



Transportation Advisory Committee Meeting

Wednesday, November 5, 2025

Zoom/Board Room (Hybrid) – 3008 Fifth Avenue, Port Alberni, BC

10:00 am

Regular Agenda

Watch the meeting live at: <https://www.acrd.bc.ca/events/5-11-2025/>

Register to participate via Zoom Webinar at: https://acrd-bc-ca.zoom.us/webinar/register/WN_TfGR0BjLTpOcb7McK0gT2A#/registration

- | | PAGE # |
|--|---------------|
| 1. <u>CALL TO ORDER</u> | |
| Recognition of Territories. | |
| Notice to attendees and delegates that this meeting is being recorded and livestreamed to YouTube on the Regional District Website. | |
| Introductions - Committee Members and Staff present in the Boardroom and via Zoom. | |
| 2. <u>APPROVAL OF AGENDA</u>
<i>(motion to approve, including late items requires 2/3 majority vote)</i> | |
| 3. <u>DECLARATIONS</u>
<i>(conflict of interest)</i> | |
| 4. <u>MINUTES</u> | |
| a. Transportation Advisory Committee Minutes – April 16, 2025 | 3-6 |
| <i>THAT the minutes of the Transportation Advisory Committee meeting held on April 16, 2025 be adopted.</i> | |
| 5. <u>PETITIONS, DELEGATIONS & PRESENTATIONS (10-minute maximum)</u> | |
| a. Micheal Pearson, Director, Nikki Schneider, Operations Manager, Ministry of Transportation and Transit, Highway 4 Emergency Detour Route Options | 7-66 |

6. **CORRESPONDENCE FOR ACTION/INFORMATION**

- a. **Ministry of Transportation and Transit Provincial Response to ACRD Resolution at the 2025 Union of British Columbia Municipalities Convention. 67**

THAT this correspondence be received.

7. **REQUEST FOR DECISIONS**

8. **REPORTS**

- a. **ACRD Secondary Route and Emergency Route Options – M. Irg 68-122**
- b. **2026 Transportation Committee Discussion (Verbal) – D. Sailland**

THAT reports a-b be received.

9. **LATE BUSINESS**

10. **QUESTION PERIOD**

Questions/Comments from the public:

- Participating in Person in the Board Room
- Participating in the Zoom meeting
- Emailed to the ACRD at responses@acrd.bc.ca

11. **ADJOURN**



Alberni-Clayoquot Regional District

TRANSPORTATION ADVISORY COMMITTEE MEETING

HELD ON APRIL 16, 2025, 10:00 AM

Hybrid - Zoom/Board Room, 3008 Fifth Avenue, Port Alberni, BC

MEMBERS

Mike Sparrow, Director, Area “F” Cherry Creek

PRESENT:

Cindy Solda, Councillor, City of Port Alberni

Marilyn McEwen, Director, Mayor, District of Ucluelet

Dan Law, Mayor, District of Tofino

Arne Elias, Director, Port Alberni Port Authority

Jolleen Dick, Chief Executive Officer, AV Chamber of Commerce

Josh Jenkins, Executive Director, Ucluelet Chamber of Commerce

Samantha Hackett, Executive Director, Tofino-Long Beach Chamber of Commerce

Harley Wylie, Councillor, Tseshah First Nation

Colin Koszman, Land Use Forester, Mosaic Forest Management

John McNabb, Member at Large

Ken McRae, Member at Large

Michael Pearson, District Manager, Transportation, VI, MOTT

Nikki Schneider, Operations Manager, Transportation, VI, MOTT

Judi Thomas, Elected Chief Councillor, Ditidaht First Nation

REGRETS:

Bob Beckett, Chairperson, Director, Area “A” Bamfield

Marcie Dewitt, Alberni-Clayoquot Health Network

Levana Mastrangelo, Director, Executive Legislature, Yuułu?it?ath Government

Zoran Knezevic, President and CEO, Port Alberni Port Authority

Brandy Lauder, Chief Councillor, Hupacasath First Nation

Ken Watts, Chief Councillor, Tseshah First Nation

Bella Fred, Tseshah First Nation

Judith Sayers, President, Nuuchahnulth Tribal Council

Dean Fauchon, Manager, Contract Services, Tsawak-quin Forestry

Jimmie Hodgson, VP Sustainability & Chief Forester, Mosaic Forest Mgt

STAFF PRESENT:

Daniel Sailland, Chief Administrative Officer

Mike Irg, General Manager of Planning & Development

Janice Hill, Executive Assistant

The meeting can be viewed on the Alberni-Clayoquot Regional District website at:

<https://www.acrd.bc.ca/events/16-4-2025/>

1. CALL TO ORDER

The Chairperson called the meeting to order at 10:02 am.

The Chairperson recognized this meeting is being held throughout the Nuu-chah-nulth territories.

The Chairperson reported this meeting is being recorded and livestreamed to YouTube on the Regional District website.

Introductions - Committee Members and Staff present in the Boardroom and via Zoom.

2. APPROVAL OF AGENDA

MOVED: C. Solda

SECONDED: K. McRae

THAT the agenda be approved as amended to add two items of correspondence including emails from Peter Kaegi and James Wright.

CARRIED

3. DECLARATIONS

4. MINUTES

a. Transportation Advisory Committee Minutes – October 2, 2024

MOVED: C. Solda

SECONDED: A. Elias

THAT the minutes of the Transportation Advisory Committee meeting held on October 2, 2024 be adopted.

CARRIED

5. PETITIONS, DELEGATIONS & PRESENTATIONS

a. Michael Pearson, Director, MOTT and Nikki Schneider, Operations Manager, MOTT presenting an update on the Emergency Access Route study.

Michael Pearson provided an update on the Highway 4 Emergency Detour Route Study. The final report will be completed by July 2025.

6. CORRESPONDENCE FOR ACTION/INFORMATION

a. DITIDAHT FIRST NATION Secondary Road Access Call to Action

MOVED: C. Solda

SECONDED: J. Dick

THAT the Transportation Advisory Committee receives this item for information.

CARRIED

7. REQUEST FOR DECISIONS

8. REPORTS

a. DRAFT Request for Proposal Overview

MOVED: J. McNabb

SECONDED: C. Solda

THAT the Transportation Committee recommend advancing with the RFP as presented.

CARRIED

9. LATE BUSINESS

a. Email Correspondence from Peter Kaegi and James Wright

MOVED: C. Solda

SECONDED: J. Dick

THAT the Transportation Committee receive the correspondence for information.

CARRIED

10. QUESTION PERIOD

Questions/Comments from the public. The Executive Assistant advised there were no questions or comments respecting an agenda topic from public:

- Participating in Person in the ACRD Board Room
- Participating in the Zoom webinar
- Submissions received by email at responses@acrd.bc.ca.

13. ADJOURN

MOVED: C. Solda

SECONDED: J. Dick

THAT the meeting be adjourned at 11:42 am.

CARRIED

Certified Correct:

Mike Sparrow,
Chairperson

Janice Hill,
Executive Assistant



HIGHWAY 4

EMERGENCY DETOUR ROUTE OPTIONS

BC Ministry of Transportation and Transit

July 2025



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Appendix A: Review of Previous Reports

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1. Introduction

Highway 4 forms part of the provincial road network and at 162 km is the longest east-west Highway on Vancouver Island, extending from the interchange with Highway 19 in the Regional District of Nanaimo to the District of Tofino on the west coast. Highway 4 is an important connection to markets for local industry and provides access for First Nations communities and local residents, as well as access for recreation and tourism. Highway 4 has a rural, undivided cross-section, with one lane per direction. The posted speed is mostly 80 km/h to 90 km/h, with some short sections of 50 km/h to 60 km/h. From an emergency management perspective, the Highway 4 corridor can be considered as having two distinct sections divided by the Somass River Bridge immediately west of Port Alberni. The Somass River Bridge is nearly 50m in length and provides the only highway link over the river. The eastern section between Highway 19 and the Somass River Bridge (41km), has more gradual terrain with wider river valleys that offer more opportunities to access the backcountry, either for recreational or forestry purposes. In contrast, the western section between the Somass River Bridge and Tofino (121km), has more rugged terrain with narrow inlets, and many river crossings.

On June 6, 2023, a 2.7km section of Highway 4 at Cameron Lake Bluff was closed for 18 days due to wildfire on the steep slopes above the highway. The Cameron Lake Bluff wildfire caused extensive damage to the slope above the highway which greatly increased the risk of rockfall and danger trees. Significant rock scaling, danger tree removal and rockfall hazard protection measures had to be undertaken to address the damage, necessitating partial closures of Highway 4 for a further 68 days. Highway 4 was fully reopened to two-way traffic on August 31, 2023.

Within the first 24 hours of the Cameron Lake Bluff wildfire event, the Ministry of Transportation and Transit (MOTT) established an emergency detour route between Port Alberni and Lake Cowichan using private industrial logging roads (see **Figure 1**). The emergency detour route carried approximately 20% of typical Highway 4 daily traffic volumes. In addition, a separate emergency route dedicated exclusively to first responders was established alongside Horne Lake in collaboration with Mosaic Forest Management.

This study offers the opportunity for MOTT to conduct a more detailed investigation of other potential emergency detour routes, should a future emergency necessitate an extended closure of Highway 4 between Port Alberni and Highway 19.

1.1 Study Area

The study area (see **Figure 2** overleaf) is bound by Comox Lake in the north and Lake Cowichan in the south. The Somass River forms the western boundary of the study, with Highway 1/19 as the eastern boundary.



FIGURE 1: THE EMERGENCY DETOUR ROUTE DURING THE CAMERON LAKE WILDFIRE

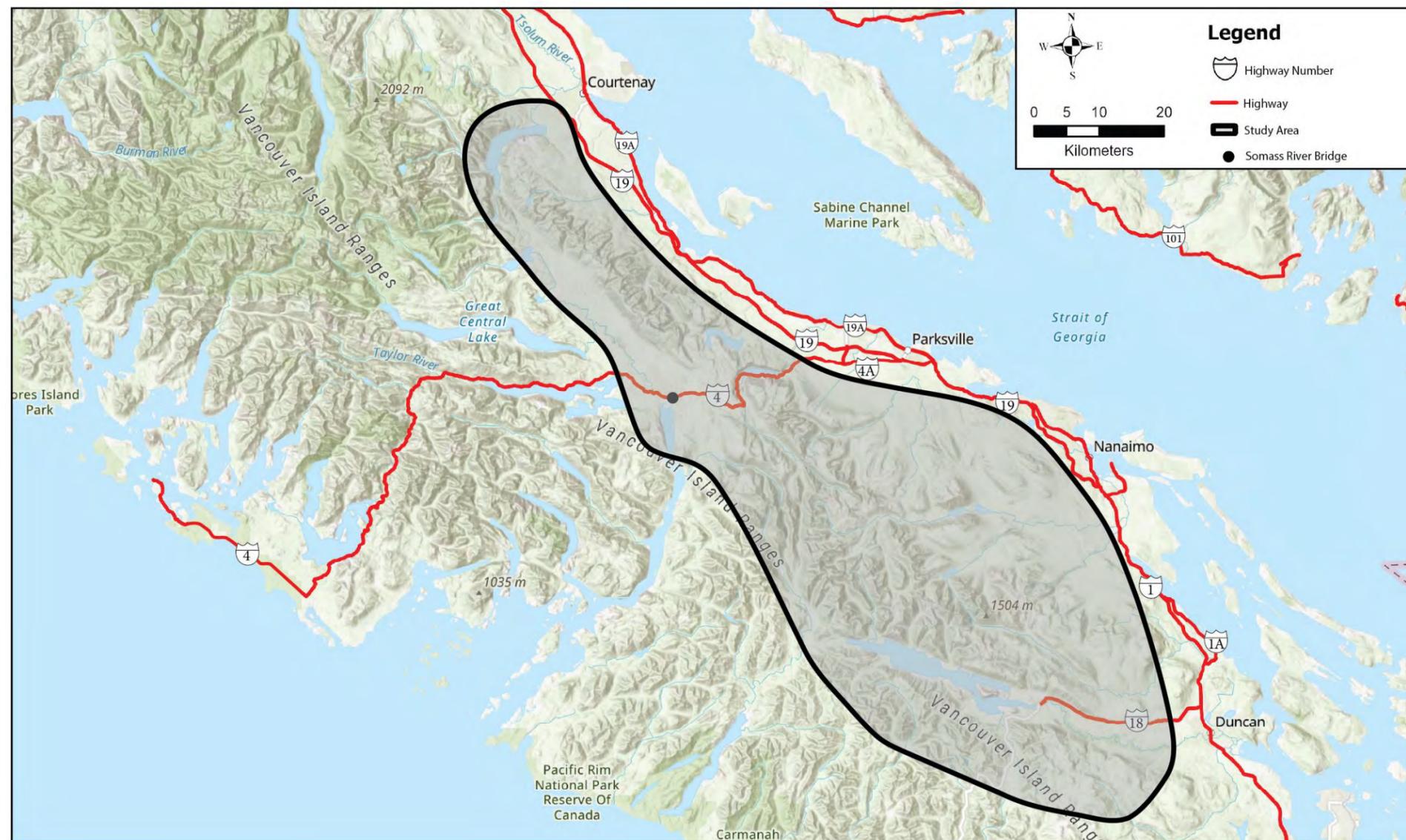


FIGURE 2: STUDY AREA

1.2 Provincial Highways and Industrial Roads

In addition to Highway 4, the study area also includes private industrial roads used by local forest management companies. While MOTT is responsible for operating and maintaining Highway 4, the industrial roads within the study area are the responsibility of the private owner or of the road permit holder depending on the location and ownership of the road. As the agency responsible for planning and coordinating the implementation of detour routes during highway closures, MOTT would need to collaborate with private road owners and/or road permit holders to implement and operate an emergency detour route that includes private industrial roads.

1.3 Study Purpose

The purpose of this study is to identify and describe all possible detour routes that could be considered in the event of an extended closure of Highway 4 between Port Alberni and Highway 19. The study includes an inventory of physical characteristics for each route to support decision making if an emergency detour route is required. In the event of an emergency requiring the closure of Highway 4, the decision to declare an emergency detour route will consider the nature and location of the emergency, the time of year, and the expected duration of the closure. Having an established inventory of all possible emergency detour routes will expedite the review and decision process. Once the most appropriate detour route has been selected, it can take up to three days to establish the route for use.

2. Background

2.1 Highway 4: Reliability

Each year the province faces threats from natural disasters such as forest fires, heat waves or floods. Because of British Columbia's geographic location, it is also important to consider potential seismic related events. MOTT is taking a proactive approach by continuing to advance emergency planning on BC's transportation network to improve safety and reliability. In 2016, the Horne Lake Connector Business Case Report compared the frequency of unplanned highway closures on Vancouver Island from 2008 to 2016. The report found that the average closure duration of Highway 4 between Port Alberni and Highway 19 was 2.3 hours with an average of eight closures per year.

MOTT analyzed DriveBC data from 2016-2024 for closures on Highway 4 between Port Alberni and Highway 19. The analysis found that the average number of closures has declined by 40% since 2016, but that closures have lasted 24% longer on average (2.86 hours). The data summarized in **Table 1** illustrates the large variance in duration of closures, noting that both datasets exclude major events necessitating closure of the highway (2009 mudslide; 2023 Cameron Bluffs wildfire; 2023 rockfall) as these represent outliers and the majority of closures on Highway 4 are due to other incidents. The 2009 mudslide, 2023 Cameron Bluffs wildfire and the 2023 December Rockfall represent the only major natural hazard events on Highway 4 within the last 17 years.

TABLE 1: 2016 TO 2024 HIGHWAY 4 CLOSURES BETWEEN PORT ALBERNI AND HIGHWAY 19

YEAR	# OF CLOSURES	AVERAGE DURATION (HOURS)
2016	3	2.0
2017	9	1.4
2018	6	5.4
2019	6	1.5
2020	4	1.8
2021	5	2.4
2022	6	2.6
2023*	2	0.0
2024	4	9.5
Average	4.9	2.95

*(2023 events removed: Cameron Bluffs Wildfire Closure, December Rockfall Closure)

2.2 Emergency Detour Route Implementation and Management

MOTT plays a vital role in emergency response, leading efforts on the provincial highway network while coordinating resources, equipment, and key stakeholders. This includes working closely with industry partners, such as supply chain coordinators and commercial vehicle operators, as well as collaborating with various levels of government, local communities, and First Nations to ensure a unified and effective response. During an emergency event, MOTT operational staff work alongside MOTT's maintenance contractor to manage the situation, addressing critical needs such as traffic control and the implementation of necessary detour routes. Their coordinated efforts help maintain safety, minimize disruptions, and support the efficient movement of people and goods throughout the affected areas.

Implementing an emergency detour route requires careful evaluation of several factors to determine its necessity. The primary consideration is whether the incident justifies an emergency detour, meaning the duration of the highway closure must be significant enough to warrant the additional travel time. Resource availability and coordination are also crucial, involving both internal and external personnel such as traffic control teams and necessary equipment. Additionally, road conditions must be assessed to ensure the detour route is safe and viable for all travelers. In addition, MOTT must liaise with the owners of the road infrastructure as all options presented involve private industrial roads.

Effective wayfinding and signage play a key role in guiding drivers along the detour route, while public notification ensures that affected individuals are informed in a timely manner. Engagement with various stakeholders is essential, including industry representatives, private landowners, local governments, First Nations, and emergency responders. Their input and cooperation help facilitate a smoother transition to the detour route and address any concerns that may arise. Traffic management planning and documentation are also necessary to maintain order and efficiency throughout the process.

Other critical considerations include special accommodations, such as organizing commercial vehicle convoys if needed, and assessing natural hazards that may impact the detour route. Incident management strategies must be in place to address unforeseen challenges, and staff time must be allocated appropriately to oversee the implementation. By addressing these factors comprehensively, emergency detour routes can be effectively planned and executed to minimize disruptions and to ensure public safety.

Establishing an emergency detour route for use can take approximately 24 to 72 hours. There are four main phases related to opening, managing, and decommissioning an emergency detour route.

