

WELCOME

Thank you for attending this community engagement for the West Fraser Road Flood Recovery Project.

You can provide us your feedback by:

- Completing the hard-copy feedback form and leaving it with a member of our team
- E-mailing your comments to the Project Manager at: Rampaul.Dulay@Stantec.com
- Mailing your feedback form to:

Ministry of Transportation and Infrastructure

Attn: West Fraser Road Flood Recovery Project

301-640 Borland Street

Williams Lake, BC V2G 4T1





In April 2018, high-water levels from the spring freshet caused Narcosli Creek to erode five sections of the West Fraser Road, on the west side of the Fraser River, approximately 17 kilometres south of Quesnel. Damage was severe, resulting in the road being closed over a three-kilometre section as follows:

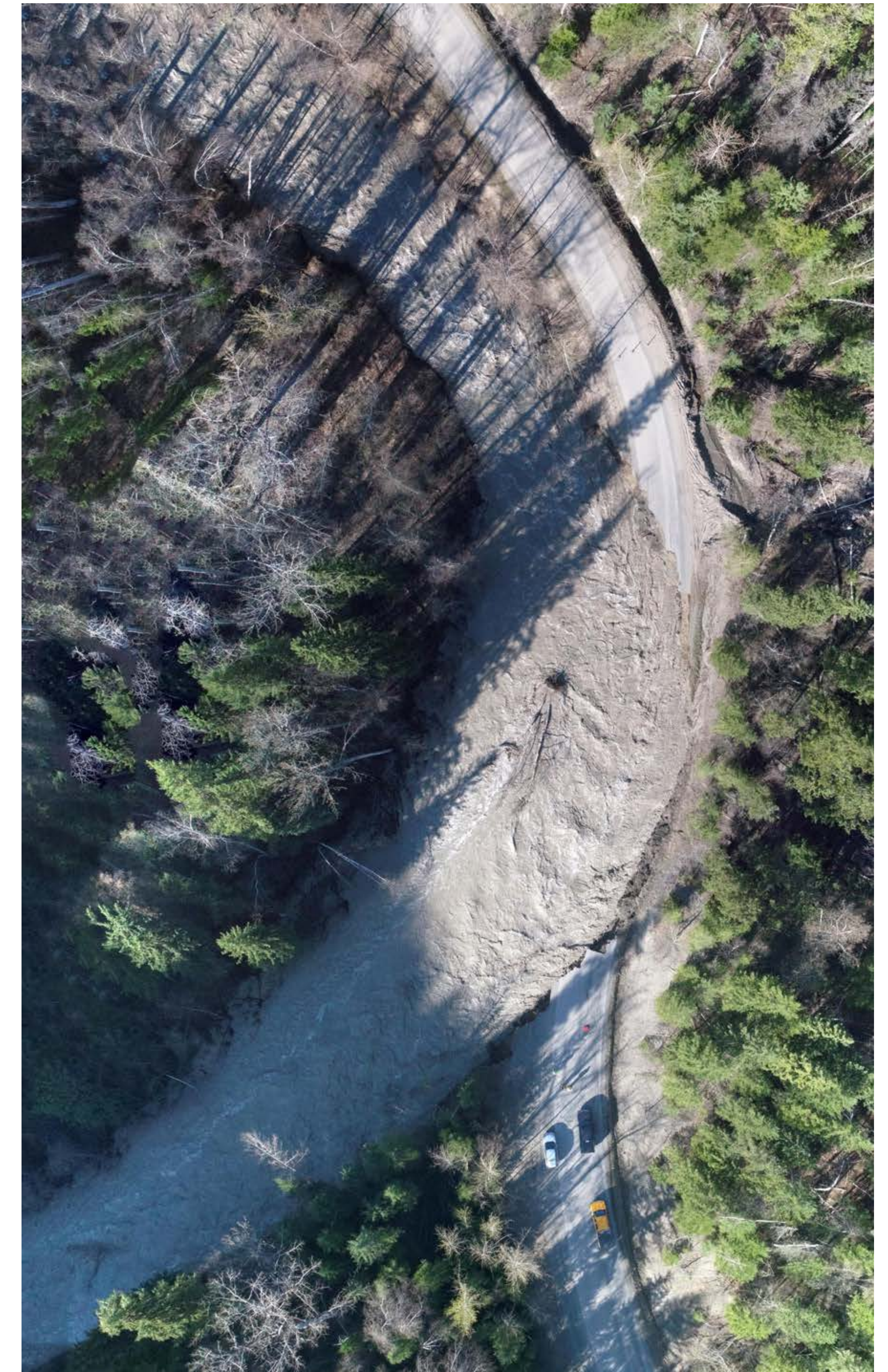
- At the north end of the three-kilometre section, 250 metres of road embankment was washed out.
- Near the north end of the three-kilometre section, 100 metres of road embankment was washed out.
- North of the Narcosli Bridge, a 100-metre section of road was washed out.
- At the Narcosli Bridge, the north abutment embankment and rip-rap washed out and eliminated the road and bridge connection.
- At the switchback at Deep Creek Hill, the road embankment was washed out for a length of 100 metres and another section of road embankment slid and/or collapsed.

