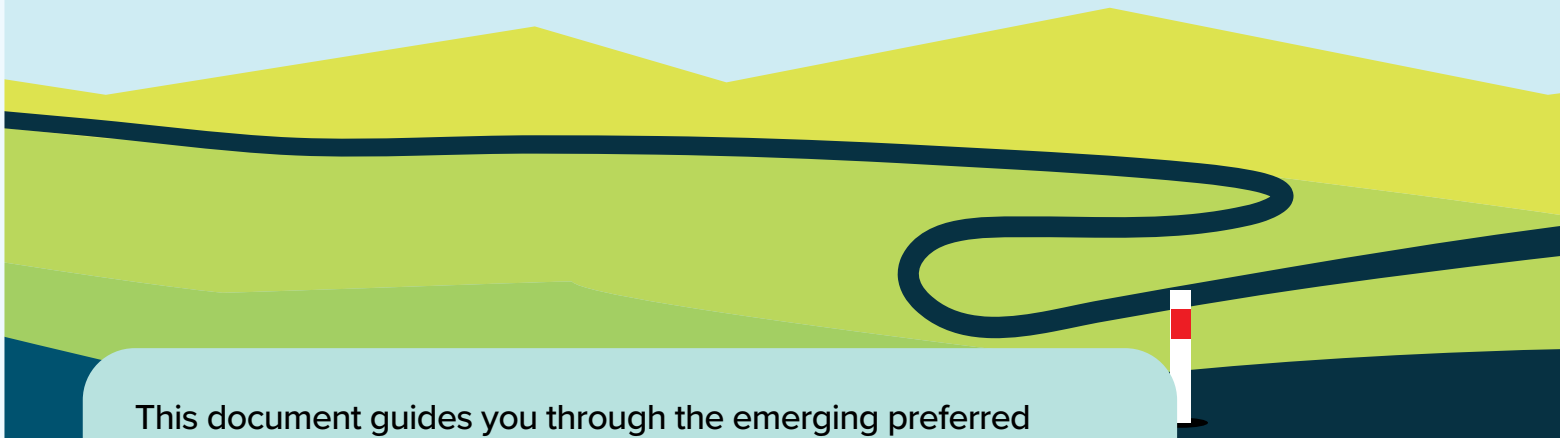
MARLBOROUGH DISTRICT COUNCIL

Marlborough Sounds

Future Access Study

Engagement Document 〉 June – July 2023



This document guides you through the emerging preferred options and the hazard adaptation pathways for future transport solutions in and out of the Marlborough Sounds.

Use this document to inform your views about the options.

You are also invited to one of 7 public drop-in sessions in the **Sounds, Picton, Blenheim or Nelson** or; to the online webinar. See the website for event details, the study's technical information and the other options considered.

marlborough.govt.nz/services/roads-and-transport/marlborough-sounds-future-access-study

Have your say by 5pm, 11 July.

The online survey for your feedback on the options is on marlborough.govt.nz/services/roads-and-transport/marlborough-sounds-future-access-study

For assistance please call the Council on **03 520 7400.**

Queen Charlotte Drive, near Shakespeare Bay.

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Ngā kōrero nā te koromatua Message from the Mayor

The significant storms that hit the top of the South Island in 2021 and 2022 created damage across our roading network and serious access challenges in the Sounds, the Awatere Valley, the Waihopai Valley and the Northbank. Although road access for residents has now been partially reinstated, the network remains fragile and there are restrictions.

I know residents, bach and business owners are frustrated about the condition of their local roads and the time it is taking to work out the solutions, and many are worried about the future. The reality is we need a transport system that continues to provide access following the damaging impacts of significant events well into the future and the complexity of this work takes time. We also know that unfortunately for some areas the fix won't be as quick as people want and may not be the solution they had envisaged.

This is what the Marlborough Sounds Future Access Study is all about – it gives anyone with an interest in the Sounds' roads a chance to work together to develop a future-proofed transport system. It will also enable us to develop a robust business case for any potential financial assistance from Waka Kotahi or central Government for the transport network's construction, emergency repairs, improvements and ongoing maintenance.

This report is a summary of eight months of technical analysis by engineering consultancy Stantec for the Marlborough Sounds Future Access Study. Their work also considered feedback from Marlborough Sounds' landowners, homeowners and businesses collected earlier in the year.

Having analysed the project team's work, we are now ready to present the study's emerging preferred options – costed options for the five storm-affected areas in the Sounds that provide solutions to overcoming the long-term access issues we face.

Havelock causeway works in June 2023.

Damage to Kenepuru Road after the July 2021 storm.

We are also presenting a hazard adaptation pathway, recognising the likelihood of future events such as earthquakes, storms and sea level rise, and the damage they will likely cause to our transport network. This pathway would identify the journey we could take in resolving this disrupted access and providing a continued future access solution.

This does not mean we have made a final decision. Your views about the options and pathways are very important to the study's project team, Council and Waka Kotahi as we make our recommendations on the future of the Sounds' transport network and seek funding from central Government.

Everyone in Marlborough has an interest in this study as it's likely everyone will be required to pay for the significant shortfall between restoration costs and Waka Kotahi or Government funding. All Marlborough residents, ratepayers and Sounds businesses are encouraged to give us their views on the study's options and how much they're prepared to pay, via an online survey.

You can get more information at the community drop-in sessions and online webinar being held in June.

We will need central Government assistance if we are to build a road and marine transport network that is more resilient than it is today. Council will also need to consult with Marlborough residents and ratepayers on our contribution towards the agreed solutions. This is likely to happen through the Council's Long Term Plan process next year.

Thank you for taking the time to participate and help build a safe and resilient transport network in the Marlborough Sounds.

Ngā mihi,

Nadine Taylor
Mayor of Marlborough

About this engagement document

This Marlborough Sounds Future Access Study engagement document aims to help inform your views on the options and pathways for five storm-affected areas of the Sounds.

Section One: Planning for the future

An outline of the emerging preferred options and why they were preferred compared to the other options analysed. You can also find out more about the hazard adaptation pathways. Also covered is what these options and pathways would mean to how you might use the transport network in the future.

Section Two: Financial and rating implications

A summary of the significant additional debt that Council would have to raise and the rating implications of servicing that debt.

Section Three: Study background and evidence

A summary of the study background, process and evidence for the development of the options and pathways.

Section Four: Providing your feedback

Information about how to give your feedback.

Section Five: Next steps

On page 38–41 are definitions and the full map key for your reference as you work through this document.

There is more detailed background information on the project website, including the other 23 options considered, the geology and economic assessments, and the strategic case. Please go to **marlborough.govt.nz/services/roads-and-transport/marlborough-sounds-future-access-study**

The study areas

In the first phase of public engagement in early 2023, the Sounds were divided into four geographical areas, each with its own distinct access issues. For this current phase of engagement, the Kenepuru area has been split into Kenepuru Road and its side roads, and Queen Charlotte Drive. This acknowledges Queen Charlotte Drive as a State Highway alternate route.

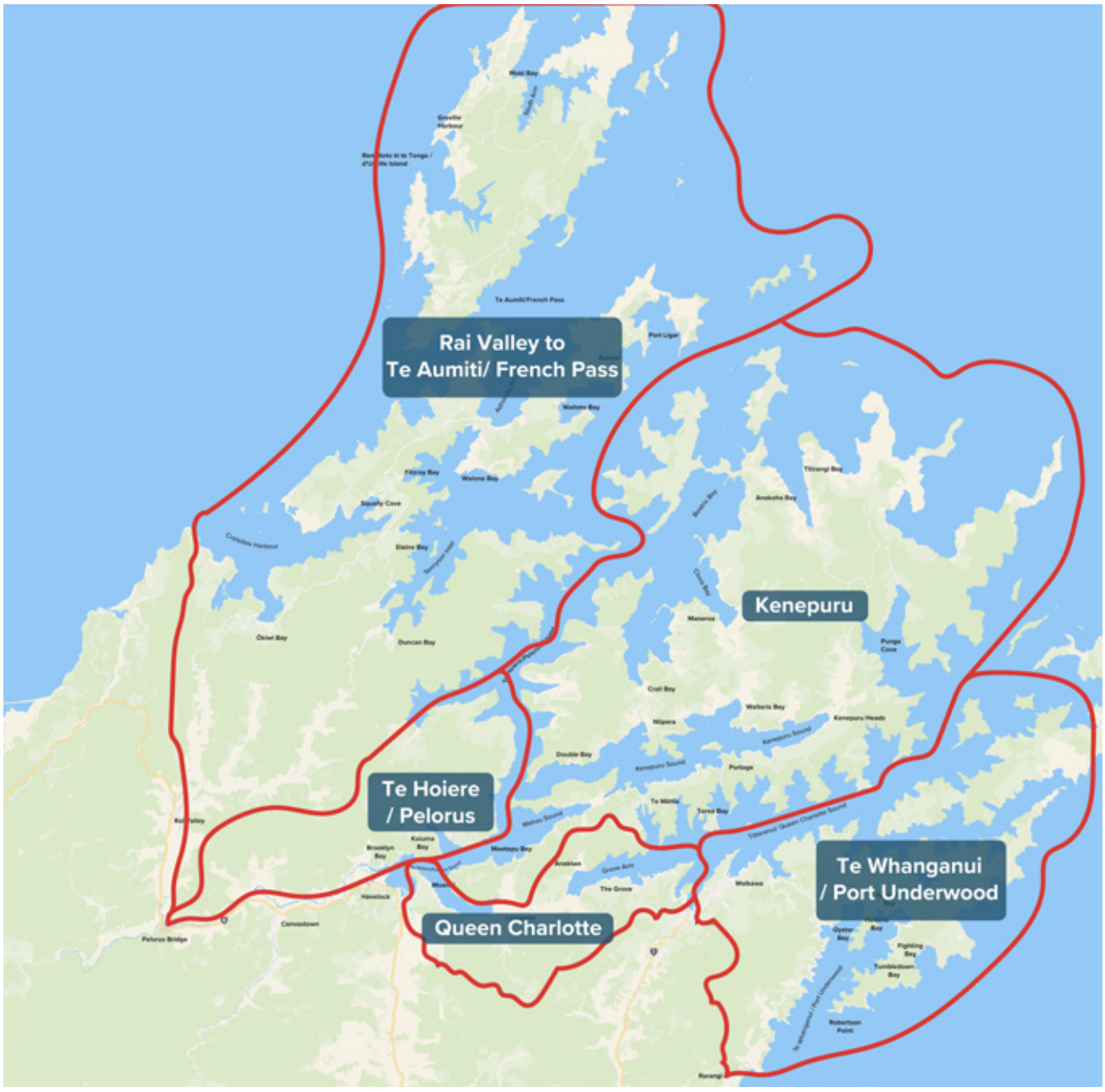


Figure 1: The five storm-damaged areas of the study.

Section One:
Planning for the future

The study took into account the results of community feedback from earlier in the year, the multi-criteria assessment (MCA), cost estimates, the Sounds' geology, and economic assessments. See section two for more information about what was studied. Based on these results, and input from Council, the study identified an emerging preferred option for each of the five study areas shown on the previous page.

Please refer to page 9 for high-level explanations of road focus, road access, balanced, marine focus and marine access.

Please refer to page 38 for definitions for the vehicle restrictions and of the marine hubs.

Ngakuta Bay

Definitions of transport options for reference

- **Current Status:** This is the baseline, with road conditions as of February 2023, with some damage repaired following the 2022 storm event and the restriction of non-residents removed, except in Kenepuru.
- **Road Focus:** Most roads strengthened, with marine transport primarily for emergency response.
- **Road Access:** Key roads strengthened, with marine available where needed as backup.
- **Balanced:** A mix of investment in road and marine transport.
- **Marine Access:** Essential roads repaired, and marine transport made more available and more resilient.
- **Marine Focus:** Roads repaired where affordable, but roads are mostly focused on providing access to marine transport as the primary transport mode/method for access into and out of the area.

Although options in different areas may have the same category title, such as road focus or marine access, the exact programmes vary based on the specific area's unique vulnerabilities and priorities – i.e. a road focus option for one area could look quite different to road focus in another area. The specifics for each area are on the following pages.

1.1 Emerging preferred options

In summary, the emerging preferred options for most of the Sounds, excluding the Kenepuru area, is a road focused or road access approach. This means the bulk of the investment would be on roading infrastructure, but there would still be improvements made to the marine infrastructure. The resilience of nearly all roads would be improved, but in some cases there would be trade-offs with road width and surfacing type to achieve the improved resilience. There would also be investment in upgrading and protecting the existing marine infrastructure in Picton, Havelock and Elaine Bay, and a handful of other local marine hubs.

The emerging preferred option for Kenepuru is a balanced approach between roading and marine infrastructure. This is largely because the underlying geological instability found along the majority of Kenepuru Road between Linkwater and the Heads means it would be unaffordable to implement any long-lasting repairs along this section of road. There would be targeted improvements for Kenepuru roads, but there would be trade-offs to achieve this and it is likely there would be vehicle weight and length restrictions for sections of road. The roads would not be restricted to residents only.

There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary marine hubs); Torea and Portage (arterial marine hubs); and Double Bay, Fish Bay and Punga Cove. A new arterial marine hub will be developed near Goulter Bay.

Marine passenger services between Havelock and Kenepuru Sound would be introduced at approximately three times per week, while passenger services in the Queen Charlotte Sound would be as existing. A twice-weekly freight service between Picton and Torea would be introduced, as would a scheduled freight service between Havelock and Kenepuru Sound. Routes and frequencies would be subject to consultation. Subsidies for any public transport are currently unknown.

See pages 14–37 for the details of the emerging preferred option for each of the five areas.

1.2 Hazard adaptation pathway

In addition to the emerging preferred options, Government requires Council to also identify pathways that recognise the future risks of significant events such as storms, earthquakes and sea level rise. These pathways deliver the lowest level of service Council is willing to provide, while still delivering safe transport solutions and access in and out of the Sounds. These are referred to as 'hazard adaptation pathways.'

Adaptation is a journey – a series of steps. The emerging preferred option can be considered the starting point of that journey. Any significant event that causes substantial damage to the transport network will start the adaptation process.

Such an event would be a trigger for Council to assess the level of service provided by the transport network at that time. The assessment may result in reinstating things as they were prior to the event, or it may highlight particular areas or routes, where the previous level of service is no longer sustainable, and things need to change.

If there is a significant event at some stage over the next 100 years, the Council may need to move towards the hazard adaptation pathway. This would be determined on a case-by-case basis as events occur.

See pages 14–37 for the details of the hazard adaptation pathway for each of the five areas.