PHASE 1: OPENING THE EMERGENCY DETOUR ROUTE

Implementing an emergency detour route requires a coordinated effort between MOTT and its maintenance contractor to ensure safe and efficient travel for affected road users. This process begins with the activation of the Emergency Operations Centre (EOC). An EOC is activated by responding organizations to provide a central coordinated response. The District Operations Center (DOC) for MOTT will coordinate information sharing and response activities with other EOCs activated depending on the scope and scale of the event. This can include the Regional District, First Nations, Emergency Management and Climate Resilience (EMCR) and the BC Wildfire Service. Additionally, necessary resources and equipment will be deployed, followed by the installation of warning and detour signage

TABLE 2: EMERGENCY DETOUR IMPLEMENTATION; PHASE 1 - OPENING

PHASE 1 TASKS	DESCRIPTION
Emergency Operation Centre (EOC) Activation	Coordinating response efforts through the activation of the EOC to ensure a centralized and efficient approach to managing the detour route.
Resource Deployment	MOTT works with its maintenance contractor to dispatch necessary resources and equipment.
Signage Installation	Placement of all warning and detour signs to guide drivers safely.
Surface Maintenance	Repairs such as pothole filling and grading to ensure road usability.
Dust Abatement	Measures taken to reduce dust for better visibility and air quality.
Checkpoints & Supplies	Establishing checkpoints with essential supplies like food and water.
Amenities Placement	Setting up facilities such as washrooms for traveler convenience.

to provide clear directions. Surface maintenance, including pothole repair and grading, is essential to maintaining road quality, while dust abatement measures help improve visibility and air quality. These steps ensure that the detour route remains accessible and safe for all travelers.

Beyond road maintenance, additional considerations are made to support those using the detour route. Checkpoints may be established to provide essential supplies such as food and water, ensuring travelers have access to basic necessities. There may be additional considerations if the detour location is remote and/or isolated. This could include the deployment of amenities like washrooms which may be strategically placed to enhance comfort during extended detours. By addressing both infrastructure and traveler needs, MOTT and its partners create a well-managed emergency detour route that prioritizes safety, efficiency, and accessibility for all affected individuals.

PHASE 2: COMMUNICATIONS

Developing a comprehensive communications plan is essential for ensuring that stakeholders and the EOC receive timely and accurate information during an emergency. Mapping plays a crucial role in visually representing closures and detour routes, helping both officials and the public understand the affected areas and alternative travel options. Effective stakeholder engagement and notification ensure that key parties, including local governments, First Nations, industry representatives, and emergency responders, are kept informed and can coordinate their efforts accordingly. By maintaining clear and proactive communication, disruptions can be minimized, and response efforts can be more efficient.

TABLE 3: EMERGENCY DETOUR IMPLEMENTATION; PHASE 2 - COMMUNICATIONS

PHASE 2 TASKS	DESCRIPTION
Mapping	Creating visual representations of closures and detour routes for clarity.
Stakeholder Engagement & Notification	Coordinating with affected parties to ensure timely updates and collaboration.
Media	Utilizing various media channels to disseminate critical information.
Public Inquiries	Responding to questions about closures and detour routes to keep the public informed.

Media outreach is another vital component of the communications plan, as it allows for the dissemination of critical updates through various channels, including news outlets, social media, and official websites. Additionally, responding to public inquiries is essential to address concerns and provide accurate information about closures and detour routes. Ensuring that the public has access to reliable updates helps reduce confusion and allows travelers to plan accordingly.

PHASE 3: MANAGING THE EMERGENCY DETOUR ROUTE

Once an emergency detour route is established, ongoing management becomes a critical and resource-intensive task to ensure safety and efficiency throughout the duration of the event. One of the primary responsibilities is resource planning, which involves determining staff scheduling, vehicle availability, and other logistical needs. Proper allocation of personnel and equipment ensures that the

TABLE 4: EMERGENCY DETOUR IMPLEMENTATION; PHASE 3 - MANAGEMENT

PHASE 3 TASKS	DESCRIPTION
Resource Planning	Determining staff scheduling, vehicle availability, and other necessary resources for the duration of the event.
Incident Monitoring & Response	Tracking motor vehicle incidents and addressing potential secondary emergencies along the detour route.
Ongoing Maintenance	Conducting regular inspections and repairs to ensure the detour route remains safe and operational.

detour route remains operational and that response teams are adequately prepared to handle any emerging challenges. Without careful planning, shortages in staff or essential resources could lead to delays and inefficiencies in managing the detour.

In addition to resource planning, continuous monitoring and response efforts are necessary to address motor vehicle incidents and potential secondary emergencies along the detour route. Traffic conditions must be observed closely to identify hazards, accidents, or congestion that could impact travel. Furthermore, ongoing maintenance, such as road inspections and repairs, helps maintain the integrity of the detour route, ensuring it remains safe and accessible for all travelers.

PHASE 4: DECOMMISSIONING THE EMERGENCY DETOUR ROUTE

Decommissioning an emergency detour route is a crucial final step in the response process once MOTT has ensured that the highway can safely and reliably reopen to the public. One of the primary considerations regarding decommissioning an emergency detour route is the timing of highway remediation and associated works, as any necessary repairs must be completed before normal highway traffic flow resumes. This includes assessing road conditions, addressing structural concerns, and verifying that the highway meets safety standards. Proper coordination and planning are essential to avoid premature reopening, which could pose risks to travelers and disrupt traffic operations.

TABLE 5: EMERGENCY DETOUR IMPLEMENTATION; PHASE 4 - DECOMMISSIONING

PHASE 4 TASKS	DESCRIPTION
Highway Remediation & Completion	Assessing the timing and completion of necessary repairs and associated works to ensure safe reopening.
Public Notification	Communicating the closure of the emergency detour route and the reopening of the highway to the public.
Signage & Traffic Control Removal	Planning for the removal of all temporary signage, traffic control devices, and other detour-related infrastructure.

In addition to highway remediation, effective public communication is key to a smooth transition. Timely notification of the detour route's closure ensures that drivers are aware of the changes and can adjust their travel plans accordingly. Furthermore, the removal of all temporary signage, traffic control devices, and other detour-related infrastructure must be carefully planned to prevent confusion and maintain roadway clarity.

3. The Emergency Detour Routes

The emergency detour routes were identified through a combination of past reports, studies, and consultations with local forest management companies. These discussions provided insight into which private industrial roads are actively maintained and how frequently they are used by industrial vehicles which helped inform if they could serve as viable emergency detour options. Since maintenance levels on these roads can fluctuate based on industry needs, some routes may be reduced or decommissioned over time.

By leveraging historical data and industry expertise, MOTT can identify and prioritize detour routes that are most likely to remain safe, reliable, and operational during emergencies, while also assessing their current condition and potential for future use. The suite of emergency detour routes that were evaluated have several common features:

- A mixture of public roads and privately-owned industrial roads (some sections of which may be gated and not accessible to the public).
- Bridge structures on private industrial roads (typically single-lane forestry-style structures) with low side barriers along the bridges to allow for oversized loads.
- Generally, private industrial roads are constructed and maintained for the purposes of industrial use as opposed to use for the travelling public.
- All routes have some areas of exposed rocky outcrops, particularly near watercourses and lakes.
- In addition to running alongside rivers and lakes, all the routes have multiple crossings of drainage channels and areas of steep grades.
- All routes have a mixture of hard surface and gravel surface.
- All routes identified would serve to support an unplanned extended closure of Highway 4 between Port Alberni and Highway 19.

The potential emergency detour routes that were evaluated are illustrated in **Figure 3** below.

3.1 Field Review

A field review was conducted in September 2024, to confirm the conditions of each route and to gain an understanding of current uses as well as any physical constraints and challenges that exist. During the three-day field review, one of the vehicles was fitted with a rooftop video camera to capture additional information.

3.2 Route Characteristics

The selected route characteristics consider both the user experience and the ease of implementation and ongoing operation if use as an emergency detour route was established. The following provides an overview of the characteristics that have been documented for each route.

USER EXPERIENCE: ROAD GEOMETRY

While the routes share many common traits, there are differences in the geometric conditions. Using both the video information collected during the field review and LiDAR mapping, it is possible to categorize, at a high level, the geometric characteristics of different segments as follows:

- Grade (estimated to be within three separate ranges): flat (less than 3%), moderate (3% to 8%), and steep (over 8%).
- Surface type: hard surface, such as seal coat or asphalt, and unpaved or gravel.
- Travel width: width was categorized as single lane (less than 6 m), and two-lane operation (>6 m).

TABLE 6: ROUTE CHARACTERISTICS CATEGORIES

GEOMETRIC CHARACTERISTICS	CATEGORIES
Grade	Flat (<3%)
	Moderate (3%-8%)
	Steep (>8%)
Surface Type	Hard Surface (seal coat or asphalt)
	Unpaved or gravel
Travel Width	Single Lane (<6 m)
	Two-lane operation (>6 m)

It was crucial to understand how these characteristics interacted, as they directly impact the functionality of an emergency detour route. Surface type plays a significant role in operational feasibility - for instance, gravel roads with steep grades can pose challenges for larger vehicles, affecting accessibility and safety. Additionally, many private industrial roads feature long, narrow segments that are not wide enough for two vehicles to pass simultaneously. These constraints could create operational difficulties, particularly when accommodating high volumes of two-way traffic during an emergency detour. Careful assessment of these factors ensures that an established emergency detour route is both practical and safe for all users.

USER AND IMPLEMENTATION/ROUTE MANAGEMENT CONSIDERATIONS: STRUCTURES

The investigation of structures during the field review was cursory in nature and consisted solely of visual observations.

- During the field review, a diverse range of structures were observed, including single and multiple-span girder bridges with concrete decks, all-steel portable bridges, and log stringer bridges with gravel decks. Although not observed firsthand, the presence of Corrugated Steel Pipe (CSP) or Structural Plate Corrugated Steel Pipe (SPCSP) culvert and arch structures, retaining walls constructed of precast concrete blocks (Lock Blocks), along with non-gravity systems such as Geosynthetic Reinforced Soil (GRS) or Mechanically Stabilized Earth (MSE) walls may be present along each route. Structures on private industrial roads were assumed to have been designed to meet the expected needs of forestry users and not necessarily the needs of the wide range of users and vehicle types that use public highways.
- Nearly all structures are single-lane and would require traffic management to accommodate two-way traffic.

IMPLEMENTATION CONSIDERATIONS: ENVIRONMENTAL CHARACTERISTICS

A desktop review was conducted on the identified routes to understand any high-level environmental considerations including vegetation and ecological communities, aquatic ecosystems, wildlife, and watersheds. Given that all routes already exist, are currently in use, and would only serve as temporary emergency detours, no major areas of environmental concern were identified during the review.

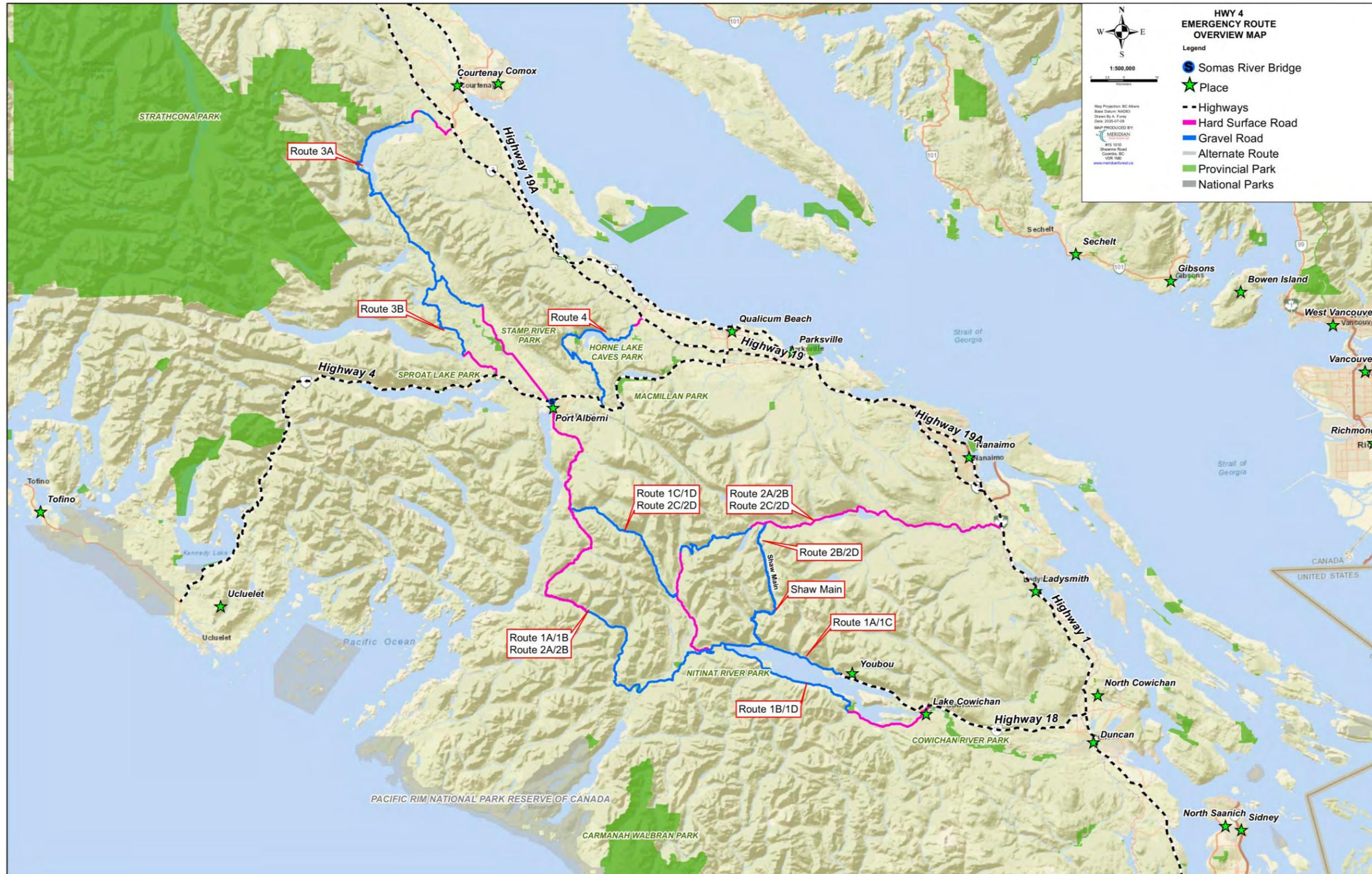


FIGURE 3: POTENTIAL EMERGENCY DETOUR ROUTES

ROUTE MAPS AND SUMMARY TABLES

A map that illustrates the route geometry characteristics (grade, surface type, travel width) and bridge locations is included at the beginning of the description of each route, along with a summary table at the end.

By incorporating these elements, each map serves as a valuable tool for understanding the physical conditions of the route and identifying potential challenges for vehicles using it as an emergency detour route. Additionally, the summary table accompanying each map breaks down the route into segments, detailing essential information for route assessment and planning. The summary tables include various metrics that help define the route's characteristics. The length of each segment is measured in kilometres, encompassing both public and private roads from Highway 4 to Highway 1 or 19, ensuring a complete representation of the route. Approximate travel times are estimated using Google Maps data, which accounts for current traffic conditions and typical travel speeds. Surface type is categorized as either hard surface (seal coat or paved) or gravel, providing insight into road conditions. Width is another key factor, with roads 6 m or wider classified as two-lane, which can influence traffic flow and vehicle maneuverability.

Vehicle suitability is assessed based on route characteristics, to determine whether certain vehicle types would be able to traverse each route. The length of steep grades exceeding 8% is documented, as grades of this magnitude can pose challenges for vehicles. Elevation data is also included, with maximum and minimum elevations noted. Elevations exceeding 300 m may indicate potential snow coverage during winter, which is an important consideration if an emergency detour route was needed during the winter months.

Additional factors such as traffic capacity, flood risk potential, and the number of structures along each route are also detailed in the summary tables. Traffic capacity provides a high-level estimate of the maximum number of vehicles that could use each route based on its characteristics. Flood risk potential is defined to highlight areas that may be susceptible to flooding, which could impact accessibility and safety. Lastly, the number of structures, including bridges and other key infrastructure elements, is documented. Together, the route maps and summary tables offer a thorough analysis of each route, to aid future planning and decision-making.

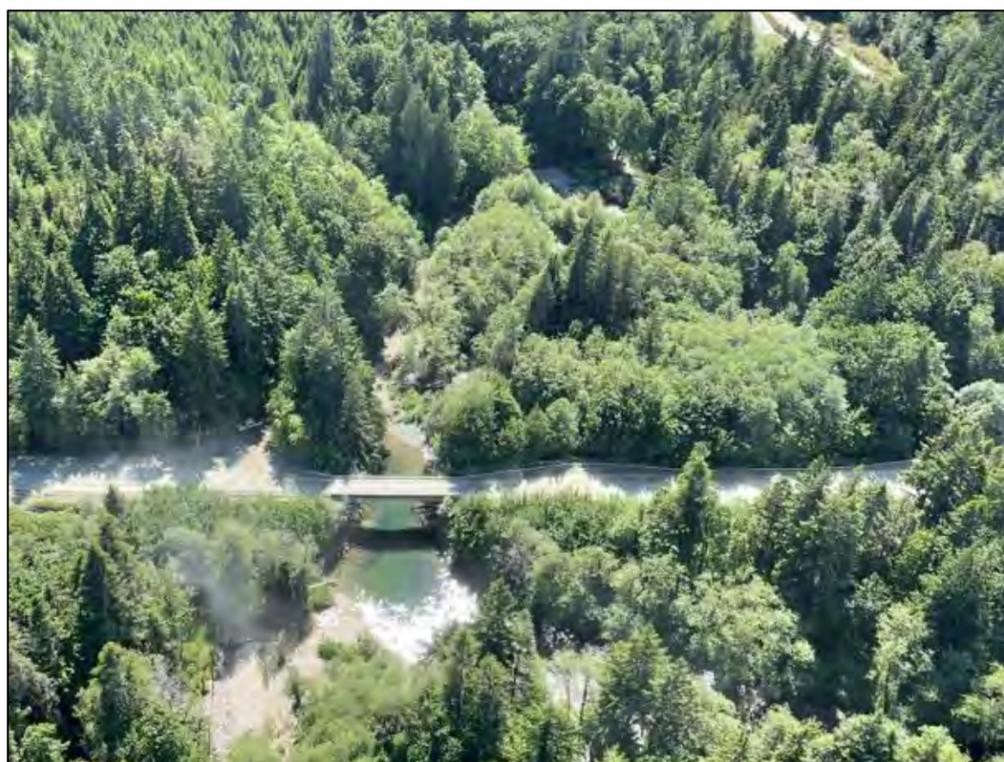


FIGURE 4: SAMPLE VIEWS OF POTENTIAL EMERGENCY DETOUR ROUTES

3.3 Potential Route 1 Set

ROUTE 1A – PORT ALBERNI TO YOUBOU

Route 1A, shown in **Figure 5** was used during the Cameron Lake Bluff wildfire in 2023. Route 1A starts to the west of Youbou at the end of the public road, at the firehall, 41 km from the Highway 1 / Highway 18 intersection. The route then follows private industrial roads, North Shore Road, Cowichan Main, and Carmanah Main to the Bamfield Main. The Bamfield Main connects to the southern limits of the City of Port Alberni, and then along city roads to Highway 4 in downtown Port Alberni.

