	Comments	Score	Comments
Cycles and pedestrians on train - banned from road	-	Removing the cycleway will mean that people who would've cycled are now more likely to take a private motor vehicle, this will increase the VKT.	0	Negligible impact
Cycles and pedestrians use hard shoulders	0	The standard of the facility provided for cyclists in this case is minimal and will provide little incentive for motorists to transfer to cycling.	0	Negligible impact
Existing pedestrian and cycleway completed	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles or public transport. This will mean that fewer private vehicles are on the network, directly reducing the number of VKT.	0	Negligible impact
Pedestrians and cycles benched into hillside above SH2	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles or public transport. This will mean that fewer private vehicles are on the network, directly reducing the number of VKT.	0	Negligible impact
Purpose built pedestrian and cycleway on seaward side of rail	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles or public transport. This will mean that fewer private vehicles are on the network, directly reducing the number of VKT.	0	Negligible impact
Pedestrian and cycleway extended under Petone ramps off street between Hutt Road and rail, pedestrian and cycleway connected to facility on The Esplanade	+	If there is an increase in the number of cyclists, then it is likely that there will be fewer private motor vehicles.	0	Negligible impact
"Beach to Bush" crossing of SH2	0	Negligible impact	0	Negligible impact

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Total vehicle hours and improved travel time reliability (all day) <i>Model KPI used = total vehicle hours on network</i>		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Cycles and pedestrians on train - banned from road	+	Some people who are no longer able to cycle along the route will be more likely to use public transport.	--	Removing the cycleway will mean that cycling between Ngauranga and Petone is no longer possible.	-	The current users of the cycleway will need alternative methods to travel between the Petone and the rest of greater Wellington. It is possible that these cyclists will use private motor vehicles, increasing occupancy of the network during peak times, this will lead to increase in the travel time and less reliable travel time reliability.	--	This will remove the option of travelling between Ngauranga and Petone by foot or on a cycle.
Cycles and pedestrians use hard shoulders	0	Negligible impact - it will promote walking and cycling but may attract people away from public transport (they will cycle instead).	+	Improving the existing facilities along the route will attract less experienced/confident cyclists.	-	Although improvements to the current facilities may attract private motorists to consider cycling it is not considered that this will be a significant number as the facilities currently exist. The shift of existing cyclists to the shoulder will cause delays as drivers are more cautious of cyclists travelling in close proximity.	0	Negligible impact
Existing pedestrian and cycleway completed	0	Negligible impact - it will promote walking and cycling but may attract people away from public transport (they will cycle instead).	++	Providing a fully completed link between Petone and Ngauranga will promote cycling and walking between the two destinations for recreational and commuting purposes.	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicle. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.	0	Negligible impact
Pedestrians and cycles benched into hillside above SH2	0	Negligible impact - it will promote walking and cycling but may attract people away from public transport (they will cycle instead).	++	Providing a fully completed link between Petone and Ngauranga will promote cycling and walking between the two destinations for recreational and commuting purposes.	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicle. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.	0	Negligible impact
Purpose built pedestrian and cycleway on seaward side of rail	0	Negligible impact - it will promote walking and cycling but may attract people away from public transport (they will cycle instead).	++	Providing a fully completed link between Petone and Ngauranga will promote cycling and walking between the two destinations for recreational and commuting purposes.	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicle. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.	0	Negligible impact
Pedestrian and cycleway extended under Petone ramps off street between Hutt Road and rail, pedestrian and cycleway connected to facility on The Esplanade	0	Negligible impact - it will promote walking and cycling but may attract people away from public transport (they will cycle instead).	++	Providing a link between Petone and Ngauranga without the need to cross SH2 will promote cycling and walking for both recreational and commuting cyclists.	+	Making it easier to travel between Ngauranga and Petone without having to cross SH2 or The Esplanade will increase the number of cyclists during the peak periods. This will mean that there are less private motor vehicles on the road and there will be a slight reduction in the travel times along SH2.	0	Negligible impact
"Beach to Bush" crossing of SH2	0	Negligible impact - it will promote walking and cycling.	+	Will attract cyclists and walkers as it will provide a link between the beach area / The Esplanade and the walking tracks along Korokoro and Belmont.	0	Negligible impact - this route will not provide access to key peak time destinations.	+	It will provide a link between the Petone Beach and the Korokoro and Belmont walking tracks.

Objectives	Protect and promote public health						Costs	Consenting Issues	Contributes to continuing growth aspirations (Councils)	Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)				
	Reducing the volume of heavy vehicles on The Esplanade <i>Model KPI used = HCV volume on The Esplanade</i>	Enhances access to regional parks	Increase number of walking and cycling trips											
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments				
Cycles and pedestrians on train - banned from road	0	Negligible impact	-	Those who wish to cycle to and from Belmont Regional Park from Wellington City will no longer have the opportunity.	--	Those who presently cycle will no longer have the option and there will be no opportunity for future growth.	++	Low	0	Negligible impact	-	Will not allow the growth of sustainable transport and also removes a present mode of transport between the two areas.	0	Negligible impact
Cycles and pedestrians use hard shoulders	0	Negligible impact	0	Negligible impact- improving the existing facilities will provide the opportunity to travel between Ngauranga and Petone, this will increase access to the Belmont Regional Park for cyclists	+	Improving the existing facilities along the route will attract less experienced/confident cyclists.	++	Low	0	Negligible impact	0	Negligible impact - there are currently existing shoulder cycling facilities.	0	Negligible impact
Existing pedestrian and cycleway completed	0	Negligible impact	0	Negligible impact- improving the existing facilities will provide the opportunity to travel between Ngauranga and Petone, this will increase access to the Belmont Regional Park for cyclists	++	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.	+	Medium - There will be some difficulty in completing the link due to the current rail and road alignment.	0	Negligible impact	+	Will help achieve councils sustainable transport growth aspirations.	0	Negligible impact
Pedestrians and cycles benched into hillside above SH2	0	Negligible impact	0	Negligible impact- improving the existing facilities will provide the opportunity to travel between Ngauranga and Petone, this will increase access to the Belmont Regional Park for cyclists	+	Providing a completed link between Petone and Ngauranga will attract cyclists and/or walkers who currently use private motor vehicles. This will reduce the number of motorists on the network which will improve journey times and will increase travel time reliability.	-	High - Significant earthworks and retaining structures would be required.	--	This work would require an alteration to designation or new NoR, consents for earthworks and there will also be significant visual effects that need to be addressed.	+	Will help achieve councils sustainable transport growth aspirations.	0	Negligible impact
Purpose built pedestrian and cycleway on seaward side of rail	0	Negligible impact	0	Negligible impact- improving the existing facilities will provide the opportunity to travel between Ngauranga and Petone, this will increase access to the Belmont Regional Park for cyclists	++	Providing a completed link between Petone and Ngauranga will promote cycling and walking between the two destinations for recreational and commuting purposes.	-	High - Significant earthworks and structural work would be required.	--	This work would require an alteration to designation or new NoR and regional coastal consents .	+	Will help achieve councils sustainable transport growth aspirations.	0	Negligible impact
Pedestrian and cycleway extended under Petone ramps off street between Hutt Road and rail, pedestrian and cycleway connected to facility on The Esplanade	0	Negligible impact	0	Negligible impact- improving the existing facilities will provide the opportunity to travel between Ngauranga and Petone, this will increase access to the Belmont Regional Park for cyclists	++	Providing a link between Petone and Ngauranga without the need to cross SH2 will promote cycling and walking for both recreational and commuting cyclists.	-	High - There will be a need for realigning the railway or providing rail crossing structures.	0	Negligible impact	+	Will help achieve councils sustainable transport growth aspirations.	0	Negligible impact
"Beach to Bush" crossing of SH2	0	Negligible impact	++	This will provide a safe link between the Belmont Regional Park and Petone without the need to cross SH2.	+	Will allow walking and cycling between Petone and the Belmont Regional Park.	-	Medium to High - This will be a structure.	-	This work would require an alteration to designation .	+	Will help achieve councils sustainable transport growth aspirations.	0	Negligible impact

