



**Date** 5 October 2023

**To** Henry Weston, Deputy Director-General Regional Operations  
Stephanie Rowe, Deputy Director-General Biodiversity, Heritage and Visitors

**From** Catherine Wilson, Director Heritage and Visitors  
Mark Davies, Director, West Coast Region Operations

**Subject** Westland Tai Poutini National Park Visitor Planning and Franz Josef Glacier Valley Access Road Future Options

<b>Paper type</b>	To note
<b>Purpose of paper</b>	<p>Waka Kotahi is seeking to engage with DOC at a senior leadership level to discuss the interconnection between their state highway resilience long-term planning needs and visitor access in the Franz Josef Glacier Valley.</p> <p>This paper is to support your conversation and provides context on DOC's long term visitor options and the dependency on cross agency agreements.</p>
<b>SPA</b>	Catherine Wilson, Director Heritage and Visitors
<b>Financial implications</b>	<p>Depending on the options selected:</p> <ul style="list-style-type: none"><li>• Initial \$1.3M and \$400K maintenance per year on the existing road (current funding bid – Regional Land Transport Plan) (preliminary costings).</li><li>• Existing road lifting every 15-20 years (\$2.8M current indicative estimates).</li><li>• A walking/cycling alternative route build \$3-4M early costing, with \$150K seed funding.</li><li>• Short stop visitor experiences – future concepts (not costed).</li><li>• Lowland nature-based visitor future concepts (not costed).</li></ul>
<b>Who has been actively engaged in preparing this paper</b>	Heritage & Visitors Unit WSI Regional and District Operations Asset Specialist Team

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## We recommend that you:

		Paragraph reference
(a)	<u>Note</u> that long term access options for the Franz Josef Glacier Valley Access Road are impacted by unresolved long-term resilience planning decisions for SH6 and the Franz Josef township and flood protection.	6, 17-18
(b)	<u>Note</u> that the West Coast Regional Council are leading a Waiho River Strategy and Future Franz Josef Township resilience and sustainability process. DOC needs to work with this broad interagency grouping.	17, 29
(c)	<u>Consider</u> at the senior level the options to maintain access.	30, Appendix 2
(d)	<u>Meet</u> with Waka Kotahi at the senior leadership level to discuss how DOC's Franz Josef Glacier Valley visitor access options can work alongside Waka Kotahi's plans for SH6.	24, 26, 33-36.

## Executive summary

1. The Fox and Franz Josef Glaciers are a key driver of South Westland's economy and prior to Covid-19 were in the top three most visited natural sites in New Zealand, alongside Piopiotahi, Milford Sound and Aoraki Mt Cook.
2. Infrastructure in the Franz Josef Glacier Valley is vulnerable to flooding, and to a lesser extent, landslides and rockfalls, making visitor access and visitor safety more complex and costly to manage. Climate change is accelerating these risks alongside glacier retreat which is impacting visitors' ability to view the glaciers.
3. We have been working on a long-term plan with iwi and the community that recommends a shift in focus from glacier vehicle access to wider landscape and nature-based experiences. A key driver for this work is to sustain a nationally significant destination and enable the local community and DOC to plan for a future that is less dependent on the glaciers and vehicle access up the valley.
4. As part of this long-term picture, we have been working with Waka Kotahi on a business case that outlines an adaptive approach for access to the Franz Josef Glacier Valley.
5. DOC manages the road access to the Franz Josef Glacier Valley with a 51 percent reimbursement from Waka Kotahi. The current Franz Josef Glacier Access Road is not viable in the long-term, due to rising riverbeds in the Waiho River<sup>1</sup>.

<sup>1</sup> Franz Josef Glacier Access Single Stage Business Case – strategic case p 36

6. The highest performing option to maintain access to the visitor experiences in the Franz Josef Glacier Valley is to develop an alternative resilient walk/cycle route in the expectation that the road may fail due to river aggradation and flooding events.
7. This proposal did not consider river protection needs for the SH6 bridge<sup>2</sup>. However, the alternative route does align with DOC's longer-term approach to diversify the destination's visitor experience. Long-term resilience for highway assets and the Franz Josef Township is unresolved and requires considerable cross-agency agreement and funding.
8. While there are unknowns in wider long-term resilience options it is recommended short-term funding is secured for the existing valley road access (initial \$1.3M and \$400K maintenance per year), with an approximate 10-year life, and adaptive options for an alternative route are explored<sup>3</sup>. This will allow time for discussions with other agencies, iwi and stakeholders to adjust and develop wider resilience plans and the social process time to allow for these matters to be worked through fully.