About 200 vehicles per day normally use West Fraser Road to access First Nation communities, ranches, logging activities, farming lands and local residences.

A maintained detour route is in place via the Garner Road and Webster Lake Road public road system, a two-lane gravel route that adds 17 kilometres in distance and 20 minutes in travel time for a one-way trip during summer conditions. The ministry invested over \$1 million last year to improve the detour route, including:

- Applying calcium chloride to the entire 44-kilometre detour route last spring to reduce dust
- Decreasing the speed limit to 70 km/hr on Garner Road and 60 km/hr on Webster Lake Road
- Installing additional signage along the route (e.g. cattle guard, speed limit)
- Removing roadside brush along the route to improve sight lines

Regular CVSE patrols and inspections on commercial vehicles have been taking place to ensure continued safety.



The ministry recognizes the serious inconvenience to area residents from the slide and road closure. Working towards the earliest possible solution is a ministry priority.

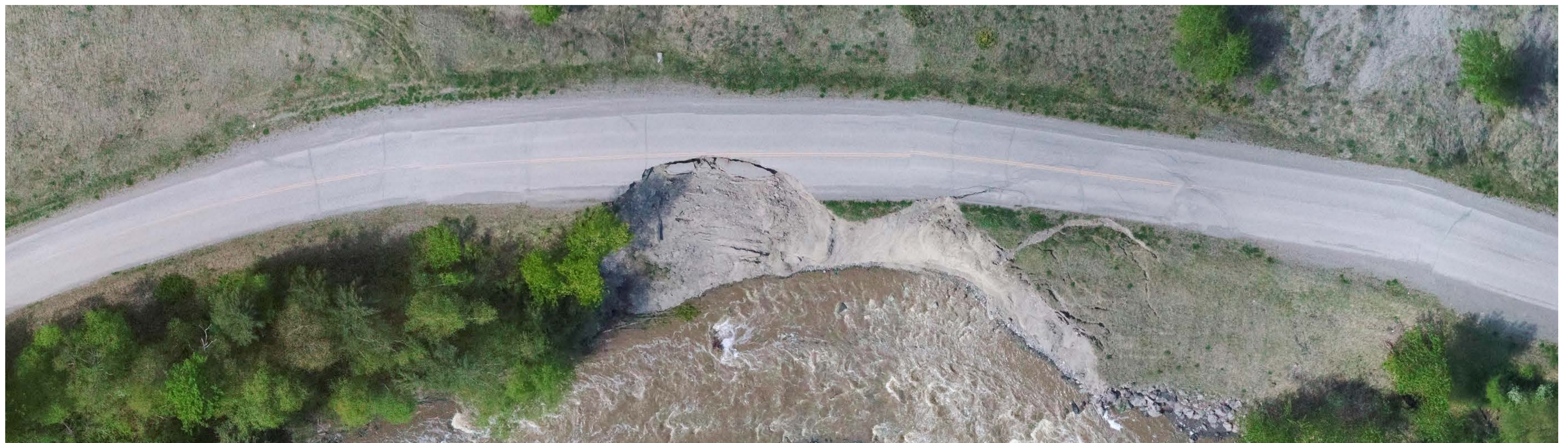
Since last spring's closure occurred, the ministry has carried out topographic

surveys, as well as geotechnical, hydrological, environmental and archaeological assessments to help us develop options to re-establish regular service.