4. Cross Valley Link



Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
The Esplanade and Jackson Street West - 30 kph traffic calming and posted speed limit, permit required for heavy vehicles	-	This will encourage traffic to use other streets within Petone to travel between Seaview and SH2. It is most likely traffic will use Udy and Cuba Streets effectively splitting the Petone community into three unless a well designed alternative route is provided.	0	There are a number of heritage and cultural sites throughout Petone. If traffic is moved into these heritage areas, there is the possibility of degrading the precinct.	0	No negative impacts expected.	-	This option will divert traffic through Petone Main Street and surrounding areas. There is potential for increased noise and vibration to occur in these areas.	0	No impact expected at this time. Further investigation will be required to confirm this.	+	Positive impact, taking a transportation route further away from potential climate change impacts, particularly storm surge.
Wakefield to White Lines (E2).	-	Having a high volume of vehicles travelling along this route will separate the foreshore and Petone Main Street from the rest of the Lower Hutt community. However, the project might create severance with local roads just past the Hutt River Crossing. Converting a minor road into a high volume road will have a serious effect on the communities either side. While a bridge would provide more connectivity between the two communities, the high volume vehicle content will have a negative effect. Potential for there to be positive effects by locating the road in the existing transport corridor before the bridge.	+	There are no known sites at this stage which would be affected by the route.	-	A structure will be required to cross the Hutt River that meets Greater Wellington's Flood Standards. This project will also impact on freshwater species.	-	This option will bring increased traffic through this residential area, and will impact on community facilities such as schools.	0	The route will have erosion and sediment control issues by the river. Further investigations would be required.	0	Potential flood risk will be increased in the future through climate change, however a new bridge would be able to take this into account.
Wakefield to rail alignment (E3).	0	Some of the route will impact on the existing communities, affecting properties and connections within the community. However, the section of the route that follows the rail alignment will minimise impact in this area.	0	There will be a limited impact on cultural and heritage sites along the route.	0	Negligible impact - the main issues would be around a river crossing but the existing railway structure will be utilised minimising these impacts.	-	This option will bring increased traffic through this residential area, and will impact on community facilities such as schools.	0	Negligible impact - there will be some issues around the river crossing. Further Investigations would be required.	0	Potential flood risk will be increased in the future through climate change, however a new bridge would be able to take this into account.
Wakefield to rail alignment following Gracefield rail reserve to Elizabeth Street (E4).	0	Community impact not as great as White Lines alignment as it follows the existing rail alignment.	0	No impact	0	N/A	-	This option will bring increased traffic through this residential area, and will impact on community facilities such as schools.	0	Limited impact on the surrounding area is expected. Further investigation will be required to confirm this.	0	Potential flood risk will be increased in the future through climate change, however a new bridge would be able to take this into account.
Udy Street to Manchester Street to Golf course (E5).	--	This option would seriously affect the functionality of the golf course and seriously affect recreation and open space values associated with the area.	0	No impact	0	Minor impact, if a new bridge is constructed over the river.	-	This option will divert traffic through Petone Main Street and surrounding areas and will have adverse effect on noise and vibration in the area.	0	Limited impact on the surrounding area is expected. Further investigation will be required to confirm this.	-	Potential flood risk will be increased in the future through climate change. The location of the new road, in this identified flood hazard, is a risk.
Udy Street to Cuba Street (50km/h) to The Esplanade to Waione Street (E6).	-	This option will split the Petone community and make it difficult to travel between the Main Street, the foreshore and the rest of Lower Hutt.	-	There are a number of cultural and heritage sites along the route, and although this option will not impact on the sites, it will impact on the enjoyment the public can take from them.	0	N/A	-	This option will divert traffic through Petone Main Street and surrounding areas and will have adverse effect on noise and vibration in the area.	0	Limited impact on the surrounding area is expected. Further investigation will be required to confirm this.	0	Negligible impact - however, this option will be affected by future storm surge/tsunami risk.
Udy Street to Cuba Street (50 km/h) to Jackson Street east (50km/h) to Waione Street (E7).	-	This option will split the Petone community and make it difficult to travel between the Main Street, the foreshore and the rest of Lower Hutt. The area is also being redeveloped at present by Housing New Zealand.	-	There are a number of cultural and heritage sites along the route, and although this option will not impact on the sites, it will impact on the enjoyment the public can take from them. The route also passes through the "Nicholson Block" which is currently under treaty claim.	0	N/A	-	This option will divert traffic through Petone Main Street and surrounding areas, potentially creating adverse effects from noise and vibration on the community.	0	Limited impact on the surrounding area is expected. Further investigation will be required to confirm this.	-	Route will be affected by future storm surge and sea level rise and will be subject to Tsunami risk. However, route could be designed to take this into account.
Udy Street to Manchester Street to Golf Course to Halford Place to Waione Street (E8).	--	This option would seriously affect the functionality of the golf course and seriously affect recreation and open space values associated with the area.	-	There are a number of cultural and heritage sites along the route, and although this option will not impact on the sites, it will impact on the enjoyment the public can take from them. The route also passes through the "Nicholson Block" which is currently under treaty claim.	0	Potentially a positive opportunity is available to improve the coastal foreshore if a new route is built here.	-	This option will divert traffic through Petone Main Street and surrounding areas, potentially creating adverse effects from noise and vibration on the community.	0	Limited impact on the surrounding area is expected. Further investigation will be required to confirm this.	-	Route will be affected by future storm surge and sea level rise and will be subject to Tsunami risk. However, route could be designed to take this into account.
A two lane upgraded The Esplanade	-	Most of the current route already has two lanes although widening works will need to be undertaken to ensure that HCV's can negotiate them safely.	-	Widening works will mean that there will be negative impacts on the local streets and roads will become closer to historic buildings.	+	Potential opportunity to improve the shoreline through revegetation.	-	Widening works will mean that roads are even closer to buildings and will result in higher traffic volumes travelling along the route. This will increase the vibration impacts.	0	Negligible impact - this route will not pass any areas where erosion or deposition is an issue	0	Negligible - There is not likely to be a reduction in the number of vehicles travelling along the route, only the redistribution of vehicles.
A four lane upgraded The Esplanade	--	Having a four lane road for any of these options will cause significant severance of the Petone Community unless carefully located and designed.	--	A number of historical buildings would be directly impacted as a result of 4 laning.	-	Revegetation opportunity on coastal shoreline lost.	--	Four laning will mean that the road becomes significantly closer to the existing buildings. This could increase noise and vibration.	0	Potentially limited impact. This would need to be confirmed through further investigation.	0	Negligible - There is not likely to be a reduction in the number of vehicles travelling along the route, only the redistribution of vehicles.

Objectives	Assist economic and regional development									
	Maintain or reduce average peak period journey times and improve journey time reliability particularly between SH1 and SH2 and to the Seaview / Gracefield area.		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable redevelopment of this area incorporating integrating the foreshore with Petone CBD		Reduced average journey times and improved travel time reliability (all day) and HCV vehicle operating costs between SH1 and SH2, and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
The Esplanade and Jackson Street West - 30 kph traffic calming and posted speed limit, permit required for heavy vehicles	-	Placing traffic calming measures along The Esplanade and Jackson Street will divert traffic onto the local network. This will cause congestion within the Main Street and increase travel times. For those that choose to remain on The Esplanade travel times will be longer as a direct result of the reduced speed and traffic calming in place.	-	This option will divert traffic onto the local network and make the project more difficult for HCV's to access the area, the project will also increase travel times and not attract employment into the area.	0	Negligible impact - this option will not pass the development.	++	Traffic calming will divert traffic (including heavy vehicles) into the local network. This will mean that there is a significant drop in the traffic volumes that travel along The Esplanade. This encourages the attractiveness of business in the area.	-	Traffic calming measures along The Esplanade and Jackson Street will divert traffic onto the local network unless a good purpose built road is provided. This will cause congestion within the Main Street and increase travel times. For those that choose to remain on The Esplanade travel times will be longer as a direct result of the reduced speed and traffic calming in place.
Wakefield to White Lines (E2).	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time.	+	This additional route (especially the Hutt River Crossing) will add capacity between SH2 and Seaview. This reduces travel costs and encourages development.	0	Negligible impact - this option will not pass the development.	+	Providing a direct alternative between SH2 and Seaview will attract vehicles from The Esplanade. This encourages the attractiveness of business in the area.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time or travel time reliability.
Wakefield to rail alignment (E3).	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time.	+	This additional route (especially the Hutt River Crossing) will add capacity between SH2 and Seaview. This reduces travel costs and encourages development.	0	Negligible impact - this option will not pass the development.	+	Providing a direct alternative between SH2 and Seaview will attract vehicles from The Esplanade. This encourages the attractiveness of business in the area.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time or travel time reliability.
Wakefield to rail alignment following Gracefield rail reserve to Elizabeth Street (E4).	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time.	+	This additional route (especially the Hutt River Crossing) will add capacity between SH2 and Seaview. This reduces travel costs and encourages development.	0	Negligible impact - this option will not pass the development.	+	Providing a direct alternative between SH2 and Seaview will attract vehicles from The Esplanade. This encourages the attractiveness of business in the area.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time or travel time reliability.
Udy Street to Manchester Street to Golf course (E5).	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time.	0	Negligible impact -although this will provide an additional route to the Hutt River, access will still be constrained at the Waione Street bridge.	0	Negligible impact - this option will not pass the development.	+	Providing a direct alternative between SH2 and Seaview will attract vehicles from The Esplanade. This encourages the attractiveness of business in the area.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time or travel time reliability.
Udy Street to Cuba Street (50km/h) to The Esplanade to Waione Street (E6).	-	This option will add distance onto the journey travelled and will not have a straight alignment. This will lead to increased travel times.	0	Negligible impact -although this will provide an additional route to the Hutt River, access will still be constrained at the Waione Street bridge.	0	Negligible impact - this option will not pass the development.	+	Providing a direct alternative between SH2 and Seaview will attract vehicles from The Esplanade. This encourages the attractiveness of business in the area.	-	This option will add distance onto the journey travelled and will not have a straight alignment. This will lead to increases in travel times and reduced travel time reliability.
Udy Street to Cuba Street (50 km/h) to Jackson Street east (50km/h) to Waione Street (E7).	-	This option will add distance onto the journey travelled and will not have a straight alignment. This will lead to increased travel times.	0	Negligible impact -although this will provide an additional route to the Hutt River, access will still be constrained at the Waione Street bridge.	0	Negligible impact - this option will not pass the development.	+	Providing a direct alternative between SH2 and Seaview will attract vehicles from The Esplanade. This encourages the attractiveness of business in the area.	-	This option will add distance onto the journey travelled and will not have a straight alignment. This will lead to increases in travel times and reduced travel time reliability.
Udy Street to Manchester Street to Golf Course to Halford Place to Waione Street (E8).	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time.	0	Negligible impact -although this will provide an additional route to the Hutt River, access will still be constrained at the Waione Street bridge.	0	Negligible impact - this option will not pass the development.	+	Providing a direct alternative between SH2 and Seaview will attract vehicles from The Esplanade. This encourages the attractiveness of business in the area.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time.
A two lane upgraded The Esplanade	-	There will be a reduction in capacity (The Esplanade is 2 lanes in each direction in some locations), there will be an increase in congestion and an increase in travel times.	0	Negligible impact - this option is unlikely to attract any business.	0	Negligible impact - this option will not pass the development.	-	As traffic growth continues the traffic volumes on The Esplanade will increase. In locations along The Esplanade it is four lanes so reducing this to two lanes will decrease the capacity and make congestion worse. Due to increased levels of congestion it is unlikely that there would be an increase in the development.	-	Decreasing the capacity of The Esplanade will increase travel times.
A four lane upgraded The Esplanade	+	There will be an increase in capacity of the network. This will lead to improved travel times and travel time reliability. This reduces travel costs for business and encourages development in Seaview/Gracefield.	++	Increasing the capacity of The Esplanade will allow better access to the Seaview-Gracefield area.	0	Negligible impact - this option will not pass the development.	--	Increasing the capacity of The Esplanade will reduce the amenity and increase traffic volumes. It will segregate the foreshore from the Petone community.	+	There will be an increase in capacity of the network. This will lead to improved travel times and travel time reliability.