## Context / background

9. Prior to the pandemic, Westland Tai Poutini National Park, in 2018, received approximately 1M visitors, comparable to Milford Sound Piopiotahi and Aoraki Mt Cook, with 800,000 of those visitors coming to visit Kā Roimata o Hine Hukatere Franz Josef Glacier. This glacier accounted for 25% of Westland's GDP with \$361M of tourism expenditure in 2018.
10. However, climate change is having an impact on the destination. More extreme weather events may disrupt road access to the district and visitor access to the glaciers. Glacial retreat is significantly changing the visitor viewing experience and could potentially decrease visitor numbers over time depending on the loss of quality of the glacier views.
11. In 2019, a significant rainfall event severely damaged the Fox Glacier Access Road, the Waiho Bridge on State Highway 6 near Franz Josef Township was washed away and the Franz Josef Glacier Valley Access Road was impassable. While the Waiho Bridge and Franz Josef Glacier Valley Access Road were repaired within two months, the Fox Glacier Access Road has been closed indefinitely due to the infeasibility of maintaining access over a massive continuously moving landslide. Following these events, the government provided

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<sup>2</sup> The dependency between the causeway sections and protection of the State Highway Bridge is not fully understood yet and therefore only high-level assumptions could be made in the options assessment about which options protected the highway. However, we do know that different sections of the stop banks and road causeway are constructed and maintained by Waka Kotahi and DOC and work together to protect the SH6 bridge. The stop banks and erosion control barriers (groynes) on the true left of the Waiho river for the first 500m of the Franz Josef Glacier Valley Access Road have been constructed and maintained by Waka Kotahi to ensure the Waiho flows under the SH6 bridge. The Franz Josef Glacier Valley Access Road beyond this 500m up to the Lake Wombat car park aids in directing the river to flow under the SH6 bridge. This section is maintained by DOC. These protection works are likely to be a required asset to secure the highway and DOC will have a joint responsibility to fund this with Waka Kotahi.

<sup>3</sup> See Appendix 2 for options assessment

a \$3.9M package from the International Visitor Levy Fund (MBIE Tourism Fund) to support diversification of the visitor tourism opportunities in Fox Glacier.

12. A total of \$2.5M was spent on the repairs to the Franz Josef Glacier Valley Access Road in 2019 to reinstate access from the severe storm. Apart from this storm event, the road has been infrequently closed in the past, however based on hydrological engineering advice there is a high likelihood of future damage to the road and it is assumed that beyond 2040 the road will no longer be viable due to the changing geological conditions in the valley.
13. With the Fox Glacier Access Road closed, the local community sees the remaining road access to view the Franz Josef Glacier as critically important for the economy of the West Coast. The Franz Josef Glacier Access Road provides the only connection for vehicles between SH6 and the Franz Josef Glacier viewing points. At the same time, community engagement identifies the need to diversify away from close up glacier experience and realise the potential of landscape vistas and the natural heritage.
14. A review of all the road river protection works was recently commissioned by DOC from WSP Engineering Consultants. The WSP October 2022 report showed urgent work is required to reduce the risk of another imminent washout of the Franz Josef Valley Access Road and reduce the technical risk from critical to high. This work is funded and is now completed.
15. This work is an interim measure as WSP also recommended \$1.2M was needed for detailed redesign/rebuild of the existing causeway rock protection to extend the life of the road and an ongoing \$400K per year for proactive capex to maintain resilience. Funding for this work has been proposed in the 24/25 Capital Intentions Plan (increased from \$1.2M to \$1.3M due to rising costs)<sup>4</sup>.
16. The October 2022 WSP report also states that due to ongoing riverbed aggradation there will be the need to lift the road at significant costs. This funding has been signalled in the Capital Expenditure Planning for FY27-29. More data is required to confirm the costs and timeframes, current indicative estimates are \$2.8M to lift the road.
17. Road access resilience requirements, beyond ten years, are difficult to forecast due to the limitations of data and modelling. Current engineering advice suggests the costs will be greater if we want to reinforce the road for life beyond ten years. With the risk of future storm events, it is likely to be financially challenging for DOC and Waka Kotahi to maintain the road long term.
18. There is uncertainty over the long-term resilience of Franz Josef Township due to a range of natural hazard risks. The current location of the Franz Josef Glacier Valley Access Road causeway doubles as medium-term protection of the SH6 and Waiho Bridge.
19. In 2020, the Department of Internal Affairs (DIA) presented a long-term resilience option for the Franz Josef Township to Hon Nanaia Mahuta Minister of Local Government. The resilience work, which included private land purchase, stop bank removal and SH6 relocation, costing \$63-73M, was not funded.