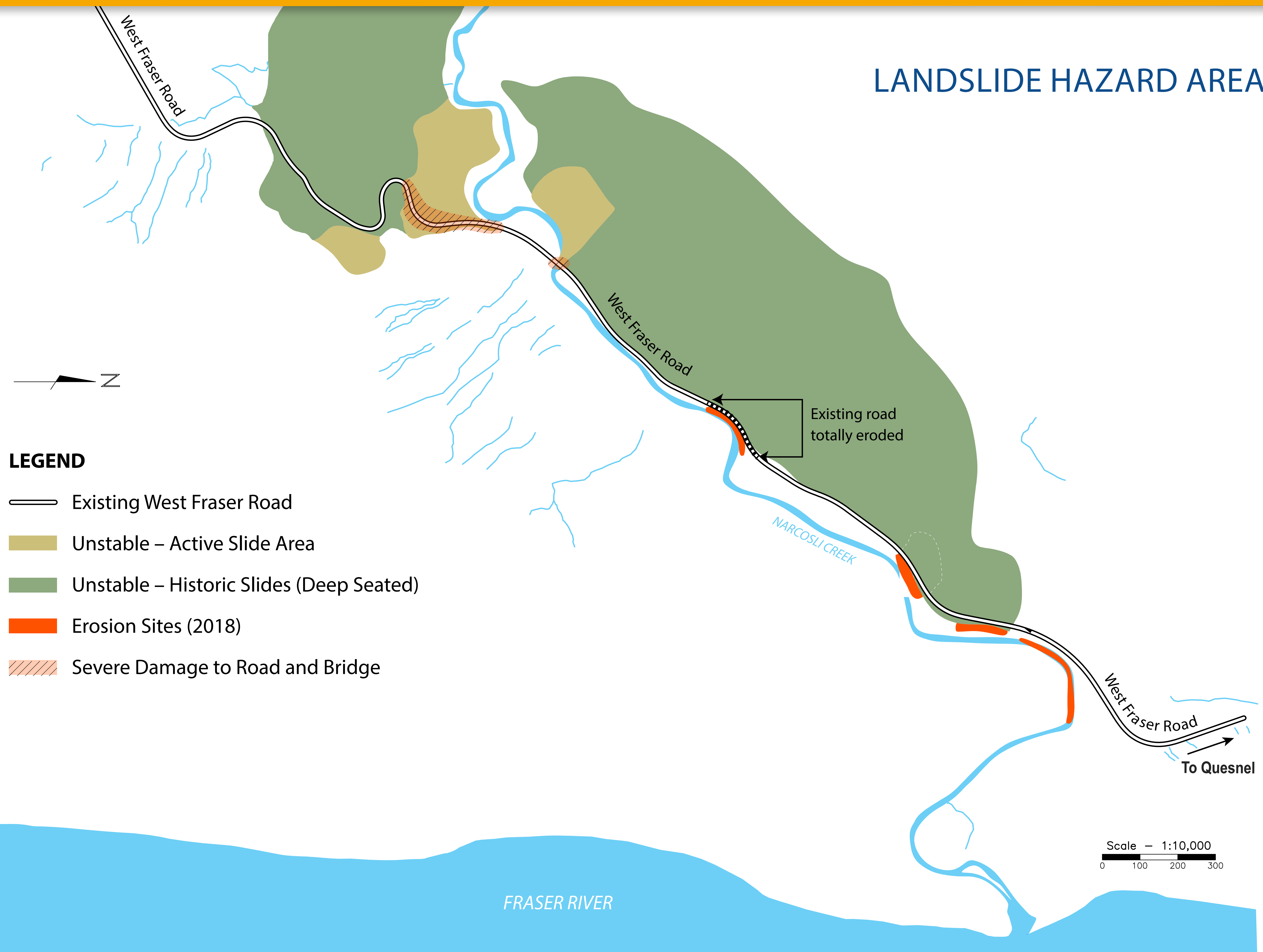
Ten conceptual designs for new route options have been developed and

cost estimates have been completed. The site is very complicated from a geotechnical perspective.