The total route is 149 km in length between Highway 1 and Highway 4, with 61.8 km on private industrial gravel roads, 36 km on seal coat surface roads, and 51.2 km on paved roads. Route 1 is estimated to take approximately 2 hours and 30 minutes from downtown Port Alberni to the Highway 18 intersection with Highway 1, north of Duncan. The route carries regular industrial traffic.

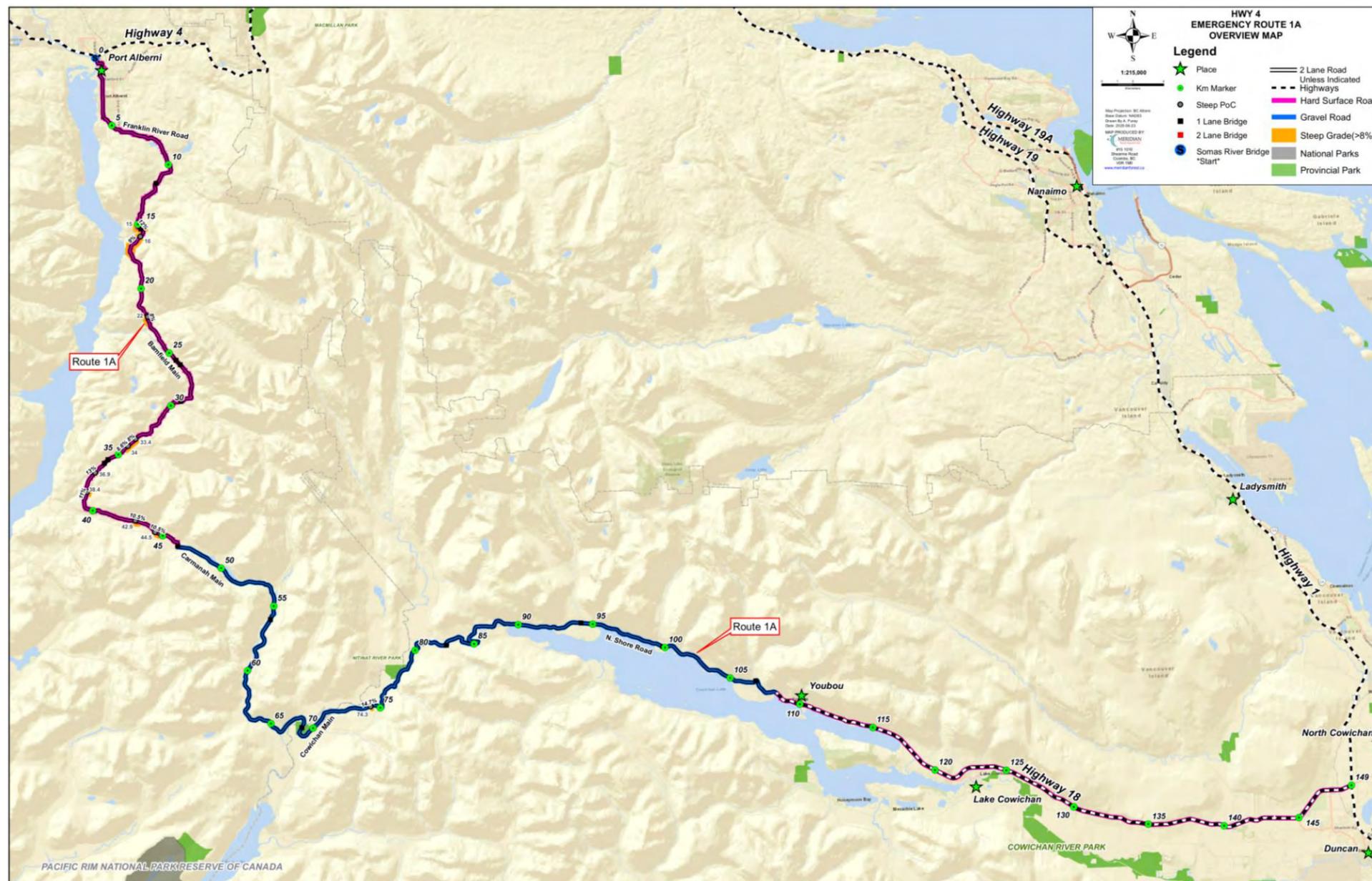


FIGURE 5: ROUTE 1A – PORT ALBERNI TO YOUBOU

Route 1A Road Conditions

The route runs between Youbou Road (to the east, under MOTT jurisdiction) and Ship Creek Road (to the west) at the City of Port Alberni. Travelling from the west, Bamfield Main is an industrial road, which was seal coated in 2023. The remainder of this route, until just west of Youbou, is gravel. Typical examples of road conditions on this route are shown in **Figure 6**.

Route 1A Typical Cross Sections

The observed cross sections for Route 1A are shown in **Figure 7**.

Route 1A Environmental Characteristics

An environmental review was previously completed for km 1-36 of this route for the Bamfield Main Road Surfacing Project completed by Huu-ay-aht First Nation. Route 1A runs parallel (east-west) to the northern shore of Lake Cowichan from the end of pavement west of Youbou at km 98 to the northwestern extent of the lake at km 78, passes through forested sections between km 58 to 64, along Nitinat River, and connects to Bamfield Main at km 36.

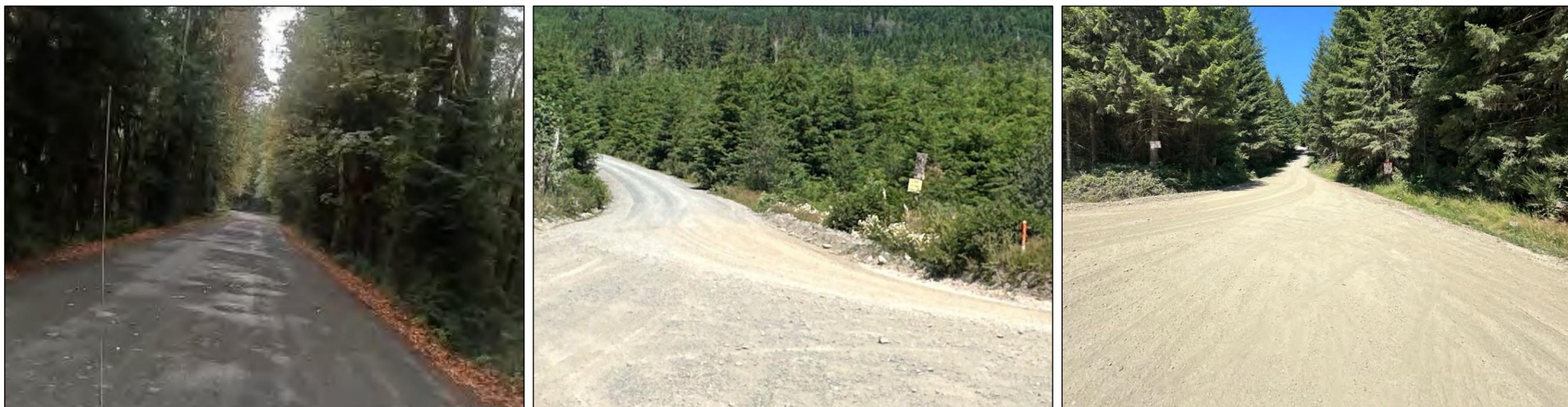


FIGURE 6: ROUTE 1A - OBSERVED ROAD CONDITIONS

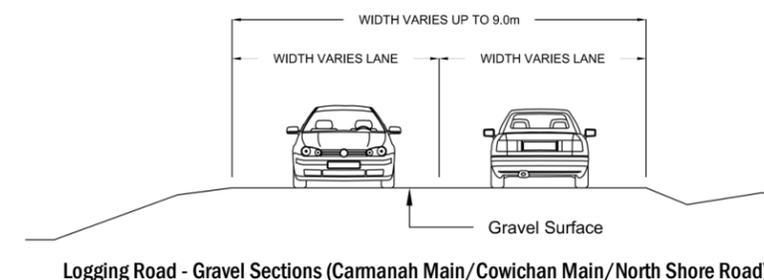
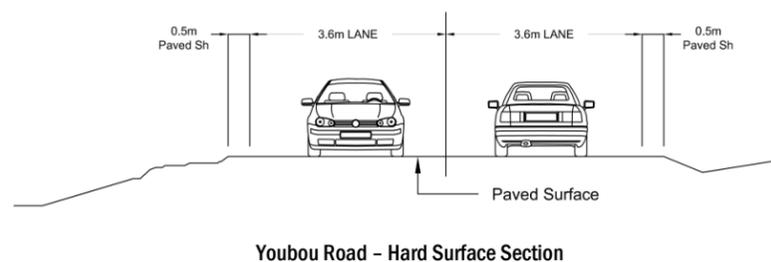
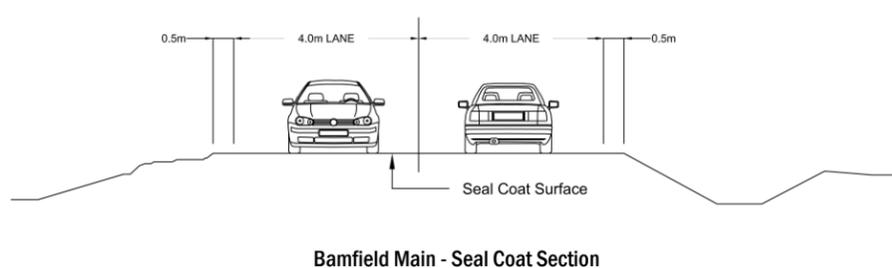


FIGURE 7: ROUTE 1A - TYPICAL CROSS SECTIONS

Route 1A Summary

Route 1A was the route selected for an emergency detour route during the 2023 Cameron Lake Bluff Wildfire. There are some steep grades, although these grades are generally short in length. More than half of the total detour length is hard surfaced, and two lanes of travel can be accommodated for the entire length. Given its characteristics, this route could be used by all vehicle types during an emergency. **Table 7** shows the summary of characteristics for this route.

TABLE 7: SUMMARY TABLE FOR ROUTE 1A

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	149 km (Hwy 4 to Hwy 1)	2 hours 30 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	10000
10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
46.5 km to 108.3 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.3, North Shore Road 82.5-108.3)	61.8 km			Private logging road open to public use.	Gravel	At Bridges	61.8 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
108.3 km to 149 km (North Shore Road, Youbou Road, Hwy 18)	40.7 km			Public Road	Hard- Paved	0 km	40.7 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	

ROUTE 1B – NITINAT TO LAKE COWICHAN ALTERNATIVE

Route 1B, shown in **Figure 8**, was identified following the September 2024 field reviews conducted by MOTT staff, and the following information was obtained through a desktop investigation.

The length of the route from downtown Port Alberni to the Highway 18 intersection with Highway 1 north of Duncan is 155.2 km and is estimated to take approximately 3 hours and 10 minutes to travel. The route carries industrial traffic.

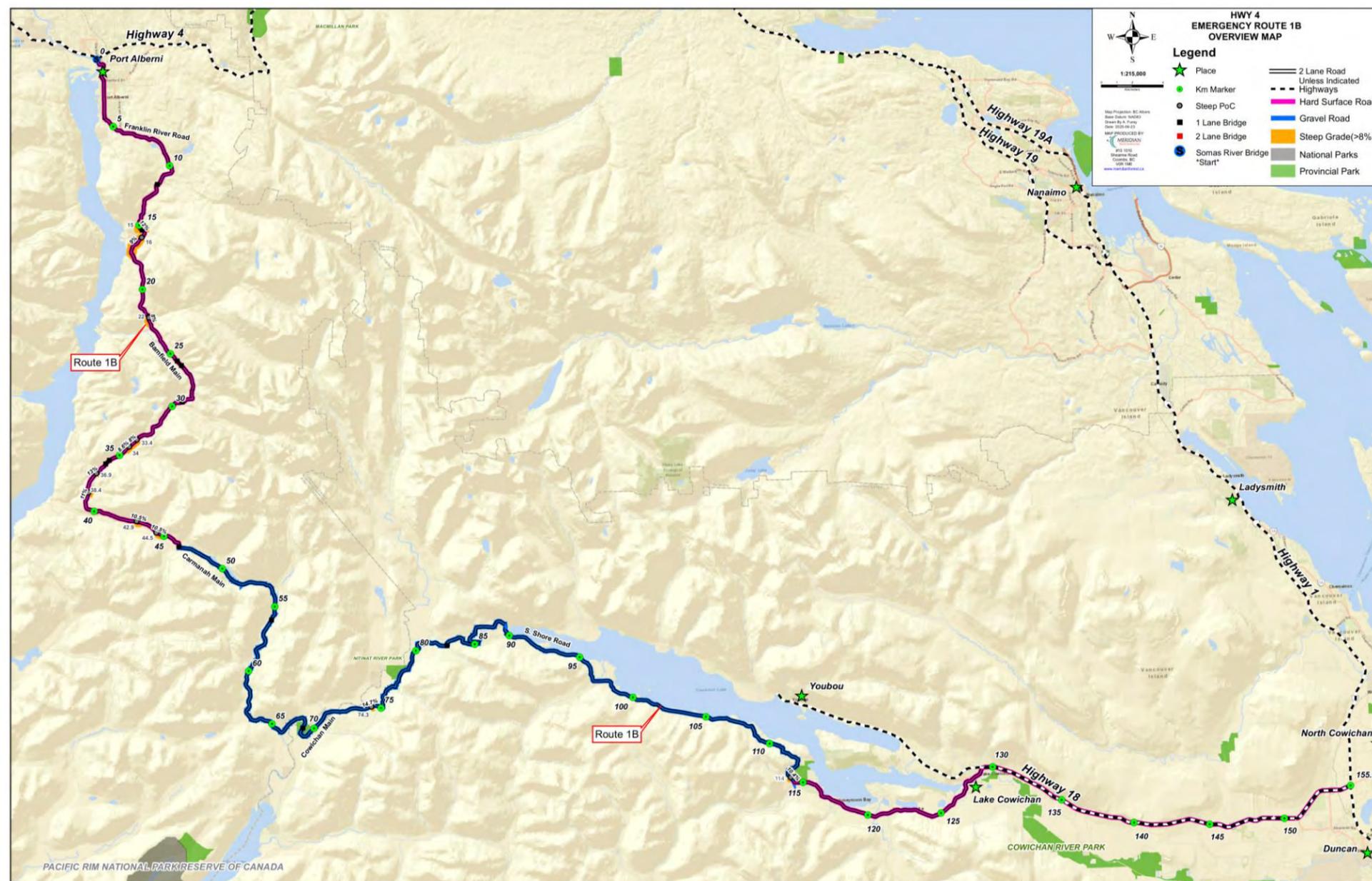


FIGURE 8: ROUTE 1B – NITINAT TO LAKE COWICHAN ALTERNATIVE

Route 1B Road Conditions

The route follows the South Shore Road gravel section from the intersection with Route 1A at km 78.4, for 25.3 km along the south side of Cowichan Lake to the paved section (km 25.3 to km 40.2) along South Shore Road, through Honeymoon Bay to the roundabout in Lake Cowichan, then along Cowichan Lake Road to Highway 18.

Route 1B Summary

Route 1B was identified as a potential alternative for Route 1A to the south of the lake for emergency use in case of a road blockage north of the lake. There are some steep grades, although these lengths tend to be short. More than half of the total detour length is hard surfaced, and two lanes of travel can be accommodated for the entire length. Given its characteristics, this route could be used by all vehicle types during an emergency.



FIGURE 9: ROUTE 1B - OBSERVED ROAD CONDITIONS

TABLE 8: SUMMARY TABLE FOR ROUTE 1B

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	155.2 km (Hwy 4 to Hwy 1)	3 hours 10 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	8000
10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
46.5 km to 89 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.3, North Shore Road 82.5-89)	42.5 km			Private logging road open to public use.	Gravel	At Bridges	42.5 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
89 km to 114.3 km (South Shore Road)	25.3 km			Private logging road open to public use.	Gravel	At Bridges	25.3 km	All vehicles	10.4%, 0.1 km	Max: 303 m Min: 165 m	Forestry Company	
114.3 km to 129.2 km (South Shore Road, Cowichan Lake Road)	14.9 km			Public Road	Hard- Paved	0 km	14.9 km	All vehicles	Max 8%	Max: 203 m Min: 163 m	MOTT	
129.2 km to 155.2 km (Hwy 18)	26 km			Public Road	Hard- Paved	0 km	26 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	

ROUTE 1C – MUSEUM MAIN ALTERNATIVE NORTH SHORE ROAD

The route follows Museum Creek and then climbs over a summit and drops down to run parallel to the Nitinat River to join the Route 1A alignment near Kissinger Lake, as shown in **Figure 10**. This alternate route is 23.8 km shorter than Route 1A and could be considered for emergency access if Route 1A is not accessible.

The total distance from downtown Port Alberni to the Highway 18 intersection with Highway 1 north of Duncan is 125.2 km for Route 1C travelling north of Lake Cowichan and is estimated to take approximately 2 hours and 20 minutes to travel. The route carries industrial traffic.