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<sup>4</sup> 51 percent reimbursement from Waka Kotahi

20. The West Coast Regional Council (WCRC) is currently undertaking the short-term option to lift the town's stop bank levels, using funding from the COVID-19 Response and Recovery Fund (estimated total cost \$24M).
21. The Franz Josef Township's long-term future is also complicated by the high probability (75%) of a magnitude eight Alpine Faultline rupture (AF8+) in the next 50 years. Westland District Council (WDC) hold the strategic role to manage the natural hazard scope and risk assessment for the Franz Josef township as part a new combined District Plan (Te Tai Poutini One Plan / TPP). WDC are required to complete a Franz Josef Township Master Plan to be included in the TPP. The council's mitigation measures include a gradual migration north for any future urban development away from the fault line and landfall hazards. In the event of an AF8+, SH6 connectivity will be lost for an indefinite period. This gradual move north is likely to require the release of some parcels of PCL for the township to move into.

### **Adaptive planning and long-term visitor planning**

22. Since 2020, the Heritage and Visitors Unit (HVU) has worked with WSI Operations, Te Runanga o Makaawhio and stakeholders on adaptive planning for the Franz Josef Glacier Valley access and wider long-term opportunities to diversify the visitor experience.
23. We engaged with local and national stakeholders and collated ideas that could enhance South Westland as a destination. These included: coastal cycle trails, easy overnight tramps or customised biodiversity experiences. These ideas emphasize a brand of immersion and wellness in te taiao (nature), alongside glacier-based experiences, and celebrate the destination's pristine qualities. Te Wāhipounamu – South West New Zealand World Heritage is the world's best representation of the ancient lands of Gondwana.
24. The work supported Development West Coast (DWC is the regional economic development agency and the regional tourism organisation combined) customer segmentation research. It was also completed alongside Te Runanga o Makaawhio who support it conceptually but requested more time to integrate cultural foundations and their Pounamu Pathway brand.
25. The long-term concepts will need to strategically align with the Future Visitor Network (FVN) work alongside the review of West Coast Te Tai Poutini Conservation Management Strategy (CMS) and planned review of the Westland Tai Poutini National Park Management Plan.
26. The CMS review is currently underway in partnership with iwi. Potential funding, both capex and opex, would need to be assessed against other priorities.

### **Business case**

27. DOC has been working with Waka Kotahi as a funding partner on a longer-term single stage business case (SSBC) for the Franz Josef Glacier Valley visitor access. The SSBC used an adaptive planning approach that looks at trigger points in a variety of scenarios where an investment decision may need to be made. The trigger points identified included an extreme weather event causing a major washout of the access road or state highway, an event causing the region

to become inaccessible, or the point at which there is no longer a view of the glacier from the current viewing area.

28. Potential options for addressing these scenarios were assessed in the SSBC against the following investment objectives to see how closely they were met.

- a) Improved resilience
  - i. Reduced days per annum where access to the Franz Josef Glacier is closed
  - ii. Reduced average annual spend on access road repairs.
  - iii. Reduced economic impact of access road closures.
- b) Improved social and economic prosperity, through regional economic development
  - i. Franz Josef continues to attract international visitors to New Zealand, with the number of international visitors to Franz Josef and average visitor nights increasing from 2021 levels.
- c) Environmental and social
  - Natural environment, culture and heritage, property impacts
- d) Implementability
  - Complexities and risks, construction impacts, impact of dependent investments, cost and construction requirements.

29. The highest performing option in the business case is to **build an alternative walk/cycle route further away from the river**<sup>5</sup>, which would connect to facilities and views of the glacier that are considered resilient in the long term (see Appendix 1). Over the longer term, if the existing road becomes unviable, short-stop visitor opportunities at the valley entrance could be developed to promote the glacier story and landscape views.

30. This option provides the greatest resilience and benefits, certainty for the visitor economy and would allow DOC to rationalise tracks in the valley. This option also provides the best balance of economic outcomes in the event of a washout of the existing road occurring within a short-, medium- or long-term scenario.

31. The current Westland Tai Poutini National Park Management Plan specifically allows in the Franz Josef Glacier Valley for the development of loop track systems to help reduce visitor encounters and address crowding issues, as well as for a new joint walking-cycling access to allow cyclists, pedestrians and people using personal mobility devices to safely access the glacier road end.

32. The SSBC summarises what is required to proceed with the alternative walk/cycle route option:

- Requests seed funding of \$150,000 opex to undertake a preliminary design assessment of the alternative walk/cycle route.
- Can be actioned via a variation to the Regional Land Transport Plan.
- Does not commit DOC to a final build.