Risks

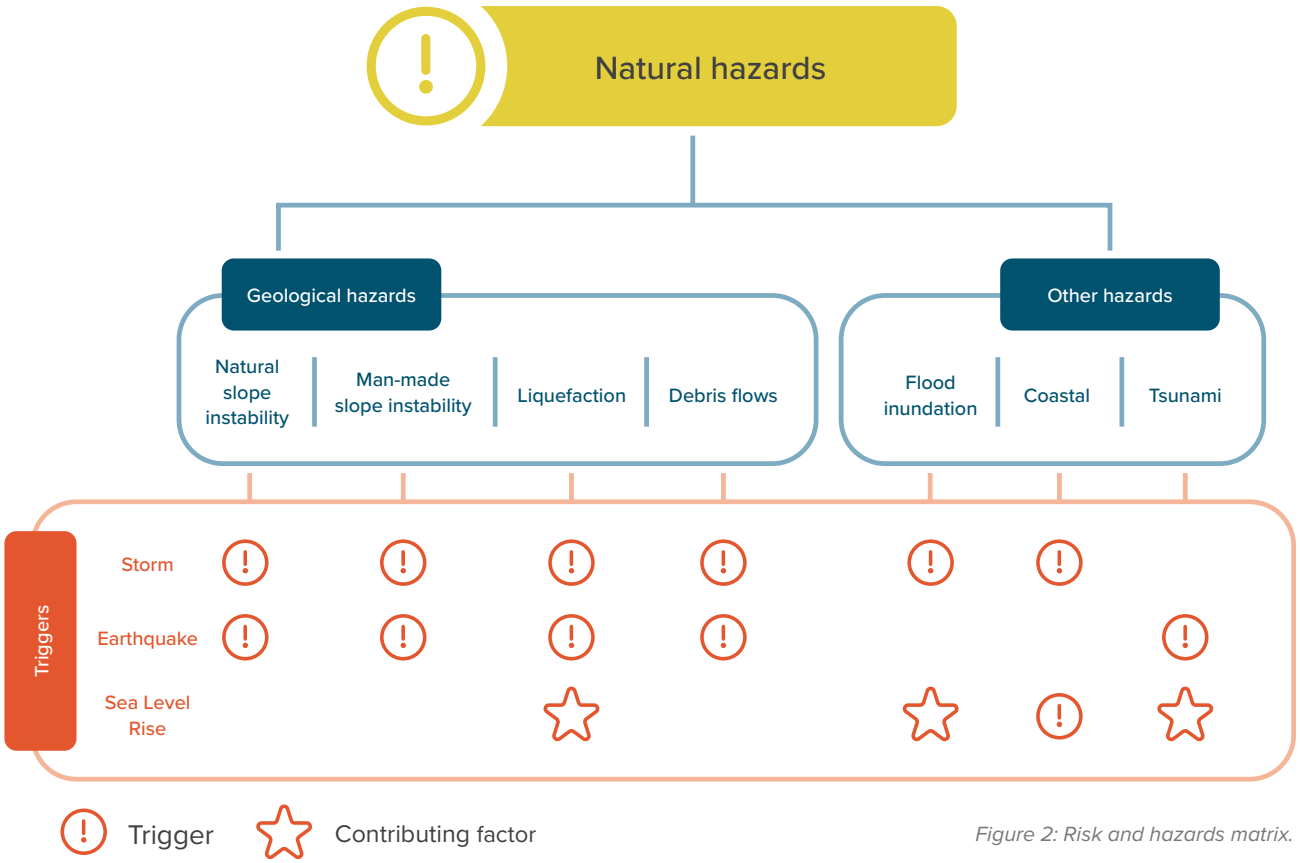


Figure 2: Risk and hazards matrix.

1.3 Comparisons

The emerging preferred options and hazard adaptation pathways are shown below, as are the indicative costs, and how well they contribute to achieving the identified investment objectives.

	Road Focus	Road Access	Balanced	Marine Access	Marine Focus
Rai Valley to Te Aumiti / French Pass		●		▲	
Te Hoiere/Pelorus	●			▲	
Queen Charlotte	●			▲	
Kenepuru			●		▲
Te Whanganui/ Port Underwood		●		▲	

● Emerging preferred ▲ Adaptation pathway

Figure 3: How the emerging preferred options and hazard adaptation pathways compare.

For more information on why these were selected as the emerging preferred options please go to pages 14–37. For more information on all the options considered refer to the '*other options booklet*' on the project web page.

Indicative costs

		Emerging preferred	Hazard adaptation pathway
Roads	Repair	$115,000,000	$40,000,000
	Improvement (resilience)	$40,000,000	-
	Annual maintenance and operations	$3,200,000	$2,300,000
Marine	Repair	-	-
	Improvement (capacity)	$5,000,000	$42,000,000
	Annual maintenance and operations	$700,000	$3,200,000

Figure 4: The indicative costs of the study's emerging preferred options and hazard adaptation pathways.

Strategic alignment

The table below shows how the emerging preferred options and hazard adaptation pathways align to the three investment objectives; indicating what should be achieved by solving the identified problems. (See section three for more detail about the identified problems).

The emerging preferred options improve resilience by strengthening travel alternatives. The investment in roads would reduce the likelihood of disrupted access.

The hazard adaptation pathways strengthen the travel alternatives, but recognise future damaging events may make it unaffordable to reinstate roads in the short-term. Instead they focus on providing reliable access to marine transport where this option is available, and reinstating roads where it is not.

With the hazard adaptation pathways, a lower level of service of access would be provided and it may be more regularly disrupted, albeit for shorter periods before access is reinstated. This increased frequency of disruption means a reduced level of resilience would be provided overall.

		Travel alternatives	Reduced disrupted access	Improved resilience
Emerging preferred	Rai Valley to Te Aumiti / French Pass (Road Access)	🟢	🟡	🟢
	Te Hoiere/Pelorus (Road Focus)	🟢	🟢	🟢
	Queen Charlotte (Road Focus)	🟢	🟢	🟢
	Kenepuru (Balanced)	🟢	🟢	🟡
	Te Whanganui/ Port Underwood (Road Access)	🟡	🟢	🟢
Hazard adaptation pathway	Rai Valley to Te Aumiti / French Pass (Marine Access)	🟢	🔴	🟢
	Te Hoiere/Pelorus (Marine Access)	🟢	🟡	🟡
	Queen Charlotte (Marine Access)	🟢	🔴	🟡
	Kenepuru (Marine Focus)	🟢	🟢	🟢
	Te Whanganui/ Port Underwood (Marine Access)	🟢	🔴	🔴

🟢 Positive MCA score 🟡 Neutral MCA score 🔴 Negative MCA score

Figure 5: How the emerging preferred options and hazard adaptation pathways solve the identified problems.

Picton

1.4 Option details

This section provides further detail on the emerging preferred option for each of the five storm-damaged areas and gives a high-level summary of why each was chosen. It also details the hazard adaptation pathways.

As outlined later in section two, the strategic, economic, financial, management and commercial assessments provided a robust range of information. In addition, community surveys, and data such as the condition of the existing network infrastructure, the natural environment, the potential impact of future weather events and who the users are, all provided evidence for choosing the emerging preferred options for your feedback.

Every area's programme includes:

- Consideration of planning and consenting changes for earthworks
- Restrictions on construction in at-risk areas (such as debris flow paths and unstable slopes)
- Emergency response planning for marine facilities after a hazard event
- Development of community recovery plans
- Understanding the extent and scale of risks by undertaking further studies
- Investigation of options to minimise the impact of tree felling by forestry companies
- Planning and delivering a robust maintenance programme

Please see the table on pages 58-59 for a summary of the various considerations when determining the emerging preferred option and hazard adaptation pathway for each area.

You can learn more about the other options considered in the separate '*other options booklet*.'

Rai Valley to Te Aumiti / French Pass

Emerging preferred option **Road Access**

The evaluation process has identified **Road Access** as the emerging preferred option for Rai Valley to Te Aumiti / French Pass, including Tennyson Inlet and Rangitoto ki te Tonga/d'Urville Island.

Roading approach key

Protect
Build back stronger
(No additional restrictions)

Protect
Build back stronger
(Additional restrictions)

Accommodate
Build back with targeted improvements
(Additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Marine key

Maintain & protect existing marine hubs

1c Local Marine Hub

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub

3b Arterial Marine Hub

3c Local Marine Hub

For definitions and the full key go to page 38-41.

Why Road Access was chosen

Restoring road access and targeted improvements in resilience are justified, particularly at the southern end of the study area around Elaine Bay to State Highway 6. However, marine access is likely to become increasingly important over time in the outer reaches of the study area beyond Elaine Bay due to the susceptibility of the road corridor in this area.

High-level summary of works

Roads and restrictions

The route from Rai Valley to Elaine Bay would be strengthened, although the section between Okiwi Bay and Elaine Bay may be subject to increased one-lane sections and possible vehicle length restrictions. The routes from Elaine Bay to Te Aumiti / French Pass, and Rai Valley to Tennyson Inlet would receive targeted improvements, but there would be an increase in the number of one-lane sections and there may be vehicle length restrictions. The road to Port Ligar and the roads on Rangitoto ki te Tonga/ d'Urville Island would receive essential repairs only and would experience increasing one-lane sections and possible vehicle length restrictions.

Marine

There would be no change to existing marine services. There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs), Elaine Bay (arterial hub), Duncan Bay, Tennyson Inlet, Cissy Bay and Port Ligar (local hubs).

Indicative high-level cost estimate **$45 million**

Rai Valley to Te Aumiti / French Pass

Emerging preferred option **Road restrictions**

Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Build back stronger **Rai Valley to Okiwi Bay**	●	No change	≤ 23m	No change (23m)	+50t	No change (+50 tonnes)	• Increased resilience of route. • No change in vehicles on road.
Build back stronger **Okiwi Bay to Elaine Bay**	↑↓	Increasing one-way sections		Potential for length restrictions	HPMV ≤ 50t	No change (HPMV to the McLaren Bay Forestry site then 50 tonnes maximum)	• Increased resilience of route, but compromises may be made on road width and seal type. This may result in vehicle length restrictions.
Targeted improvements **Elaine Bay turnoff to Port Ligar turnoff**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	• Targeted resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). • This may result in vehicle length restrictions.
Targeted improvements **Port Ligar turnoff to Te Aumiti / French Pass**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	
Essential repairs **Port Ligar turnoff to Port Ligar**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	• Route would be maintained, but a lower level of service would be provided, and repairs would not be as extensive. • This may result in vehicle length restrictions.
Essential repairs **Rangitoto ki te Tonga / d'Urville Island**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	
Targeted improvements **Rai Valley to Tollgate Bridge**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	• Targeted resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). • This may result in vehicle length restrictions.
Targeted improvements **Tollgate Bridge to Duncan Bay and Tennyson Inlet**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	

No change means as of pre-2021 conditions and restrictions.

Rai Valley to Te Aumiti / French Pass

Hazard adaptation pathway — Marine Access

The evaluation process has identified **Marine Access** as the hazard adaptation pathway for Rai Valley to Te Aumiti / French Pass, including Tennyson Inlet and Rangitoto ki te Tonga/d'Urville Island.

Roading approach key

Accommodate
Build back with targeted improvements (No additional restrictions)

Accommodate
Build back with targeted improvements (Additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Retreat others
Build back roads that provide marine hub access

Marine key

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub
3b Arterial Marine Hub
3c Local Marine Hub*

*A selection of Local Marine Hubs are indicatively shown, whilst other locations will need to be added if an event severely compromised road connections. Locations to be determined by consultation.

For definitions and the full key go to page 38-41.

Why Marine Access was chosen

The adaptation pathway focuses on protecting and improving marine infrastructure so there are always transport options in the future. There are many marine infrastructure improvements proposed and available. Elaine Bay is a critical link for future resilience of access for the Te Aumiti/French Pass community and potentially an alternative to Havelock as a primary hub in the event of significant damage to Havelock. Connection to Okiwi Bay is also seen as important given the size of the community there.

High-level summary of works

Roads and restrictions

The road from Rai Valley to Elaine Bay would receive targeted improvements and would not be subject to additional vehicle restrictions. The routes from Elaine Bay to Te Aumiti/French Pass, and Rai Valley to Tollgate Bridge would also receive targeted improvements, but there would be an increase in the number of one-lane sections and there may be vehicle length restrictions.

The road from Tollgate Bridge to Tennyson Inlet would receive essential repairs only and would experience increasing one-lane sections and vehicle length restrictions.

The road to Port Ligar and the roads on Rangitoto ki te Tonga/d'Urville Island would only be repaired so that access to marine hubs would be provided.

Marine

There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs); Elaine Bay (arterial hub); and Duncan Bay, Tennyson Inlet, Cissy Bay, Port Ligar, Te Aumiti/French Pass, Rangitoto ki te Tonga/d'Urville Island, and Okiwi Bay (local hubs). Other local marine hubs would be established as required.

Passenger services from Havelock to the Outer Sounds would become daily. A twice-weekly scheduled freight service between Havelock and the Outer Sounds would be introduced. Routes, frequencies and subsidies would be subject to consultation.

Indicative high-level cost estimate **$20 million**

Rai Valley to Te Aumiti / French Pass

Hazard adaptation pathway → Road restrictions

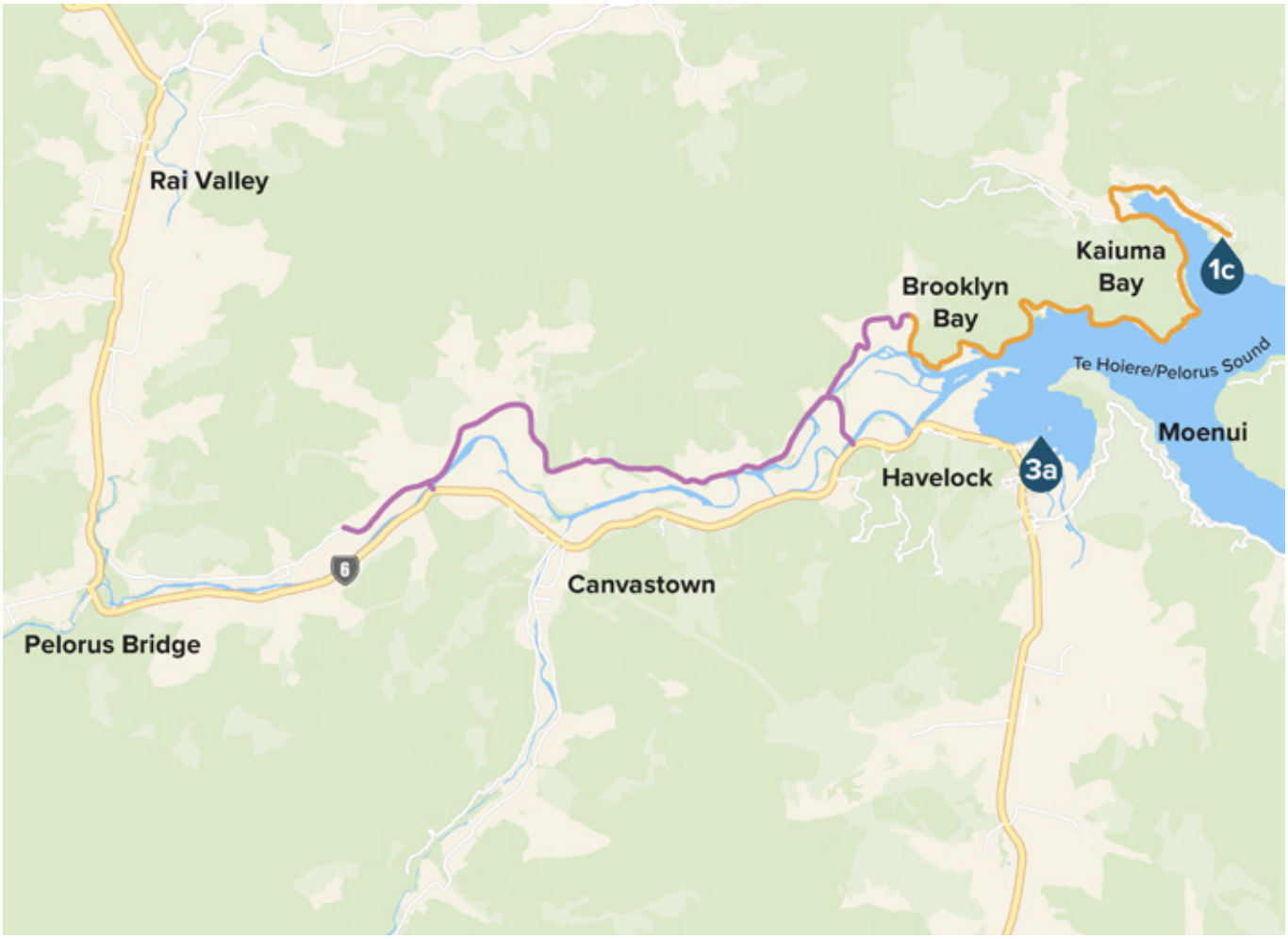
Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Targeted improvements **Rai Valley to Okiwi Bay**	●	No change	≤ 23m	No change (23 metres)	+50t	No change (+50 tonnes)	• Targeted resilience improvements but there would be trade-offs with other levels of service (surfacing, etc). • No change in vehicles on road.
Targeted improvements **Okiwi Bay to Elaine Bay**	●	No change		No change (23 metres)	HPMV ≤ 50t	No change (HPMV to the McLaren Bay Forestry site then 50 tonnes maximum)	
Targeted improvements **Elaine Bay turnoff to Port Ligar turnoff**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	• Targeted resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). • This may result in vehicle length restrictions.
Targeted improvements **Port Ligar turnoff to Te Aumiti / French Pass**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	
Marine hub access **Port Ligar turnoff to Port Ligar**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	• Route would only be maintained to provide access to marine hubs. There would be a lower level of service and repairs would not be as extensive. This may result in vehicle length restrictions.
Marine hub access **Rangitoto ki te Tonga / d'Urville Island**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	
Targeted improvements **Rai Valley to Tollgate Bridge**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	• Targeted resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). • This may result in vehicle length restrictions.
Essential repairs **Tollgate Bridge to Duncan Bay and Tennyson Inlet**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 50t	No change (50 tonnes maximum)	• Route would be maintained, but a lower level of service would be provided, and repairs would not be as extensive. • This may result in vehicle length restrictions.