The ministry has been working with our federal counterparts about Disaster Financial Assistance funding for this site.



LANDSLIDE HAZARD AREAS



Landslide Hazard Areas



It would be extremely difficult to reinstate the existing alignment of West Fraser Road due to the high risk of further slides that would need to be mitigated.

The existing alignment is within the presence of several active landslides that have recently experienced movement at their toe, thereby increasing the risk of a slide in the short to medium-term, or even during reconstruction of the existing road.

The magnitude of the two deep-seated historical slide areas is estimated at 25 million cubic metres of material. For the three active slide areas, the magnitude is estimated at two million cubic metres.

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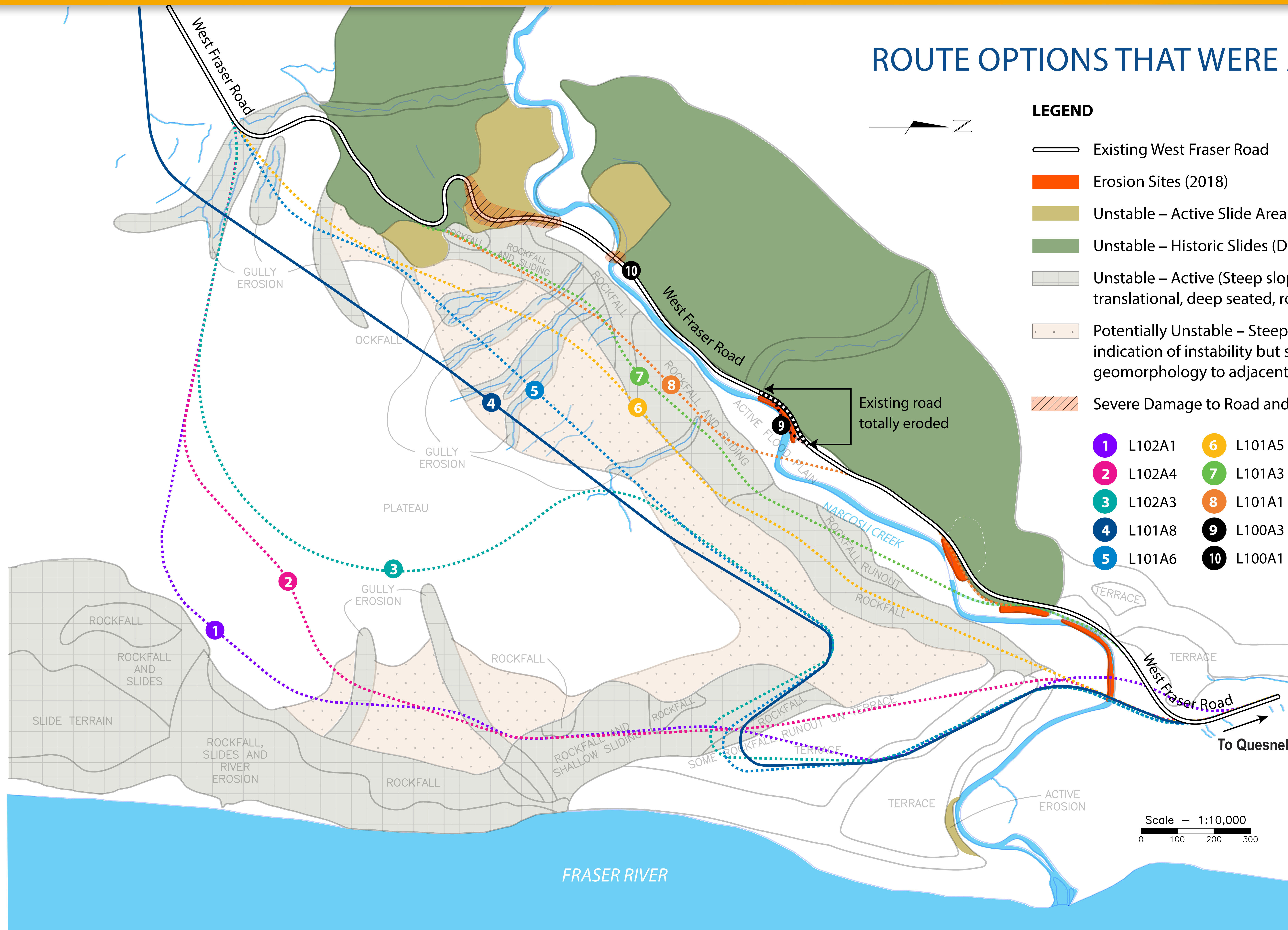
ROUTE OPTIONS THAT WERE ANALYZED