Objectives	Assist in Safety and Personal Security			
	Reduced VKT		Reducing the volume of heavy vehicles on The Esplanade	
	Score	Comments	Score	Comments
The Esplanade and Jackson Street West - 30 kph traffic calming and posted speed limit, permit required for heavy vehicles	-	Vehicles will be diverted along alternative routes and this will increase travel distance.	++	Traffic calming and lowered speeds will make it unattractive and difficult for vehicles to travel along The Esplanade.
Wakefield to White Lines (E2).	0	Negligible impact - the new route will be of similar distance so there will be no significant changes in VKT depending on origin and destination.	+	Providing an efficient alternate route will attract HCV's from The Esplanade.
Wakefield to rail alignment (E3).	0	Negligible impact - the new route will be of similar distance so there will be no significant changes in VKT depending on origin and destination.	+	Providing an efficient alternate route will attract HCV's from The Esplanade.
Wakefield to rail alignment following Gracefield rail reserve to Elizabeth Street (E4).	0	Negligible impact - the new route will be of similar distance so there will be no significant changes in VKT depending on origin and destination.	+	Providing an efficient alternate route will attract HCV's from The Esplanade.
Udy Street to Manchester Street to Golf course (E5).	0	Negligible impact - the new route will be of similar distance so there will be no significant changes in VKT depending on origin and destination.	+	Providing an efficient alternate route will attract HCV's from The Esplanade.
Udy Street to Cuba Street (50km/h) to The Esplanade to Waione Street (E6).	-	Will increase travel distance for the journey.	+	Providing an efficient alternate route will attract HCV's from The Esplanade.
Udy Street to Cuba Street (50 km/h) to Jackson Street east (50km/h) to Waione Street (E7).	-	Will increase travel distance for the journey.	+	Providing an efficient alternate route will attract HCV's from The Esplanade.
Udy Street to Manchester Street to Golf Course to Halford Place to Waione Street (E8).	-	Will increase travel distance for the journey.	+	Providing an efficient alternate route will attract HCV's from The Esplanade.
A two lane upgraded The Esplanade	0	Negligible impact.	-	This option will not provide an alternative route for HCVs.
A four lane upgraded The Esplanade	0	Negligible impact - the new route will be of similar distance so there will be no significant changes in VKT.	--	Increasing the capacity of The Esplanade is likely to attract development to the Seaview area, this may lead to an increase in HCVs travelling along The Esplanade.

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Maintain or reduce average peak period journey times and improve journey time reliability in the study area, particularly between SH1 and SH2 and to the Seaview / Gracefield area	Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area		
	Score	Comments	Score	Comments	Score	Comments		
The Esplanade and Jackson Street West - 30 kph traffic calming and posted speed limit, permit required for heavy vehicles	0	Negligible impact	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	-	Traffic calming along The Esplanade and Jackson Street will divert traffic onto the local network unless an efficient alternative route is provided. This will cause congestion within the Main Street and increase travel times. For those that choose to remain on The Esplanade travel times will be longer as a direct result of the reduced speed and traffic calming in place.	-	No alternative routes will be provided.
Wakefield to White Lines (E2).	+	Reduces competition for road space on The Esplanade allowing more efficient and reliable bus services which use The Esplanade and enables an improved amenity for passengers catching buses in the area.	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a reduced number of intersections so it is not expected that there will be significant changes in the travel time.	+	This option will provide an additional route from SH2 to the Seaview Area
Wakefield to rail alignment (E3).	+	Reduces competition for road space on The Esplanade allowing more efficient and reliable bus services which use The Esplanade and enables an improved amenity for passengers catching buses in the area.	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a reduced number of intersections so it is not expected that there will be significant changes in the travel time.	+	This option will provide an additional route from SH2 to the Seaview Area
Wakefield to rail alignment following Gracefield rail reserve to Elizabeth Street (E4).	+	Reduces competition for road space on The Esplanade allowing more efficient and reliable bus services which use The Esplanade and enables an improved amenity for passengers catching buses in the area.	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a reduced number of intersections so it is not expected that there will be significant changes in the travel time.	+	This option will provide an additional route from SH2 to the Seaview Area
Udy Street to Manchester Street to Golf course (E5).	+	Reduces competition for road space on The Esplanade allowing more efficient and reliable bus services which use The Esplanade and enables an improved amenity for passengers catching buses in the area.	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a reduced number of intersections so it is not expected that there will be significant changes in the travel time.	0	Negligible impact - this option will provide an additional route from SH2 to the Hutt River crossing, but access will still be limited to the Seaview area because of the Waione Street bridge.
Udy Street to Cuba Street (50km/h) to The Esplanade to Waione Street (E6).	+	Reduces competition for road space on The Esplanade allowing more efficient and reliable bus services which use The Esplanade and enables an improved amenity for passengers catching buses in the area.	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	-	This option will add distance onto the journey travelled and will not have a smooth alignment. This will lead to increases in travel times.	0	Negligible impact - this option will provide an additional route from SH2 to the Hutt River crossing, but access will still be limited to the Seaview area because of the Waione Street bridge.
Udy Street to Cuba Street (50 km/h) to Jackson Street east (50km/h) to Waione Street (E7).	+	Reduces competition for road space on The Esplanade allowing more efficient and reliable bus services which use The Esplanade and enables an improved amenity for passengers catching buses in the area.	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	-	This option will add distance onto the journey travelled and will not have a smooth alignment. This will lead to increases in travel times.	0	Negligible impact - this option will provide an additional route from SH2 to the Hutt River crossing, but access will still be limited to the Seaview area because of the Waione Street bridge.
Udy Street to Manchester Street to Golf Course to Halford Place to Waione Street (E8).	+	Reduces competition for road space on The Esplanade allowing more efficient and reliable bus services which use The Esplanade and enables an improved amenity for passengers catching buses in the area.	+	Reducing volumes of vehicles on The Esplanade will mean that there are better conditions for cyclists and walkers along The Esplanade.	0	Negligible impact - this option will allow a direct route between SH2 and the Seaview area, in the same way The Esplanade currently does. There will be a similar number of intersections so it is not expected that there will be significant changes in the travel time.	0	Negligible impact - this option will provide an additional route from SH2 to the Hutt River crossing, but access will still be limited to the Seaview area because of the Waione Street bridge.
A two lane upgraded The Esplanade	-	Having a two lane Esplanade will reduce the space and capacity available for public transport.	-	Will not improve the amenity of The Esplanade to encourage walking and cycling. Reducing the capacity is likely to make it unpleasant to walk along the foreshore.	-	Decreasing the capacity of The Esplanade will increase travel times.	-	Will not provide an alternative route
A four lane upgraded The Esplanade	0	Negligible impact	-	This option will reduce the amenity of The Esplanade and likely reduce its attraction to walkers and cyclists.	+	There will be an increase in capacity of the network. This will lead to improved travel times and travel time reliability.	0	Negligible impact

Objectives	Protect and Promote public health													
	Reduced volume of heavy vehicles on The Esplanade		Enhances access to regional parks		Increase numbers of walking and cycling trips		Costs		Consenting issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
The Esplanade and Jackson Street West - 30 kph traffic calming and posted speed limit, permit required for heavy vehicles	++	Traffic calming and lowered speeds will make it unattractive and difficult for vehicles to travel along The Esplanade. Traffic will be diverted into the Main Street.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	++	Low	0	No statutory approvals under the RMA required if all works undertaken on the road.	0	Negligible Impact	0	Negligible Impact
Wakefield to White Lines (E2).	+	Some heavy vehicles will use the new route that has been provided.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	-	Medium / High - there will be a need for a new bridge to gain access across the Hutt River.	--	High - Crossing the Hutt River will be significant. Potential impacts on surrounding urban areas in terms of reduced amenity and noise, air and vibration could also be significant depending on how the route is designed. A new NoR would be required depending on how much land is required, a new bridge and whether the effects are no more than minor.	+	Will help with the growth of the Seaview area.	+	Provides an alternative route with additional crossing of the Hutt River.
Wakefield to rail alignment (E3).	+	Some heavy vehicles will use the new route that has been provided.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	0	Medium - land will need to be purchased from Ontrack, a new road will need to be constructed and bridge work carried out.	--	High - Crossing the Hutt River will have significant consenting issues, new NoR will possibly be required depending on how the route is designed.	+	Will help with the growth of the Seaview area.	+	Provides an alternative route with additional crossing of the Hutt River.
Wakefield to rail alignment following Gracefield rail reserve to Elizabeth Street (E4).	+	Some heavy vehicles will use the new route that has been provided.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	0	Medium - land will need to be purchased from Ontrack, a new road will need to be constructed and bridge work carried out.	-	Alteration to designation or new NoR could be required depending on how the route is designed.	+	Will help with the growth of the Seaview area.	+	Provides an alternative route with additional crossing of the Hutt River.
Udy Street to Manchester Street to Golf course (E5).	+	Some heavy vehicles will use the new route that has been provided.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	0	Medium - road realignment will be required and land will need to be purchased.	--	High - Going through the golf course will have significant issues for a new NoR the project would also encounter significant regional consenting issues with locating the route in a flood prone area.	0	Negligible impact - access to the Seaview area will still be constrained by the Waione Street bridge.	0	Negligible impact
Udy Street to Cuba Street (50km/h) to The Esplanade to Waione Street (E6).	+	Some heavy vehicles will use the new route that has been provided.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	0	Medium - road realignment will be required and land will need to be purchased.	-	This route will require new NoR Significant environmental effects are anticipated. Regional consents for working with contaminated land will be required.	0	Negligible impact - access to the Seaview area will still be constrained by the Waione Street bridge.	0	Negligible impact
Udy Street to Cuba Street (50 km/h) to Jackson Street east (50km/h) to Waione Street (E7).	+	Some heavy vehicles will use the new route that has been provided.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	0	Medium - road realignment will be required and land will need to be purchased.	-	New NoR and potentially regional consents required, depending on the final alignment chosen.	0	Negligible impact - access to the Seaview area will still be constrained by the Waione Street bridge.	0	Negligible impact
Udy Street to Manchester Street to Golf Course to Halford Place to Waione Street (E8).	+	Some heavy vehicles will use the new route that has been provided.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	+	Reducing volumes of vehicles on The Esplanade will mean improved conditions for cyclists and walkers along The Esplanade.	--	High - road realignment will be required and golf course/other land will need to be purchased.	--	High - Going through the golf course will have significant consenting from a social and flood risk point of view. New NoR would be required.	0	Negligible impact - access to the Seaview area will still be constrained by the Waione Street bridge.	0	Negligible impact
A two lane upgraded The Esplanade	-	Will not provide an alternative route for HCVs	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	-	Will reduce the amenity of the foreshore; this is unlikely to encourage walking and cycling.	-	Will require significant modification	-	New NoR will be required and possibly regional consents.	-	Will reduce the capacity to Seaview which is an identified growth area.	0	Will not provide an alternative route.
A four lane upgraded The Esplanade	--	This option is likely to attract development in Seaview which may result in an increase of HCVs on The Esplanade.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	-	This option is will reduce the amenity of the Esplanade and is unlikely to encourage walking and cycling.	--	Will require significant modification of existing road and construction of a new bridge.	-	New NoR will be required and possible regional consents depending on the final design.	+	Will increase the capacity of The Esplanade and likely to attract development to Seaview.	0	Will not provide an alternative route.