No change means as of pre-2021 conditions and restrictions.

Te Hoiere/Pelorus

Emerging preferred option **Road Focus**

The evaluation process has identified **Road Focus** as the emerging preferred option for Te Hoiere/Pelorus, including Kaiuma Bay Road.



Roading approach key

Accommodate
Build back with targeted improvements
(No additional restrictions)

Accommodate
Build back with targeted improvements
(Additional restrictions)

Marine key

Maintain & protect existing marine hubs

1c Local Marine Hub

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub

For definitions and the full key go to page 38-41.

Why Road Focus was chosen

Restoring road access is justified, as are targeted improvements in resilience, particularly at the western end of the study area. However, marine access could become increasingly important over time at the eastern end due to the susceptibility of the road corridor at this point.

High-level summary of works

Roads and restrictions

The route would receive targeted improvements. The section between Brooklyn Bay and Kaiuma Bay may have increasing one-lane sections, and vehicle weight and length restrictions.

Marine

There would be no change to existing marine services. There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs).

Indicative high-level cost estimate **$5 million**

Te Hoiere/Pelorus

Emerging preferred option **Road restrictions**

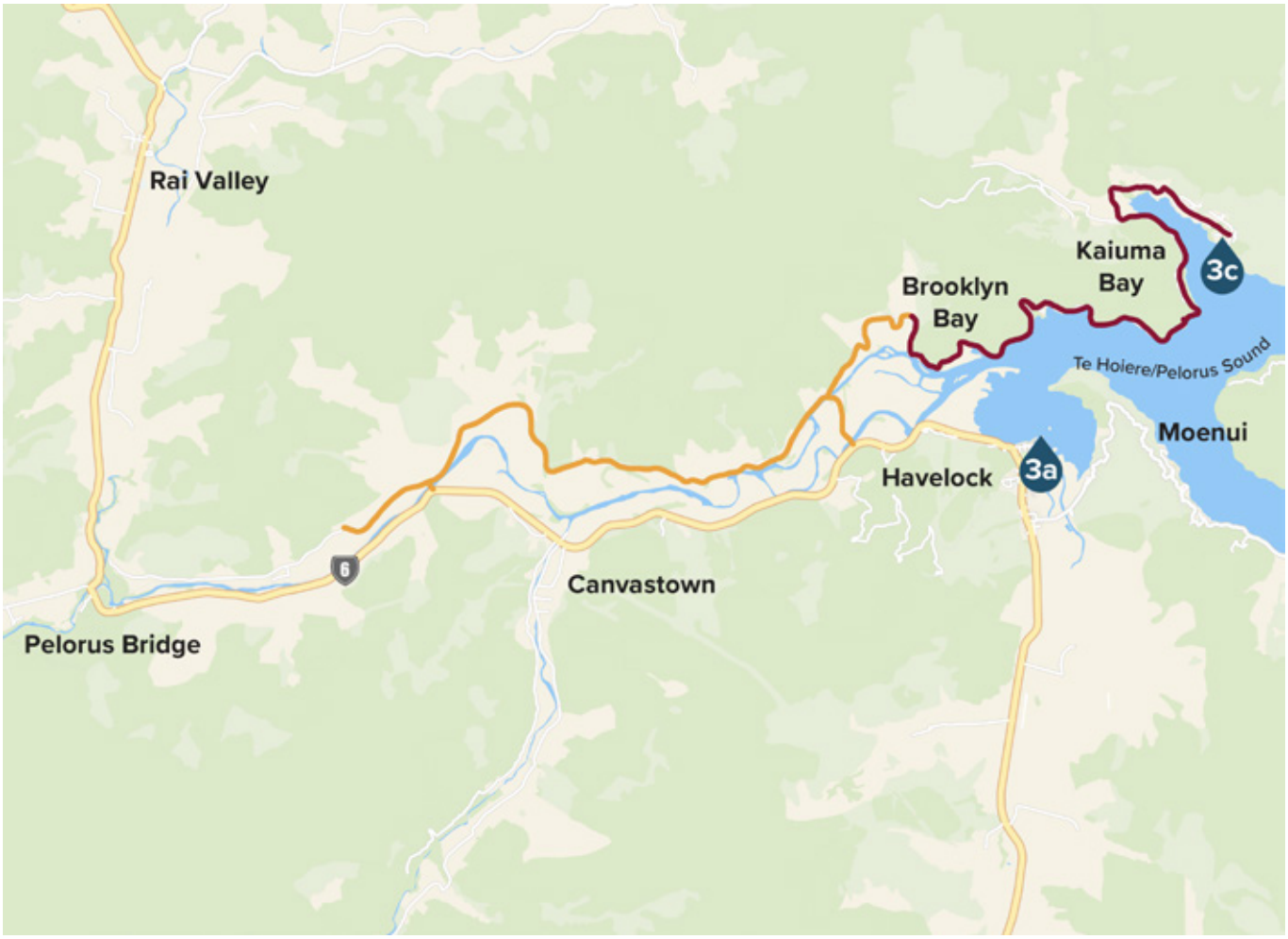
Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Targeted improvements **Daltons Road to Brooklyn Bay**	●	No change	≤ 23m	No change (23 metres)	+50t	No change (+50 tonnes)	• Localised resilience improvements. • No change in type of vehicles on road.
Targeted improvements **Brooklyn Bay to Kaiuma Bay**	↑↓	Increasing one-way sections		Potential for length restrictions	≤ 44t	Potential 44-tonne restriction long-term	• Resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). • This may result in vehicle length restrictions. • Long-term maximum vehicle weights may be reduced to 44 tonnes.

No change means as of pre-2021 conditions and restrictions.

Te Hoiere/Pelorus

Hazard adaptation pathway | Balanced/Marine Access

The evaluation process has identified **Balanced/Marine Access** as the hazard adaptation pathway for Te Hoiere/Pelorus, including Kaiuma Bay Road.



Roading approach key

Accommodate
Build back with targeted improvements (Additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Marine key

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub

3c Local Marine Hub*

*A selection of Local Marine Hubs are indicatively shown, whilst other locations will need to be added if an event severely compromised road connections. Locations to be determined by consultation.

For definitions and the full key go to page 38-41.

Why Balanced/Marine Access was chosen

The adaptation pathway focuses on protecting and improving marine infrastructure so there would always be transport options in the future. It is expected the area would recover relatively quickly from most events. However, the Kaiuma Bay community in particular needs to have a secure marine option linking with a primary marine hub such as Havelock in case of a large damaging event that may take longer to recover from.

High-level summary of works

Roads and restrictions

There would be targeted improvements between Daltons Road and Brooklyn Bay, and there may be increased one-lane sections. Additional vehicle restrictions along this length would not be expected.

Only essential repairs would be completed between Brooklyn Bay and Kaiuma Bay, and there may be weight and length restrictions on vehicles.

Marine

There would be no change to existing marine services. There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs) and Kaiuma (local hub).

Indicative high-level cost estimate **$2 million**

Te Hoiere/Pelorus

Hazard adaptation pathway **Road restrictions**

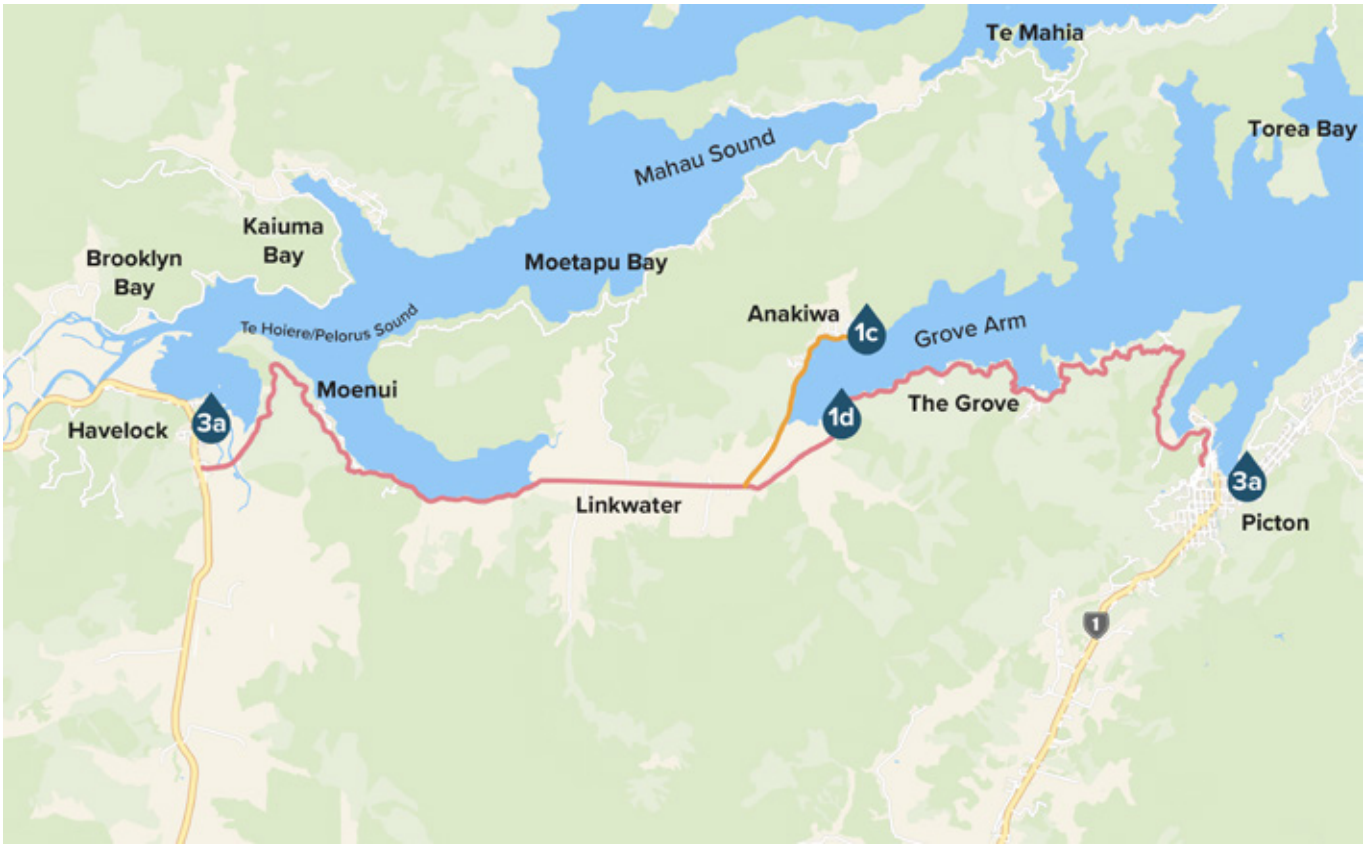
Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Targeted improvements **Daltons Road to Brooklyn Bay**		Increasing one-way sections	≤ 23m	No change (23 metres)	+50t	No change (+50 tonnes)	• Localised resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc).
Essential repairs **Brooklyn Bay to Kaiuma Bay**		Increasing one-way sections		Potential for length restrictions	≤ 44t	Potential 44-tonne restriction long-term	• Route would be maintained, but a lower level of service would be provided, and repairs would not be as extensive. • This may result in vehicle length restrictions. • Long-term maximum vehicle weights may be reduced to 44 tonnes.

No change means as of pre-2021 conditions and restrictions.

Queen Charlotte Drive

Emerging preferred option **Road Focus**

The evaluation process has identified **Road Focus** as the emerging preferred option for Queen Charlotte Drive and Anakiwa Road.



Roading approach key

Protect
Build back stronger
(No additional restrictions)

Accommodate
Build back with targeted improvements
(Additional restrictions)

Marine key

Maintain & protect existing marine hubs

1c Local Marine Hub

1d Emergency Ramp

3a Primary Marine Hub

For definitions and the full key go to page 38-41.

Why Road Focus was chosen

While there are marine transport alternatives for the eastern end of the study area, the regional importance of the link between Picton and Havelock means a focus on restoring a reasonable and more resilient level of service is important.

High-level summary of works

Roads and restrictions

The route from Havelock to Picton would be strengthened, and Anakiwa Road would receive targeted improvements.

The 12.6-metre length restriction between Linkwater and Picton from pre-2021 would remain.

Marine

There would be no change to existing marine services. There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs).

Indicative high-level cost estimate **$30 million**

Queen Charlotte Drive

Emerging preferred option **Road restrictions**

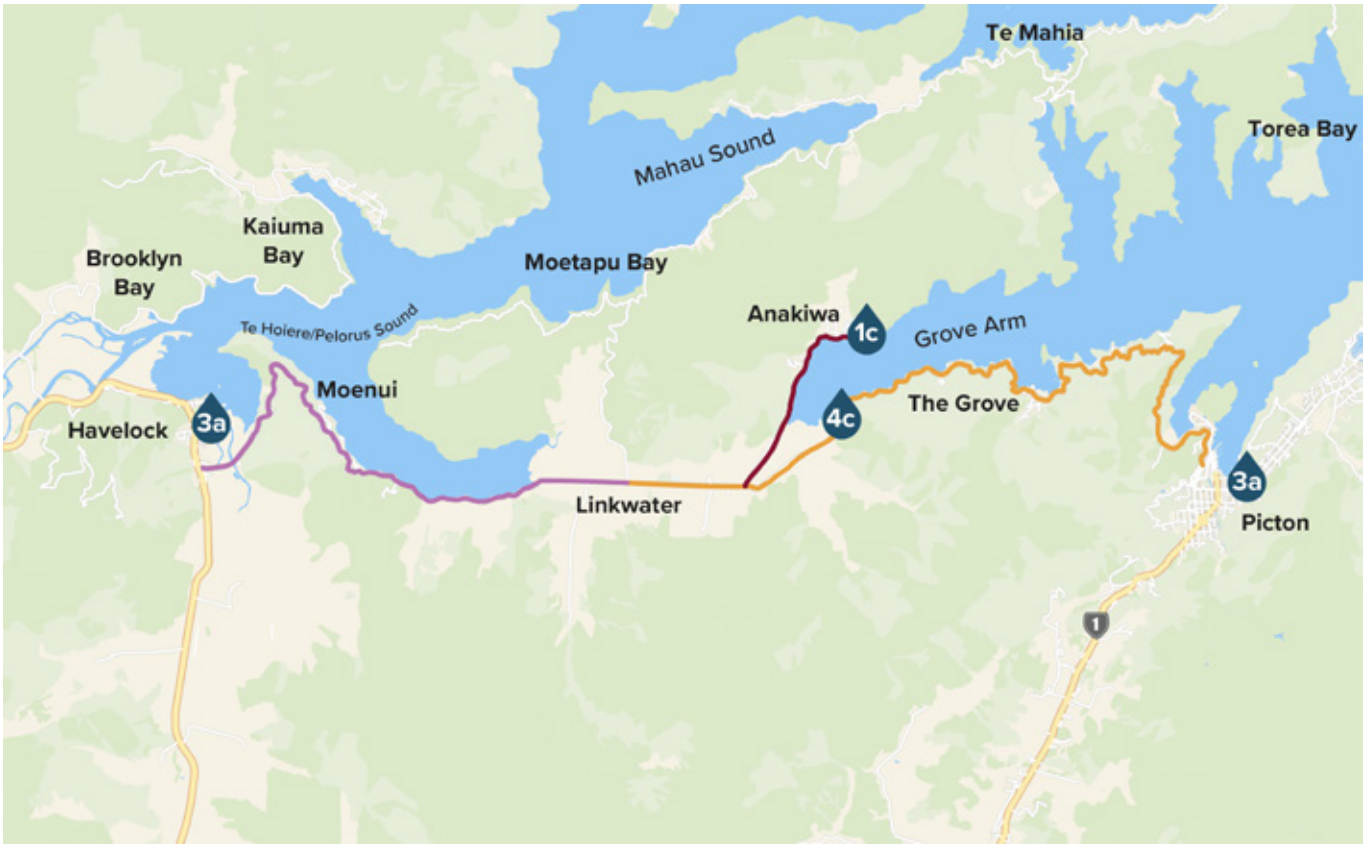
Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Strengthen **Havelock to Linkwater**	●	No change	≤ 23m	No change (23 metres)	+50t	No change (+50 tonnes)	• Improved resilience of the route. • No change to vehicles able to use the route.
Strengthen **Linkwater to Picton**	●	No change	≤ 12.6m	No change (12.6 metres)	≤ 12.6m	No change (maximum weight restricted by length)	
Targeted improvements **Anakiwa**	●	No change		Potential for length restrictions	+50t	No change (+50 tonnes)	• Localised resilience improvements. • No change in vehicles on road.