LEGEND

- Existing West Fraser Road
- Erosion Sites (2018)
- Unstable – Active Slide Area
- Unstable – Historic Slides (Deep Seated)
- Unstable – Active (Steep slopes, shallow translational, deep seated, rockfall, debris flow)
- Potentially Unstable – Steep terrain with no indication of instability but similar geomorphology to adjacent unstable terrain
- Severe Damage to Road and Bridge

- | | |
|----------|----------------------|
| 1 L102A1 | 6 L101A5 |
| 2 L102A4 | 7 L101A3 |
| 3 L102A3 | 8 L101A1 |
| 4 L101A8 | 9 L100A3 |
| 5 L101A6 | 10 L100A1 (existing) |



Scale – 1:10,000
0 100 200 300

To minimize risk to the travelling public, the ministry developed several alternative road alignment options within a three-kilometre segment. However, our geotechnical investigation has determined that only four of these options are safe to build due to the presence of several slide areas along the existing corridor. The area is very complex from a geotechnical perspective and as a result, all proposed alignments would be very costly to build. The cost of the four feasible options ranges from \$69 million to \$103 million.



The ministry evaluated these short-listed options using 12 different criteria to assess safety, engineering feasibility, reliability and community impact.

Hydrological Considerations

The existing road alignment is within close proximity of Narcosli Creek, increasing the risk of the road being washed out again should a similar peak flow event occur.

We created a hydraulic model of Narcosli Creek with river modelling software, to assess flooding extents.

The model determined that reinstating the existing road alignment (options 9



and 10) is not feasible, as it would require road fills into Narcosli Creek with an elevated risk of future washouts.

The four feasible options (3 to 6) will have similar bridge crossings over the creek.

Environmental and Archaeological Considerations

Environmental and archaeological assessments were conducted to identify considerations and ensure that any potential concerns are mitigated.

The archaeological assessment did not identify any heritage resources within the immediate project area but further archaeological investigation/assessment will be carried out during the detailed design stage in partnership with local First Nations.

The environmental assessment of the 10 options concluded that the project is likely to have minimal effects on the environment. However, environmental

management best practices will be implemented to minimize impacts within the project boundaries. Examples include:

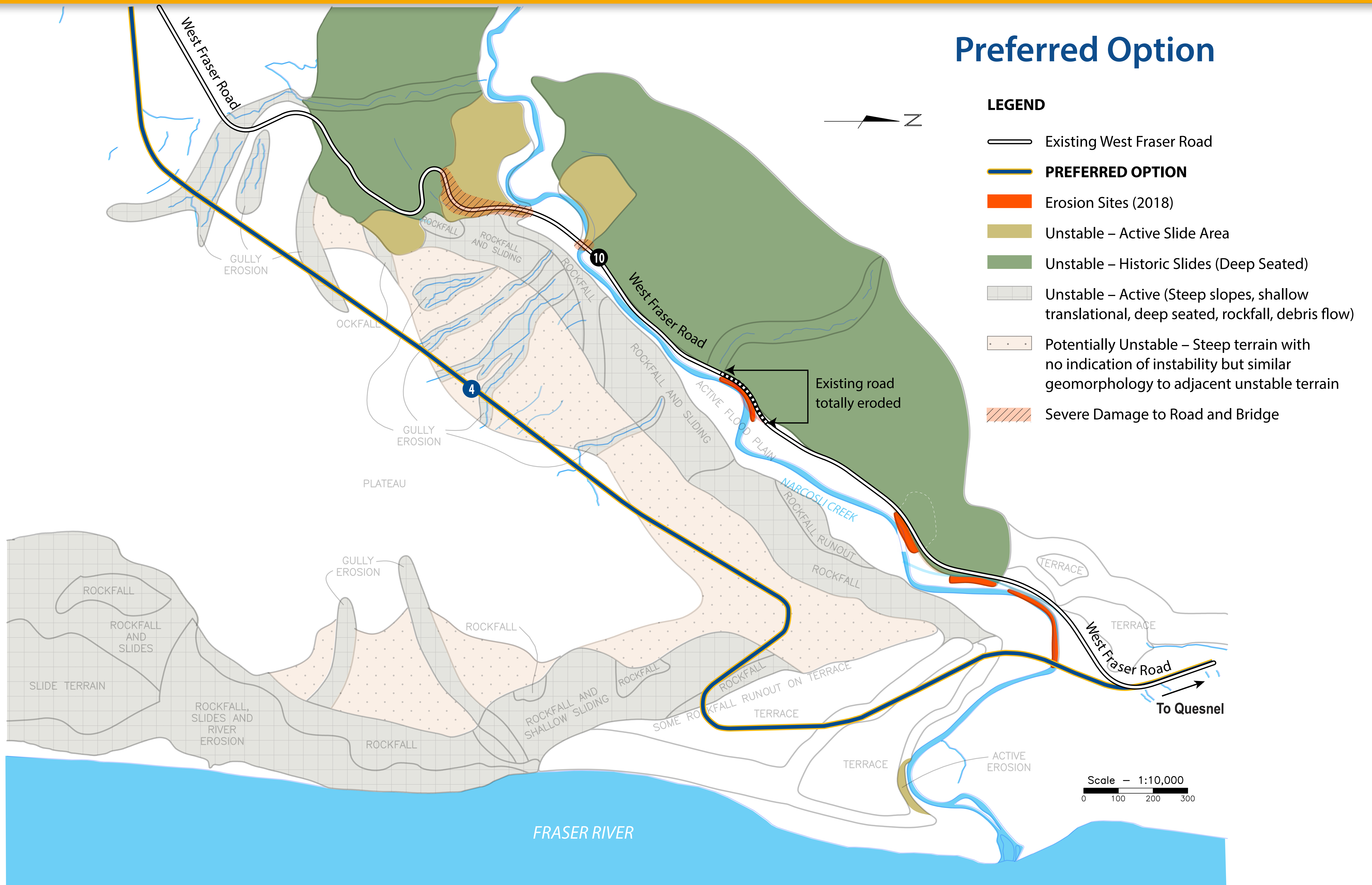


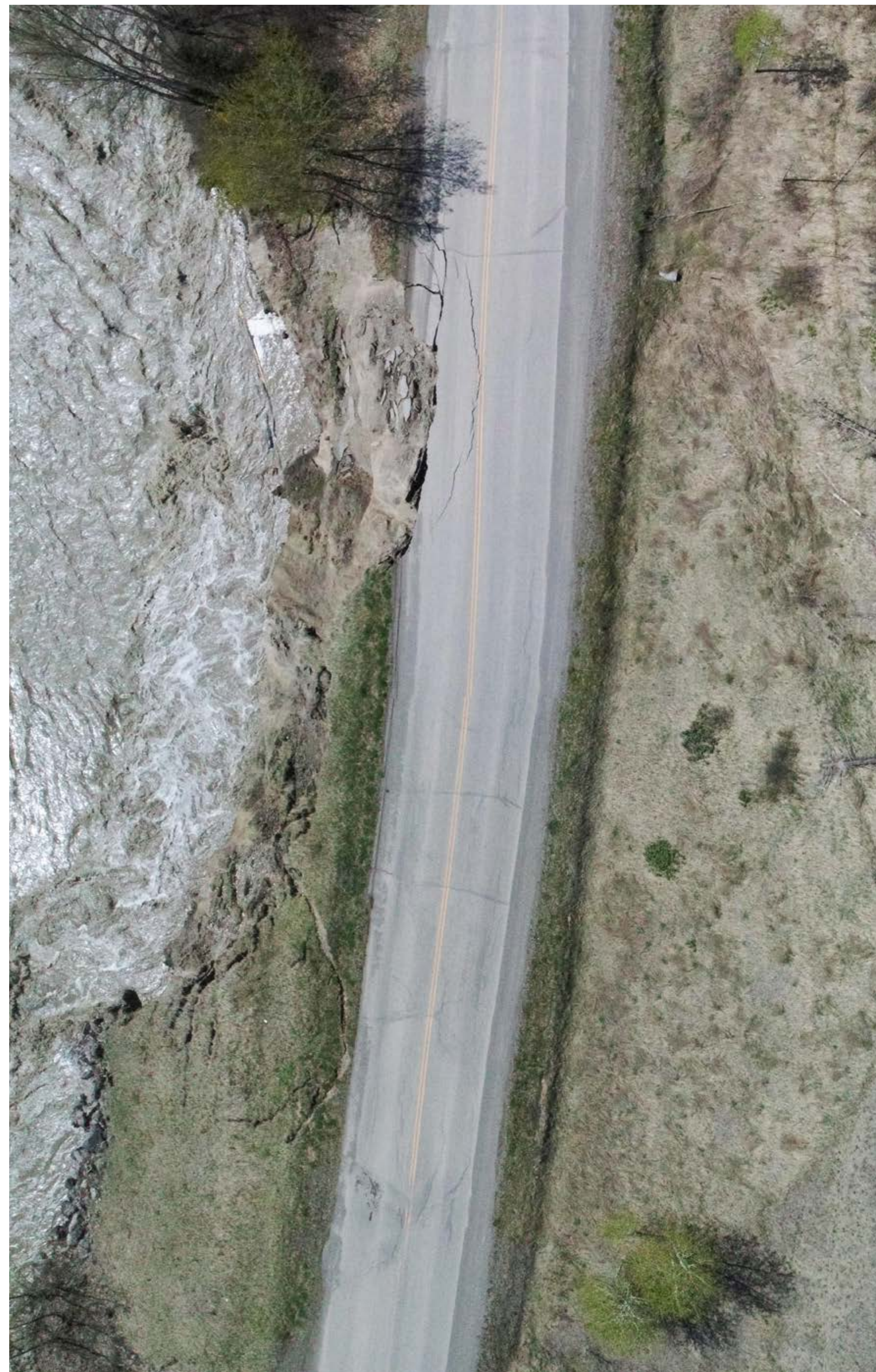
- Avoiding active bird nesting periods when clearing and grubbing
- Installing culverts to avoid impacts to downstream aquatic resources
- Constructing a new bridge over Narcosli Creek to minimize in-stream impacts
- Developing site-specific mitigation strategies to address potential impacts to wildlife, where anticipated

Further environmental investigation assessment will be carried out during the detailed design stage.

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Preferred Option





Based on its analysis, the ministry prefers **option 4 (L101A8)**. This option offers the following benefits:

- A geotechnically sound alignment that provides appropriate safety
- Avoids slides, active rockfall areas and most gullies
- Has the lowest risk of rock fall
- Is less geotechnically complex during construction
- Provides good overall long-term reliability and performance

The cost to construct this alignment is estimated at \$71 million. The ministry is submitting a business case to the federal government asking for the project to be eligible for Disaster Financial Assistance Arrangements (DFAA) funding.



To expedite repairs, the ministry proceeded with a geotechnical investigation and carried out drilling and excavating shallow holes along its preferred alignment to confirm its feasibility.

We expect the drilling will be completed by early May.



NEXT STEPS

- Review input from the open house
- Continue discussion with the federal government for eligibility under the DFAA
- Confirm the final alignment
- Proceed with the detailed design
- Continue consultation with stakeholders
- Proceed with property acquisition
- Obtain environmental and Agriculture Land Reserve approvals
- Prepare tender documents and drawings
- Do Spring dust control and grading on the Webster Lake/ Garner Road detour



THANK YOU FOR ATTENDING

Please provide your comments on the feedback form and leave it with our team.