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Reopening the Gracefield line for freight with an integrated multimodal logistics hub	0	The rail reserve is already there.	0	Negligible impact - the rail reserve is already there.	0	Negligible impact - the rail reserve is already there.	-	Reintroducing the rail will increase the noise and vibrations for those who are living near the railway line.	0	Negligible impact - this route will not pass any areas where erosion or deposition is an issue	+	Some companies will choose to use rail rather than HCV for freighting goods, reducing the environmental impacts.

Objectives		Assist economic and regional development								
	Maintain or reduce average peak period journey times and improve journey time reliability particularly between SH1 and SH2 and to the Seaview / Gracefield area.	Supports redevelopment on the Seaview-Gracefield Area	Supports development of the Lincolnshire Farms area	Improved amenity of The Esplanade to enable redevelopment of this area incorporating integrating the foreshore with Petone CBD	Reduced average journey times and improved travel time reliability (all day) and HCV vehicle operating costs between SH1 and SH2, and to the Seaview / Gracefield area					
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Reopening the Gracefield line for freight with an integrated multimodal logistics hub	+	There will be a reduction in HCV's as people choose to transport using rail. This will increase the capacity on the network. This option increases the economic competitiveness for freight movement in and out of Seaview/Gracefield.	0	Negligible impact - it will slightly increase the capacity of the network but this is unlikely to attract future development	0	Negligible impact - this option will not pass the development.	+	There will be a slight reduction in the number of heavy vehicles.	+	There will be a reduction in the number of HCV's on the Network. This will slightly increase the capacity and reduce the expected travel times.

Objectives	Assist in Safety and Personal Security			
	Reduced VKT		Reducing the volume of heavy vehicles on The Esplanade	
	Score	Comments	Score	Comments
Reopening the Gracefield line for freight with an integrated multimodal logistics hub	+	Increased competitiveness in freight movements will lead to a reduction in HCV's which will reduce the VKT's.	+	There will be a slight reduction in the number of HCV's along The Esplanade as freight is delivered by train.

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Maintain or reduce average peak period journey times and improve journey time reliability in the study area, particularly between SH1 and SH2 and to the Seaview / Gracefield area		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Reopening the Gracefield line for freight with an integrated multimodal logistics hub	0	Negligible impact	0	Negligible impact	+	There will be a reduction in the number of HCV's using the network. This will slightly increase the capacity and reduce the expected travel times.	+	Provides an additional rail route.

Objectives	Protect and Promote public health													
	Reduced volume of heavy vehicles on The Esplanade		Enhances access to regional parks		Increase numbers of walking and cycling trips		Costs		Consenting issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Reopening the Gracefield line for freight with an integrated multimodal logistics hub	+	There will be a slight reduction in the number of HCV's along The Esplanade as freight is delivered by train.	0	Negligible impact - this option will not provide any benefit or additional access to the regional parks.	0	Negligible impact - although there will be a decrease in the number of HCV's it is not expected that this will be significant enough to have a major impact on walking and cycling activities.	++	Low	++	Low - already within existing railway designation	0	Further assessment is required to determine if this will contribute to Council growth aspirations on The Esplanade and other areas such as Wainuiomata.	0	Negligible impact

5. Link Road



Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
A1	++	This link will provide good access from Tawa (SH1) both to residential areas between SH1 and SH2 including Lincolnshire Farm, Horokiwi and Petone. It will provide a direct route between Grenada and Petone.	0	There are no identified heritage, Maori or archaeological sites identified at this time. This should be confirmed through further investigation.	+	This link is proposed to mostly be through greenfields. At this time, no critically endangered vegetation/habitats or species has been identified that will be affected.	-	There could potentially be noise effects depending on the alignment chosen.	--	Erosion and sediment control could be an issue, depending on the final design and treatment of contaminated land. The area is substantially impacted by contaminated land. Dust could also be a significant issue as power lines are over the proposed route.	0	The proposed location will not be significantly impacted by climate change. Further investigation will be required to determine the potential effect.
A2	++	This link will provide good access from Churton Park (SH1) both to residential areas between SH1 and SH2 including Lincolnshire Farm, Horokiwi and Petone. It will provide a direct route between Grenada and Petone.	-	There is a historical building and an archaeological site in the location of the connection with SH1. Depending on the design, this will be adversely affected.	+	This link is proposed to be through mostly greenfields. At this time, no critically endangered vegetation/habitats or species has been identified that will be affected.	-	There could potentially be noise effects depending on the alignment chosen.	-	Erosion and sediment control could be an issue, depending on the final design and treatment of contaminated land.	0	The proposed location will not be significantly impacted by climate change. Further investigation will be required to determine the potential effect.
B1	0	This link will provide good access (when combined with the other links) to between SH1 and SH2. It might improve access between the Petone and Grenada/Tawa area. However, the link will cut through reserve and residential land use areas within Lincolnshire Farm.	0	There are no identified heritage, Maori or archaeological sites identified at this time. This should be confirmed through further investigation, but for now no impact is expected.	-	This link passes through Belmont Regional Park, and crosses numerous streams.	-	This link passes through proposed rural residential, and reserve land use. A link will have negative impacts for residents within 100m of the link. It will also reduce the amenity offered by the reserve.	-	In this area there will be some issues with erosion, if the highway infrastructure is not carefully designed. Cut and fill slopes will change the natural environment, including the natural drainage channels.	--	The proposed location will be significantly impacted by increased storms which will result in increased landslides by the ridge which the route would need to pass through.
B2	+	This link will provide good access (when combined with the other links) to between SH1 and SH2. It might improve access between the Petone and Grenada/Tawa area. The link will cut through rural residential and open space land use areas within Lincolnshire Farm.	0	There are no identified heritage, Maori or archaeological sites identified at this time. This should be confirmed through further investigation, but for now no impact is expected.	-	There are a number of streams running through the area that will be impacted by this link.	-	This link passes through proposed rural residential, and reserve land use. A link will have negative impacts for residents within 100m of the link. It will also reduce the amenity offered by the reserve.	-	In this area there will be some issues with erosion, if the highway infrastructure is not carefully designed. Cut and fill slopes will change the natural environment, including the natural drainage channels.	--	The proposed location will be significantly impacted by increased storms which will result in increased landslides by the ridge which the route would need to pass through.
B3	++	This link will provide good access (when combined with the other links) to between SH1 and SH2. It might improve access between the Petone and Grenada/Tawa area. The link will cut through rural residential and open space land use areas within Lincolnshire Farm.	0	This link does not appear to cross any significant cultural and heritage features.	0	This link does not appear to impact native vegetation, wetlands, critical habitat or endangered species.	+	This link will pass industrial land use to the south and the suburban centre to the north. The proposed link should not cause any major issues for this type of land use.	-	The link could potentially go through Cottles Landfill, which is a highly polluted site. If this is the case then there could be erosion and sediment control issues.	0	The proposed location will not be significantly impacted by climate change. Further investigation will be required to determine the potential effect.
B4	+	This street will provide good access (when combined with the other links) between SH1 and SH2 in combination with other sections of the link road. It might improve access between the Petone and Grenada/Tawa area. The link will be the proposed "principal road" (Lincolnshire Farm structure plan WCC August 2006) and will link residential and residential land use. If used primarily as the link road, then the alignment would conflict with the approved Wellington City structure plan for this area. In this alignment, it will sever the node and diminish its potential commercial viability.	0	This link does not appear to cross any significant cultural and heritage features.	0	This link does not appear to impact native vegetation, wetlands, critical habitat or endangered species.	-	This area has been set aside in the structure plan for a principal road; so long as appropriate set backs are put in place through the plan change process, noise and vibration should not be an issue. If it was an expressway, it would be a negative effect.	-	The link could potentially go through Cottles Landfill, which is a highly polluted site. If this is the case then there could be erosion and sediment control issues.	0	The proposed location will not be significantly impacted by climate change. Further investigation will be required to determine the potential effect.