No change means as of pre-2021 conditions and restrictions.

Queen Charlotte Drive

Hazard adaptation pathway | Marine Access

The evaluation process has identified **Marine Access** as the hazard adaptation pathway for Queen Charlotte Drive and Anakiwa Road.



Roading approach key

Accommodate
Build back with targeted improvements
(No additional restrictions)

Accommodate
Build back with targeted improvements
(Additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Marine key

Maintain & protect existing marine hubs

1c Local Marine Hub

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub

New infrastructure or upgrade of level (All users)

4c Local Marine Hub

For definitions and the full key go to page 38-41.

Why Marine Access was chosen

The adaptation pathway focuses on protecting and improving marine infrastructure so there would always be transport options in the future. While it is envisaged a road connection would be restored, the section along the Grove Arm is vulnerable and a resilient marine option would be feasible and needed for longer-term security of access. The Mahakipawa Arm and connection to the road does not enable a useful marine option; protecting this section of road would be an important part of the future adaptation pathway.

High-level summary of works

Roads and restrictions

The route from Havelock to Picton would receive targeted improvements, although the section between Linkwater and Picton may be subject to additional vehicle weight restrictions.
The 12.6-metre length restriction between Linkwater and Picton from pre-2021 would remain.
Anakiwa Road would receive essential repairs only, and there may be length restrictions on vehicles.

Marine

There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs) and develop a new local hub at the Grove.

Indicative high-level cost estimate **$10 million**

Queen Charlotte Drive

Hazard adaptation pathway **Road restrictions**

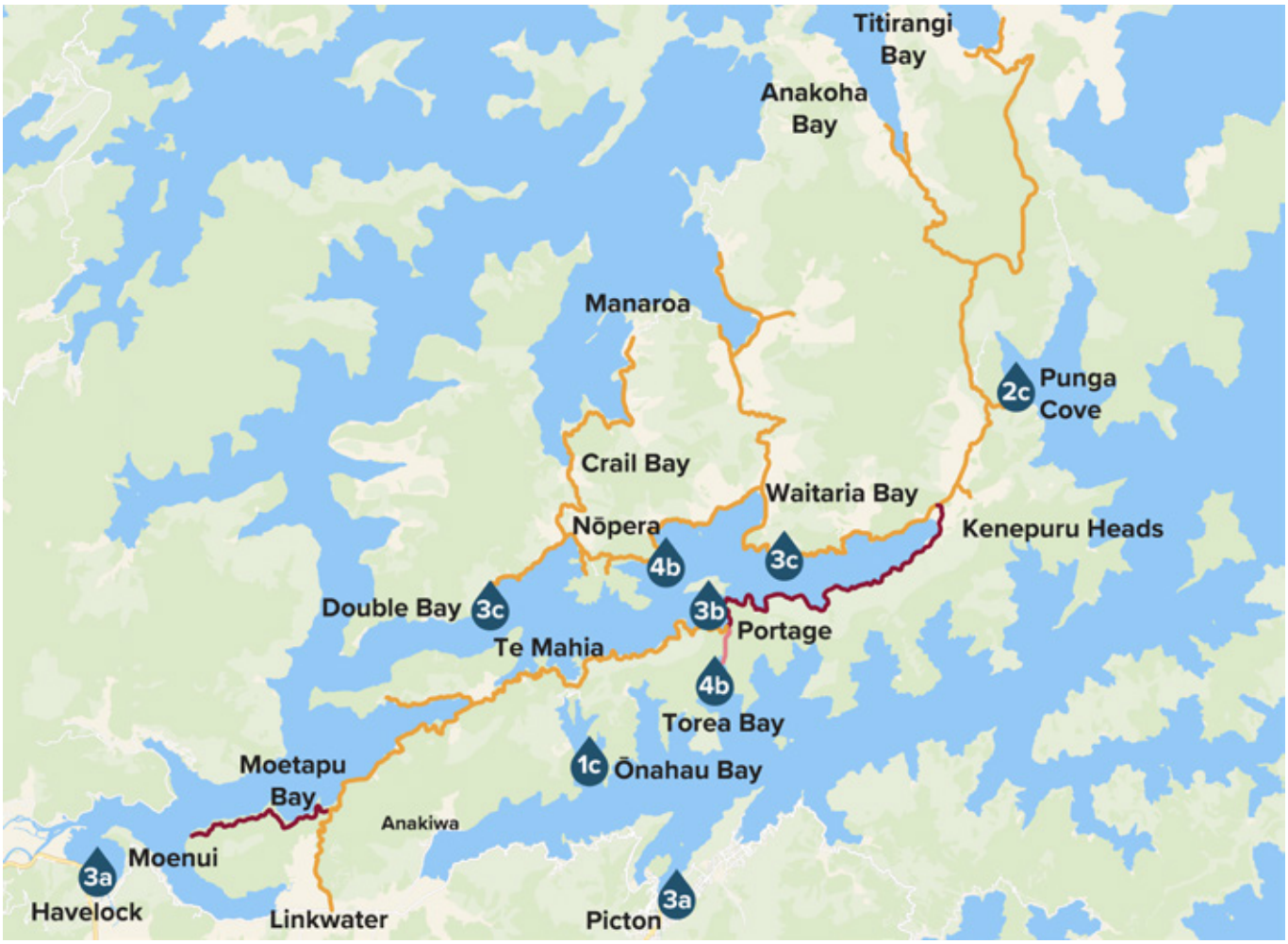
Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Targeted improvements **Havelock to Linkwater**	●	No change	≤ 23m	No change (23 metres)	+50t	No change (+50 tonnes)	• Localised resilience improvements.
Targeted improvements **Linkwater to Picton**	↑↓	Increasing one-way sections	≤ 12.6m	No change (12.6 metres)	**Class 1 (3 axle)**	Class 1 with 3 axle limit (could restrict weight to approx. 18 tonnes)	• Localised resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). • This may result in increased vehicle weight restrictions.
Essential repairs **Anakiwa**	↑↓	Increasing one-way sections		Potential for length restrictions	+50t	No change (+50 tonnes)	• Route would be maintained, but a lower level of service would be provided, and repairs would not be as extensive. • This may result in vehicle length restrictions.

No change means as of pre-2021 conditions and restrictions.

Kenepuru

Emerging preferred option **Balanced**

The evaluation process has identified **Balanced** as the emerging preferred option for the Kenepuru area.



Roading approach key

Protect
Build back stronger
(No additional restrictions)

Accommodate
Build back with targeted improvements
(Additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Marine key

Maintain & protect existing marine hubs

1c Local Marine Hub

Protect & upgrade existing hubs (Passengers only)

2c Local Marine Hub

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub
3b Arterial Marine Hub
3c Local Marine Hub

New infrastructure or upgrade of level (All users)

4b Arterial Marine Hub

For definitions and the full key go to page 38-41.

Why Balanced was chosen

Restoring some form of road access is justified, and there would be merit in some improvements, such as to stormwater and maintenance. However, over time the area would become more dependent on the need for a robust adaptation pathway and marine infrastructure to be in place because of the likelihood of future severe disruption due to a wide range of possible or probable hazard events.

High-level summary of works

Roads and restrictions

The road between Torea and Portage would be strengthened.

The roads north of the Heads would receive targeted improvements, although there may be an increase in the number of one-lane sections and vehicle length restrictions may be implemented.

Kenepuru Road between Linkwater and Portage would also receive targeted improvements, with potential for an increase in the number of one-lane sections.

Only essential repairs would be completed between Portage and the Heads, and on Moetapu Bay Road. On Kenepuru Road between Moetapu Bay Road and the Heads, and on Moetapu Bay Road, there would be potential for length restrictions to 12.6 metres, and weight restrictions to under Class 1 in the long term. The residents only restriction would be removed.

Marine

There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs), Torea and Portage (arterial hubs), and Double Bay, Fish Bay and Punga Cove.

A new arterial marine hub would be developed near Goulter Bay. Passenger services between Havelock and Kenepuru Sound would be introduced three times per week, and passenger services in the Queen Charlotte Sound would be as existing.

A twice-weekly freight service between Picton and Torea would be introduced, as would a scheduled freight service between Havelock and Kenepuru Sound. Routes, frequencies and subsidies would be subject to consultation.

Indicative high-level cost estimate **$60 million**

Kenepuru

No change means as of pre-2021 conditions and restrictions.

Emerging preferred option — Road restrictions

Approach/ Road Section	Road Width	Vehicle Length Restrictions	Vehicle Weight Restrictions	What it Means
Targeted improvements **Linkwater to Moetapu turnoff**	Increasing one-lane sections	Potential for length restrictions	≤ 50t — No change (50 tonnes max still permitted)	• Resilience improvements but trade-offs, i.e. width, surfacing, etc. • Possible vehicle length restrictions.
Targeted improvements **Moetapu turnoff to Mahau turnoff**	Increasing one-lane sections	≤ 12.6m — Potential for length restrictions to 12.6 metres	< 44t — Potential for less than 44 tonnes	• Resilience improvements but trade-offs, i.e. width, surfacing, etc. • Possible length restrictions due to tight corners. • Susceptibility to natural slope instability may result in weight restrictions to 44 ts.
Targeted improvements **Mahau turnoff to Portage**	Increasing one-lane sections	≤ 12.6m — Potential for length restrictions to 12.6 metres	< 44t — Potential for less than 44 tonnes	
Strengthened **Torea to Portage**	No change	No change	≤ 50t — No change (50 tonnes max still permitted)	• Route between Torea and Portage more resilient. Could be another access point to the Kenepuru, supported by services between Picton and Torea.
Essential repairs **Portage to Kenepuru Heads**	Increasing one-lane sections	≤ 12.6m — Potential for length restrictions to 12.6 metres	< 44t — Potential for less than 44 tonnes	• Route maintained, but a lower level of service. Repairs not as extensive. • May result in length restrictions due to tight corners. • Susceptibility to natural slope instability may result in weight restrictions to 44 ts.
Targeted improvements **Kenepuru Heads to Waitaria Bay**	Increasing one-lane sections	Potential for length restrictions	≤ 50t — No change (50 tonnes max still permitted)	• Resilience improvements but trade-offs, i.e width, surfacing, etc. • Possible length restrictions.
Targeted improvements **Waitaria Bay to road ends**	Increasing one-lane sections	Potential for length restrictions	≤ 50t — No change (50 tonnes max still permitted)	
Targeted improvements **Waitaria Bay to Clova Bay**	Increasing one-lane sections	Potential for length restrictions	≤ 50t — No change (50 tonnes max still permitted)	
Targeted improvements **Kenepuru Heads to Titirangi**	Increasing one-lane sections	Potential for length restrictions	≤ 50t — No change (50 tonnes max still permitted)	
Essential repairs **Moetapu**	Increasing one-lane sections	≤ 12.6m — Potential for length restrictions to 12.6 metres	< 44t — Potential for less than 44 tonnes	• Route maintained, but lower level of service. Repairs not as extensive. • May result in length restrictions due to tight corners. • Susceptibility to natural slope instability may result in weight restrictions to 44 ts.

Kenepuru

Hazard adaptation pathway | Marine Focus

The evaluation process has identified **Marine Focus** as the hazard adaptation pathway for the Kenepuru area.

Roading approach key

Protect
Build back stronger
(No additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Retreat others
Build back roads that provide marine hub access

*A selection of Local Marine Hubs are indicatively shown, whilst other locations will need to be added if an event severely compromised road connections. Locations to be determined by consultation.

For definitions and the full key go to page 38-41.

Marine key

Protect & upgrade existing hubs (Passengers only)

2c Local Marine Hub*

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub
3b Arterial Marine Hub
3c Local Marine Hub*

New infrastructure or upgrade of level (All users)

4b Arterial Marine Hub
4c Local Marine Hub*

Why Marine Focus was chosen

The adaptation pathway is likely to be more important for this area into the future than it is for other areas in the Sounds. Because of the geology and susceptibility of Kenepuru Road, particularly between Moetapu and Portage, a pathway that has marine transport as the primary travel mode would be needed in the event of a large land movement caused by an earthquake or storm, to provide security of access for people and businesses for the longer term.

High-level summary of works

Roads and restrictions

The road between Torea and Portage would be strengthened. Kenepuru Road between Linkwater and the Moetapu Bay turnoff would receive essential repairs only, and there may be vehicle length restrictions.

All other roads would only receive repairs that ensure access to the closest marine hub.

Marine

There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs); Torea and Portage (arterial hubs); and Double Bay, Fish Bay and Punga Cove.

A new arterial hub would be developed near Goulter Bay, and local hubs at Crail Bay, Clova Bay, Anakoha Bay, and Titirangi Bay would be developed as required. Other local hubs may be established as needed.

Passenger services between Havelock and Kenepuru Sound would increase to twice daily, and passenger services in the Queen Charlotte Sound would be as existing. Daily freight services between Picton and Torea, and Havelock and Kenepuru would be introduced.

Routes, frequencies and subsidies would be subject to consultation.

Indicative high-level cost estimate **$40 million**

Kenepuru

No change means as of pre-2021 conditions and restrictions.