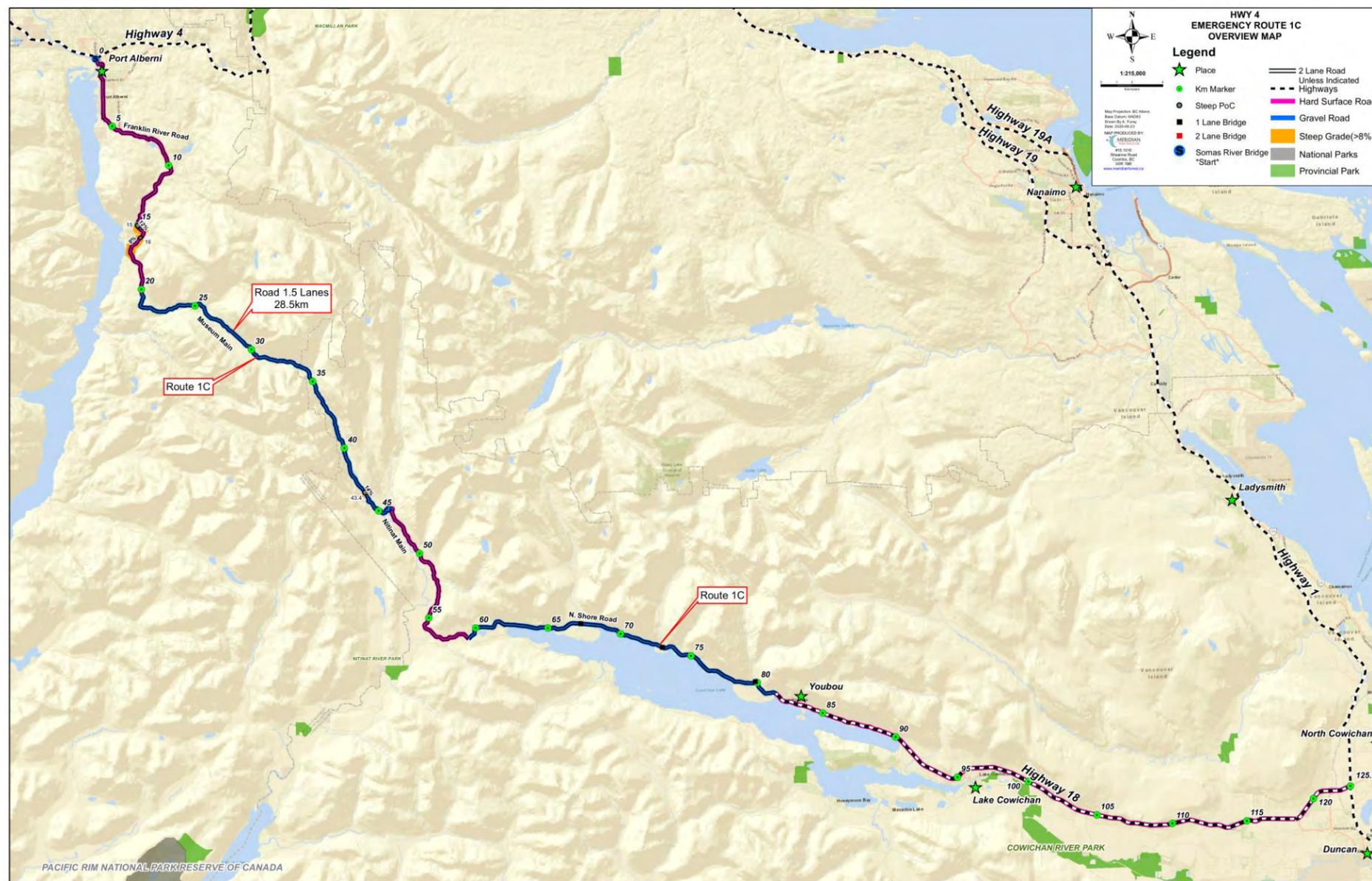


FIGURE 10: ROUTE 1C – MUSEUM MAIN ALTERNATIVE NORTH SHORE ROAD

Route 1C Road Conditions

The gravel road is maintained by a forest management company to suit their use. The route is a steep, narrow road that winds through private property alternating between gravel and hard surface types between two public segments that are hard-paved. There are multiple small stream crossings. There is one small wetland between km 20 and 21.



FIGURE 11: ROUTE 1C - OBSERVED ROAD CONDITIONS

Route 1C Typical Cross Sections

The observed cross section for Route 1C is shown in Figure 12.

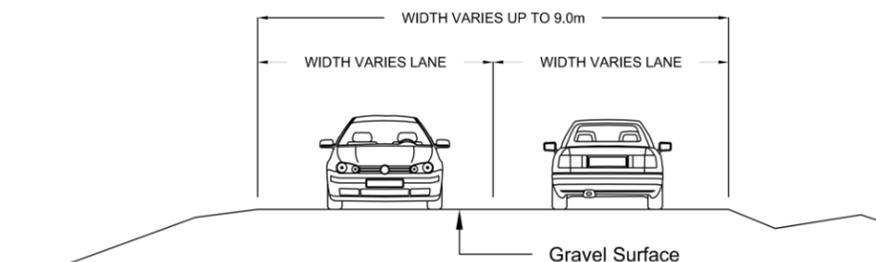


FIGURE 12: ROUTE 1C- TYPICAL CROSS SECTION

Route 1C Summary

This route could be considered for emergency access in case of Route 1A being inaccessible. There are some steep grades, although these lengths tend to be short. The majority of the total length is hard-surfaced, and two lanes of travel can be accommodated for most of the route except for one 8 km segment.

TABLE 9: SUMMARY TABLE FOR ROUTE 1C

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	125.2km (Hwy 4 to Hwy 1)	2 hours 20 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Albemi & MOTT	8000
10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m	Forestry Company	
19.9 km to 45.9 km (Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups and Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m	Forestry Company	
45.9 km to 58.5 km (Nitinat Main)	12.6 km			Private logging road open to public use.	Hard - Paved	At Bridges	12.6 km	All vehicles	Max 8%	Max: 185 m Min: 102 m	Forestry Company	
58.5 km to 81 km (North Shore Road)	22.5 km			Private logging road open to public use.	Gravel	At Bridges	22.5 km	All vehicles	14.7%, 0.1 km	Max: 208 m Min: 183 m	Forestry Company	
81 km to 125.2 km North Shore Road, Youbou Road, Hwy 18	44.2 km			Public Road	Hard- Paved	0 km	44.2 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	

ROUTE 1D – MUSEUM MAIN ALTERNATIVE VIA SOUTH SHORE ROAD

The route follows Museum Creek and then climbs over a summit and drops down parallel to the Nitinat River to join the Route 1A alignment near Kissinger Lake, as shown in **Figure 13**. This alternate route is 20.8 km shorter than Route 1A. This route could be considered for emergency access in case of Route 1A being inaccessible.

The total distance from downtown Port Alberni to the Highway 18 intersection with Highway 1 north of Duncan is 128.2km for Route 1D travelling south of Cowichan Lake and is estimated to take approximately 3 hours and 10 minutes to travel.

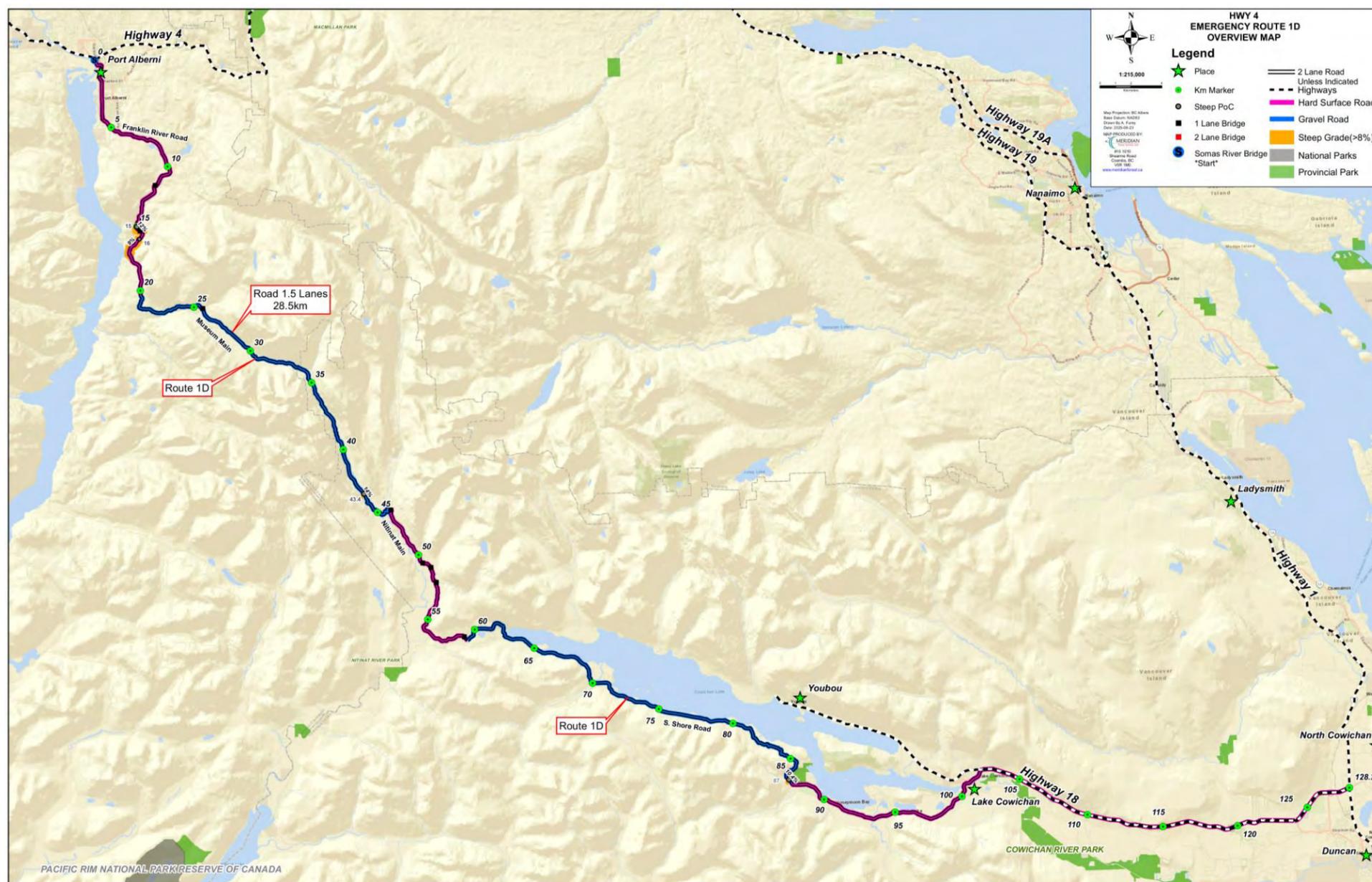


FIGURE 13: ROUTE 1D – MUSEUM MAIN ALTERNATIVE VIA SOUTH SHORE ROAD

Route 1D Road Conditions

The gravel roads within this route are maintained by a forest management company to suit their use. The route is a steep, narrow road that winds through private property, alternating between gravel and hard surface types between three public road segments that are hard-paved. There are multiple small stream crossings. There is one small wetland between km 20 and 21.

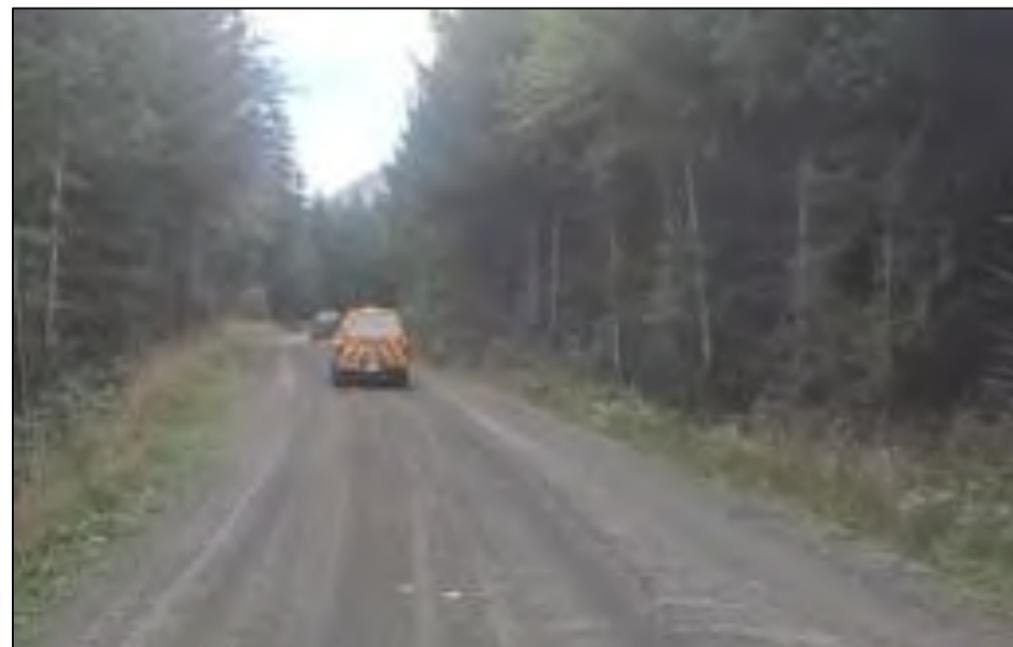


FIGURE 14: ROUTE 1D - OBSERVED ROAD CONDITIONS

Route 1D Typical Cross Sections

The observed cross section for Route 1D is shown in Figure 15.

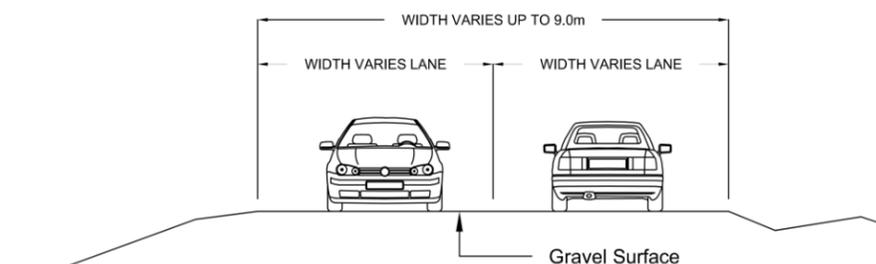


FIGURE 15: ROUTE 1D- TYPICAL CROSS SECTION

Route 1D Summary

This route could be considered for emergency access if Route 1A is not accessible. There are some steep grades, although these lengths tend to be short. The majority of the total length is hard-surfaced, and two lanes of travel can be accommodated for most of the route except for one segment.

TABLE 10: SUMMARY TABLE FOR ROUTE 1D

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY	
						< TWO LANE	TWO LANE						
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	128.2 km (Hwy 4 to Hwy 1)	3 hours 10 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	7000	
10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m			Forestry Company
19.9 km to 45.9 km (Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups, Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m			Forestry Company
45.9 km to 58.5 km (Nitinat Main)	12.6 km			Private logging road open to public use.	Hard - Paved	At Bridges	12.6 km	All vehicles	Max 8%	Max: 185 m Min: 102 m			Forestry Company
58.5 km to 61.6 km (North Shore Road)	3.1 km			Private logging road open to public use.	Gravel	At Bridges	3.1 km	All vehicles	14.7%, 0.1 km	Max: 201 m Min: 183 m			Forestry Company
61.6 km to 86.9 km (South Shore Road)	25.3 km			Private logging road open to public use.	Gravel	At Bridges	25.3 km	All vehicles	10.4%, 0.1 km	Max: 303 m Min: 165 m			Forestry Company
86.9 km to 101.8 km (South Shore Road, Cowichan Lake Road)	14.9 km			Public Road	Hard- Paved	0 km	14.9 km	All vehicles	Max 8%	Max: 203 m Min: 163 m			MOTT
101.8 km to 128.2 km (Hwy 18)	26.4 km			Public Road	Hard- Paved	0 km	26.4 km	All vehicles	Max 8%	Max: 264 m Min: 19 m			MOTT

3.4 Potential Route 2 Set

ROUTE 2A – NANAIMO TO PORT ALBERNI ALTERNATE VIA NITINAT RIVER MAIN

Route 2A provides a more direct route to/from Nanaimo and the ferries to the mainland. The route follows Nanaimo River Road to the end of the pavement, then along the logging roads to Route 1C/1D (Figure 16). At its eastern end, this option meets Highway 1 13.4 km south from the Duke Point ferry terminal.

The route length from Port Alberni to Nanaimo River Road Interchange on Highway 1 is 166.2 km and is estimated to take approximately 3 hours to travel.

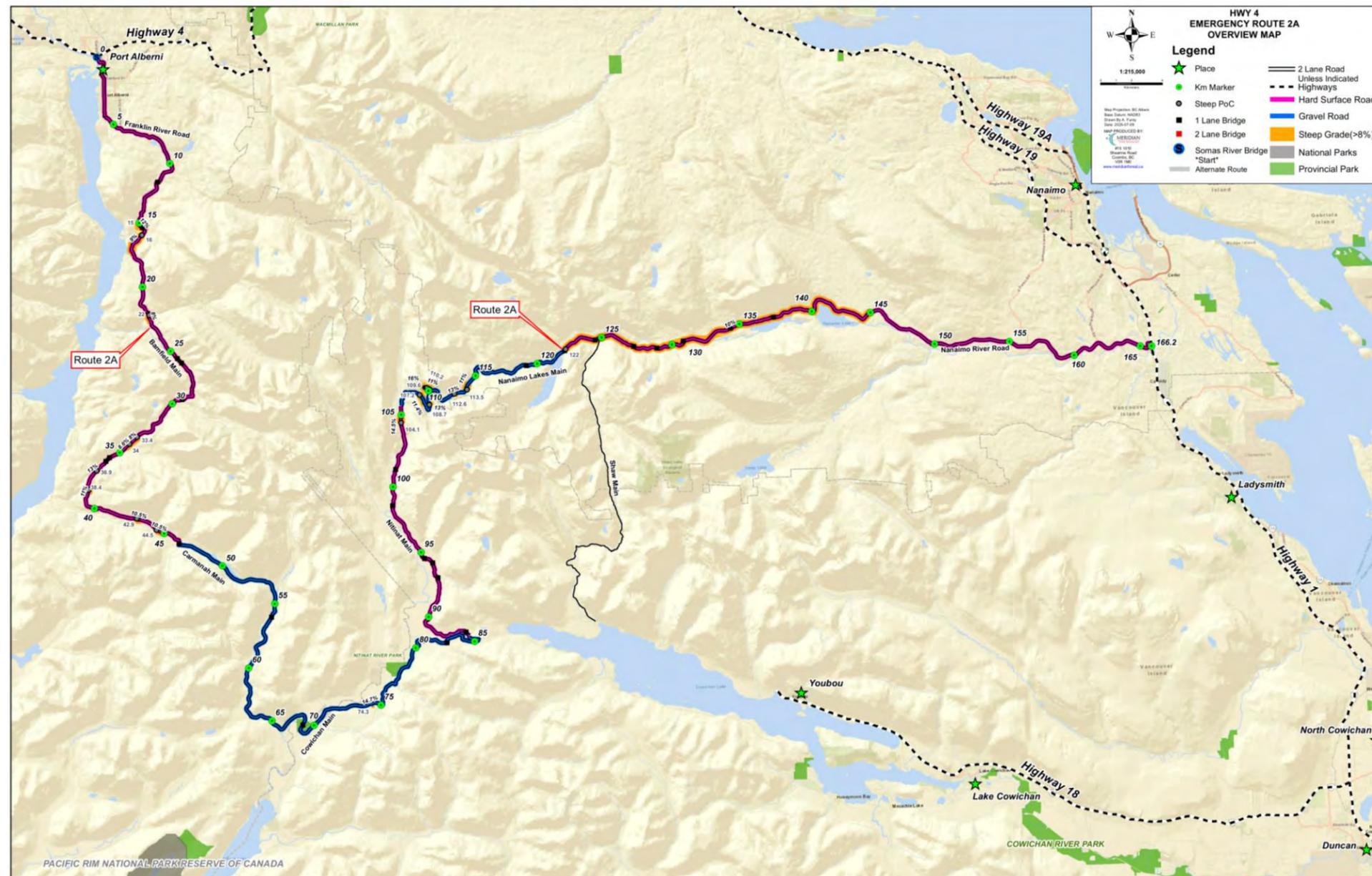


FIGURE 16: ROUTE 2A – NANAIMO TO PORT ALBERNI ALTERNATE

Route 2A Road Conditions

Route 2A exhibits a mix of surface types. The gravel sections are maintained by a forest management company to suit their use. The paved sections have been maintained; however, it was observed that in areas where repairs were done (e.g., culvert replacements, repairs to address other issues that impacted the pavement), the pavement was replaced with a gravel surface.