Objectives		Assist economic and regional development									
		Maintain or reduce average peak period journey times and improve journey time reliability particularly between SH1 and SH2 and to the Seaview / Gracefield area.	Supports redevelopment on the Seaview-Gracefield Area	Supports development of the Lincolnshire Farms area	Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD	Reduced average journey times and improved travel time reliability (all day) and HCV vehicle operating costs between SH1 and SH2, and to the Seaview / Gracefield area					
Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
A1	++	This link will assist in the development of a completed link between Tawa and Petone. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This will reduce travel costs for business.	+	This link will assist in providing a direct link between Tawa and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	+	This link will provide a direct link between Tawa and the Lincolnshire Farm development and also the Hutt Valley and Lincolnshire Farm.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	++	This link will assist in the development of a link between Tawa and Petone. Vehicles making this trip will have a direct route, reducing travel times and improving travel time reliability and congestion on SH1 and SH2.	
A2	++	This link will assist in the development of a completed link between Grenada and Petone. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This will reduce travel costs for business.	+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	+	This link will provide a direct link between Tawa and the Lincolnshire Farm development and also the Hutt Valley and Lincolnshire Farm.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	++	This link will assist in the development of a link between Grenada and Petone. Vehicles making this trip will have a direct route, reducing travel times and improving travel time reliability and congestion on SH1 and SH2 will be reduced.	
B1	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This will reduce travel costs for business.	+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	+	This link will assist in providing direct link between the Grenada Area and the Lincolnshire Farm development and also the Hutt Valley and Lincolnshire Farm.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	
B2	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This will reduce travel costs for business.	+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	+	This link will assist in providing direct link between the Grenada Area and the Lincolnshire Farm development and also the Hutt Valley and Lincolnshire Farm.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	
B3	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This will reduce travel costs for business.	+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	++	This link will assist in providing direct link between the Grenada Area and the Lincolnshire Farm development. The link will pass through a commercial and industrial zone and will attract further development as a result of increased access. The link will also assist in providing a direct link between the Hutt Valley and Lincolnshire Farm.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	
B4	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This will reduce travel costs for business.	+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	+	This link will assist in providing direct link between the Grenada Area and the Lincolnshire Farm development and also the Hutt Valley and Lincolnshire Farm.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	

Objectives	Assist in Safety and Personal Security			
	Reduced VKT		Reducing the volume of heavy vehicles on The Esplanade	
	Score	Comments	Score	Comments
A1	+	This link will assist in providing a direct link between Tawa and Petone. This will mean that travel distance will be reduced.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.
A2	+	This link will assist in providing a direct link between Tawa and Petone. This will mean that travel distance will be reduced.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.
B1	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled between SH1 and Petone.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.
B2	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled between SH1 and Petone.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.
B3	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled between SH1 and Petone.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.
B4	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled between SH1 and Petone.	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.

Objectives		Improve access, mobility and reliability							
Increase PT mode share		Increase numbers of walking and cycling trips		Maintain or reduce average peak period journey times and improve journey time reliability in the study area, particularly between SH1 and SH2 and to the Seaview / Gracefield area		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area			
Score	Comments	Score	Comments	Score	Comments	Score	Comments		
A1	+	0	This option will enable direct bus services between North Wellington and the Hutt Valley as well as integrating with Lincolnshire Farm & Horokiwi.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a link between Tawa and Petone. Vehicles making this trip will have a direct route, reducing travel times and improving travel time reliability and congestion on SH1 and SH2.	++	This link will assist in providing an alternative route between Tawa and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
A2	+	0	This option will enable direct bus services between North Wellington and the Hutt Valley as well as integrating with Lincolnshire Farm & Horokiwi.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a link between Grenada and Petone. Vehicles making this trip will have a direct route, reducing travel times and congestion on SH1 and SH2 will be reduced.	++	This link will assist in providing an alternative route between Grenada and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
B1	+	0	This option will enable direct bus services between North Wellington and the Hutt Valley as well as integrating with Lincolnshire Farm & Horokiwi.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	++	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
B2	+	0	This option will enable direct bus services between North Wellington and the Hutt Valley as well as integrating with Lincolnshire Farm & Horokiwi.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	++	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
B3	+	0	This option will enable direct bus services between North Wellington and the Hutt Valley as well as integrating with Lincolnshire Farm & Horokiwi.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	++	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
B4	++	0	This option will enable direct bus services between North Wellington and the Hutt Valley as well as integrating with Lincolnshire Farm & Horokiwi.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	++	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.

Objectives	Protect and Promote public health													
	Reduced volume of heavy vehicles on The Esplanade		Enhances access to regional parks		Increase numbers of walking and cycling trips		Costs		Consenting issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
A1	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	+	This link will assist in providing access to the Belmont Regional Park.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	--	This will be a new road and will have a high costs to develop, design and construct. In particular this is because the route will go through the Northern Landfill.	--	The proposed route will potentially cut through the closed Northern Landfill. This will trigger consents for odour, and other discharge consents. In addition, there are power lines overhead the site which will cause issues with dust management and a new NoR will be required. Consents will be required but because of the location of the proposed links, there should not be any major issues.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview through providing a connection to Lincolnshire Farm and improving connections to Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
A2	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	+	This link will assist in providing access to the Regional Parks.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	-	This will be a new road and will have a high costs to develop, design and construct.	-	The proposed route will potentially cut through the closed Northern Landfill, but not as much as at A1. This will trigger consents for odour, and other discharge consents. In addition, a new NoR will be required.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview through providing a connection to Lincolnshire Farm and improving connections to Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
B1	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	-	This link will adversely affect the park by enabling a new route to go through it.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	-	This will be a new road and will have a high costs to develop, design and construct.	-	A new NoR will be required. The NoR and associated regional consents particularly where the route goes through Belmont Regional Park will be significant. By not connecting with Lincolnshire Farm Structure Plan, this will also be an issue for the NoR application.	-	This option will not assist in the growth of the Lincolnshire Farm area as it does not link to the development, however it should assist the development of Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
B2	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	-	This link will adversely affect the park by enabling a new route to go through it.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	-	This will be a new road and will have a high costs to develop, design and construct.	-	A new NoR will be required. The NoR and associated regional consents particularly where the route goes through Belmont Regional Park will be significant. By not connecting with Lincolnshire Farm Structure Plan, this will also be an issue for the NoR application.	-	This option will not assist in the growth of the Lincolnshire Farm area as it does not link to the development, however it should assist the development of Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
B3	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	+	This link will assist in providing access to the Regional Parks.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	--	This will be a new road and will have a high costs to develop, design and construct. This is compounded by potential contaminated land from Cottles Landfill.	+	A new NoR will be required. Potential route has already been identified in the Lincolnshire Farm Structure Plan, so approvals will be easier than other routes. Regional consents will be an issue, as the route passes through Cottles Landfill.	++	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
B4	0	The impact that this option will have on The Esplanade will depend on where it links to SH2.	+	This link will assist in providing access to the Regional Parks.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	--	This will be a new road and will have a high costs to develop, design and construct. This is compounded by potential contaminated land from Cottles Landfill.	0	A new NoR will be required. Potential route has already been identified in the Lincolnshire Farm Structure Plan, as a Principal Road but not as an Expressway. Regional consents will be an issue, as the route passes through Cottles Landfill.	0	This option as an expressway would not assist in the growth of the Lincolnshire Farm area, however as a principal road would assist development.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
C1	--	This link will provide good access (when combined with the other links) to between SH1 and SH2. It might improve access between the Petone and Grenada/Tawa area. However, the route might effectively sever the existing communities at Puketiroiro and Korokoro.	--	This link passes near a number of playing fields and schools.	--	This option passes through the Belmont Regional Park and will cause the loss of significant native vegetation and native habitats. It could also have an effect on the Korokoro stream.	--	This option passes through the Korokoro community. This is a residential area with a number of schools and other community facilities. The new link being so close will have adverse vibration and noise impacts.	-	This link will travel through areas of significant gradient. Construction of a link will have a significant impact on the natural drainage channels and terrain. Careful design and construction will need to be carried out to ensure that there is no long term erosion issues.	-	The proposed location will be significantly impacted by increased storms which will result in increased landslides by the ridge which the route would need to pass through.
C2	-	The link will provide good access (when combined with other links) between SH1 and SH2. It might also provide access between the Grenada and Petone areas however the link passes through Belmont Regional Park, seriously affecting the community values associated with the area.	--	This link passes near an archaeological site, historic dam and a number of historical buildings.	--	This option passes through the Belmont Regional Park and a number of HCC access tracks. It will also need to cross a number of streams.	--	This option, particularly on the ridgeline could have noise impacts on Korokoro residents.	--	This link will travel through areas of significant gradient. Construction of a link will have a significant impact on the natural drainage channels and terrain. Careful design and construction will need to be carried out to ensure that there is no long term erosion issues.	-	The proposed location will be significantly impacted by increased storms which will result in increased landslides by the ridge which the route would need to pass through.
C3	++	The link will provide good access (when combined with other links) between SH1 and SH2. It might also provide access between the Grenada and Petone Areas. The link will travel past Horokiwi and might improve HCV access to the quarry. This option will also have the opportunity for easy linkages to Newlands.	-	This link passes through an archaeological site near the bottom of the route.	-	Horokiwi stream will be impacted by the route.	-	This option passes near a number of residential areas in Horokiwi which will be affected by noise, depending on how the route is designed.	-	This link will travel through areas of significant gradient. Construction of a link will have a significant impact on the natural drainage channels and terrain. Careful design and construction will need to be carried out to ensure that there is no long term erosion issues.	-	The proposed location will be significantly impacted by increased storms which will result in increased landslides by the ridge which the route would need to pass through.
Connection directly to Petone (D1)	++	Will provide a good connection between Petone and the Grenada area.	-	There is a historic marble wall registered with the Historic Places Trust at the Wool Mill at the corner of Western Hutt Road and Cornish Street. A connection to Petone may impact on this historic feature depending on the design.	-	Depending on the design, the Korokoro Stream will be impacted. This will need to be confirmed through further investigation.	+	Vibration and noise should not be an issue in this location.	0	Erosion and deposition will not be an issue. This will need to be confirmed through further assessment.	-	Potential sea level rise combined with storm surge will affect route security.
Connection directly SH2 (D2)	+	Will provide good access to and from SH2 but will cause an increase in congestion as a result of intersection with SH2.	-	There is a historic marble wall registered with the Historic Places Trust at the Wool Mill at the corner of Western Hutt Road and Cornish Street. A connection to Petone may impact on this historic feature depending on the design.	-	Limited impacts expected on natural features.	-	Vibration and noise could be a potential issue as traffic is increased on the route.	0	Erosion and sediment control will not be an issue. This will need to be confirmed through further assessment.	0	Negligible impact
Connection to both SH2 and Petone (D3)	++	Will provide good access to both Petone and SH2 from SH1.	-	There is a historic marble wall registered with the Historic Places Trust at the Wool Mill at the corner of Western Hutt Road and Cornish Street. A connection to Petone may impact on this historic feature depending on the design.	-	Depending on the design, the Korokoro Stream will be impacted. This will need to be confirmed through further investigation.	+	Vibration and noise should not be an issue in this location.	0	Erosion and sediment control will not be an issue. This will need to be confirmed through further assessment.	-	Potential sea level rise combined with storm surge will affect route security.
Connection to Dowse Interchange (D4)	++	Will provide good access to both Petone and SH2 from SH1.	-	There is a historic marble wall registered with the Historic Places Trust at the Wool Mill at the corner of Western Hutt Road and Cornish Street. A connection to Petone may impact on this historic feature depending on the design.	-	Depending on the design, the significant natural features identified in the HCC DP will be impacted. This will need to be confirmed through further investigation.	-	Residential areas and schools are near this area, noise effects will be significant and will need to be confirmed through further investigation.	0	Erosion and sediment control will be an issue. This will need to be confirmed through further assessment.	-	Potential increased storms will affect landslide risk.