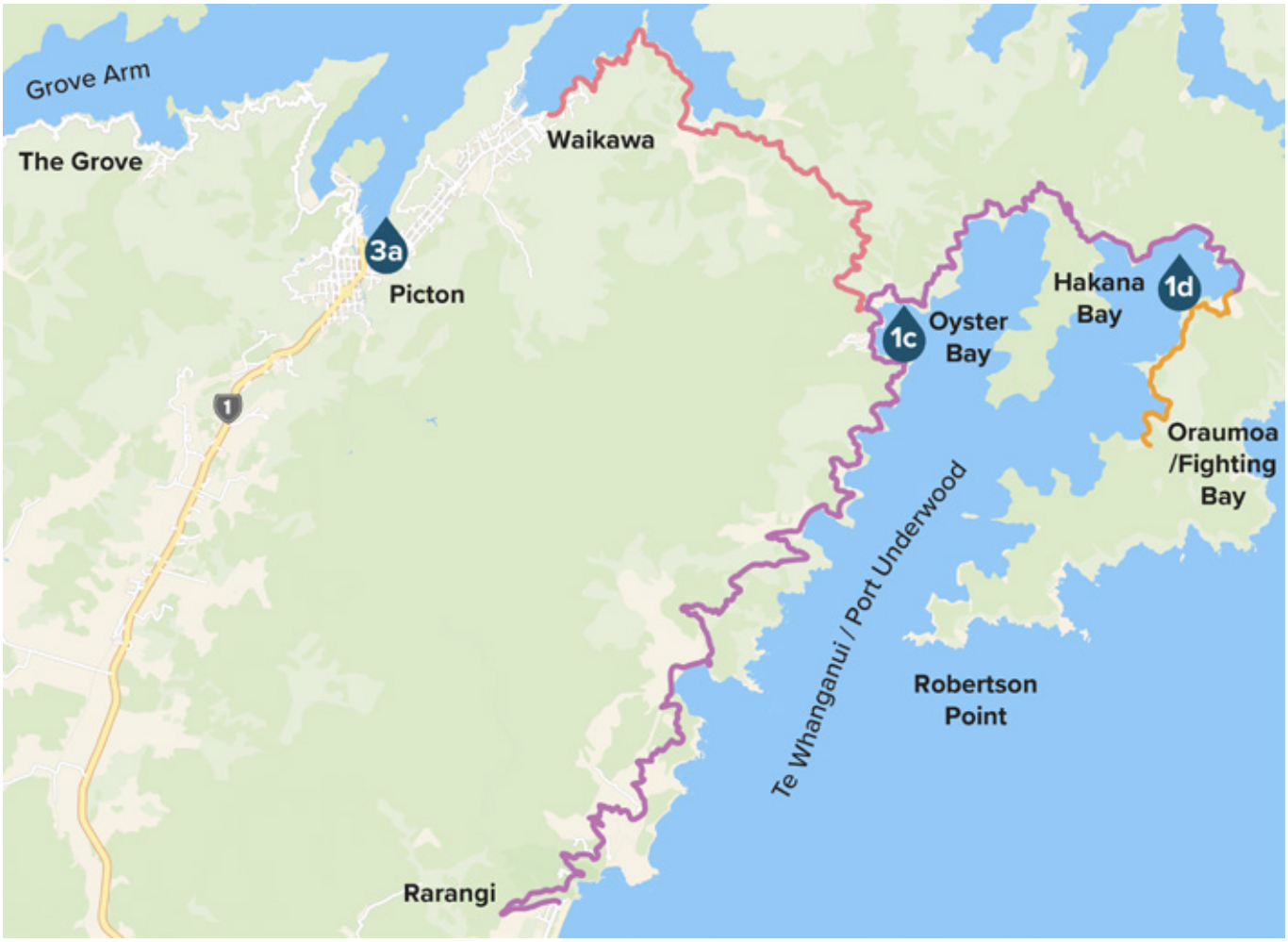
Hazard adaptation pathway → Road restrictions

Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Essential repairs **Linkwater to Moetapu turnoff**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 50t	No change (50 tonnes max still permitted)	• Route maintained, but lower level of service. Repairs not as extensive. • May result in length restrictions.
Marine hub access **Moetapu turnoff to Mahau turnoff**	↑↓	Increasing one-lane sections	≤ 12.6m	Potential for length restrictions to 12.6 metres	< 44t	Potential for less than 44 tonnes	• Route only maintained to provide marine hub access. A lower level of service. Repairs not as extensive. • May result in length restrictions due to tight corners. • Susceptibility to natural slope instability may result in weight restrictions to 44 ts.
Marine hub access **Mahau turnoff to Portage**	↑↓	Increasing one-lane sections	≤ 12.6m	Potential for length restrictions to 12.6 metres	< 44t	Potential for less than 44 tonnes	
Strengthened **Torea to Portage**	●	No change		No change	≤ 50t	No change (50 tonnes max still permitted)	• More resilience between Torea and Portage. • Could be used as another access point to Kenepuru, supported by services between Picton and Torea.
Marine hub access **Portage to Kenepuru Heads**	↑↓	Increasing one-lane sections	≤ 12.6m	Potential for length restrictions to 12.6 metres	< 44t	Potential for less than 44 tonnes	• Route only maintained to provide marine hub access. A lower level of service. Repairs not as extensive. • May result in length restrictions due to tight corners. • Susceptibility to natural slope instability may result in weight restrictions to 44 ts.
Marine hub access **Kenepuru Heads to Waitaria Bay**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 50t	No change (50 tonnes max still permitted)	• Route would only be maintained to provide access to marine hubs. There would be a lower level of service and repairs would not be as extensive. This may result in vehicle length restrictions - i.e if a slip truncates the road this would only be repaired if people couldn't access a marine hub.
Marine hub access **Waitaria Bay to road ends**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 50t	No change (50 tonnes max still permitted)	
Marine hub access **Waitaria Bay to Clova Bay**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 50t	No change (50 tonnes max still permitted)	
Marine hub access **Kenepuru Heads to Titirangi**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 50t	No change (50 tonnes max still permitted)	
Marine hub access **Moetapu**	↑↓	Increasing one-lane sections	≤ 12.6m	Potential for length restrictions to 12.6 metres	< 44t	Potential for less than 44 tonnes	• Route only maintained to provide marine hub access. A lower level of service. Repairs not as extensive. • May result in length restrictions due to tight corners. • Susceptibility to natural slope instability may result in weight restrictions to 44 ts.

Te Whanganui/Port Underwood

Emerging preferred option **Road Access**

The evaluation process has identified **Road Access** as the emerging preferred option for Te Whanganui/Port Underwood.



Roading approach key

Protect
Build back stronger
(No additional restrictions)

Accommodate
Build back with targeted improvements
(No additional restrictions)

Accommodate
Build back with targeted improvements
(Additional restrictions)

Marine key

Maintain & protect existing marine hubs

1c Local Marine Hub

1d Emergency Ramp

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub

For definitions and the full key go to page 38-41.

Why Road Access was chosen

Road access is preferred to marine access particularly to support access for the maintenance of interisland electricity transmission and communications. Compromises can be made on road width and type (sealed, unsealed) in areas over time to save money, and improved resilience is important with improved stormwater and regular maintenance of fit-for-purpose roadway levels of service.

High-level summary of works

Roads and restrictions

Port Underwood Road between Waikawa Bay and Oyster Bay would be strengthened.

All other roads would receive targeted improvements, but Tumbledown Bay Road between the Oraumoa/Fighting Bay entrance and the road end may have length restrictions.

Marine

There would be no change to existing marine services. There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs).

Indicative high-level cost estimate **$20 million**

Te Whanganui/Port Underwood

Emerging preferred option **Road restrictions**

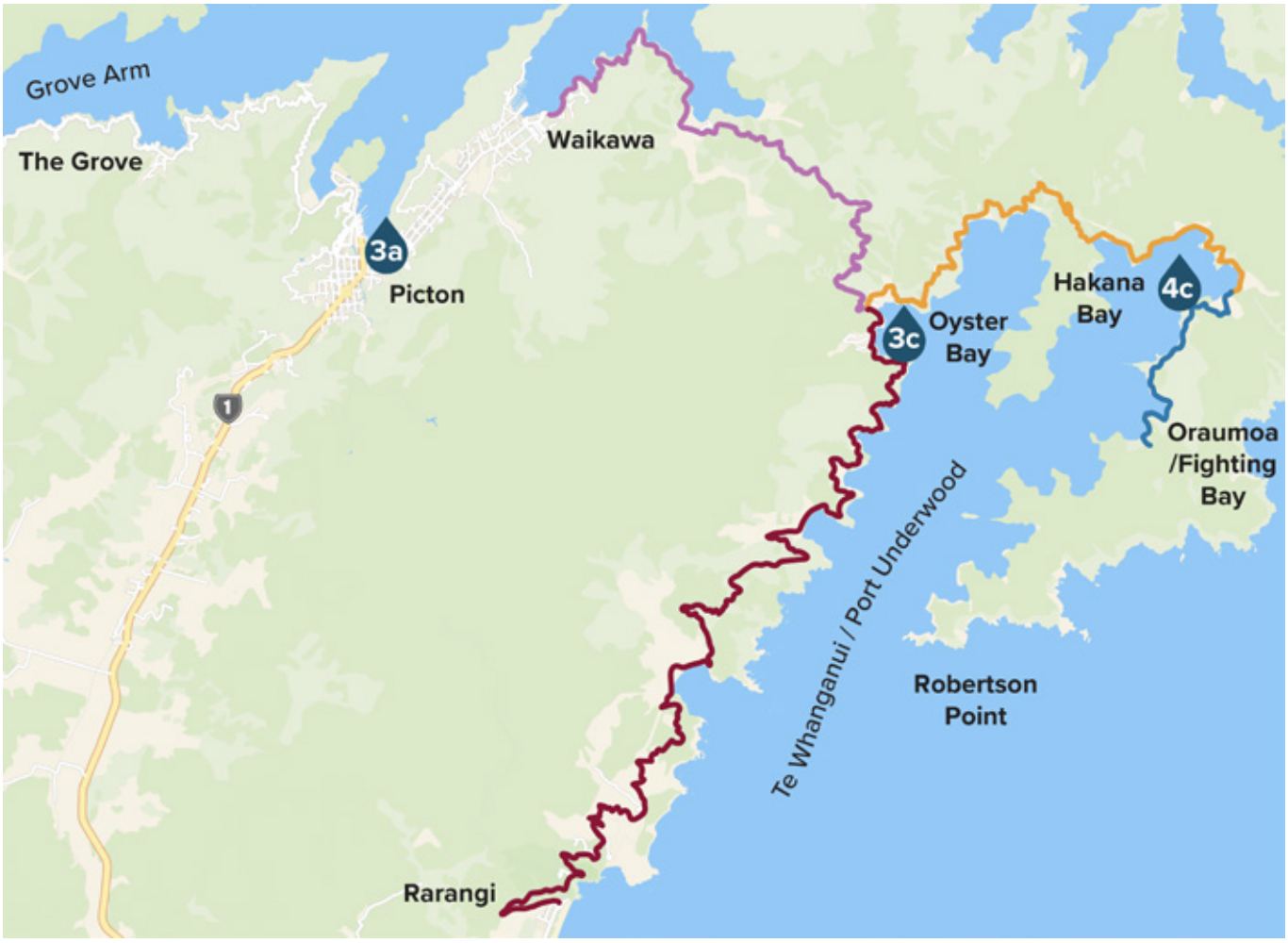
Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Build back stronger **Waikawa to Oyster Bay**	●	No change	≤ 23m	No change (23 metres)	≤ 50t	No change (50 tonnes)	• Increased resilience of route. • No change in vehicles on road.
Targeted improvements **Oyster Bay to Rarangi**	●	No change	≤ 23m	No change (23 metres)	≤ 50t	No change (50 tonnes)	• Localised resilience improvements. • No change in vehicles on road.
Targeted improvements **Oyster Bay to Oraumoa/Fighting Bay entrance**	●	No change	≤ 23m	No change (23 metres)	≤ 50t	No change (50 tonnes)	
Targeted improvements **Oraumoa/Fighting Bay entrance to road end**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 44t	No change (44 tonnes)	• Resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). • This may result in vehicle length restrictions.

No change means as of pre-2021 conditions and restrictions.

Te Whanganui/Port Underwood

Hazard adaptation pathway | Marine Access

The evaluation process has identified **Marine Access** as the hazard adaptation pathway for Te Whanganui/Port Underwood.



Roading approach key

Accommodate
Build back with targeted improvements (No additional restrictions)

Accommodate
Build back with targeted improvements (Additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Retreat others
Build back roads that provide marine hub access

Marine key

Protect & upgrade existing hubs (All users)

3a Primary Marine Hub

3c Local Marine Hub*

New infrastructure or upgrade of level (All users)

4c Local Marine Hub*

*A selection of Local Marine Hubs are indicatively shown, whilst other locations will need to be added if an event severely compromised road connections. Locations to be determined by consultation.

For definitions and the full key go to page 38-41.

Why Marine Access was chosen

The adaptation pathway focuses on protecting and improving marine infrastructure so there are always transport options in the future. However, this pathway also relies on a resilient link between Port Underwood and Waikawa, so that this road link is opened as quickly as possible following any future events.

High-level summary of works

Roads and restrictions

Port Underwood Road between Waikawa and Oyster Bay would receive targeted improvements.

Port Underwood Road between Oyster Bay and Rarangi would only receive essential repairs and may experience vehicle length restrictions. Tumbledown Bay Road between Oyster Bay and the Oraumoa/Fighting Bay entrance would also receive targeted improvements but would have increasing one-lane sections.

Tumbledown Bay Road between the Oraumoa/Fighting Bay entrance and the road end would only receive repairs that provide access to a marine hub.

Marine

There would be no planned change to existing marine services. There would be investment to protect and upgrade the marine facilities at Havelock and Picton (primary hubs), and the Oyster Bay local hub. A new local hub may be developed near Hakana Bay.

Indicative high-level cost estimate **$10 million**

Te Whanganui/Port Underwood

Hazard adaptation pathway — Road restrictions

Approach/ Road Section	Road Width		Vehicle Length Restrictions		Vehicle Weight Restrictions		What it Means
Targeted improvements **Waikawa to Oyster Bay**	●	No change	≤ 23m	No change (23 metres)	≤ 50t	No change (50 tonnes)	• Localised resilience improvements. • No change in vehicles on road.
Essential repairs **Oyster Bay to Rarangi**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 50t	No change (50 tonnes)	• Route would be maintained, but a lower level of service would be provided, and repairs would not be as extensive. This may result in vehicle length restrictions.
Targeted improvements **Oyster Bay to Oraumoa/Fighting Bay entrance**	↑↓	Increasing one-lane sections	≤ 23m	No change (23 metres)	+50t	No change (+50 tonnes)	• Localised resilience improvements but there would be trade-offs with other levels of service (width, surfacing, etc). However, no change in vehicles on the road would be anticipated.
Marine hub access **Oraumoa/Fighting Bay entrance to road end**	↑↓	Increasing one-lane sections		Potential for length restrictions	≤ 44t	No change (44 tonnes)	• Route would only be maintained to provide access to marine hubs. There would be a lower level of service and repairs would not be as extensive. This may result in vehicle length restrictions.

No change means as of pre-2021 conditions and restrictions.

Definitions

Additional vehicle restrictions

Additional vehicle restrictions refer to additional length or weight restrictions for vehicles from a pre-2021 event baseline. More detailed information is provided below.

Weight

- Weight restrictions are based on vehicle class:
  - » Class 1: 44 tonnes across eight axles
  - » 50 Max: 50 tonnes across nine axles
  - » HPMV: greater than 50 tonnes across 9 – 10 axles
- A light vehicle is typically around three tonnes.
- There are no restrictions on 4 x 4 vehicles, they are allowed.
- Pre-2021, most roads in the Sounds allowed 50 Max vehicles, although some were restricted to Class 1.
- HPMV vehicles are generally restricted to State Highways and specific routes determined by Council.
- Class 1, 50 Max, and HPMV vehicles can look very similar.

Length

- The proposed length restrictions are generally:
  - » 22 metres (max length allowed on any road in New Zealand)
  - » 12.6 metres (most utes and boat trailers, buses, but not truck and trailers)
  - » There may be a permit system put in place to allow overlength vehicles through with a permit. However, this would be assessed on a trip-by-trip basis.
- Geometric designs are typically completed using a 17.9-metre semi-trailer as the 'design vehicle' as it has the worst tracking. So, if that vehicle cannot make the corner without leaving its lane, length restrictions will be considered.
- In some areas, a pilot vehicle could be considered.