Grades in some sections are very steep and may make the route impassable for some types of vehicles.



FIGURE 17: ROUTE 2A - OBSERVED ROAD CONDITIONS

Route 2A Typical Cross Sections

The observed cross sections for Route 2A are shown in Figure 18.

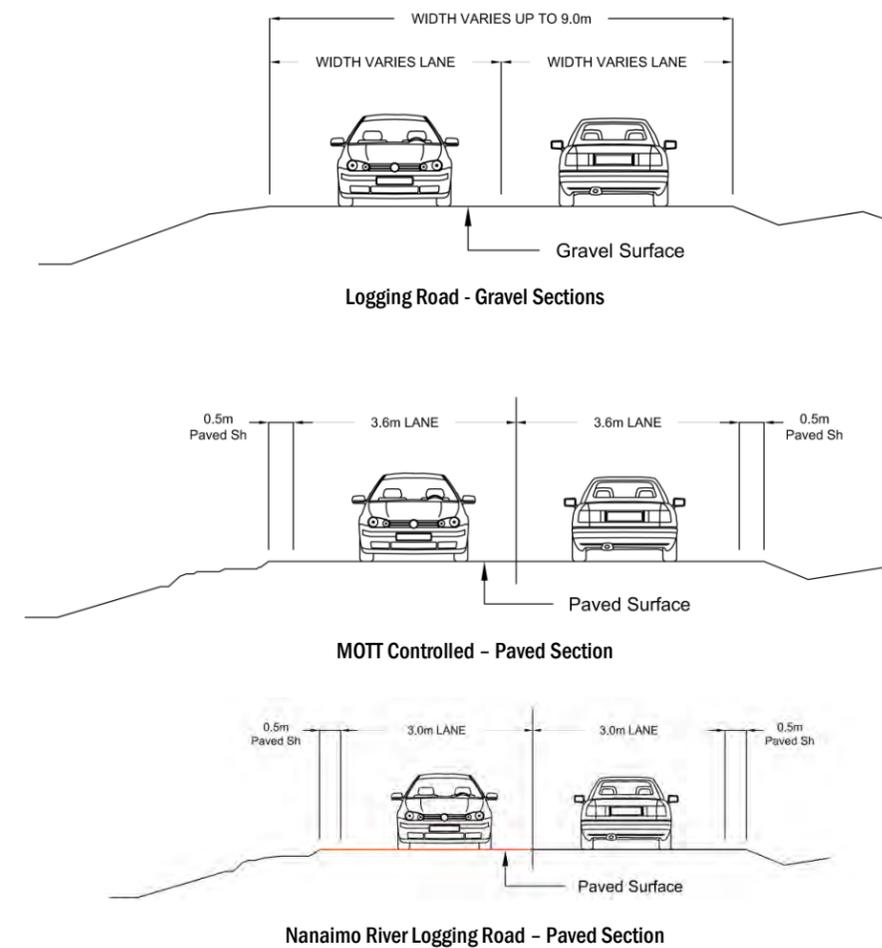


FIGURE 18: ROUTE 2A - TYPICAL CROSS SECTIONS

Route 2A Summary

Route 2A provides a mostly hard surfaced route directly to Nanaimo; however, the road surface is narrow with numerous changes in the surface treatment. The grades over the higher elevation sections may pose challenges to some types of vehicles, as these elevations can lead to adverse weather conditions, reduced vehicle performance, and potential safety concerns, making them not recommended for use.

TABLE 11: SUMMARY TABLE FOR ROUTE 2A

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	166.2 km (Hwy 4 to Hwy 1)	3 hours	Public Road	Hard-Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	9000
10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
46.5 km to 86.1 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.5 North Shore Road 82.5 km to 86.1 km)	39.6 km			Private logging road open to public use.	Gravel	At Bridges	39.6 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
86.1 km to 105.6 km (Nitinat Main)	19.5 km			Private logging road open to public use.	Hard-Paved	At Bridges	19.5 km	All vehicles	10.4%, 0.1 km	Max: 281 m Min: 102 m	Forestry Company	
105.6 km to 122.4 km (Nitinat Main to Nanaimo River Road)	16.8 km			Private logging road	Gravel	9.2 km and at Bridges	7.6 km	Radio Controlled 4x4, Emergency Vehicles	9.2 km in excess of 8%. Sections up to 21%	Max: 831 m Min: 277 m	Forestry Company	
122.4 km to 144.9 km (Nanaimo River Road)	22.5 km			Public Road	Hard-Paved	At Bridges	22.5 km	All vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
144.9km to 166.2 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard-Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	

ROUTE 2B – NANAIMO TO PORT ALBERNI ALTERNATE VIA SHAW MAIN

Route 2B provides a more direct route to/from Nanaimo and the ferries to the mainland. The route follows Nanaimo River Road, then heads south on Shaw Main, meeting North Shore Road and continuing along the same path as Route 1A to Port Alberni (Figure 19). At its eastern end, this option meets Highway 1 37.5 km north of Route 1 and is 13.4 km from the Duke Point ferry terminal.

The route length from Port Alberni to the Nanaimo River Road interchange on Highway 1 is 160.5 km and is estimated to take approximately 2 hours and 50 minutes to travel.

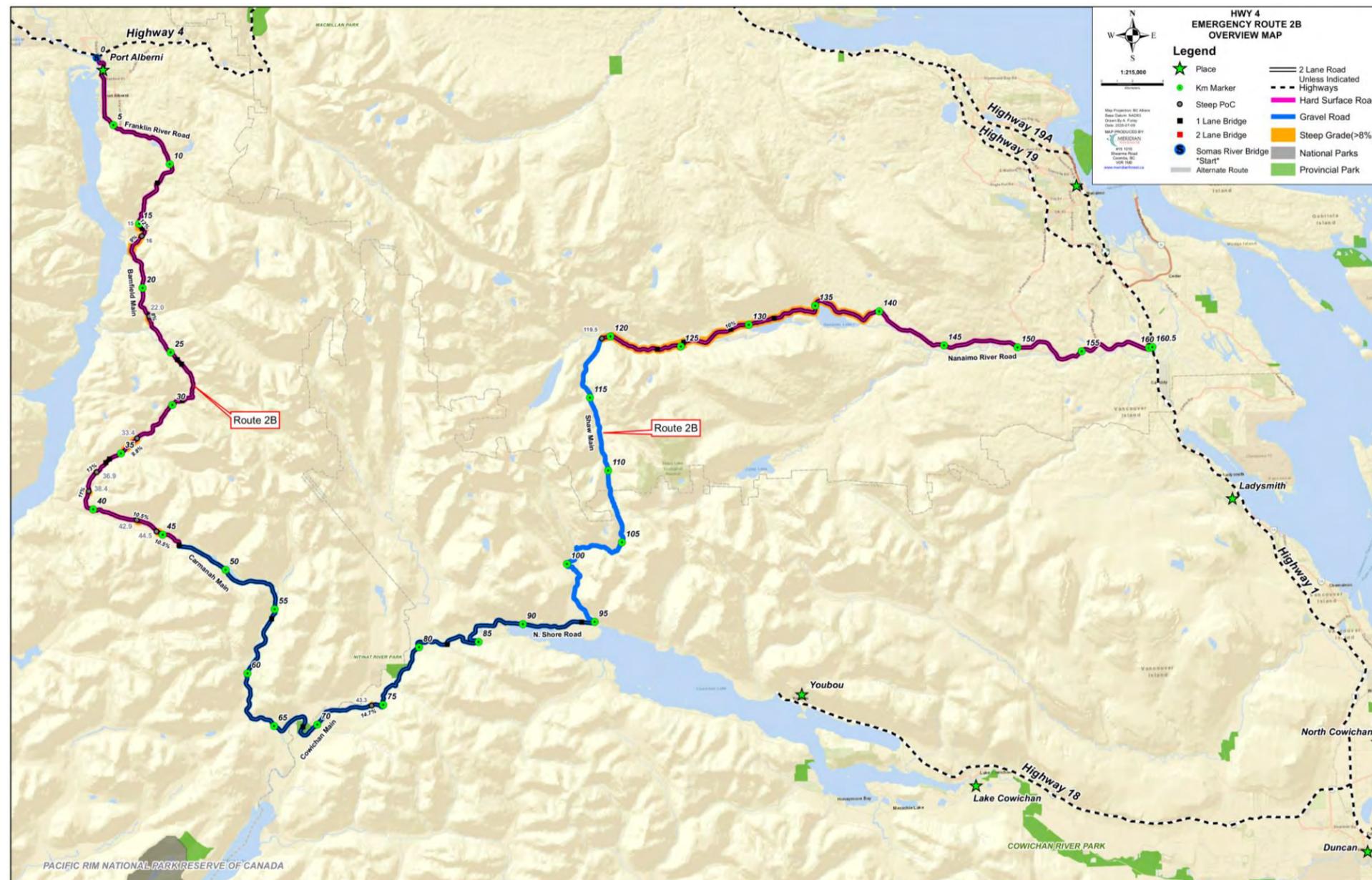


FIGURE 19: ROUTE 2B – NANAIMO TO PORT ALBERNI ALTERNATE

Route 2B Road Conditions

Route 2B exhibit a mix of surface types. The gravel section is maintained by a forest management company. The paved sections have been maintained; however, it was observed that in areas where repairs were done (e.g., culvert replacements, repairs to address other issues that impacted the pavement), the pavement was replaced with a gravel surface.

The section of the route that goes along the Shaw Main was closed and not traversable at the time of the field observation (Figure 20). The route was therefore deemed not viable.



FIGURE 20: ROUTE 2B - SHAW MAIN OBSERVED ROAD CONDITIONS

Route 2B Typical Cross Sections

The observed cross sections for Route 2B are shown in Figure 21.

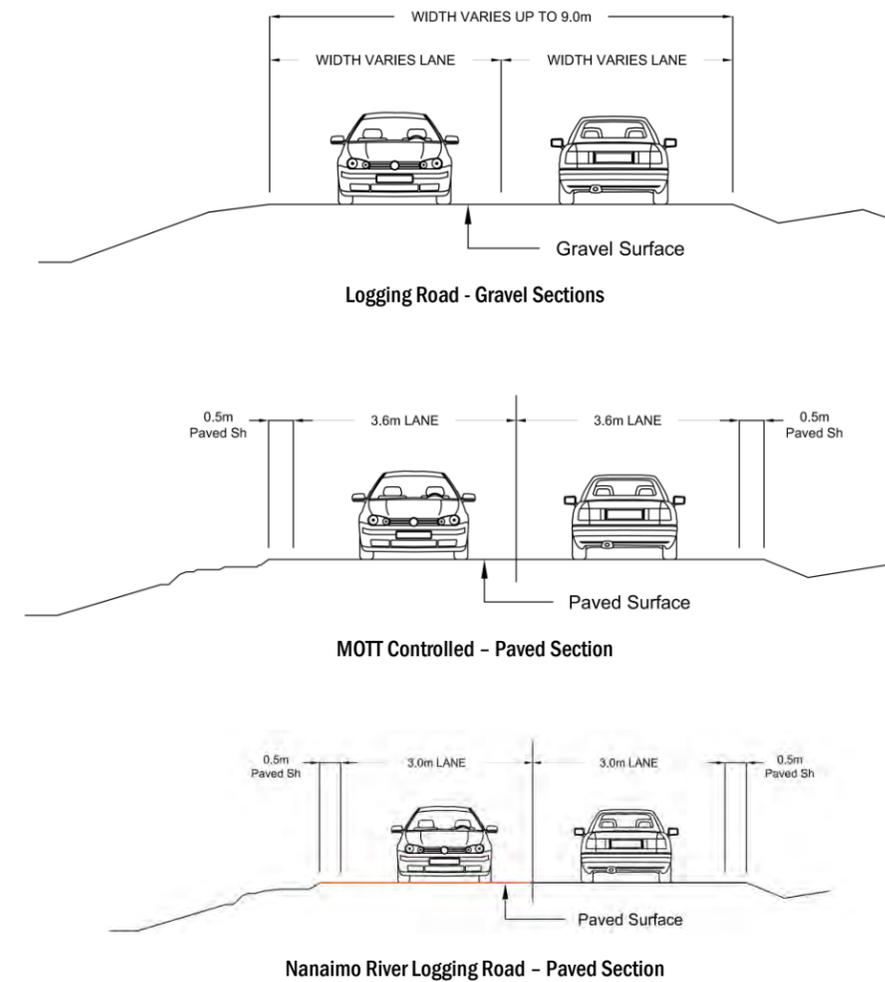


FIGURE 21: ROUTE 2A/B - TYPICAL CROSS SECTIONS

Route 2B Summary

Route 2B provides a mostly paved route directly to Nanaimo; however, the road surface is narrow with numerous changes in the surface treatment. The grades over the higher elevation sections may pose challenges to some types of vehicles. The segment on Shaw Main is not viable.

TABLE 12: SUMMARY TABLE FOR ROUTE 2B

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	160.5 km (Hwy 4 to Hwy 1)	2 hours and 50 minutes	Public Road	Hard-Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	9000
10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
46.5 km to 95 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.5 North Shore Road 82.5 km to 95 km)	48.5 km			Private logging road open to public use.	Gravel	At Bridges	48.5 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
95 km to 119.5 km (Shaw Main) *	24.5 km			*	*	*	*	*	*	Max: 600 m Min: 150 m	*	
119.5 km to 139.2 km (Nanaimo River Road)	19.7 km			Public Road	Hard-Paved	At Bridges	19.7 km	All vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
139.2 km to 160.5 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard-Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	

*Information unavailable

ROUTE 2C – NANAIMO TO PORT ALBERNI MUSEUM MAIN ALTERNATE VIA NITINAT RIVER MAIN

Route 2C follows the Bamfield Main from the southern end of Port Alberni and connects to private industrial roads Carmanah Main and Cowichan Main along Route 1A/1B, and the north along the Nitinat Main. From there the Route heads east along Nanaimo River Road.

The route length from Port Alberni to the Nanaimo River Road interchange on Highway 1 is 113 km and is estimated to take approximately 2 hours and 20 minutes to travel. Most of the route has a hard surface.

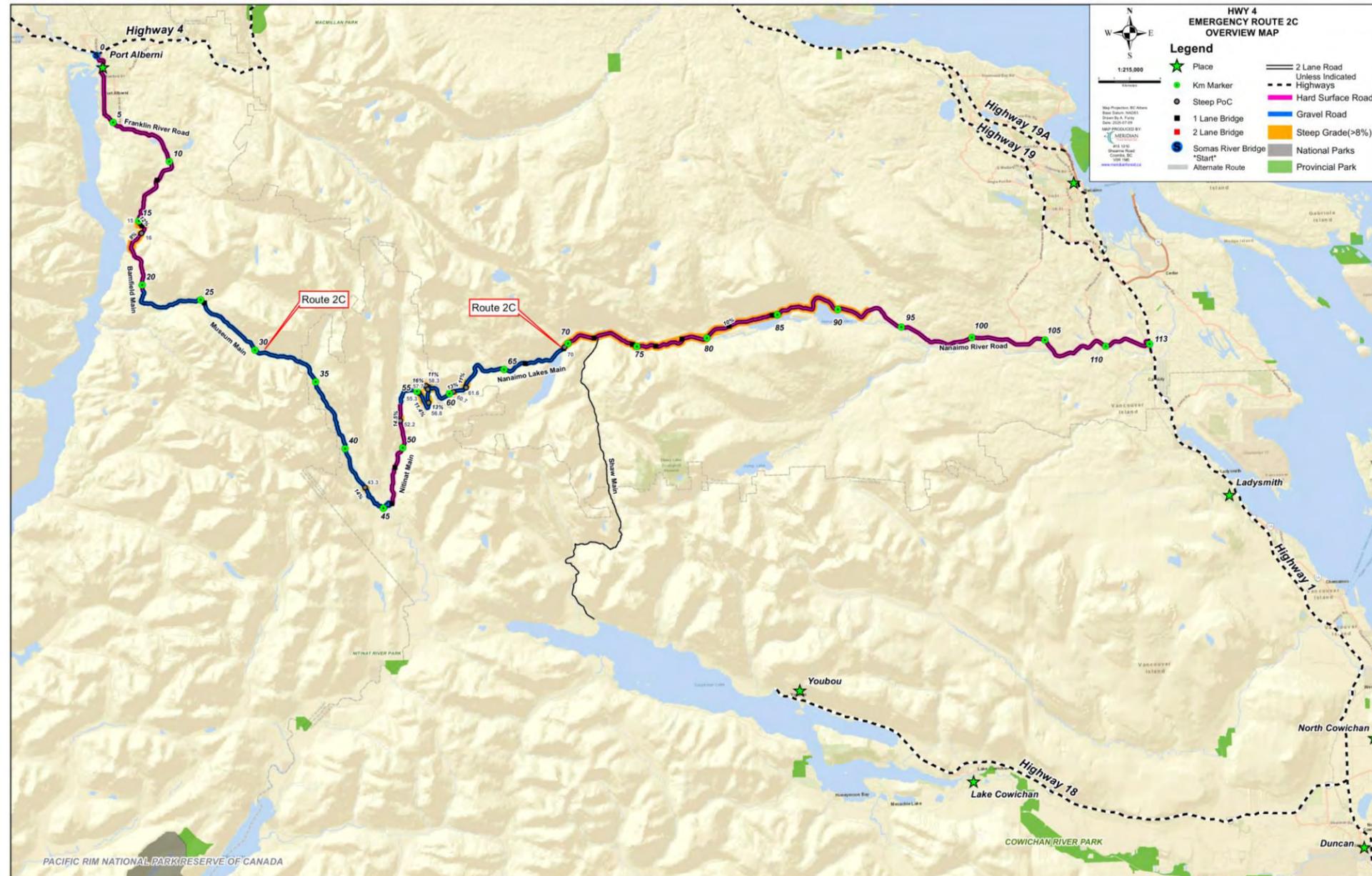


FIGURE 22: ROUTE 2C - NANAIMO TO PORT ALBERNI MUSEUM MAIN ALTERNATE

Route 2C Road Conditions

Route 2C has a mix of surface types. The gravel sections are maintained by a forest management company to suit their use; however, it was observed that in areas where repairs were done (e.g., culvert replacements, repairs to address other issues that impacted the pavement), the pavement was replaced with a gravel surface.