Objectives		Assist economic and regional development													
		Maintain or reduce average peak period journey times and improve journey time reliability particularly between SH1 and SH2 and to the Seaview / Gracefield area.		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD		Reduced average journey times and improved travel time reliability (all day) and HCV vehicle operating costs between SH1 and SH2, and to the Seaview / Gracefield area					
	Score	Comments		Score	Comments		Score	Comments		Score	Comments				
C1	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This reduces the cost of business.		+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.		0	Depending on connection that travels through Lincolnshire.		+	This option connects at the Dowse Interchange. Vehicles will be more likely to travel along Wakefield Street (or other streets within Petone) reducing pressure on The Esplanade improving the amenity .		++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	
C2	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This reduces the cost of business.		+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.		0	Depending on connection that travels through Lincolnshire.		-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.		++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	
C3	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This reduces the cost of business.		+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.		0	Depending on connection that travels through Lincolnshire.		-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.		+	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This option connects at Horokivi and will mean that traffic still has to travel along SH2 (unless D6 and D7 are also implemented).	
Connection directly to Petone (D1)	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This reduces the cost of business.		+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.		0	Depending on connection that travels through Lincolnshire.		-	This option connects at the Petone Interchange. This will allow vehicles direct access to The Esplanade for travelling on to Seaview.		+	Will avoid an intersection with SH2 and will help reducing queues along The Esplanade.	
Connection directly SH2 (D2)	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This reduces the cost of business.		+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.		0	Depending on connection that travels through Lincolnshire.		-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.		-	Will depend on the design of the intersection / interchange. A connection with SH2 will result in delays for both Link traffic and SH2 traffic.	
Connection to both SH2 and Petone (D3)	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This reduces the cost of business.		+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.		0	Depending on connection that travels through Lincolnshire.		-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.		++	Will allow vehicles to easily travel to either Petone or gain access to SH2. This will result in some delays at the connection to SH2 due to the volumes at peak times.	
Connection to Dowse Interchange (D4)	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This reduces the cost of business.		+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.		0	Depending on connection that travels through Lincolnshire.		+	This option connects at the Dowse Interchange. Vehicles will be more likely to travel along Wakefield Street (or other streets within Petone) reducing pressure on The Esplanade improving the amenity .		+	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	

Objectives	Assist in Safety and Personal Security			
	Reduced VKT		Reducing the volume of heavy vehicles on The Esplanade	
	Score	Comments	Score	Comments
C1	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	+	This option connects at the Dowse Interchange. Vehicles will be more likely to travel along Wakefield Street (or other streets within Petone) reducing pressure on The Esplanade improving the amenity .
C2	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
C3	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
Connection directly to Petone (D1)	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This option connects at the Petone Interchange. This will allow vehicles direct access to The Esplanade for travelling on to Seaview.
Connection directly SH2 (D2)	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
Connection to both SH2 and Petone (D3)	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
Connection to Dowse Interchange (D4)	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	+	This option connects at the Dowse Interchange. Vehicles will be more likely to travel along Wakefield Street (or other streets within Petone) reducing pressure on The Esplanade improving the amenity .

Objectives	Improve access, mobility and reliability					
	Increase PT mode share		Increase numbers of walking and cycling trips		Maintain or reduce average peak period journey times and improve journey time reliability in the study area, particularly between SH1 and SH2 and to the Seaview / Gracefield area	Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area
	Score	Comments	Score	Comments	Score	Comments
C1	+	This option will enable direct bus services.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.
C2	+	This option will enable direct bus services.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.
C3	+	This option will enable direct bus services.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	+	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. This option connects at Horokiwi and will mean that traffic still has to travel along SH2 (unless D6 and D7 are also implemented).
Connection directly to Petone (D1)	+	This option will enable direct bus services.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	+	Will avoid an intersection with SH2 and will reduce queues along The Esplanade.
Connection directly SH2 (D2)	+	This option will enable direct bus services.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	+	Will improve journey times and reliability for trips from SH2 to SH1.
Connection to both SH2 and Petone (D3)	+	This option will enable direct bus services.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	++	Will allow vehicles to easily travel to either Petone or gain access to SH2. will result in some delays at the connection to SH2 due to the volumes at peak times.
Connection to Dowse Interchange (D4)	+	This option will enable direct bus services.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	+	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.

Objectives	Protect and Promote public health													
	Reduced volume of heavy vehicles on The Esplanade		Enhances access to regional parks		Increase numbers of walking and cycling trips		Costs		Consenting issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
C1	+	This option connects at the Dowse Interchange. Vehicles will be more likely to travel along Wakefield Street (or other streets within Petone) reducing pressure on The Esplanade improving the amenity .	-	This link would provide access to the park, but seriously degrade it's values.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	--	This will be a new road and will have a high costs to develop, design and construct.	--	A new NoR will be required. The option passes through Belmont Regional Park. Regional consents will also be a major issue as there would be major environmental impacts.	+	This option will assist in the growth of and development of Seaview.	++	This option will assist in providing a alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
C2	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	--	This link would provide access to the park, but seriously degrade it's values through noise and visual pollution and have a major impact on the ecological recreational, historic values along the stream bed.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	--	This will be a new road and will have a high costs to develop, design and construct.	--	A new NoR will be required. The option passes through Belmont Regional Park. Regional consents will also be a major issue as there would be major environmental impacts.	+	This option will assist in the growth and development of Seaview.	++	This option will assist in providing a alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
C3	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	--	This will be a new road and will have a high costs to develop, design and construct. There are significant geotech issues to consider through the design of the project, including an identified landslip area.	--	A new NoR will be required as well as regional consents. Landscape assessment will be an important issue to consider in the NoR application. Some of the route could potentially pass through Cottles landfill and other contaminated sites, making regional consents harder to obtain.	++	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	++	This option will assist in providing a alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
Connection directly to Petone (D1)	-	This option connects at the Petone Interchange. This will allow vehicles deriect access to The Esplanade for travelling on to Seaview.	++	A connection directly to Petone could link Petone to the Belmont Regional Park area.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	-	High	-	An alteration to designation or potentially new NoR will be required. Regional consents will also be required.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	+	This option will assist in providing a alternative link between SH1 and SH2 but can be affected by sea level rise and storm surge.
Connection directly SH2 (D2)	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	-	High	-	Outline plan of works or alteration to designation will be required.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	++	This option will assist in providing a alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
Connection to both SH2 and Petone (D3)	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	+	A connection directly to Petone will link Petone to the Belmont Regional Park area.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	-	High	-	An alteration to designation, new NoR or Outline Plan of Works will be required. Regional coastal consents will be required.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	+	This option will assist in providing a alternative link between SH1 and SH2 but can be affected by sea level rise and storm surge.
Connection to Dowse Interchange (D4)	+	This option connects at the Dowse Interchange. Vehicles will be more likely to travel along Wakefield Street (or other streets within Petone) reducing pressure on The Esplanade improving the amenity .	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	+	Medium - If it can be linked into the existing Dowse interchange then will be only minor changes made to the existing interchange.	-	An alteration to designation or potentially new NoR will be required. Regional consents will also be required.	0	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview. It will negatively impact future growth of the Petone Gateway concept.	++	This option will assist in providing a alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Run from Horokiwi to Petone by constructing a Viaduct/road on the ridge. (D5)	0	Not expected to have any impacts at all	+	There does not appear to be any significant cultural and heritage features in this area.	-	This option will cross a stream and will impact on aquatic life. There are also natural features at Belmont Regional Park that will be affected.	+	There are very few residential areas in this location so vibration and noise should not be an issue.	-	There will be erosion and sediment control issues as this will be built near or on a number of slopes. This will need to be confirmed through further assessment.	-	Potential increased storms will affect landslide risk.
Run from Horokiwi by widening the road reserve towards the sea (reclamation). (D6)	0	Not expected to have any impacts at all	+	There does not appear to be any significant cultural and heritage features in this area.	-	This option will involve reclamation of seabed and will impact on aquatic life - especially during construction.	+	There are very few residential areas in this location so vibrations and noise should not be an issue.	-	This option will require reclamation of seabed. This will result in issues with erosion or deposition.	-	Potential new route could be affected by sea level rise and storm surge.
Connection to SH2 at Horokiwi (D7).	-	This option will not give a direct connection to Petone, and motorists will still be required to travel along SH2 to gain access to SH2.	-	There is an archaeological site near this connection. It will be an issue depending on the route design.	0	Limited impact on ecological resources is expected. This will need to be confirmed through further investigation once the route alignment is confirmed.	+	There are very few residential areas in this location so vibrations and noise should not be an issue.	-	This link goes through an area where there is steep terrain. Construction will require significant cut and fill slopes and will alter the drainage paths. Careful design will need to be carried out to ensure that there are no negative impacts.	-	Potential route will be negatively affected by increased storms, increasing landslide risk.
50	+	The higher the speed the higher the severance between the communities. However it may not improve different communities' ability to access jobs and community facilities regionally as quickly if the route had a higher operational speed.	+	Road corridor area will increase as the design speed increases.	+	Road corridor area will increase as the design speed increases.	0	Will depend on specific route option	0	Will depend on specific route option	-	As the speed increase fuel efficiency improves and emissions reduce. There will also be more "access" to the corridor and this will increase stopping and starting.
70	-	The higher the speed the higher the severance between the communities.	-	Road corridor area will increase as the design speed increases.	-	Road corridor area will increase as the design speed increases.	0	Will depend on specific route option	0	Will depend on specific route option	+	As the speed increase fuel efficiency improves and emissions reduce. There will also be more "access" to the corridor and this will increase stopping and starting.
100	--	The higher the speed the higher the severance between the communities. However it will improve different communities ability to access jobs and community facilities regionally as quickly if the route had a higher operational speed.	--	Road corridor area will increase as the design speed increases.	--	Road corridor area will increase as the design speed increases.	0	Will depend on specific route option	0	Will depend on specific route option	++	100km/h is considered the optimum speed for fuel efficiency and emissions.
2L	+	Will have less severance than a four lane road	+	Will take up less room than a four lane road so will have more alignment options to "avoid" significant cultural and heritage features.	+	Less loss than a four lane road	0	Will depend on specific route option	0	Will depend on specific route option		N/A
4L	-	Will have more severance than a two lane road	-	Depending on sites affected, four laning will reduce alignment options.	-	More loss than a two lane road	0	Will depend on specific route option	0	Will depend on specific route option		N/A
Bus on the Road	++	A bus route (on the road) will provide public transport between SH1 (and the Grenada Area) and SH2 (Petone) without the need to travel through Ngauranga. It will also enhance public transport to local settlements between these areas. As long as the road is designed with sufficient capacity, there will not be a need for a separate bus lane.	0	This will depend on the specific route that is chosen.	0	This will depend on the specific route that is chosen.	0	Will depend on specific route option	0	Will depend on specific route option	+	Providing public transport options along the route will encourage motorists to use public transport. This will reduce the number of low occupancy vehicles and as a result reduce overall emissions.