<sup>5</sup> Single Stage Business Case. Adaptive Pathway Option 4: Active Modes p65.

- Timeframe for additional scoping to potential build is 5-10 years.
- Early costings to build the alternative route are in the order of \$3-4M which includes road write off costs (see Appendix 3).
- DOC would provide the finances and then receive back 51 percent reimbursement from Waka Kotahi for scoping, build and ultimately maintenance costs (subject to Waka Kotahi funding criteria).

33. HVU has been leading the business case development with Waka Kotahi and consultants GHD. We recommend the ownership of the business case process and ongoing relationship with Waka Kotahi now shifts from HVU to WSI Operations Planning as it is more aligned with their core work than HVU.

34. The SSBC is in draft while we work with Waka Kotahi and GHD to finalise it. GHD will hand the business case over to DOC this month. DOC's current strategic investment direction needs to be factored in before we can progress to any detailed business case after the SSBC is completed, and further work needs to be done to consider the strategic priority of the Franz Josef Glacier Valley nationally.

35. Note that the SSBC will need to be adapted by DOC and Waka Kotahi as the organisations move through the consideration and decision-making process. This will allow DOC to work within an interagency approach for the river and the associated infrastructure and have the social and statutory process around decisions for the valley made within the broader river strategy context.

### Options analysis summary

36. We recommend you consider the options for the future of the valley access road to support discussions with Waka Kotahi. We assessed the highest performing option from the SSBC (build an alternative cycle/walk route) and considered how DOC might stage this option (B and C). We considered these alongside; the status quo, consolidation of the visitor experience outside of the valley or full retreat (see Appendix 2 for full options analysis):

- Status quo: Continue maintenance and reinstatement of existing access road, existing route until 2040.
- Adaptive approach: Continue maintenance and reinstatement of existing access road for the next 10 years, while scoping and potentially building the alternative cycle/walk access. If the access road is washed out, retire the road and consider improvement options on the alternative route. Consider investing in short stop visitor experiences at the valley entrance once existing road is washed out.
- Consolidate in the valley: Build an alternative (multi modal) route into the valley over the short-term and then close the access road.
- Consolidate out of the valley: No longer maintain the road access and close visitor experiences in the valley. Invest in short stop visitor experiences at the valley entrance.
- Retreat: No longer maintain the road access and close visitor experiences in the valley.

### **Recommended option**

37. We recommend the adaptive approach B. This would ensure that DOC and Waka Kotahi have a plan in place if roading costs become prohibitive due to climate change and provides some certainty to the local community. It also allows for the time required to run the social and statutory processes to enable this change.
38. Securing funding for a full build of an alternative route prior to a washout may not be successful, hence we considered two different staging options B and C for the alternative route. Funding may come available in the event of a road washout that could be harnessed. We recommend exploring potential investment in short stop visitor experiences at the valley entrance if the road is retired which would support the local community.
39. Note when the business case commenced Waka Kotahi indicated that they may apply a bespoke investment model for this unique situation and fund the alternative walk/cycle route, as indicated in the business case. The alternative route is unlikely to qualify under their current criteria. There needs to be a discussion between senior leaders about their appetite for investing in the proposal if this is progressed.

### **Meeting with Waka Kotahi**

40. Waka Kotahi is seeking to engage with DOC at a senior leadership level (DDG) to discuss the future options for the Franz Josef Glacier Valley Access Road and the alternative route.
41. From our recent discussions with Waka Kotahi, they have not yet endorsed the business case. They need to do some further investigation to understand the importance of the causeway protection for SH6 and Waiho Bridge and the dependencies with the options.
42. There is a strong case for Waka Kotahi providing an elevated level of funding support for retention and strengthening of the rock protection given the protection this gives to the SH6 bridge.
43. See Appendix 4 for key discussion points for the meeting with Waka Kotahi.

### **Risks**

44. Risks of not progressing with this planning:
  - That we are not working within the broader interagency Waiho River Strategy and Franz Josef Master Planning framework.
  - That we are not working collaboratively with the other agencies.
  - That we don't have a joint approach with Waka Kotahi, West Coast Regional Council and Westland District Council.
  - There is no long-term plan ready for providing a decision pathway in the event of an extreme weather situation that closes the valley and shocks the community and economy.
  - Investment decisions are reactive rather than planned when storm damage occurs.



- Reputation loss for DOC in the local community and with iwi.