Grades in some sections are very steep and may make the route impassable for some types of vehicles.

Route 2C Typical Cross Sections

The observed cross sections for Route 2C are shown in **Figure 24**.



FIGURE 23: ROUTE 2C - OBSERVED ROAD CONDITIONS

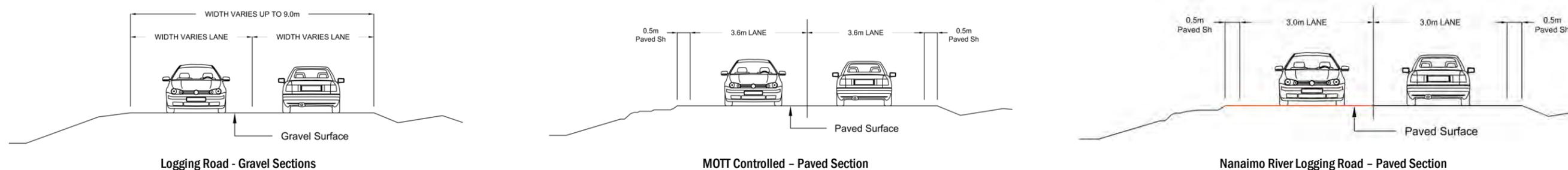


FIGURE 24: ROUTE 2C - TYPICAL CROSS SECTIONS

Route 2C Summary

Route 2C provides a mostly paved route directly to Nanaimo; however, the road surface is narrow with numerous changes in the surface treatment. The grades over the higher elevation sections may pose challenges to some types of vehicles, as these elevations can lead to adverse weather conditions, reduced vehicle performance, and potential safety concerns, making them not recommended for use.

TABLE 13: SUMMARY TABLE FOR ROUTE 2C

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	113 km (Hwy 4 to Hwy 1)	2 hours 20 minutes	Public Road	Hard-Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	8000
10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m	Forestry Company	
19.9 km to 45.9 km (Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups and Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m	Forestry Company	
45.9 km to 52.4 (Nitinat Main)	6.5 km			Private logging road open to public use.	Hard-Paved	At Bridges	6.5 km	All Vehicles	10.4%, 0.1 km	Max: 281 m Min: 102 m	Forestry Company	
52.4 km to 69.2 km (Nitinat Main to Nanaimo River Road)	16.8 km			Private Logging Road	Gravel	9.2 km and at Bridges	7.6 km	Radio Controlled 4x4, Emergency Vehicles	9.2 km in excess of 8%. Sections up to 21%	Max: 831 m Min: 277 m	Forestry Company	
69.2 km to 91.7 km (Nanaimo River Road)	22.5 km			Public Road	Hard-Paved	At Bridges	22.5 km	All Vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
91.7 km to 113 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard-Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	

ROUTE 2D – NANAIMO TO PORT ALBERNI MUSEUM MAIN ALTERNATE VIA SHAW MAIN

Route 2D follows the Bamfield Main from the southern end of Port Alberni and connects to private industrial roads Carmanah Main and Cowichan Main along Route 1C/1D, and then south along the Nitinat Main. From there the Route heads east along North Shore Road and then north on Shaw Main. From there the route connects to Nanaimo River Road.

The route length from Port Alberni to the Nanaimo River Road interchange on Highway 1 is 133.8 km and is estimated to take approximately 2 hours and 35 minutes to travel.

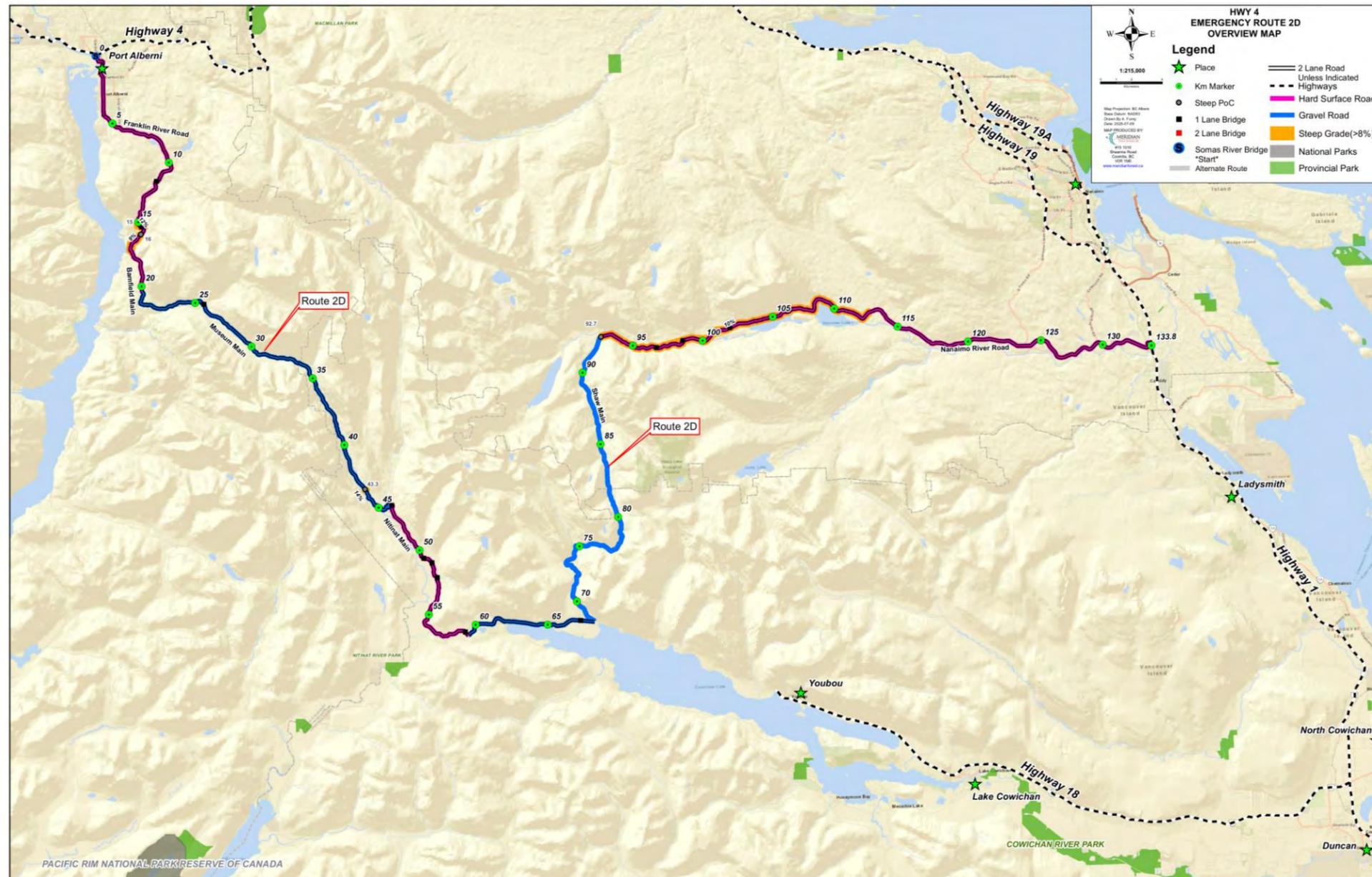


FIGURE 25: ROUTE 2D - NANAIMO TO PORT ALBERNI MUSEUM MAIN ALTERNATE

Route 2D Road Conditions

Route 2D has a mix of surface types. The gravel section is maintained by a forest management company to suit their use; however, it was observed that in areas where repairs were done (e.g., culvert replacements, repairs to address other issues that impacted the pavement), the pavement was replaced with a gravel surface. The section of the route that goes along the Shaw Main was closed and impassable at the time of the field observation.

Grades in some sections are very steep and may make the route impassable for some types of vehicles.

The route was therefore deemed not viable.



FIGURE 26: ROUTE 2D - OBSERVED ROAD CONDITIONS

Route 2D Typical Cross Sections

The observed cross sections for Route 2D are shown in Figure 27.

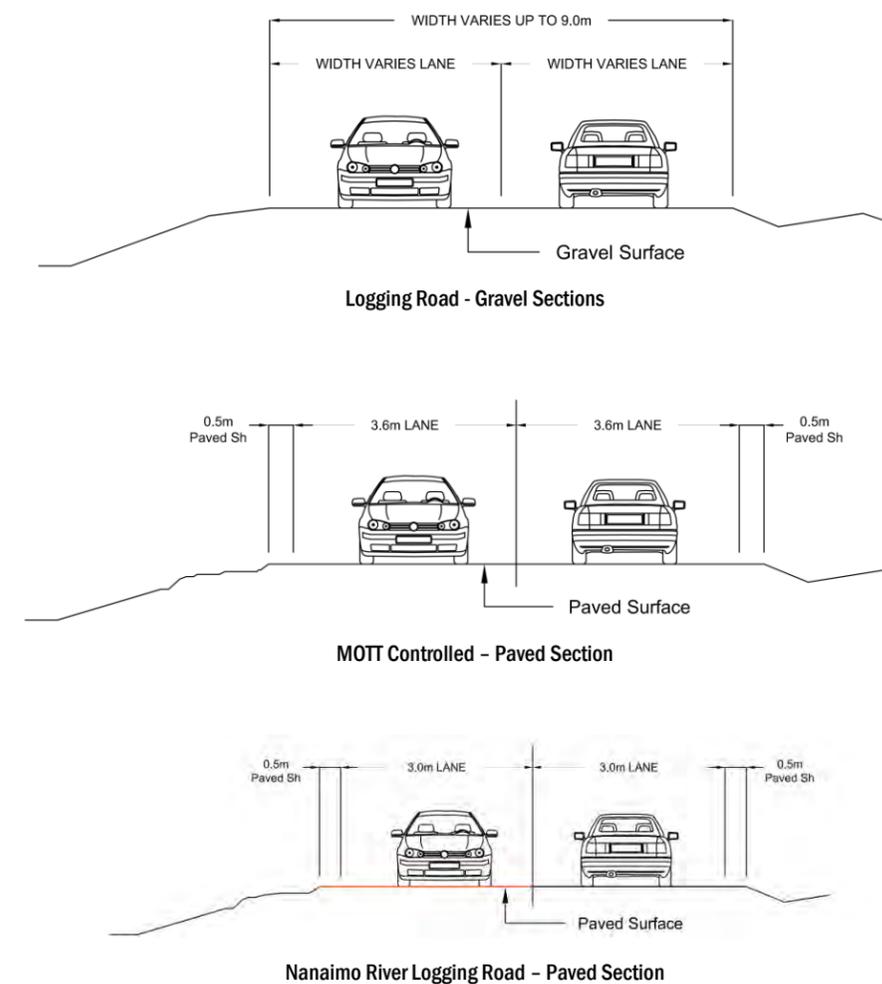


FIGURE 27: ROUTE 2D - TYPICAL CROSS SECTIONS

Route 2D Summary

Route 2D provides a mostly paved route directly to Nanaimo; however, the road surface is narrow with numerous changes in the surface treatment. The grades over the higher elevation sections may pose challenges for some types of vehicles.

TABLE 14: SUMMARY TABLE FOR ROUTE 2D

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	133.8 km (Hwy 4 to Hwy 1)	2 hours 35 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	8000
10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m	Forestry Company	
19.9 km to 45.9 (Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups and Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m	Forestry Company	
45.9 km to 58.5 km (Nitinat Main)	12.6 km			Private logging road open to public use.	Hard-Paved	At Bridges	12.6 km	All Vehicles	10.4%, 0.1 km	Max: 281 m Min: 102 m	Forestry Company	
58.5 km to 68.3 km (Nitinat Main to Nanaimo River Road)	9.8 km			Private logging road open to public use.	Gravel	At Bridges	9.8 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
68.3 km to 92.7 km (Shaw Main) *	24.4 km			*	*	*	*	*	*	Max: 600 m Min: 150 m	*	
92.7 km to 112.5 km (Nanaimo River Road)	19.8 km			Public Road	Hard-Paved	At Bridges	19.8 km	All Vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
112.5 km to 133.8 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard-Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	

*Information unavailable

3.5 Potential Route 3 Set

ROUTE 3A - CUMBERLAND TO PORT ALBERNI

Route 3A follows Cumberland Road from Cumberland Highway 19 Exit 117. Cumberland Road then connects to Bevan Road; both are paved public roads. The route then transitions to private roads starting with Comox Logging Road and following around the north shore of Comox Lake turning into South Main Road, Comox Lake Main, Ash Comox Connector, Great Central Main, and lastly Comox Main, to a paved section on Somers Road to Beaver Crescent Road, as shown in **Figure 28**.

The total distance from Highway 19 to Highway 4 in Port Alberni is 77.6 km and is estimated to take approximately 1 hour and 30 minutes to travel. The total length of the gravel section is 53.8 km. This route contains significant lengths that are single-lane.



FIGURE 28: ROUTE 3A - CUMBERLAND TO PORT ALBERNI

Route 3A Road Conditions

The gravel road is maintained by a forest management company to suit their use. There are many narrow sections with steep drop-offs to the lake below. Grades in some sections are very steep and may make the route impassable for some types of vehicles.

Route 3A Typical Cross Sections

The observed cross sections for Route 3A are shown in **Figure 30**.

Route 3A Environmental Characteristics

This route runs through the Comox Lake watershed and parallels Comox Lake along much of its western shore and crosses multiple watercourses flowing into the lake. The Comox Lake serves as the source of the Comox Valley Regional District (CVRD) water system. The road is steep for most of the lake sections.



FIGURE 29: ROUTE 3A – OBSERVED ROAD CONDITIONS

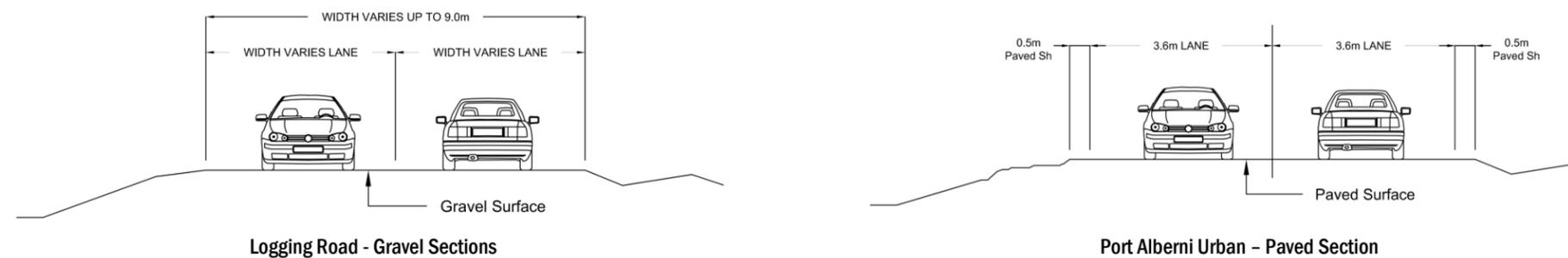


FIGURE 30: ROUTE 3A – TYPICAL CROSS SECTIONS

Route 3A Summary

Route 3A is a difficult route to travel due to the steep grades and narrow road cross sections. The route also has numerous locations with reduced sight distances that are currently controlled by radio communications. The route runs through the Comox Lake Watershed, which may require additional consideration should this route be chosen as an emergency detour route.

TABLE 15: SUMMARY TABLE FOR ROUTE 3A

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 18.8 km (Somers Rd - Beaver Cr Rd)	18.8 km	77.6 km (Hwy 19 to Hwy 4)	1 hour 30 minutes	Public Road	Hard- Paved	0 km	18.8 km	All vehicles	Max 8%	Max: 125 m Min: 6 m	City of Port Alberni	8000
18.8 km to 72.6 km (Comox Lake Main)	53.8 km			Private logging Closed to public use.	Gravel	17.8 km	36 km	Radio Controlled	>8%, 21.6 km, Section up to 16.6%	Max: 311 m Min: 24 m	Forestry Company	
72.6 km to 77.6 km (Cumberland Rd - Bevan Rd)	5.0 km			Public Road	Hard-Paved	0 km	5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	MOTT	

ROUTE 3B - CUMBERLAND TO PORT ALBERNI ALTERNATE

Route 3B starts further west on Highway 4, it goes north along the paved Central Lake Road and Ash Main before connecting with Route 3A on Comox Lake Main. From there it utilizes the same route to Cumberland as Route 3A (**Figure 31**).

This route meets Highway 4 at a location 10.0 km west of downtown Port Alberni. The total distance of Route 3B from Highway 19 to Highway 4 in Port Alberni is 73.6 km, and it takes approximately 1 hour and 30 minutes to travel.