Duncan Bay

Marine infrastructure descriptions

Emergency Ramp

- Made from well-graded gravel
- Potentially lined with rock riprap on both sides
- Likely to be 20–30 metres from shoreline
- About 4-metres wide with sloped sides
- Fish Bay ramp is an example

Local Marine Hub

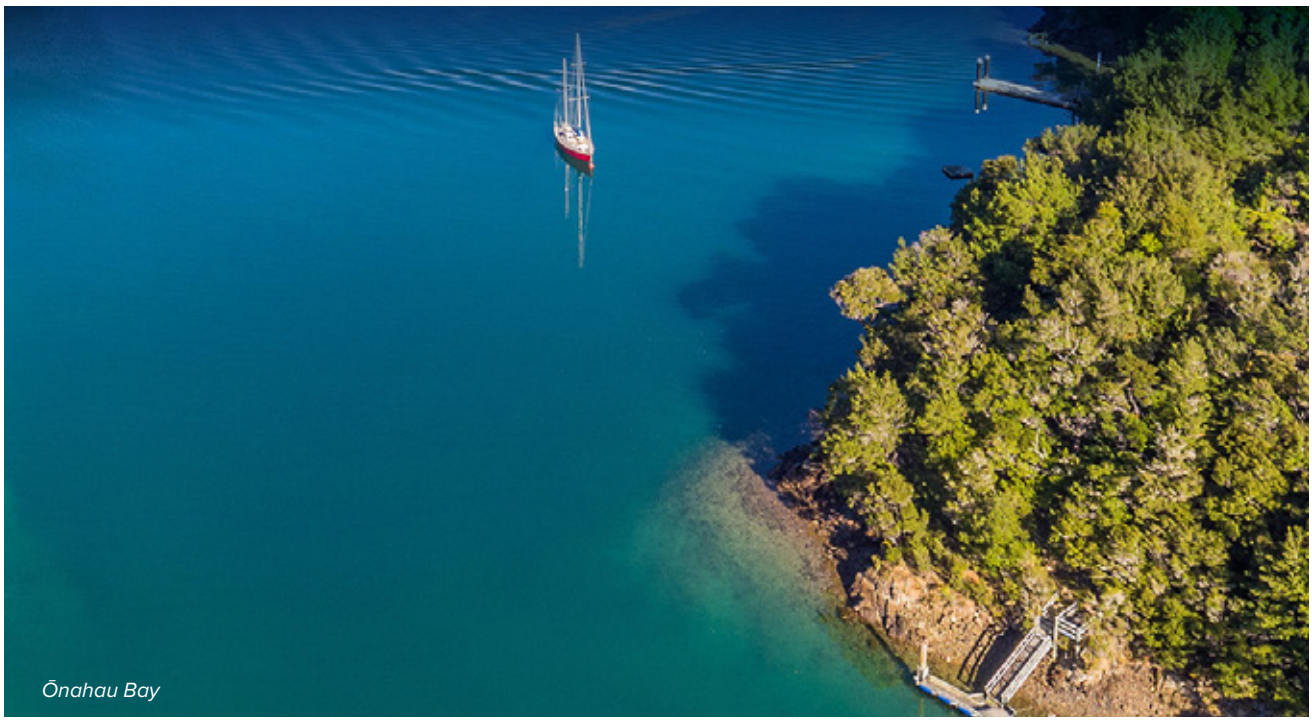
- Jetty with floating component
- Likely to be 20–30 metres from shoreline
- Concrete launching ramp (~4-metres wide)
- Potentially some localised dredging
- Parking for approximately six cars
- Bus shelter type structure
- Lighting
- Approximately six moorings
- Waihinau (Bulwer) Bay is an example

Arterial Marine Hub

- Jetty with floating component
- Likely to be 20–30 metres from shoreline
- Concrete launching ramp (~4-metres wide), potentially on reclaimed land
- Likely to require some localised dredging
- Parking for up to 12 cars
- Potentially small marina or up to 12 moorings
- Tennis court-sized area for freight laydown
- Terminal structure, including passenger waiting area, dry storage facility, toilets, etc. (around size of community hall)
- Lighting
- Livestock yard within a certain distance if required
- Portage is an example

Primary Marine Hub

- Picton and Havelock – protected and upgraded for all users



Ōnahau Bay

Roading approach key

Protect
Build back stronger
(No additional restrictions)

Protect
Build back stronger
(Additional restrictions)

Accommodate
Build back with targeted improvements
(No additional restrictions)

Accommodate
Build back with targeted improvements
(Additional restrictions)

Accommodate/retreat
Build back with essential repairs only

Retreat others
Build back roads that provide marine hub access

Marine key

Maintain & protect existing marine hubs

Primary Marine Hub

Arterial Marine Hub

Local Marine Hub

Emergency Ramp

Protect & upgrade existing hubs (Passengers only)

Local Marine Hub

Protect & upgrade existing hubs (All users)

Primary Marine Hub

Arterial Marine Hub

Local Marine Hub

Emergency Ramp

New infrastructure or upgrade of level (All users)

Primary Marine Hub

Arterial Marine Hub

Local Marine Hub

Emergency Ramp

Section Two:
Financial and rating implications

To repair the damage from the 2021 and 2022 extreme weather events, there are three tranches of work proposed.

Tranche 1: $85M: Used for the highest priority repairs of storm damage across Marlborough, including the Sounds. Tranche 1 was funded with a 95% Financial Assistance Rate (FAR) from Waka Kotahi, with Council meeting the balance from the Emergency Events Reserve. The Reserve now has a forecast balance at 30 June 2024 of $2.4M.

Tranche 2: $52.4M: Enables Awatere Valley, Northbank and Waihopai Valley road repairs to be completed, and a one-year extension of barge and water taxi subsidies. It also funds design for repairing high-priority sites on Queen Charlotte Drive and priority repairs in the Sounds to maintain access. This tranche will be funded with a FAR of 95%, leaving the balance of $2.6M plus inflation to be debt funded. Inflation has been assumed at rates forecast by BERL for roading.

For the purposes of this public engagement, **Tranche 3** of **$160M** is assumed to be the emerging preferred options (not the hazard adaptation pathways).

It includes inflationary increases between now and work being completed. At this stage, Waka Kotahi has not approved a FAR for this third tranche.

Other than the scope of works to be undertaken, the key factor of what ratepayers will need to pay towards these repairs is the approved FAR.

For this engagement, Waka Kotahi have requested that FARs of 71%, 51% and 0% be used for Tranche 3. The marine elements have 0% FAR.

Council would need to fund the balance of approximately $83.6M of debt plus inflation at 51% FAR. With assumed inflation the total debt to finance is $95.4M for a 51% FAR including a component of Tranche 2 funding at 95% FAR.

The timing of the works and additional maintenance estimates have been factored into the indicative rates increase for each year until the work is completed. It is forecast that work will be broadly completed as follows:

	2023-24 ($M)	2024-25 ($M)	2025-26 ($M)	2026-27 ($M)	2027-28 ($M)	2028-29 ($M)	Total ($M)
Cost (Tranche 2 $52.4M, Tranche 3 $160M)	39.0	51.4	43.0	44.0	22.0	13.0	212.4
Inflation	2.0	4.8	5.5	7.0	4.1	2.7	26.1
Total cost	**41.0**	**56.2**	**48.5**	**51.0**	**26.1**	**15.7**	**238.5**
Council share - 71% FAR	2.1[*1]	12.8	14.1	14.8	9.2	7.1	60.1
Council share - 51% FAR	2.1[*1]	21.1	23.8	25.0	14.0	9.5	95.4
Council share - 0% FAR	2.1[*1]	56.2	48.5	51.0	26.1	15.7	199.6

Figure 6: Forecast of funding and costs.

*[*1] Tranche 2 with a 95% FAR*

Council's current road rating policy means an increased rate charged per $1 of land value would apply equally to every Marlborough property , except for the Sounds Rural Geographic Rating area, which has boat access only. From 2029-30 the debt repayment rate will remain relatively constant, unless interest rates change.

What this means to your rates

The following graphs show the rating impact of the three different FAR levels in 2029-30 (project completion) after a progressive build up with a very small start from 2023-24.

To find the estimated rates impact on your property:

- Find your **land** value from your latest invoice or online at **marlborough.govt.nz/services/rates/rates-search**
- Move along the bottom of the graph until you find your value.
- Look to see the estimated rating impact under each scenario.

As an example, in the graph below if your land value is $300,000, then the additional rates will be $213 (71% FAR), $300 (51% FAR) and $523 (0% FAR) per annum on project completion over a 20 year repayment period.

Additional rates – residential

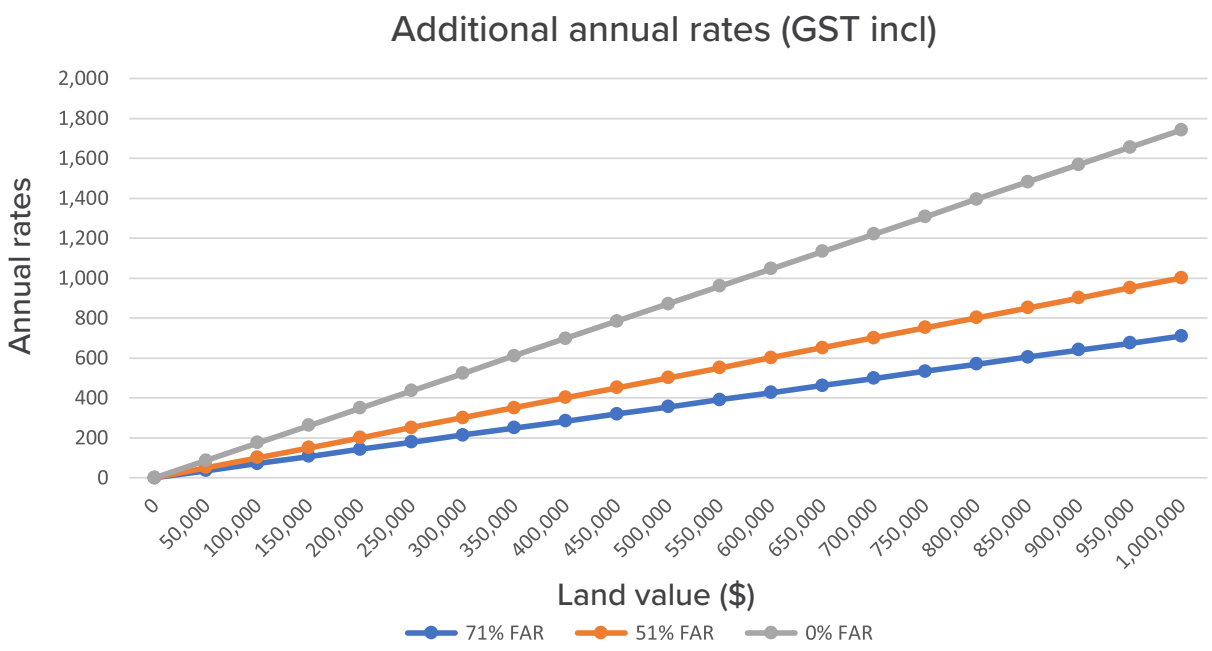


Figure 7: The estimated rates impact on residential properties.

Additional rates – rural and commercial/industrial

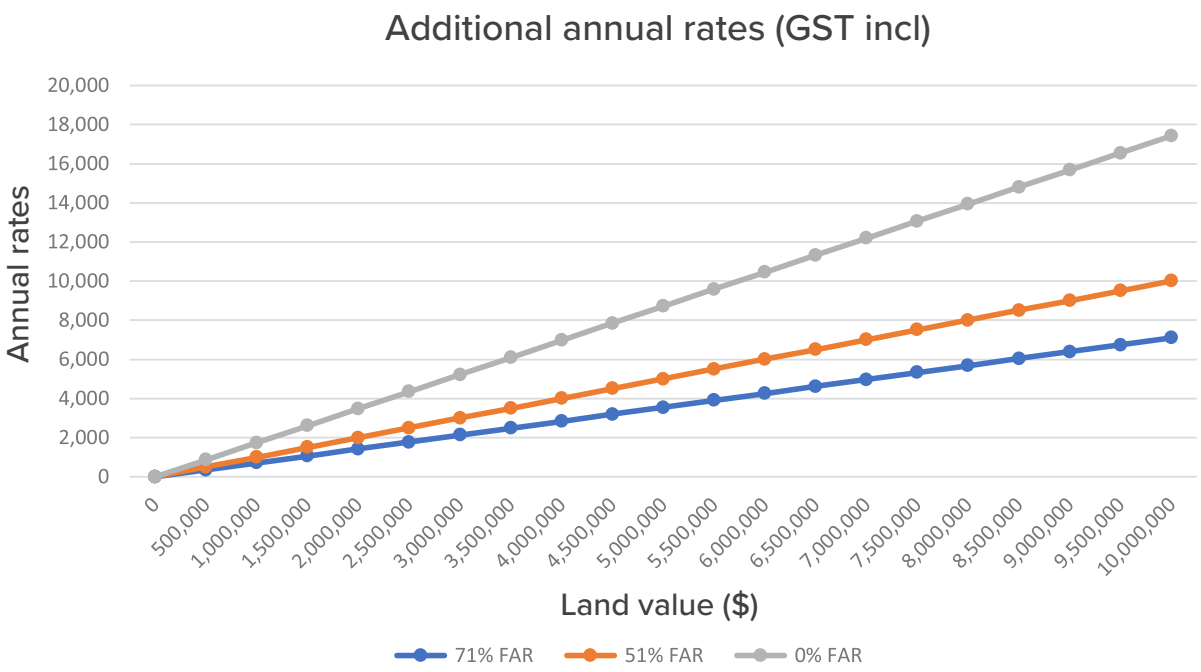


Figure 8: The estimated rates impact on larger properties.

In the graph above if your land value is $5,000,000, then the additional rates will be $3,551 (71% FAR), $5,005 (51% FAR) and $8,714 (0% FAR) per annum on project completion.

While the capital cost of the hazard adaptation pathways will cost less, with less debt being raised, increased maintenance costs and reduced eligibility for financial assistance, result in a similar rating impact.

Council is also considering whether to make the rates to service this increased debt a separate rate, so the impact of any interest rate variations and the completion of debt repayment can be easily identified.

Ratepayers may also consider that a rate targeted more at ratepayers in the affected areas would be more equitable than the current district-wide allocation.

Shakespeare Bay

Section three: Study background and evidence

3.1 The purpose

The purpose of the Marlborough Sounds Future Access Study (the study) is to identify the option that will provide long-term access in and out of the Sounds through a safe and resilient transport system.

This study is being delivered in the form of a business case to help Council identify and secure the necessary funding needed for the Sounds future transport system.

As well as ensuring any activities with a long lead time for future access can be put into action, the business case will identify what is needed to ensure sufficient access in and out of the Sounds now, including how we deal with the remaining 1,800 faults (i.e. slips, infrastructure damage etc) along the roading network.

3.2 The problems

The study identified and sought to address the following problems:

Problem One – Disrupted access:

The impacts of climate change, such as severe rain events, are increasing the frequency and duration of disrupted access throughout the Sounds.

Maximum duration roads closed	
Rai Valley to Te Aumiti / French Pass	64 days
Te Hoiere/Pelorus	28 days
Queen Charlotte	63 days
Kenepuru	63 days
Te Whanganui/Port Underwood	122 days

Figure 9: How many days the roads were closed after the August 2022 storm event.

Problem Two – Lack of alternatives:

Reliance on roads for access to services and lack of alternatives has led to increased vulnerability to the community during road closures.

People have been significantly impacted by the lack of alternative routes in the Sounds.

Access to lifeline infrastructure such as local power networks, telecommunications, and emergency services have been impacted.

People's ability to access education, health care, shopping, community facilities and the ability to visit friends and family have been impacted.

There has been a decline in self-reported mental health and decrease in business confidence, and an overall increased vulnerability of the community.

Figure 10: A snapshot of the community impacts of the August 2022 storm event.

Problem Three – Asset vulnerability:

Poor construction standards and unstable geology means the Marlborough Sounds roads have a high maintenance cost and safety risk.

Figure 11: A snapshot of the vulnerability of the Sounds' infrastructure.

Many roads in the Sounds, particularly on Kenepuru Road between Te Mahia Bay and the Heads, as well as Moetapu Bay Road, are on historic landslide or debris flow sites and have existing 'natural slope instability.' They are more likely to suffer damage during and after storms or earthquakes.

Natural slope instability relates to areas that, according to published maps, are located on historical landslides, or landslide debris. These landform features are typically more likely to remobilise and undergo slope deformation during storms or earthquakes. A high percentage of natural slope instability occurs on Kenepuru Road between Te Mahia Bay and the Heads, and Moetapu Bay Road.

Man-made slope instability refers to areas where human intervention has modified the terrain in a manner that adversely affects stability.

This includes artificially over-steepened cut slopes, poorly configured and compacted fill slopes, and less than desirable stormwater management. Most roads constructed on slopes are impacted by this (areas shown as red in the map on the following page).

Where these two hazards overlap, poorly modified terrain sits upon ground that is typically inherently weaker than other slopes. These lengths of the roading network are extremely susceptible to damage during significant events (rainfall or earthquake), and the resulting damage is likely to be compounded (areas shown as black in the map on the following page).

These hazards are reflected in the number of under and over slips recorded in the 2021 and 2022 storm events. Just under 4,000 faults for Sounds roads were recorded for these events; 63% of them were slips.

The map below shows the hazard areas in the Sounds that are susceptible to damage from natural and man-made modifications.