### **Next steps**

45. Meet with Waka Kotahi to discuss the interconnection between their state highway resilience needs and visitor access in the Franz Josef Glacier Valley.
46. Support the business case in principle so we can lodge the business case with Waka Kotahi to commence their review process.
47. If DOC, Waka Kotahi and Te Runanga o Makaawhio endorse the alternative route as their recommended approach, we will share the proposal with the West Coast Regional Council, Westland District Council, West Coast Tai Poutini Conservation Board and then local stakeholders and South Westland community for feedback.

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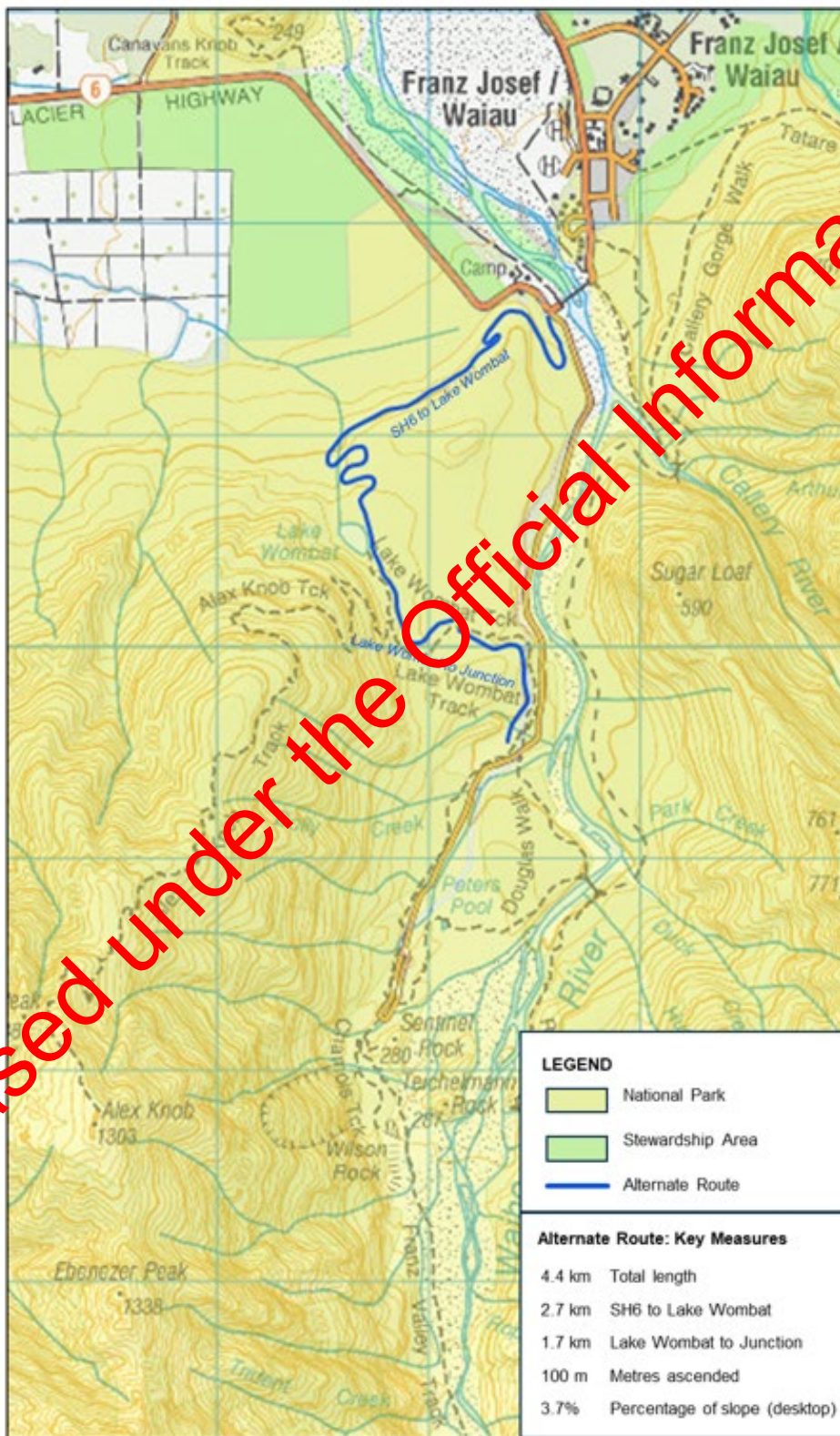
**Attachments/ Appendices**

- Appendix 1 – Proposed alignment of the alternative route
- Appendix 2 – Options analysis
- Appendix 3 – Potential Franz Josef Glacier Valley Access Road resilience costs and alternative access route
- Appendix 4 – Key discussion points

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### Appendix 1: Proposed alignment of the alternative route

The recommended option is construction of an alternative route for walking, cycling and scooter access, with the intent of maintaining connections to visitor experiences. The natural hazards apparent in the glacier valley limit route alignment options. This alignment avoids known hazards relating to river flooding or wash outs and rock fall from the valley walls.