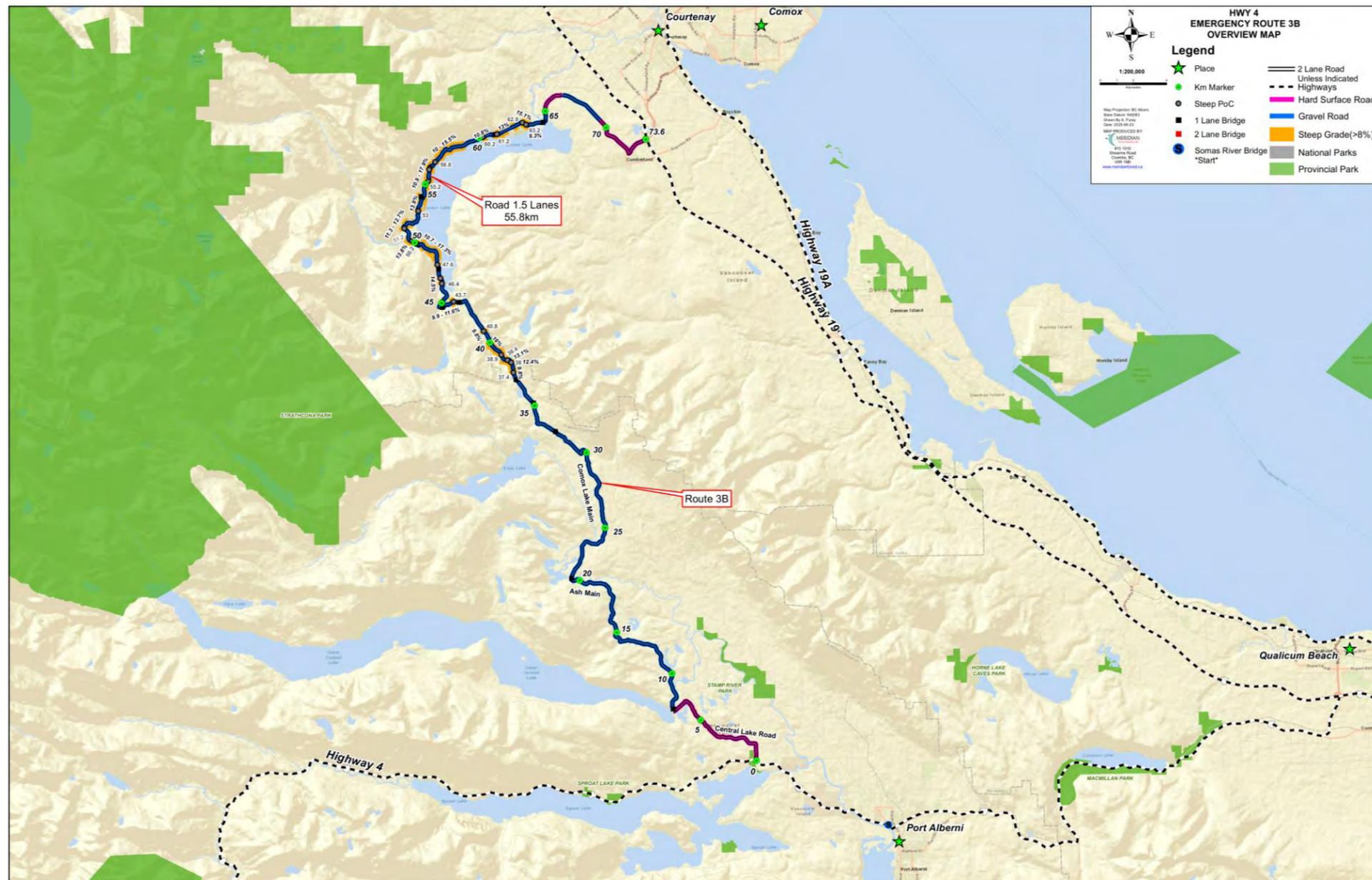


FIGURE 31: ROUTE 3B - CUMBERLAND TO PORT ALBERNI ALTERNATE

Route 3B Road Conditions

The gravel road segments are maintained by a forest management company to suit their use. There are many narrow sections with steep drop-offs to the lake below. Grades in some sections are very steep and may make the route impassable for some types of vehicles.

Route 3B Environmental Characteristics

This route passes through logged areas with several small watercourse crossings, small lakes, and wetlands. This route passes through the Comox Lake watershed.

Route 3B Typical Cross Sections

The observed cross sections for 3B are shown in **Figure 33**.



FIGURE 32: ROUTE 3B - OBSERVED ROAD CONDITIONS

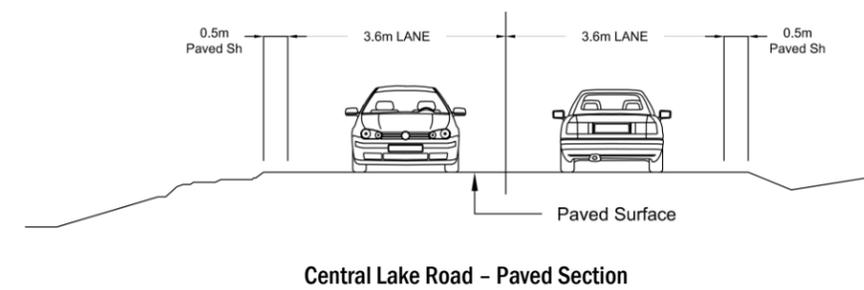
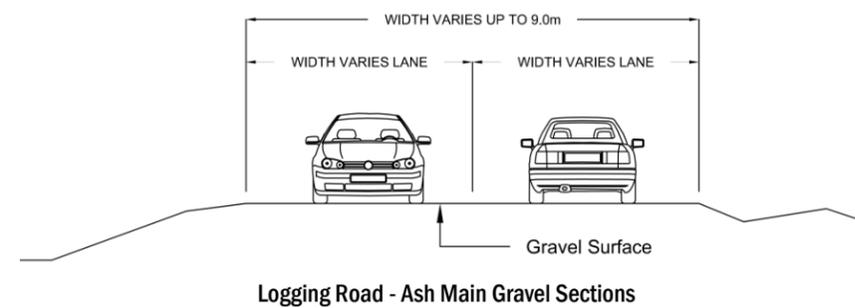


FIGURE 33: ROUTE 3B - TYPICAL CROSS SECTIONS

Route 3B Summary

Route 3B may be a difficult route to travel due to the steep grades and narrow road cross section. The road also has numerous locations with reduced sight distances that are currently controlled by radio communications.

TABLE 16: SUMMARY TABLE FOR ROUTE 3B

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 7.5 km (Central Lake Road)	7.5 km	73.6 km (Hwy 19 to Hwy 4)	1 hour 30 minutes	Public Road	Hard- Paved	0 km	7.5 km	All vehicles	Max 8%	Max: 112 m Min: 56 m	MOTT	8000
7.5 km to 25.3 km (Ash Main)	17.8 km			Private logging road open to public use.	Gravel	At Bridges	17.8 km	All vehicles	Max 8%	Max: 295 m Min: 80 m	Forestry Company	
25.3 km to 68.6 km (Comox Main)	43.3 km			Private logging Closed to public use.	Gravel	17.8 km	25.5 km	Radio Controlled	> 8%, 21.6 km Sections up to 16.6%	Max: 311 m Min: 24 m	Forestry Company	
68.6 km to 73.6 (Cumberland Rd - Bevan Rd)	5.0 km			Public Road	Hard-Paved	0 km	5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	MOTT	

3.6 Potential Route 4 Set

ROUTE 4 – HIGHWAY 19 - HORNE LAKE CONNECTOR

This route starts at Highway 19 Exit 75 and follows Horne Lake Road for 4.7 km, it then uses Horne Lake Caves Road and numerous logging roads to Loon Lake Main at Highway 4, 9.7 km east of downtown Port Alberni (Figure 34). The route has been previously assessed several times by MOTT including in 2005, 2012 and 2016.

The total distance from Highway 4 to Highway 19 is 34.4 km and is estimated to take approximately 1 hour to travel. While the route is short, it has very steep sections.



FIGURE 34: ROUTE 4 - HIGHWAY 19 - HORNE LAKE CONNECTOR

Route 4 Road Conditions

The gravel road is maintained by a forest management company to suit their use. Grades are very steep and may make the route impassable for most of the vehicles currently using Highway 4.



FIGURE 35: ROUTE 4 - OBSERVED ROAD CONDITIONS

Route 4 Typical Cross Sections

The observed cross section for the logging road segment of Route 4 is shown in Figure 36.

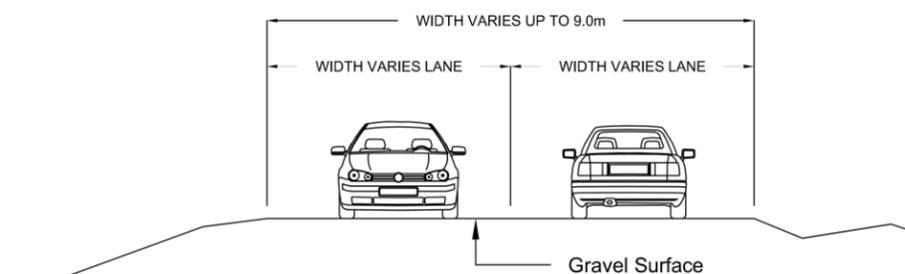


FIGURE 36: ROUTE 4 - TYPICAL CROSS SECTIONS (LOGGING ROAD)

Route 4 Summary

Grades along segments of the route are very steep.

TABLE 17: SUMMARY TABLE FOR ROUTE 4A

SEGMENT DESCRIPTION	SEGMENT LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
						< TWO LANE	TWO LANE					
0 km to 32.4 km (Loon Lake Main - Home Lake Caves Rd)	32.4 km	34.4 km (Hwy 4 to Hwy 19)	1 hour	Private logging Closed to public use.	Gravel	10 km	22.4 km	Radio Controlled 4x4, Emergency Vehicles	> 8%, 9.2 km Sections up to 13%	Max: 510 m Min: 120 m	Forestry Company	5000
32.4 km to 34.4 km (Home Lake Caves Rd)	2 km			Public Road	Hard- Paved	0 km	2 km	All vehicles	Max 8%	Max: 134 m Min: 113 m	MOTT	

4. Summary of All Route Options

TABLE 18: ROUTE OPTION SUMMARY

ROUTE	DESCRIPTION	LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
							<TWO LANE	TWO LANE					
1A	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	149 km (Hwy 4 to Hwy 1)	2 hours 30 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	10000
	10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
	46.5 km to 108.3 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.3, North Shore Road 82.5-108.4)	61.8 km			Private logging road open to public use.	Gravel	At Bridges	61.8 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
	108.3 km to 149 km (North Shore Road, Youbou Road, Hwy 18)	40.7 km			Public Road	Hard- Paved	0 km	40.7 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
1B	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	155.2 km (Hwy 4 to Hwy 1)	3 hours 10 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	8000
	10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
	46.5 km to 89 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.3, North Shore Road 82.5-89)	42.5 km			Private logging road open to public use.	Gravel	At Bridges	42.5 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
	89 km to 114.3km (South Shore Road)	25.3 km			Private logging road open to public use.	Gravel	At Bridges	25.3 km	All vehicles	10.4%, 0.1 km	Max: 303 m Min: 165 m	Forestry Company	
	114.3km to 129.2 km (South Shore Road, Cowichan Lake Road)	14.9 km			Public Road	Hard- Paved	0 km	14.9 km	All vehicles	Max 8%	Max: 203 m Min: 163 m	MOTT	
	129.2 km to 155.2 km (Hwy 18)	26 km			Public Road	Hard- Paved	0 km	26 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
1C	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	125.2km (Hwy 4 to Hwy 1)	2 hours 20 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	8000
	10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m	Forestry Company	
	19.9 km to 45.9 (Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups and Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m	Forestry Company	
	45.9 km to 58.5 km (Nitinat Main)	12.6 km			Private logging road open to public use.	Hard - Paved	At Bridges	12.6 km	All vehicles	Max 8%	Max: 185 m Min: 102 m	Forestry Company	
	58.5 km to 81 km (North Shore Road)	22.5 km			Private logging road open to public use.	Gravel	At Bridges	22.5 km	All vehicles	14.7%, 0.1 km	Max: 208 m Min: 183 m	Forestry Company	
	81 km to 125.2 km (North Shore Road, Youbou Road, Hwy 18)	44.2 km			Public Road	Hard- Paved	0 km	44.2 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
1D	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	128.2 km (Hwy 4 to Hwy 1)	3 hours 10 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	7000
	10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m	Forestry Company	
	19.9 km to 45.9 km (Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups, Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m	Forestry Company	
	45.9 km to 58.5 km (Nitinat Main)	12.6 km			Private logging road open to public use.	Hard - Paved	At Bridges	12.6 km	All vehicles	Max 8%	Max: 185 m Min: 102 m	Forestry Company	

ROUTE	DESCRIPTION	LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
							<TWO LANE	TWO LANE					
	58.5 km to 61.6 km (North Shore Road)	3.1 km			Private logging road open to public use.	Gravel	At Bridges	3.1 km	All vehicles	14.7%, 0.1 km	Max: 201 m Min: 183 m	Forestry Company	
	61.6 km to 86.9 km (South Shore Road)	25.3 km			Private logging road open to public use.	Gravel	At Bridges	25.3 km	All vehicles	10.4%, 0.1 km	Max: 303 m Min: 165 m	Forestry Company	
	86.9 km to 101.8 km (South Shore Road, Cowichan Lake Road)	14.9 km			Public Road	Hard- Paved	0 km	14.9 km	All vehicles	Max 8%	Max: 203 m Min: 163 m	MOTT	
	101.8 km to 128.2 km (Hwy 18)	26.4 km			Public Road	Hard- Paved	0 km	26.4 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
2A	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	166.2 km (Hwy 4 to Hwy 1)	3 hours	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	9000
	10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
	46.5 km to 86.1 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.5 North Shore Road 82.5 km to 86.1 km)	39.6 km			Private logging road open to public use.	Gravel	At Bridges	39.6 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
	86.1 km to 105.6 km (Nitinat Main)	19.5 km			Private logging road open to public use.	Hard- Paved	At Bridges	19.5 km	All vehicles	10.4%, 0.1 km	Max: 281 m Min: 102 m	Forestry Company	
	105.6 km to 122.4 km (Nitinat Main to Nanaimo River Road)	16.8 km			Private logging road	Gravel	9.2 km and at Bridges	7.6 km	Radio Controlled 4x4, Emergency Vehicles	9.2 km in excess of 8%. Sections up to 21%	Max: 831 m Min: 277 m	Forestry Company	
	122.4 km to 144.9 km (Nanaimo River Road)	22.5 km			Public Road	Hard- Paved	At Bridges	22.5 km	All vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
	144.9 km to 166.2 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard- Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
2B*	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	160.5 km (Hwy 4 to Hwy 1)	2 hours 50 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	9000
	10.5 km to 46.5 km (Bamfield Main)	36 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	36 km	All vehicles	13.0%, 0.1 km	Max: 311 m Min: 24 m	Forestry Company	
	46.5 km to 95 km (Carmanah Main 46.5-68.5, Cowichan Main 68.5-82.5 North Shore Road 82.5 km to 95 km)	48.5 km			Private logging road open to public use.	Gravel	At Bridges	48.5 km	All vehicles	14.7%, 0.1 km	Max: 182 m Min: 32 m	Forestry Company	
	95 km to 119.5 km (Shaw Main)	24.5 km			**	**	**	**	**	**	Max: 600 m Min: 150 m	**	
	119.5 km to 139.2 km (Nanaimo River Road)	19.7 km			Public Road	Hard- Paved	At Bridges	19.7 km	All vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
	139.2 km to 160.5 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard- Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
2C	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	113 km (Hwy 4 to Hwy 1)	2 hours 20 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	8000
	10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m	Forestry Company	
	19.9 km to R2A 45.9 (Route 1C\1D Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups and Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m	Forestry Company	
	45.9 km to 52.4 (Nitinat Main)	6.5 km			Private logging road open to public use.	Hard-Paved	At Bridges	6.5 km	All Vehicles	10.4%, 0.1 km	Max: 281 m Min: 102 m	Forestry Company	

ROUTE	DESCRIPTION	LENGTH (KM)	TOTAL DETOUR LENGTH	APPROXIMATE TRAVEL TIME	PRIVATE /PUBLIC	SURFACE TYPE	WIDTH		VEHICLE SUITABILITY	STEEP GRADES (% , KM)	ELEVATION (MAX, MIN)	MAINTENANCE PROVIDER	TRAFFIC CAPACITY, VEHICLES/DAY
							<TWO LANE	TWO LANE					
	52.4 km to 69.2 km (Nitinat Main to Nanaimo River Road)	16.8 km			Private Logging Road	Gravel	9.2 km and at Bridges	7.6 km	Radio Controlled 4x4, Emergency Vehicles	9.2 km in excess of 8%. Sections up to 21%	Max: 831 m Min: 277 m	Forestry Company	
	69.2 km to 91.7 km (Nanaimo River Road)	22.5 km			Public Road	Hard-Paved	At Bridges	22.5 km	All Vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
	91.7 km to 113 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard-Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
2D*	0 km to 10.5 km (3rd Ave, Ship Creek Road, Franklin River Road)	10.5 km	133.8 km (Hwy 4 to Hwy 1)	2 hours 35 minutes	Public Road	Hard- Paved	0 km	10.5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	City of Port Alberni & MOTT	8000
	10.5 km to 19.9 km (Bamfield Main)	9.4 km			Private logging road open to public use.	Hard - Seal Coat	At Bridges	9.4 km	All vehicles	12%, 0.6 km	Max: 311 m Min: 24 m	Forestry Company	
	19.9 km to 45.9 (Museum Main)	26 km			Private logging road open to public use.	Gravel	8 km	18 km	Pickups and Emergency Vehicles	14%, 0.2 km	Max: 439 m Min: 121 m	Forestry Company	
	45.9 km to 58.5 km (Nitinat Main)	12.6 km			Private logging road open to public use.	Hard-Paved	At Bridges	6.5 km	All Vehicles	10.4%, 0.1 km	Max: 281 m Min: 102 m	Forestry Company	
	8.58 km to 68.3 km (Nitinat Main to Nanaimo River Road)	9.8 km			Private Logging Road open to public use	Gravel	At Bridges	9.8 km	All vehicles	14.7%, 0.1km	Max: 182 m Min: 32 m	Forestry Company	
	68.3 km to 92.7 km (Shaw Main)	24.4 km			**	**	**	**	**	**	Max: 600 m Min: 150 m	**	
	92.7 km to 112.5 km (Nanaimo River Road)	19.8 km			Public Road	Hard-Paved	At Bridges	19.8 km	All Vehicles	Max 8%	Max: 203 m Min: 163 m	Forestry Company	
	112.5 km to 133.8 km (Nanaimo River Road to Hwy 19)	21.3 km			Public Road	Hard-Paved	0 km	21.3 km	All vehicles	Max 8%	Max: 264 m Min: 19 m	MOTT	
3A	0 km to 18.8 km (Somers Rd - Beaver Cr Rd)	18.8 km	77.6 km (Hwy 19 to Hwy 4)	1 hour 30 minutes	Public Road	Hard- Paved	0 km	18.8 km	All vehicles	Max 8%	Max: 125 m Min: 6 m	City of Port Alberni	8000
	18.8 km to 72.6 km (Comox Lake Main)	53.8 km			Private logging Closed to public use.	Gravel	17.8 km	36 km	Radio Controlled	>8%, 21.6 km, Section up to 16.6%	Max: 311 m Min: 24 m	Forestry Company	
	72.6 km to 77.6 km (Cumberland Rd - Bevan Rd)	5.0 km			Public Road	Hard-Paved	0 km	5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	MOTT	
3B	0 km to 7.5 km (Central Lake Road)	7.5 km	73.6 km (Hwy 19 to Hwy 4)	1 hour 30 minutes	Public Road	Hard- Paved	0 km	7.5 km	All vehicles	Max 8%	Max: 112 m Min: 56 m	MOTT	8000
	7.5 km to 25.3 km (Ash Main)	17.8 km			Private logging road open to public use.	Gravel	At Bridges	17.8 km	All vehicles	Max 8%	Max: 295 m Min: 80 m	Forestry Company	
	25.3 km to 68.6 km (Comox Main)	43.3 km			Private logging Closed to public use.	Gravel	17.8 km	25.5 km	Radio Controlled	> 8%, 21.6 km Sections up to 16.6%	Max: 311 m Min: 24 m	Forestry Company	
	68.6 km to 73.6 (Cumberland Rd -Bevan Rd)	5.0 km			Public Road	Hard-Paved	0 km	5 km	All vehicles	Max 8%	Max: 148 m Min: 7 m	MOTT	
4	0 km to 32.4 km (Loon Lake Main - Horne Lake Caves Rd)	32.4 km	34.4 km (Hwy 4 to Hwy 19)	1 hour	Private logging Closed to public use.	Gravel	10 km	22.4 km	Radio Controlled 4x4, Emergency Vehicles	> 8%, 9.2 km Sections up to 13%	Max: 510 m Min: 120 m	Forestry Company	5000
	32.4 km to 34.4 km (Horne Lake Caves Rd)	2 km			Public Road	Hard- Paved	0 km	2 km	All vehicles	Max 8%	Max: 134 m Min: 113 m	MOTT	

* Includes segments that were closed

** Information unavailable

5. Decision Making

ROUTE EVALUATION

In order for MOTT to choose the most effective route in the event of an emergency, the table below shows road characteristics for each route. From a user perspective, problematic segments have been identified within the table according to the following colour coding legend.