Objectives	Assist economic and regional development									
	Maintain or reduce average peak period journey times and improve journey time reliability particularly between SH1 and SH2 and to the Seaview / Gracefield area.		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD		Reduced average journey times and improved travel time reliability (all day) and HCV vehicle operating costs between SH1 and SH2, and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Run from Horokiwi to Petone by constructing a Viaduct/road on the ridge. (D5)	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	+	Road supports and integrates the Lincolnshire Farm development.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	+	Vehicles will not have to travel along the SH2. Access arrangements to Petone / SH2 will have an impact on travel times.
Run from Horokiwi by widening the road reserve towards the sea (reclamation). (D6)	++	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2.	+	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. This will make the area more attractive for development.	+	Road supports and integrates the Lincolnshire Farm development.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	+	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
Connection to SH2 at Horokiwi (D7).	-	This link will assist in the development of a completed link between the Grenada Area and Petone Area. Vehicles making this trip will have a direct route (they will not need to travel through Ngauranga) reducing travel times and improving travel time reliability. This will assist in reducing congestion on SH1 and SH2. There will be an intersection with SH2 (at Horokiwi) and this will have a negative impact on road users of both the new link and SH2.	0	This link will assist in providing a direct link between Grenada and Petone and will assist in making Seaview more accessible from SH1. The intersection between the new link and SH2 will have an impact on the road users (both SH2 and the new link), reducing the number of vehicles that will choose to travel on the link.	+	Road supports and integrates the Lincolnshire Farm development.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	0	This link will assist in providing a link between Grenada Area and Seaview. This will allow vehicles to access the area directly from SH1. The intersection between SH2 and the new link will cause delays for both SH2 motorists and motorists using the new link.
50	0	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).	+	Better connects the Gracefield area to the wider network than no link road	++	Easier to connect to and safer for vulnerable road users.	0	Will depend on specific route option	0	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).
70	+	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions) reducing journey times.	+	Better connects the Gracefield area to the wider network than no link road	-	More difficult to connect and higher speeds.	0	Will depend on specific route option	+	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).
100	++	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).	++	Better connects the Gracefield area to the wider network than no link road, and more efficiently at 100kph	--	Creates severance of the development and will require major intersections.	0	Will depend on specific route option	++	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).
2L	0	Will depend on specific route option and design speed.	+	Better connects the Gracefield area to the wider network than no link road	+	Better connects the Lincolnshire Farm development area to the wider network than no link road	0	Will depend on specific route option.	0	Will depend on specific route option and design speed.
4L	0	Will depend on specific route option and design speed.	++	Better connects the Gracefield area to the wider network than no link road and more efficiently with four lanes.	++	Better connects the Lincolnshire Farm development area to the wider network than no link road, and more efficiently with 4 lanes.	0	Some small improvements for travel time and travel time reliability associated with more public transport being used.	0	Some small improvements for travel time and travel time reliability associated with more public transport being used.
Bus on the Road		Bus will reduce traffic volumes increasing general traffic speeds, though this difference will be slight.	+	Having a direct route for public transport from SH1 across to SH2 (and out to the Seaview area) will attract potential employees and make developing a business in this area more attractive.	+	Having public transport facilities from Lincolnshire to the greater Wellington region will make the settlement more attractive for development.	0	N/A	+	Some small improvements for travel time and travel time reliability associated with more public transport being used.

Objectives	Assist in Safety and Personal Security			
	Reduced VKT		Reducing the volume of heavy vehicles on The Esplanade	
	Score	Comments	Score	Comments
Run from Horokiwi to Petone by constructing a Viaduct/road on the ridge. (D5)	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
Run from Horokiwi by widening the road reserve towards the sea (reclamation). (D6)	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
Connection to SH2 at Horokiwi (D7).	+	This link will assist in providing a direct link between the Grenada Area and Petone. This will reduce the distance travelled reducing crash exposure.	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.
50	+	Link road will encourage more trips due to efficient network but this will be countered by a net reduction in vkt due to shorter travel distance between the Hutt Valley and Grenada.	0	Will depend on specific link
70	+	Link road will encourage more trips due to efficient network but this will be countered by a net reduction in vkt due to shorter travel distance between the Hutt Valley and Grenada.	0	Will depend on specific link
100	+	Link road will encourage more trips due to efficient network but this will be countered by a net reduction in vkt due to shorter travel distance between the Hutt Valley and Grenada.	0	Will depend on specific link
2L	+	Link road will encourage more trips due to efficient network but this will be countered by a net reduction in vkt due to shorter travel distance between the Hutt Valley and Grenada.	0	Will depend on specific link
4L	+	Link road will encourage more trips due to efficient network but this will be countered by a net reduction in vkt due to shorter travel distance between the Hutt Valley and Grenada.	0	Will depend on specific link
Bus on the Road	+	Having an efficient public transport network between SH1 and SH2 will attract motorists onto buses. This will result in a decrease in VKT.		N/A

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Maintain or reduce average peak period journey times and improve journey time reliability in the study area, particularly between SH1 and SH2 and to the Seaview / Gracefield area		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Run from Horokiwi to Petone by constructing a Viaduct/road on the ridge. (D5)	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	+	A more direct route will encourage walking and cycling between the Hutt Valley and North Wellington.	+	Vehicles will not have to travel along SH2. Access arrangements to Petone / SH2 will have an impact on travel times.	++	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
Run from Horokiwi by widening the road reserve towards the sea (reclamation). (D6)	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	+	A more direct route will encourage walking and cycling between the Hutt Valley and North Wellington	+	Vehicles will not have to travel along SH2. Access arrangements to Petone / SH2 will have an impact on travel times.	++	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
Connection to SH2 at Horokiwi (D7).	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	+	A more direct route will encourage walking and cycling between the Hutt Valley and North Wellington.	-	Vehicles will not have to travel along SH2. Access arrangements to Petone / SH2 will have an impact on travel times. The intersection of the link road and SH2 will cause delays.	++	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
50	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	+	This speed will provide a safe cycling / walking environment	+	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).	+	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
70	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	0	Will depend on the facilities provided. If directly beside the road walking and cycling may not be very attractive.	+	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).	+	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
100	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	-	This is a high speed environment and will intimidate walkers and cyclists.	++	The higher the speed, the faster the vehicles will be able to travel along the link (assuming free flow conditions).	+	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
2L	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	+	Vehicles will not have to travel along SH2. Access arrangements to Petone / SH2 will have an impact on travel times.	+	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
4L	+	A direct bus use will encourage greater use of public transport for travel between North Wellington and the Hutt Valley.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists.	+	Vehicles will not have to travel along SH2. Access arrangements to Petone / SH2 will have an impact on travel times.	+	This link will assist in providing an alternative route between the Grenada Area and Petone. It will also assist in providing alternative routes to Lincolnshire Farm, Horokiwi and the Regional Park area.
Bus on the Road	++	Providing bus services along the route will encourage motorists to use public transport. It will also provide a direct link between SH1 and SH2 for public buses.	+	Providing bus services between SH1 and SH2 will encourage motorists to use public transport. There will be an increase in walking associated with getting to the bus stops.	+	Bus services will reduce the volume of cars on the network improving travel time and travel time reliability.		N/A