## Appendix 2: Options analysis

Option	Option description	Benefits	Risks	Costs	Mitigations
<b>A Status Quo</b>	<p>Continued maintenance and reinstatement of existing access road, existing route until 2040<sup>[1]</sup>. Initial investment to address the sections of rock protection where risk of failure is significant.</p> <p>This option represents the current agreed approach to maintenance of the access road, whereby the existing road is automatically reinstated through emergency works following a washout event. This includes; ongoing flood protection work where is practical, for as long as possible.</p>	<p>Maintains a moderate level of security for access into the Franz Josef Glacier Valley and protection of the State Highway bridge.</p> <p>Maintains accessibility for wider range of visitor types.</p> <p>Responds to tourism recovery.</p>	<p>Unforeseen costs for storm damage</p> <p>Access closures</p> <p>No contingency for resilience</p>	<p><u>Existing road</u> Capex - \$1.3M Maintenance \$400K per year &lt; 10 plus years</p> <p><u>Road lifting</u> due to riverbed aggradation – inflation adjusted (\$3.08M 28-29FY) – may need to be repeated.</p>	<p>Waka Kotahi funding assistance assumed at 51% (claimed after expenditure is incurred and received by the Department as revenue).</p> <p>Proactive maintenance reduces the need for urgent emergency works.</p>
<b>B Adaptive Approach</b>	<p>Continued maintenance and reinstatement of existing access road for the next 10 years<sup>[2]</sup>. Initial investment to address the sections of rock</p>	<p>Maintains a moderate level of security for access into the Franz Josef Glacier Valley and protection of the State Highway bridge for next 10 years only.</p>	<p>Long term visitor growth could justify continued investment in the road.</p> <p>Potential that the alternative route may not</p>	<p><u>Existing road</u> Capex - \$1.3M Maintenance \$400K &lt; 10 years</p> <p><u>Alternate route</u> - Proposed whole of life</p>	<p>Applying an adaptive planning approach to the business cases and working with Waka Kotahi.</p>

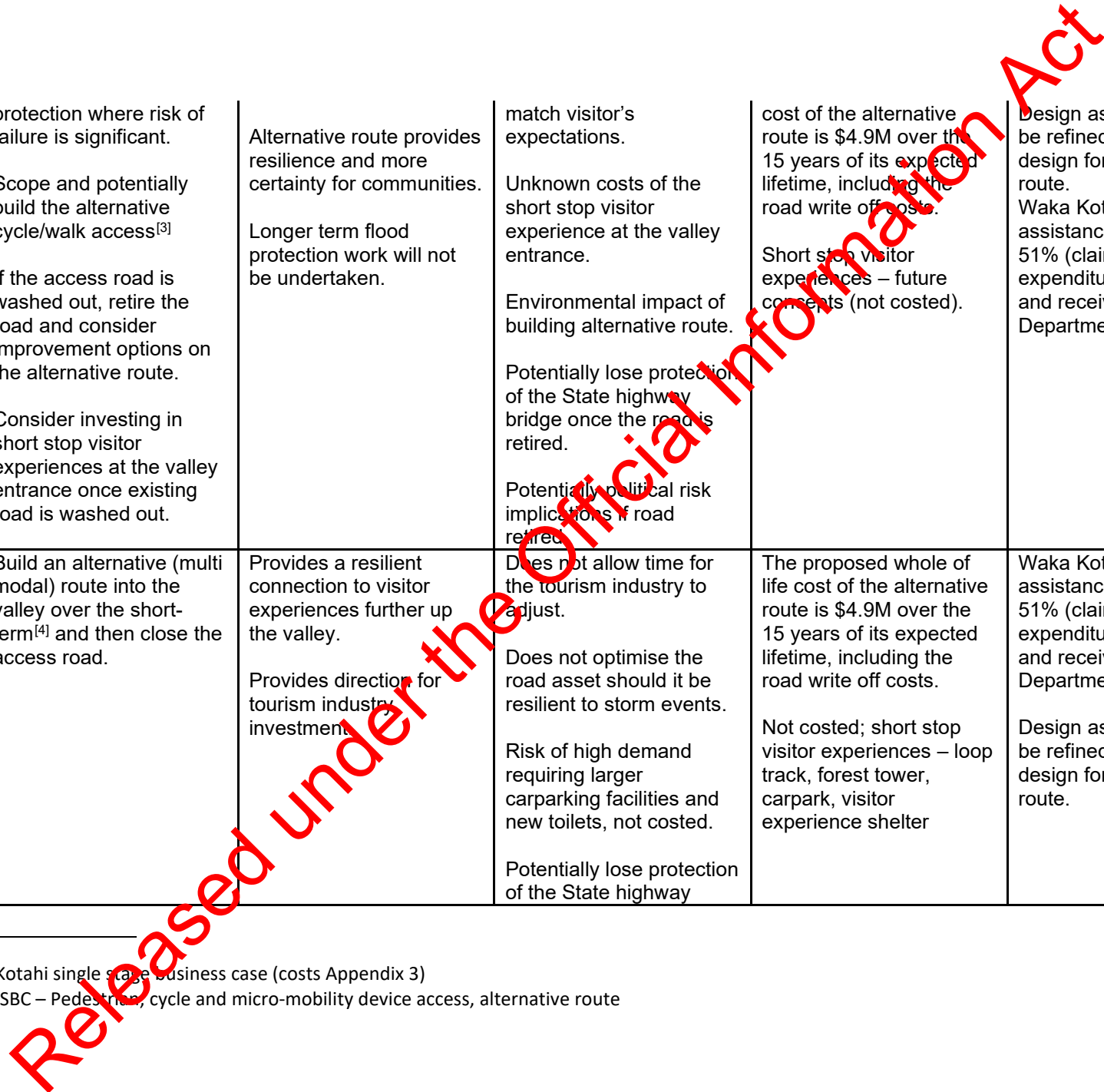
<sup>[1]</sup> 2040 is the agreed date in the SSC when it is considered that the existing road will no longer be viable due to geological conditions.