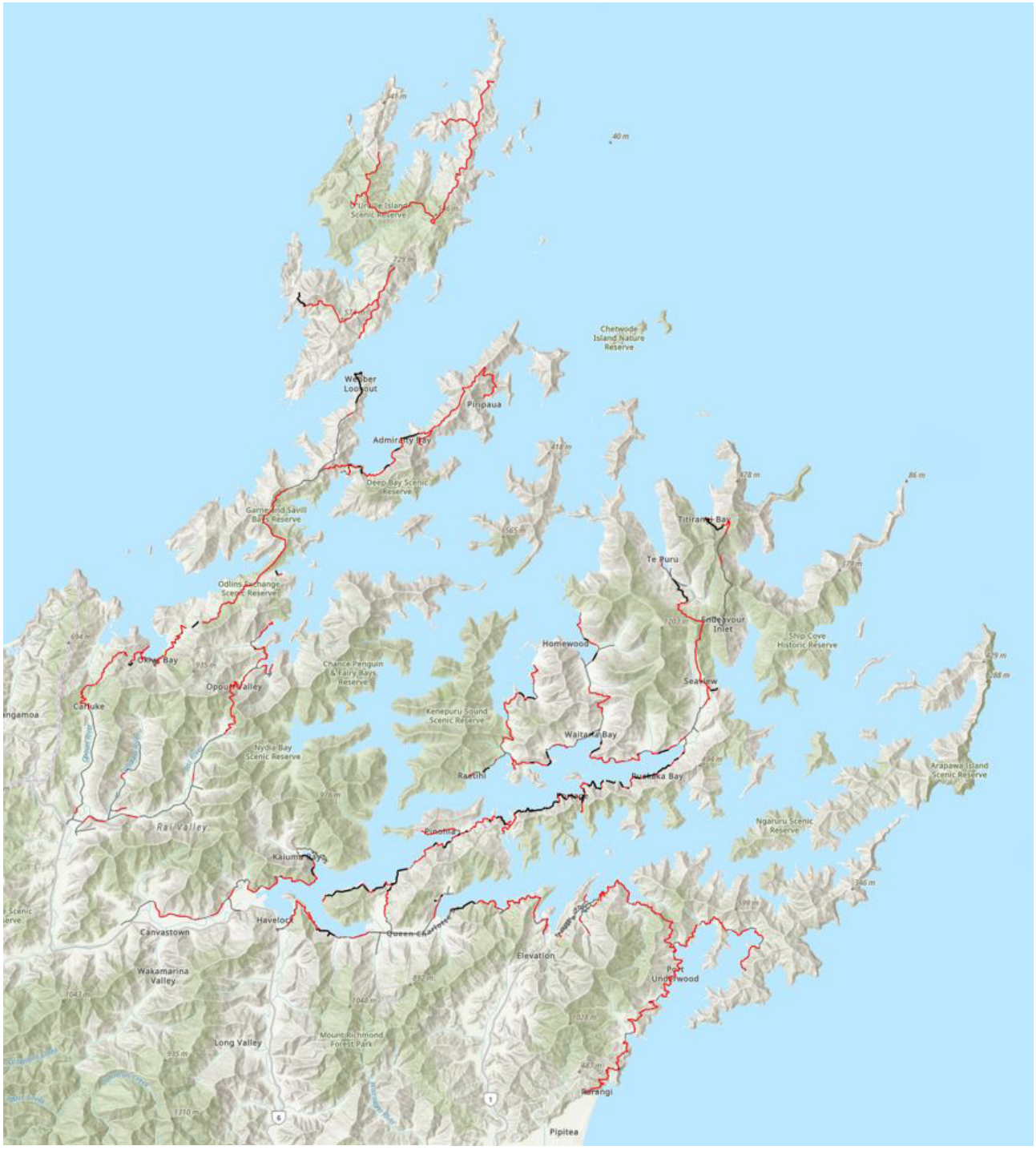


Figure 12: Areas of very high and high susceptibility to slope instability.

When an area has both natural slope instability and man-made instability, it is weaker and even more vulnerable to damage during significant events.

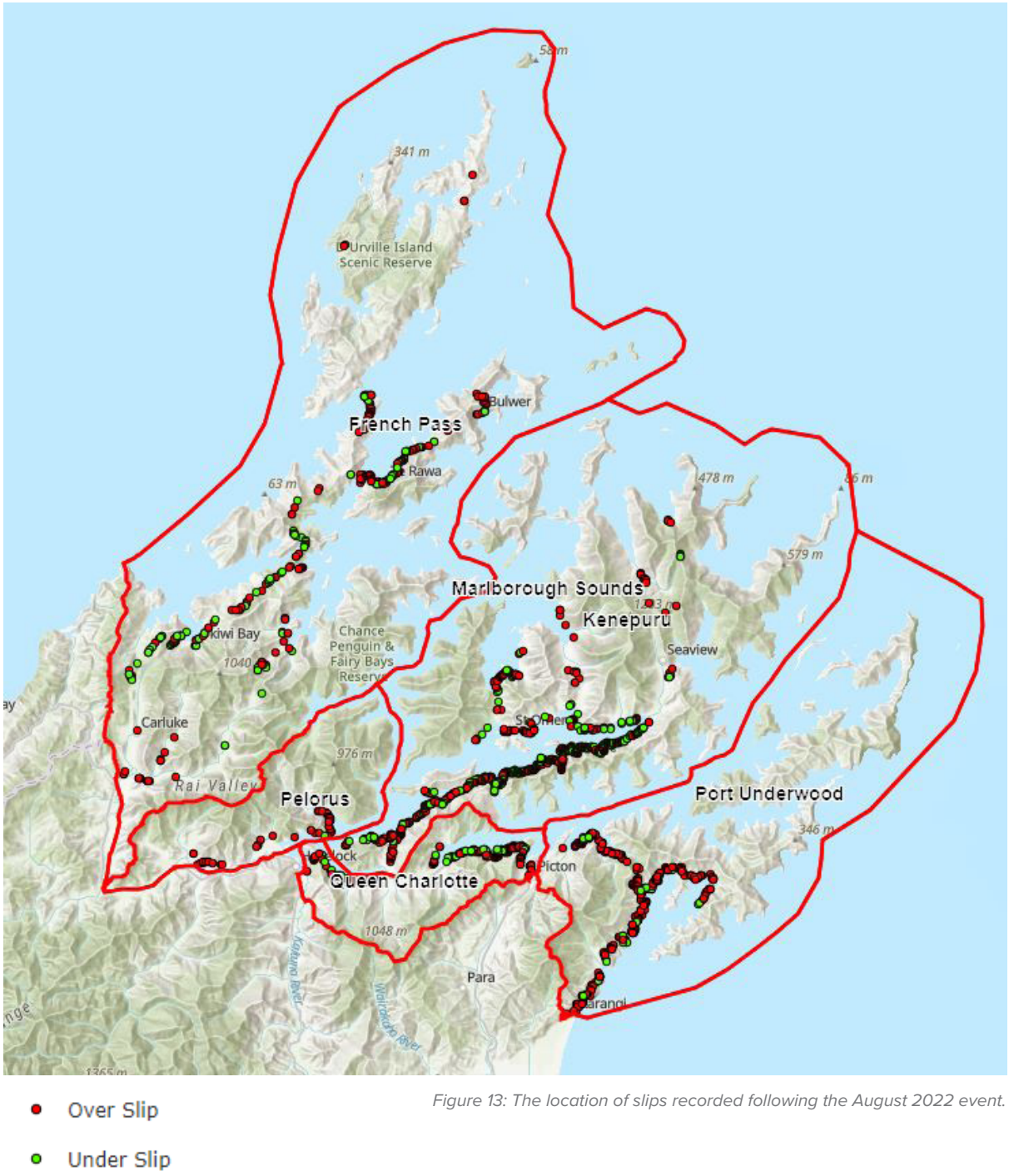


Figure 13: The location of slips recorded following the August 2022 event.

Figure 9: How hazards relate to events such as storms, earthquakes and sea level rise.

3.3 The business case

The study is guided by the Waka Kotahi business case process, to ensure compliance with funding requirements for agreed levels of investment from central Government. The level of funding assistance that will be provided by central Government will only be determined following the completion of the business case.

To make the best case for receiving funding for the Sounds' future transport network, the study's business case includes:

- An outcomes-focused approach to investment;
- Early, meaningful collaboration between the community and stakeholders; and
- Progressive development of a robust, evidence-based investment case.

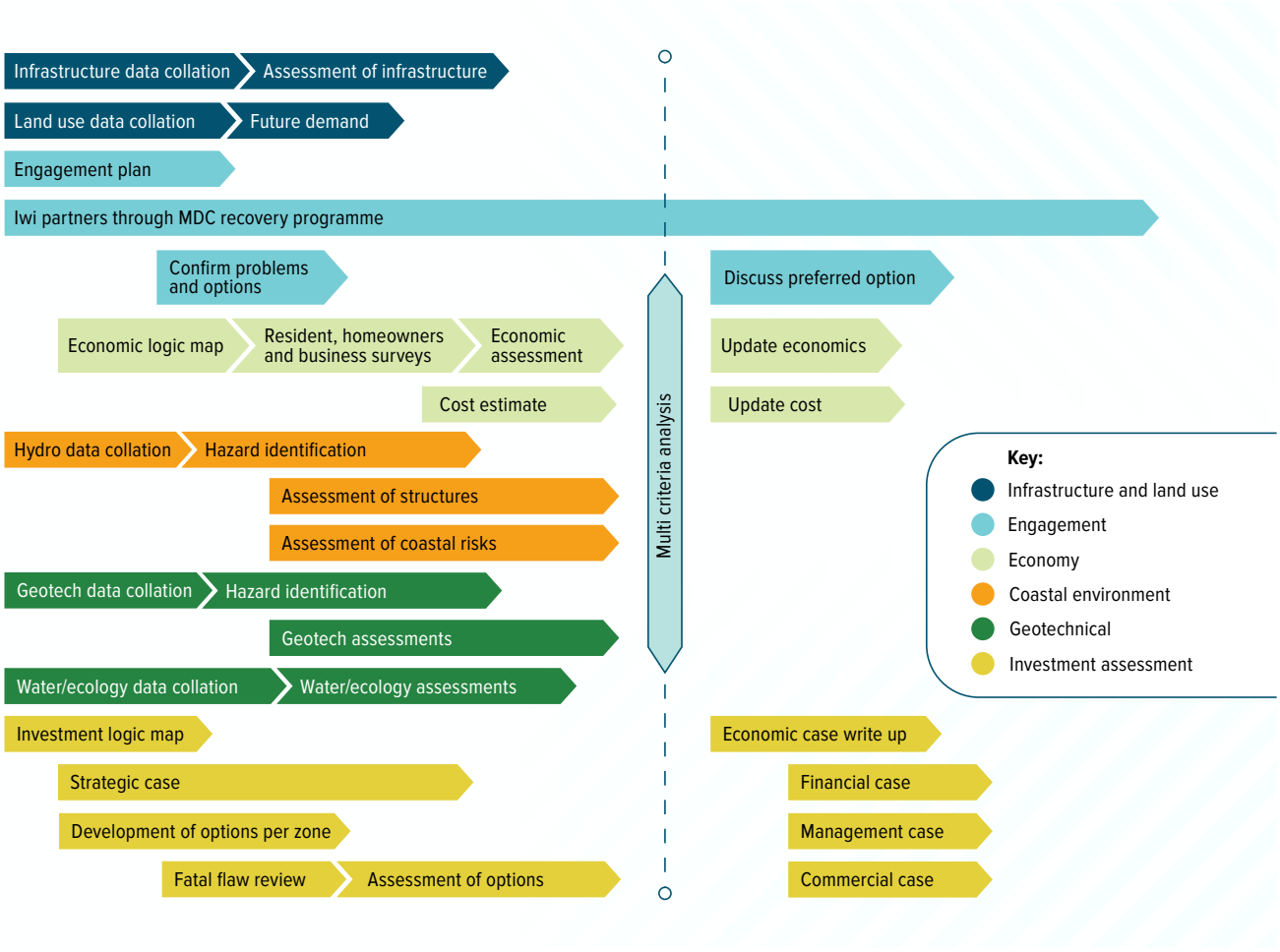


Figure 14: The scope of information gathered for the business case.

3.4 Developing options

Following an intensive assessment process of a wide range of qualitative and quantitative information, the project team identified a total of 28 possible transportation network options across the areas – six for Rai Valley to French Pass, Kenepuru and Port Underwood, and five for Pelorus and Queen Charlotte Drive.

Each of the 28 possible options has a strong alignment to one or more of the strategies in the Government's National Adaptation Plan guidance – Protect, Accommodate, Retreat, Avoid. This guidance was first developed by central Government for climate change adaptation planning in communities facing sea level rise.

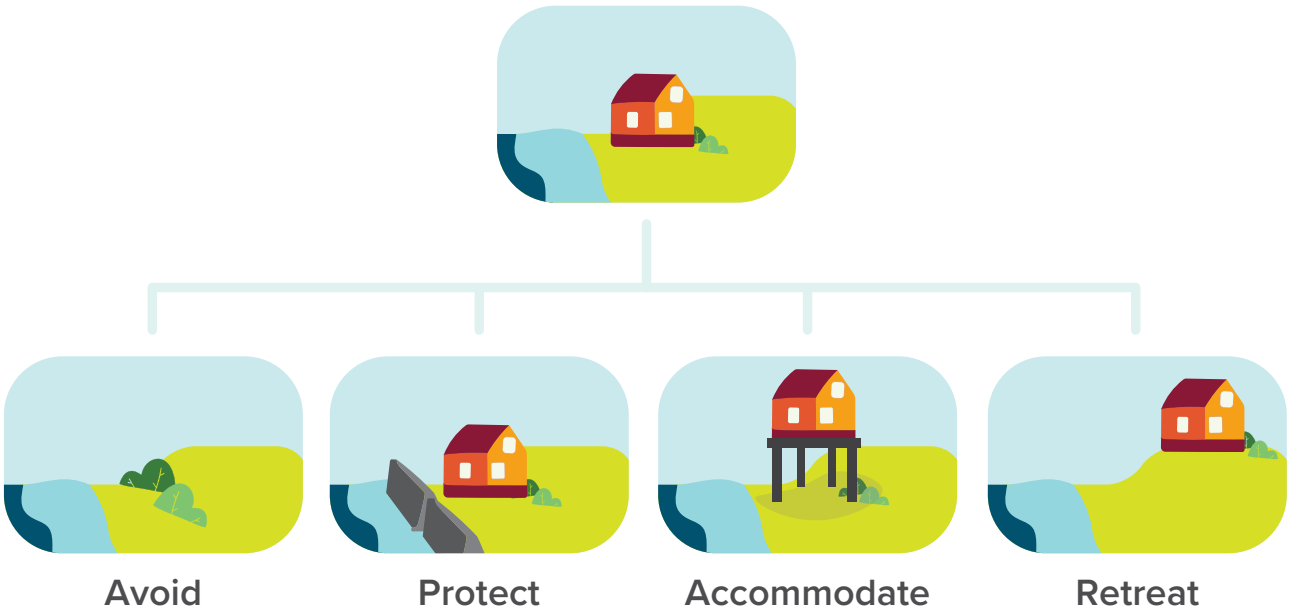


Figure 15: The National Adaptation Plan's strategies.

3.5 Evaluation methods

Three key methods were used to evaluate all the options and identify the emerging preferred options.

The results of each method will be reviewed alongside feedback from the community, business case partners and stakeholders.

The evaluation methods used include:

- Multi-criteria analysis (MCA);
- High-level cost estimates; and an
- Economic impact assessment

The results from the community survey completed earlier in the year were also considered as part of the assessments.

Havelock, with the marina in the foreground.

3.6 Multi-criteria analysis (MCA)

The MCA is an effective framework for comparing and contrasting the strengths and weaknesses of different options.

Each option was assessed and scored against these criteria:

- Does it meet the investment objectives to:
  - Improve community and business resilience by providing **travel alternatives;**
  - Reduce frequency and duration of **disrupted access**; and
  - **Improve resilience** of the transport assets.
- How **technically difficult**, or not, the option is to design and construct.
- Other opportunities or impacts:
  - What **social and community impacts** the option may have;
  - The **environmental effect** of the option on things like terrestrial and marine ecology, stormwater, water quality, etc.;
  - How the option contributes to **climate change mitigation** based on long term carbon emissions; and
  - Is there sufficient **capacity and capability** amongst suppliers to design and construct this option.