Objectives	Protect and Promote public health													
	Reduced volume of heavy vehicles on The Esplanade		Enhances access to regional parks		Increase numbers of walking and cycling trips		Costs		Consenting issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Run from Horokiwi to Petone by constructing a Viaduct/road on the ridge. (D5)	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	N/A	--	High - Will involve the construction of a viaduct type structure from Horokiwi to Petone.	--	An alteration to designation or potentially new NoR will be required. Regional consents will also be required. Visual impacts of the viaduct will be particularly important to consider for the Nor	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
Run from Horokiwi by widening the road reserve towards the sea (reclamation). (D6)	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	N/A	--	High - will involve reclamation of seabed and construction of a new lane(s).	--	An alteration to designation will be required. Regional consents will also be required related to coastal matters.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
Connection to SH2 at Horokiwi (D7).	-	This link will assist in providing a link between Grenada Area and Seaview This will allow vehicles to access the area directly from SH1. This will result in an increase in traffic volumes along The Esplanade if no work is carried out to restrict access.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	N/A	--	High - will involve reclamation of seabed and construction of a new lane(s). Significant Geotech risk as well with identified landslide scar present.	--	A new designation will be required. In particular, as part of this NoR visual effects will be significant. Regional consents will be required.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	++	This option will assist in providing an alternative link between SH1 and SH2 and can be used as an alternative route in the instance that SH2 between Ngauranga and Petone is closed.
50	0	Will depend on the location of the connection with SH2 / Petone. The Link will increase volumes on The Esplanade.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	+	This speed will provide safer cycling / walking environment	0	This will be a reasonably expensive road	0		+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	0	See specific route option
70	0	Will depend on the location of the connection with SH2 / Petone. The Link will increase volumes on The Esplanade.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	Will depend on the walking / cycling facilities provided and their proximity to the proposed link.	-	This will be a reasonably expensive road, and higher design speeds will increase costs	-	Potentially higher effects to argue for statutory approvals.	++	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	0	See specific route option
100	0	Will depend on the location of the connection with SH2 / Petone. The Link will increase volumes on The Esplanade.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	-	This is a high speed and will intimidate walkers and cyclists.	--	This will be a reasonably expensive road, and higher design speeds will increase costs	--	Potentially higher effects to argue for statutory approvals.	+	This option will assist in the growth of the Lincolnshire Farm area and development of Seaview.	0	See specific route option
2L	0	Will depend on the location of the connection with SH2 / Petone. The Link will increase volumes on The Esplanade.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	0	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists. Two lanes will be better than four for pedestrians and cyclists.	+	Less costly than a four lane road.	+	Potentially higher effects to argue for statutory approvals.		See Specific Option	0	See specific route option
4L	0	Will depend on the location of the connection with SH2 / Petone. The Link will increase volumes on The Esplanade.	0	Due to the alignment of this link it is unlikely to assist in providing access to the regional park.	-	This will depend on the type of facility that is provided. If there are walking and cycling facilities provided they will have a positive impact on the number of walkers and cyclists. Two lanes will be better than four for pedestrians and cyclists.	-	More costly than a two lane road.	-	Potentially higher effects to argue for statutory approvals.		See Specific Option	0	See specific route option
Bus on the Road	0	N/A	0	N/A	+	There will be an increase in walking as a result of bus users walking to bus stops from home rather than using a private motor vehicle to travel.	+	Having the bus lane on with general traffic will save in construction and ongoing maintained costs.	+	Will depend on the specific route option but should be able to achieve as Outline Plan of Works .		See Specific Option	+	More options and alternatives provide greater network resilience

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Objectives	Ensure Environmental Sustainability											
	Enhance and contribute to community cohesion.		Proactively limit the disturbance of significant cultural and heritage features along state highways.		No net loss of native vegetation, wetlands, critical habitat or endangered species.		Plan and design new state highways to avoid or reduce adverse noise and vibration effects.		Identify areas susceptible to erosion and sediment deposition and implement erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas.		Manage increased hazards of climate change impacts on state highway infrastructure.	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Separate Bus Lane	+	A bus route (on the road) will provide public transport between SH1 (and the Grenada Area) and SH2 (Peptone) without the need to travel through Ngauranga. It will also enhance public transport to local settlements between these areas. On the condition that the new link is designed with sufficient capacity, having a separate bus lane might provide no additional benefits.	-	This will depend on the specific route that is chosen, although providing an additional bus lane will require an additional lane (in each direction) and will require more space. This will have an impact on significant cultural and heritage features.	-	This will depend on the specific route that is chosen, although providing an additional bus lane (in each direction) will require more space. This will have an impact on native vegetation, wetlands, critical habitat or endangered species.	0	Will depend on specific route option	0	Will depend on specific route option	+	Providing a specific bus lane along the route will encourage motorists to use public transport. This will reduce the number of low occupancy vehicles and as a result reduce overall emissions.
Separate Cycle Lane	++	Will assist in providing an alternative mode of transport between SH1 and SH2, enhancing access between areas for all road users. Having a separate cycleway will mean that all cyclists (from novice to expert) will be able to use the cycleway (e.g. will be safe for novice cyclists and the speed of the passing traffic will not be a major influence).	-	This will depend on the specific route that is chosen although providing an off-road cycleway will require more space and this will have an impact on significant cultural and heritage features.	-	This will depend on the specific route that is chosen, although providing an additional cycle lane will require an additional space. This will have an impact on native vegetation, wetlands, critical habitat or endangered species	0	Will depend on specific route option	0	Will depend on specific route option	++	The provision of cycling facilities will encourage motorists to cycle (both novice and expert) rather than using private vehicles. This will reduce the number of vehicles on the network reducing emissions.

Objectives		Assist economic and regional development										
		Maintain or reduce average peak period journey times and improve journey time reliability particularly between SH1 and SH2 and to the Seaview / Gracefield area.		Supports redevelopment on the Seaview-Gracefield Area		Supports development of the Lincolnshire Farms area		Improved amenity of The Esplanade to enable re-development of this area incorporating integrating the foreshore with Petone CBD		Reduced average journey times and improved travel time reliability (all day) and HCV vehicle operating costs between SH1 and SH2, and to the Seaview / Gracefield area		
	Score	Comments		Score	Comments		Score	Comments		Score	Comments	
Separate Bus Lane		Bus will reduce traffic volumes increasing general traffic speeds, though this difference will be slight.		+	Having a direct route for public transport from SH1 across to SH2 (and out to the Seaview area) will attract potential employees and make developing a business in this area more attractive.		+	Having public transport facilities from Lincolnshire to the greater Wellington region will make the settlement more attractive for development.		0	N/A	
Separate Cycle Lane		Having a cycleway may reduce traffic volumes increasing general traffic speeds, though this difference will be slight.		++	Will provide access between SH1 and SH2 (including communities in between) especially for those without private vehicles. An off-road cycleway is more likely to be used by novice cyclists.		++	Will provide an additional mode of transport too and from the development. Especially for novice cyclists.		0	N/A	

Objectives	Assist in Safety and Personal Security			
	Reduced VKT		Reducing the volume of heavy vehicles on The Esplanade	
	Score	Comments	Score	Comments
Separate Bus Lane	+	Having an efficient public transport network between SH1 and SH2 will attract motorists onto buses. This will result in a decrease in VKT.		N/A
Separate Cycle Lane	+	Providing cycling facilities will encourage cycling between destinations rather than using private motor vehicle. This will reduce VKT.		N/A

Objectives	Improve access, mobility and reliability							
	Increase PT mode share		Increase numbers of walking and cycling trips		Maintain or reduce average peak period journey times and improve journey time reliability in the study area, particularly between SH1 and SH2 and to the Seaview / Gracefield area		Alternative routes provided particularly between SH1 and SH2 and to the Seaview / Gracefield area	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Separate Bus Lane	++	Providing bus services along the route will encourage motorists to use public transport. It will also provide a direct link between SH1 and SH2 for public buses.	+	Providing bus services between SH1 and SH2 will encourage motorists to use public transport. There will be an increase in walking associated with getting to the bus stops.	0	N/A	0	N/A
Separate Cycle Lane		N/A	++	Providing a cycleway will encourage cycling and provide an opportunity for recreational cycling. This will result in an increase in the number of cycle trips. If the off road cycleway is carefully designed it will also provide an opportunity for walkers.	0	N/A	0	N/A

Objectives	Protect and Promote public health													
	Reduced volume of heavy vehicles on The Esplanade		Enhances access to regional parks		Increase numbers of walking and cycling trips		Costs		Consenting issues		Contributes to continuing growth aspirations (Councils)		Network Security (i.e. will provide alternative route options if there is an issue on SH1 or SH2)	
	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments	Score	Comments
Separate Bus Lane	0	N/A	0	N/A	+	There will be an increase in walking as a result of bus users walking to bus stops from home rather than using a private motor vehicle to travel.	-	Having a separate bus lane will mean that there will be an increase in construction costs, more maintenance and enforcement costs.	-	Will depend on the specific route option but should be able to achieve as OPW or alteration to designation.	0	N/A	+	More options and alternatives provide greater network resilience
Separate Cycle Lane	0	N/A	0	N/A	++	Providing a cycleway will encourage cycling and provide an opportunity for recreational cycling. This will result in an increase in the number of cycle trips. If the off road cycleway is carefully designed it will also provide an opportunity for walkers.	-	An off road cycleway will require separate design and construction as well as specialised on going maintenance costs.	-	Will depend on the specific route option but should be able to achieve as OPW or alteration to designation.	0	N/A		More options and alternatives provide greater network resilience