<sup>[2]</sup> Ref: WSP report (cost Appendix 2 – roading paper to FIGG)

	<p>protection where risk of failure is significant.</p> <p>Scope and potentially build the alternative cycle/walk access<sup>[3]</sup></p> <p>If the access road is washed out, retire the road and consider improvement options on the alternative route.</p> <p>Consider investing in short stop visitor experiences at the valley entrance once existing road is washed out.</p>	<p>Alternative route provides resilience and more certainty for communities.</p> <p>Longer term flood protection work will not be undertaken.</p>	<p>match visitor's expectations.</p> <p>Unknown costs of the short stop visitor experience at the valley entrance.</p> <p>Environmental impact of building alternative route.</p> <p>Potentially lose protection of the State highway bridge once the road is retired.</p> <p>Potentially political risk implications if road retired.</p>	<p>cost of the alternative route is \$4.9M over the 15 years of its expected lifetime, including the road write off costs.</p> <p>Short stop visitor experiences – future concepts (not costed).</p>	<p>Design assumptions to be refined during detailed design for alternative route.</p> <p>Waka Kotahi funding assistance assumed at 51% (claimed after expenditure is incurred and received by the Department as revenue.)</p>
<p><b>C Consolidate in the Valley</b></p>	<p>Build an alternative (multi modal) route into the valley over the short-term<sup>[4]</sup> and then close the access road.</p>	<p>Provides a resilient connection to visitor experiences further up the valley.</p> <p>Provides direction for tourism industry investment.</p>	<p>Does not allow time for the tourism industry to adjust.</p> <p>Does not optimise the road asset should it be resilient to storm events.</p> <p>Risk of high demand requiring larger carparking facilities and new toilets, not costed.</p> <p>Potentially lose protection of the State highway</p>	<p>The proposed whole of life cost of the alternative route is \$4.9M over the 15 years of its expected lifetime, including the road write off costs.</p> <p>Not costed; short stop visitor experiences – loop track, forest tower, carpark, visitor experience shelter</p>	<p>Waka Kotahi funding assistance assumed at 51% (claimed after expenditure is incurred and received by the Department as revenue.)</p> <p>Design assumptions to be refined during detailed design for alternative route.</p>

<sup>[3]</sup> Ref: DOC/Waka Kotahi single stage business case (costs Appendix 3)

<sup>[4]</sup> Option 5 in the SSBC – Pedestrian, cycle and micro-mobility device access, alternative route