For this study's MCA, key Council staff, technical experts and field specialists gathered and assessed the critical information to score each criteria per option. A ranking from 1 to 6 for the options within each area was based on the aggregated total score for each area. This included quantitative information, such as the results of geology or safety assessments, and qualitative information including the community survey data. Each option was then scored against the criteria with the total scores giving its overall ranking. A ranking from 1 to 6 for the options within each area was based on the total score for each area.

Weightings were applied to the MCA criteria based on an assessment of their importance to the project outcomes. A sensitivity analysis was undertaken to minimise risk of untoward bias of results.

Based on the MCA results the study then ranked the options for each area on a scale from 1 to 6, as below.

Area	Road Focus	Road Access	Balanced	Marine Access	Marine Focus	Current Status
Rai Valley to Te Aumiti / French Pass	4	3	1	1	5	6
Te Hoiere/Pelorus	1	2	3	3	6	5
Queen Charlotte	1	1	3	5	6	4
Kenepuru	6	5	1	2	3	4
Te Whanganui/Port Underwood	1	2	3	4	6	5

Figure 16: How options ranked, with 1 best fulfilling the study's criteria.

3.7 High-level cost estimates

An indicative cost estimate for each option has been completed. The estimates look at:

- The remaining repairs following the 2021 and 2022 events;
- Potential improvements to road and marine infrastructure identified by each option; and
- Repair estimates also used knowledge of costs incurred in the recovery work completed to date.

Area	Road Focus	Road Access	Balanced	Marine Access	Marine Focus	Current Status
Rai Valley to Te Aumiti / French Pass	$ 75M	$ 45M	$ 30M	$ 20M	$ 20M	$ 4M
Te Hoiere/Pelorus	$ 5M	$ 4M	$ 2M	$ 2M	$ 2M	$ 1M
Queen Charlotte	$ 30M	$ 30M	$ 15M	$ 10M	$ 10M	$ 2M
Kenepuru	$ 150M	$ 80M	$ 60M	$ 50M	$ 40M	$ 10M
Te Whanganui/Port Underwood	$ 40M	$ 20M	$ 15M	$ 10M	$ 7M	$ 3M
Total average (rounded)	**$ 300M**	**$ 180M**	**$ 120M**	**$ 90M**	**$ 80M**	**$ 20M**

Figure 17: The estimated cost for each option.

3.8 Economic impact

The economic impact of each option was also assessed. Economic impact, in this instance, refers to the option's ability to restore the area's economic activity to what it was prior to the 2021 storm event.

The table below summarises the degree of certainty around an area's return to previous levels of economic activity depending on the option. It should be noted that there will potentially be a delay between construction being completed and economic activity returning to what it was.

Area	Road Focus	Road Access	Balanced	Marine Access	Marine Focus	Current Status
Rai Valley to Te Aumiti / French Pass	Almost Certain	Almost Certain	Likely	Likely	Possible	Unlikely
Te Hoiere/Pelorus	Almost Certain	Almost Certain	Almost Certain	Almost Certain	Likely	Unlikely
Queen Charlotte	Almost Certain	Almost Certain	Likely	Possible	Possible	Unlikely
Kenepuru	Almost Certain	Likely	Likely	Possible	Possible	Unlikely
Te Whanganui/Port Underwood	Almost Certain	Likely	Likely	Likely	Possible	Unlikely
Total average	**Almost Certain**	**Almost Certain**	**Likely**	**Possible**	**Possible**	**Unlikely**

Figure 18: Ability to support previous level of economic activity.

Queen Charlotte Drive.

3.9 Community feedback

The community survey conducted in February helped to further identify key issues and concerns in each of the areas, and the impacts they have on the community.

Key outcomes reflected that each of the areas had varying priorities, but common to all were the impacts of social wellbeing and future prospects, which were negatively impacted if road access to the Sounds was to be lost. Some of these negative impacts are noted on page 46.

Feedback was considered in the development of the options, used as an input into some of the MCA evaluations and it also strengthened the strategic case.

Further information from the survey findings can be found on the Council's project web page.

Marlborough Sounds

Section four: Providing your feedback

Council and the project team would like the views of all Marlborough residents and ratepayers about all options considered, specifically about the emerging preferred options and the hazard adaptation pathways outlined in this engagement booklet.

As well as this engagement document, more background for your reference is on the project website page. These reference documents include:

- **The 'other options' booklet; those not in this document**
- **Geology assessments;**
- **The economic analysis; and**
- **The strategic case.**

As no decisions have been made on the future of the Sounds transport network, your feedback is important to the Council as the business case is finalised and funding from central Government is sought.

Have your say by 5:00 pm Tuesday 11 July.
The online survey is on **marlborough.govt.nz/services/roads-and-transport/marlborough-sounds-future-access-study**

For assistance please call the Council on **03 520 7400**.

Section five: Next steps

Your feedback will be analysed and incorporated into the final business case by August 2023. Council will then review and consider adoption of the final business case before providing it to Waka Kotahi for endorsement before the end of this year.

It is likely to be 2024 before Council will consult with all of Marlborough on the proposed options and costs through a special consultative process or in the Long Term Plan, before making a final decision. Waka Kotahi will then make a decision about its funding contribution.

It is hoped that construction would begin at the end of 2024 in some areas.

Council understands the decision making and construction timeline might be frustrating for many people who want solutions to the transport network as soon as possible.

As many of the fixes are complex, Council needs to ensure most importantly that the right solution is agreed upon, the appropriate detailed design is completed, and that adequate funding is in place.

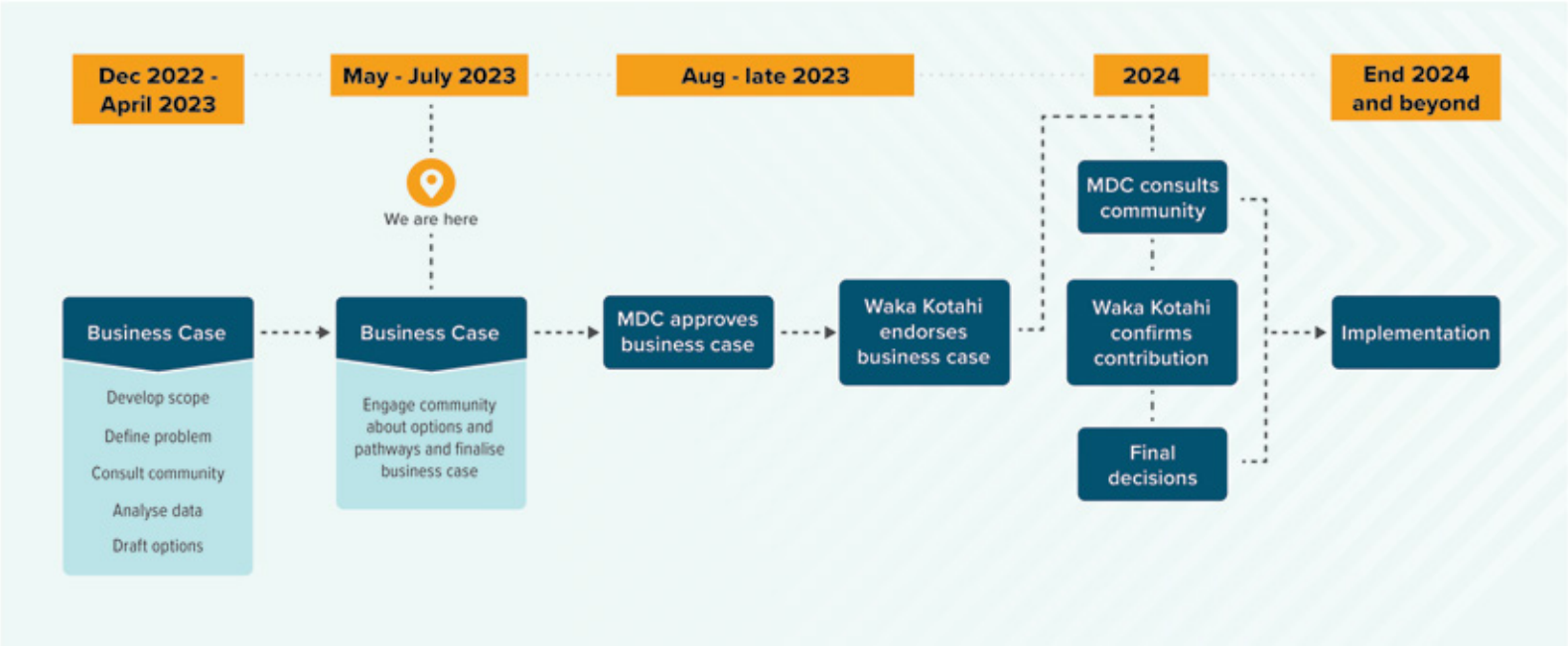


Figure 19: An indicative timeline towards implementing solutions.

Considerations	Rai Valley to Te Aumiti / French Pass	Te Hoiere/Pelorus
Emerging preferred option	**Road Access**	**Road Focus**
Investment objectives	Some improvement to transport alternatives and resilience, provides similar level of disruption into the future as is experienced now.	Contributes the most benefit against each of the investment objectives: reduced disruption, improved alternatives and improved resilience.
MCA (qualitative assessment)	Rated positively for technical achievability, social and community impact, environmental effects and market capacity to deliver. Rated negatively for climate change mitigation. Overall rated third on qualitative assessment, however, first- and second-rated options did not deliver positive outcomes on all investment objectives, and were less likely to meet local business needs.	Rated positively for social and community impacts, environmental effects and capacity of market to deliver. Was considered technically achievable. Rated negatively for climate change mitigation. Was the highest-ranked option overall in qualitative assessment.
Cost estimate (quantitative assessment)	Was second-highest cost estimate of the proposed options. Lower cost options did not do as well in achieving investment objectives and were not as readily deliverable by local market capacity, and higher cost options were demanding to achieve technically.	Was the highest cost estimate, however, the overall cost is not high and there are opportunities for cost savings and rationalisation in delivery. If these cost savings are not realised, a lower level of service or reduced number of improvements may need to be considered through implementation.
Transport efficiency (quantitative assessment)	The low volume of traffic on this network means no options receive a positive transport benefit cost ratio from a transport investment efficiency perspective. The preferred option was one of the higher-rated options for this criterion.	The low volume of traffic on this network means most options receive a negative transport benefit cost ratio from a transport investment efficiency perspective, including this option.
Economic impact (quantitative assessment)	The estimated likelihood of restoring pre-storm economic activity is almost certain. The primary reason for continuing to invest to this level is the importance of this area from an economic perspective in the Sounds, relative to the level of investment needed to achieve this outcome.	The estimated likelihood of restoring pre-storm economic activity is almost certain for this option. A primary reason to invest in this level of service is the economic activity at the western end of Kaiuma Bay Road. Long-term alternative access for eastern communities can be supported by marine infrastructure because of proximity to Havelock.
Conclusion	Restoring road access is justified, as are targeted improvements in resilience, particularly at the southern end of the study area around State Highway 6 to Elaine Bay. However, marine access is likely to become increasingly important over time in the outer reaches beyond Elaine Bay due to the susceptibility of the road corridor in this area.	Restoring road access is justified as is targeted improvements in resilience, particularly at the western end of the study area. However, marine access could become increasingly important over time at the eastern end of the study area due to the susceptibility of the road corridor to this point.
Hazard adaptation pathway	**Marine Access**	**Balanced/Marine Access**
	Focuses on protecting and improving marine infrastructure so that there are always transport options in the future. There are many marine infrastructure improvements proposed and available. Elaine Bay is a critical link for future resilience of access for the French Pass community and potentially an alternative to Havelock as a primary hub in the event of significant damage to Havelock. Connection to Okiwi Bay is also seen as important given the size of its community.	Focuses on protecting and improving marine infrastructure so there are always transport options in the future. It is expected the area can recover relatively quickly from most events. However, the Kaiuma Bay community in particular needs to have a secure marine option linking with a primary hub such as Havelock if there is a large damaging event that takes longer to recover from.

Queen Charlotte	Kenepuru	Te Whanganui/Port Underwood
Road Focus	**Balanced**	**Road Access**
Contributes the most benefit against each of the investment objectives: reduced disruption, improved alternatives and most improved resilience.	Improves travel alternatives and is the best option to reduce future disruption for similar events, but resilience of the route is similar to what is in place now.	Maintains existing travel alternatives. Marine alternatives are of limited benefit relative to road. Some reduction in disruption to access and improved resilience of transport assets.
Rated most positively for social and community impacts. The option is also rated positively for environmental effects and capacity of market to deliver. Rated negatively for climate change mitigation. Was the highest-ranked option overall in qualitative assessment.	It rates positively for community impacts and environmental effects, and it delivers a serviceable road network and improvements to marine infrastructure. However, although not unique to this option, it is challenging technically, potentially adversely impacts future local commercial outcomes, does not mitigate climate change and there is a risk it will challenge the local market capacity to deliver.	Rated positively for technical achievability, social and community impacts, environmental effects and capacity of market to deliver. Rated negatively for climate change mitigation. This option was the second-highest ranked option overall in qualitative assessment.
Was the highest cost option. Opportunities for cost savings while still delivering resilience outcomes need to be explored through implementation, which may mean a reduced level of service, such as reduced lane widths, is delivered in some areas over time.	Was the third-lowest cost of the six options for Kenepuru. It is nearly a third of the highest cost option, but is still a substantial cost. It is still the most expensive of the emerging preferred options.	Was the second-highest cost estimate of the proposed options. Road focus rated higher qualitatively, but was roughly twice the cost.
The higher volume of traffic for this area means there is an opportunity for a positive return on investment from a transport investment efficiency perspective for this option.	The volume of traffic on this network means there is an opportunity for a positive return on investment from a transport investment efficiency perspective for this option.	The low volume of traffic on this network means no options receive a positive transport benefit cost ratio from a transport investment efficiency perspective.
The estimated likelihood of restoring pre-storm economic activity is almost certain for this option. A primary reason to invest in this level of service is the regional importance of this route as an alternative for State Highway 1 or State Highway 6 outages. It is also a key link for the Kenepuru community to the rest of Marlborough.	Restoring pre-storm economic activity longer term is considered likely for this option. The primary reason for investing in this level of service is the size of the community and diversity of activity. However, the road network is highly vulnerable and costly to repair.	The estimated likelihood of restoring pre-storm economic activity is almost certain. However, a primary reason for continuing to invest is because of the maintenance access for the national linkage between the South and North islands of transmission and communications infrastructure.
While there are marine transport alternatives for the eastern end of the study area, the regional importance of the link between Picton and Havelock means a focus on restoring a reasonable and more resilient level of service is important.	Restoring some form of road access is warranted, and there is merit in some improvements such as to stormwater and maintenance. However, over time the area will become more dependent on the need for a robust adaptation plan and marine infrastructure to be in place because of the likelihood of future severe disruption due to a wide range of possible / probable events.	Restoring full levels of service do not appear justified if costs are high, however, road access is preferred to marine access particularly to support access for maintenance of interisland transmission and communications infrastructure. Compromises can be made on road width and type (sealed, unsealed) in areas over time to save money, and improved resilience is justified with improved stormwater, and regular maintenance of fit-for-purpose roadway levels of service.
Marine Access	**Marine Focus**	**Marine Access**
Focuses on protecting and improving marine infrastructure so there are always transport options in the future. While it is envisaged a road connection would be restored, the section along the Grove Arm is vulnerable and a resilient marine option is feasible and needed for longer-term security of access. The Mahakipawa Arm and connection to the road does not enable a useful marine option; protecting this section of road would be an important part of the future adaptation pathway.	Is likely to be more important for this area in the future than it is for other areas. Because of the geology and susceptibility of Kenepuru Road, particularly between Moetapu and Portage, a marine option would be needed in the event of a large land movement caused by earthquake or storm to provide security of access for people and businesses in the longer term.	Focuses on protecting and improving marine infrastructure for transport options in the future. However, this also relies on a resilient link between Port Underwood and Waikawa, so this link is opened as quickly as possible following any future events.

Have your say by 5pm, 11 July.

Marlborough Sounds Future Access Study contact details:

Webpage: **marlborough.govt.nz/services/roads-and-transport/marlborough-sounds-future-access-study**

Email: **soundsfutureaccess@marlborough.govt.nz**

Council phone: **03 520 7400**

MARLBOROUGH DISTRICT COUNCIL

Stantec