			<p>bridge once the road is retired.</p> <p>Potentially political risk implications if road retired.</p>		
<b>D Consolidate out of the Valley</b>	<p>No longer maintain the road access and close visitor experiences in the valley. Invest in short stop visitor experiences at the valley entrance.</p>	<p>Caters for the predominant short stop traveller market.</p> <p>Realises the opportunity costs of long term road access investment</p>	<p>Significant disruption to tourism industry and NZ inc.</p> <p>Limited transition period to develop the valley entrance experience</p> <p>Unmanaged demand from the tourism recovery</p> <p>Potentially lose protection of the State highway bridge once the road is retired.</p> <p>Potentially political risk implications if road retired.</p>	<p>\$1M road write off cost</p> <p>Not costed; short stop visitor experiences – loop track, forest tower, carpark, visitor experience shelter</p>	<p>Consider scoping and short stop visitor experience options.</p> <p>Undertake detailed cost benefit assessment of a high value short stop experience.</p>
<b>E Retreat</b>	<p>No longer maintain the road access and close visitor experiences in the valley.</p>	<p>No further investment.</p>	<p>Road and visitor experience closure would have a significant impact to the local economy and could also impact overall numbers of international tourists to New Zealand, their length of stay, and their</p>	<p>\$1M road write off cost.</p>	<p>Work across government agencies to consider investment in regenerative tourism options on the West Coast.</p>

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			<p>associated impact on the economy<sup>[5]</sup>.</p> <p>Potentially lose protection of the State highway bridge once the road is retired.</p> <p>Potentially political risk implications if road retired.</p>	
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<sup>[5]</sup> Franz Josef Glacier Access Single Stage Business Case – p27

### Appendix 3: Recommended - Option B - Potential Franz Josef Glacier Valley Access Road resilience costs and alternative access route

Franz Valley Access	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	Total	Notes
Year	1	2	3	4	5	6	7	8	9	10		
<b>Road resilience - DOC Roading Programme</b>												
Capex approved - critical work to improve resilience	\$400,000										\$400,000	
Approved 23/24 capital intention bid to improve resilience (critical work) - Franz Josef causeway strengthening		\$1,320,000									\$1,320,000	
Road lifting due to aggradation (capex contingency)					\$1,540,000	\$1,540,000					\$3,080,000	If alternative route proceeds this is not needed
Ongoing capex annual maintenance			\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$3,200,000	
Annual Costs	\$400,000	\$1,320,000	\$400,000	\$400,000	\$1,940,000	\$1,940,000	\$400,000	\$400,000	\$400,000	\$400,000	\$8,000,000	10 Year cost estimate +/- 40%
										50% return	\$4,000,000	Total
<b>Alternative access route - recommended long term solution to access</b>												
Seed funding for preliminary design and assessment of alternative route		\$150,000									\$150,000	Optional start date
If assessment progresses to build alternative access (indicative timing only)						\$700,000	\$1,300,000	\$1,840,000			\$3,840,000	Flexible start date
Ongoing capex and opex							\$100,000	\$100,000	\$100,000	\$100,000	\$400,000	
(Note: Waka Kotahi returns 50% of expenditure)											Total	\$4,390,000 +/- 40%
										50% return	\$2,195,000	

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## Appendix 4: Key discussion points

1. The Single Stage Business Case has been well received by Waka Kotahi but there have been some delays in finalising the business case due to a few reasons including changes in Waka Kotahi representatives and waiting for additional information from several sources.
2. The highest performing option to maintain access to the visitor experiences in the Franz Josef Glacier Valley is to develop an alternative resilient walk/cycle route in the expectation that the road may fail due to river aggradation and flooding events.
3. This proposal discounts river protection needs for the S16 Bridge which is presently incorporated into the Franz Josef Glacier Valley Access Road construction. In recent discussions with Waka Kotahi it has been raised that the proposed alternative route may not help with the resilience of the state highway which is downstream from the current access road.
4. However, the alternative route does align with the DOC longer-term approach to become resilient to climate change impacts and diversify the destination's visitor experience.
5. Long-term resilience for highway assets and the Franz Josef Township is unresolved and requires considerable cross-agency agreement and funding.
6. Waka Kotahi have indicated that following a washout they may need to reinstate a causeway to protect the state highway. The protection of the state highway following a washout was not identified through the single state business case process over the past couple of years as being necessary and thus was not included in our scope or objectives. We need to understand from Waka Kotahi how this may impact on decision making regarding the alternative route and closing the road in the future if that was the preferred option from DOC's position.
7. When the business case was started Waka Kotahi indicated that they may apply a bespoke investment model for this unique situation and fund 50 percent of the alternative walk/cycle route, as indicated in the business case. However, the alternative route is unlikely to qualify under their criteria. There needs to be a discussion about their appetite for investing in the proposal.