TABLE 19: ROUTE EVALUATION CRITERIA

	GRADE	MAX ELEVATION	TRAVEL TIME	ROAD WIDTH (TWO LANE)	DESCRIPTION
Not Recommended	>20 km steep	> 440 m	>3.5h	<50%	These routes are ruled out due to significant limitations, such as lack of availability or critical issues like impassable terrain (e.g., Shaw Main). They are not considered viable for detour planning.
Adequate	10-20 km steep	300-440 m	2.5-3.5h	50-90%	These routes may be utilized if Preferred Viable Options are unavailable. While they can serve as alternatives, they often present challenging characteristics, including steep grades, high elevations, and limited two-lane sections, which may impact accessibility and safety.
Preferred	<10 km steep	<300 m	<2.5h	>90%	These routes are preferred due to their favorable characteristics, such as reliable availability, manageable terrain, and sufficient road capacity. They are the most suitable options for ensuring safe and efficient travel during detour scenarios.

TABLE 20: ROUTE EVALUATION RESULTS

ROUTE	LENGTH (KM)	TRAVEL TIME (HOURS)	SURFACE TYPE		MAX ELEVATION (M)	GRADE		ROAD WIDTH		ROUTE VIABILITY
			HARD SURFACE (KM)	GRAVEL (KM)		FLAT TO MODERATE (UP TO 8%)	STEEP (>8%)	TWO LANE (KM)	SINGLE LANE (KM)	
1A	149.0	2.5	87.2	61.8	311	148.8 km	0.2 km	149.0	--	Preferred Viable Options
1B	155.2	3.2	87.4	67.8	311	154.9 km	0.3 km	155.2	--	
1C	125.2	2.3	76.7	48.5	439	124.3 km	0.9 km	117.2	8.0	
1D	128.2	3.2	73.8	54.4	439	127.2 km	1.0 km	120.8	8.0	
2A	166.2	3	109.8	56.4	831	156.7 km	9.5 km	157.0	9.2	Not Recommended Options
2B*	160.5				600					
2C	113.0	2.4	70.2	42.8	831	102.9 km	10.1 km	95.8	17.2	
2D*	133.8				600					
3A	77.6	1.5	23.8	53.8	311	56.0 km	21.6 km	59.8	17.8	Adequate Secondary Options
3B	73.6	1.5	12.5	61.1	311	52.0 km	21.6 km	55.8	17.8	
4	34.4	1	2.0	32.4	510	25.2 km	9.2 km	24.4	10.0	

* Includes segments that were closed

6. Conclusion

In the event of an emergency that closes Highway 4 an emergency detour route may be required. The decision to implement an emergency detour route may be undertaken by the MOTT District Manager through their delegated authority under Section 66 of the *Transportation Act*. Should an unplanned extended closure of Highway 4 be required, considerations for implementation of an emergency detour route will be carefully considered based on situational needs.

The information contained in this report is based on current information available at the time of writing and may require reassessment in future to reflect changes in route conditions or new information at the time of an emergency closure.

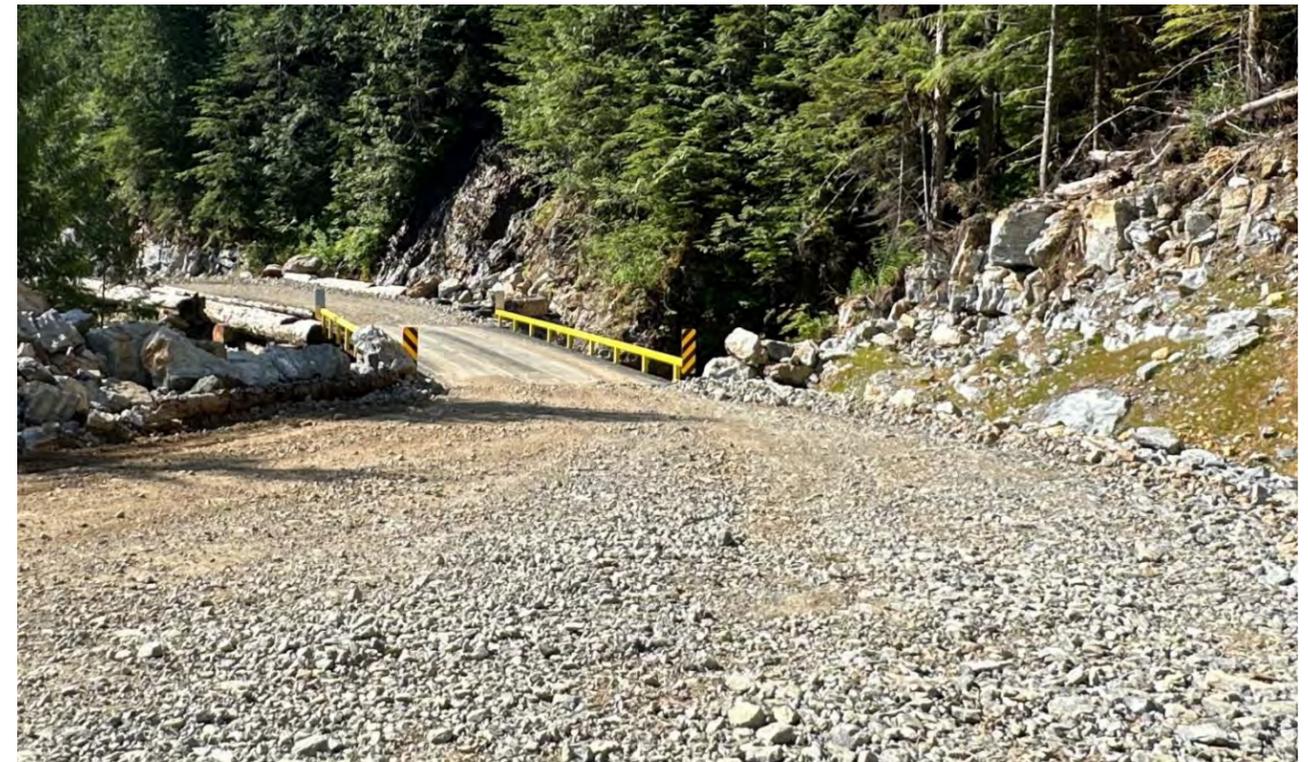


FIGURE 36: SAMPLE VIEWS OF POTENTIAL EMERGENCY DETOUR ROUTES

Appendix A

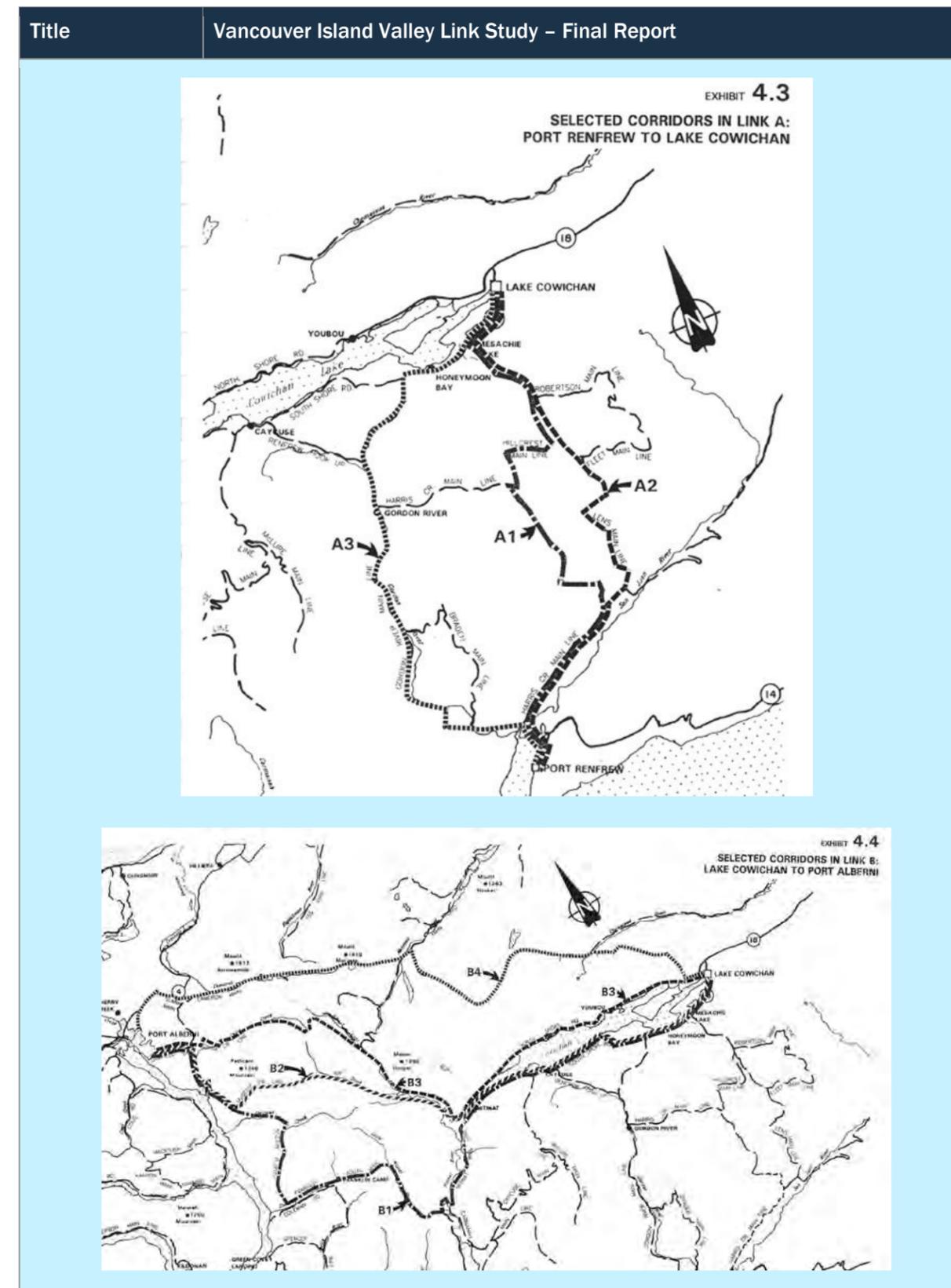
Review of Previous Reports

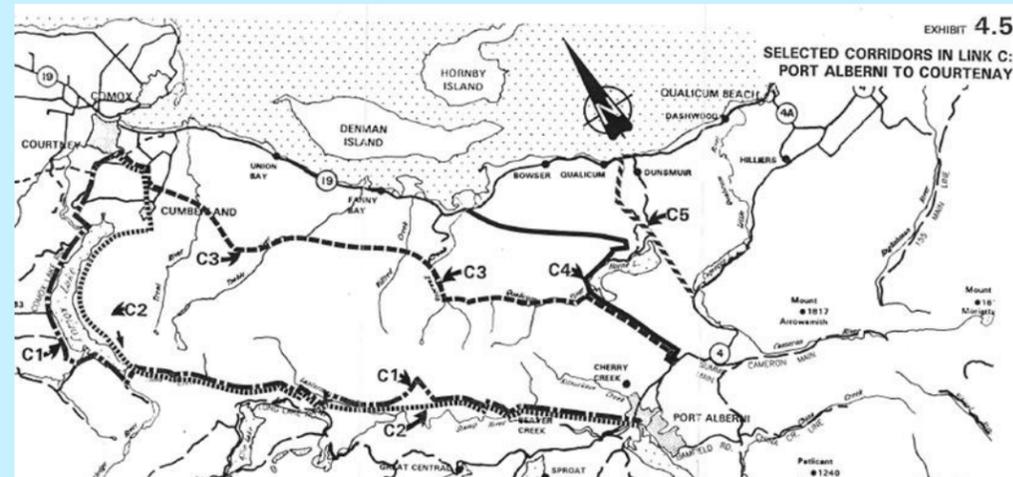
Title		Economic Accessibility of the Alberni – Clayoquot Region	
Author	NovaCorp Consulting		
Client	Alberni Economic and Transportation Committee	Date	October 1987
Location	Alberni – Clayoquot Regional District		
Objectives			
The objectives of this study were to analyze the high-level economic and social benefits as well as likely construction costs that would be associated with the implementation of five potential highway routes connecting Port Alberni and the Alberni-Clayoquot Regional District to the rest of Vancouver Island. The routes would supplement the existing Highway 4 route and provide additional access and reliability for the region.			
Evaluation Metrics			
The following economic sectors metrics were used in the benefit cost analysis:			
<ul style="list-style-type: none"> • Tourism • Mining • Agriculture • Aquaculture • Forestry • Manufacturing • Deep-Sea Port • Commercial Fishing • Residential Base • Business Travel 			
Economic sector benefits were determined using high-level analysis of anticipated impacts.			
Design Standards			
The following design standards were proposed on page 5-2 of the report:			
EXHIBIT 5.1 SUGGESTED ROADWAY DESIGN STANDARDS			
<u>Design Standard</u>	<u>Minimal</u>	<u>Desirable</u>	
Average Operating Speed	70 km/hour	80 km/hour	
Top Width	8 m	10 m	
Paved Width	unpaved	8 m	
Sustained maximum grade	10%	8%	
Bridges - full legal load:	10 m width	10 m width	
Pavement Design	100% spring	100% spring	

Title		Economic Accessibility of the Alberni – Clayoquot Region	
Options Evaluated			
There were five route conceptual alignments that were analyzed in this study consisting of:			
<ul style="list-style-type: none"> • Route 1: Lake Cowichan Road <ul style="list-style-type: none"> ○ Southward access route from Port Alberni to Lake Cowichan with a connection to Highway 18. • Route 2: Horne Lake Road <ul style="list-style-type: none"> ○ Northeast access route from Port Alberni to Highway 19 at Qualicum Bay. • Route 3: Comox Lake Road <ul style="list-style-type: none"> ○ Northward access route from Port Alberni to Cumberland and Highway 19. • Route 4: Highway 4 Improvements <ul style="list-style-type: none"> ○ Upgrading the existing Highway 4 alignment to improve mobility and access. • Route 5: China Creek Road <ul style="list-style-type: none"> ○ Upgrading the existing southward logging road connection between Port Alberni to China Creek. 			
CONCEPTUAL ROUTE ALTERNATIVES			

Title	Economic Accessibility of the Alberni – Clayoquot Region
	<p>From the conceptual alignments six routes were developed. Although the routes are described, the page displaying the routes visually was not available in the digitized copy of the report. It was noted that several alternative sub routes were identified but were eliminated due to constraints.</p> <ul style="list-style-type: none"> • Route 1 Alternative 1: <ul style="list-style-type: none"> ○ Route between Port Alberni and Lake Cowichan, with a length of 108.5 km. Would begin at Meade Creek 4 km west of Cowichan Lake. Travels westward on existing roadways to the Nitinat River bridge. Route continues on existing roads up to Frances and Darlington Lakes, before descending down Coleman Creek. The route would then be new construction along Parsons Creek, and Corrigan Creek to reach Port Alberni. • Route 1 Alternative 2: <ul style="list-style-type: none"> ○ Route between Port Alberni and Lake Cowichan, with a length of 82.7 km. The route would begin at the west end of Cowichan Lake and would follow existing private logging roads to an existing Nitinat River crossing. The route would then climb through the Rift Creek valley, before continuing to the Museum Creek valley. The route would continue in the Museum Creek valley for 5 km before joining the existing Cowichan Lake Road. • Route 2: <ul style="list-style-type: none"> ○ Route between Port Alberni and Highway 19 at Qualicum Bay, with a length of 25 km. The route would begin at Highway 4 before travelling northeast to Lacy Lake. The route would then travel to the Qualicum River where a new bridge crossing would be constructed. After Qualicum River, the route would use the existing Horne Lake Road. • Route 3: <ul style="list-style-type: none"> ○ Route between Port Alberni and Comox Lake Road, with a length of 66.8 km. The route would begin at Kitsuksis Creek bridge, following the existing paved roadway to Beaver Creek and then the existing unpaved roadway to Bear Creek bridge. • Route 4: <ul style="list-style-type: none"> ○ Improving existing Highway 4 route between Port Alberni and Whiskey Creek, length of 24.3 km. Improvement primarily consists of alignment change to address overhanging rock section. • Route 5: <ul style="list-style-type: none"> ○ Improving and paving existing route between Port Alberni and China Creek. Length of 12.4 km.
Findings and Recommendations	
	<p>The routes found to have economic benefits exceeding anticipated costs included routes 1, 2, 3, and 5, and the study overall recommended that a new paved connection be further investigated, although no specific route was recommended.</p>
Current Status	
	<p>No known upgrades or alternative connections have occurred since the release of the study.</p>
Relevance to Highway 4 Emergency Detour Route Options Study	
	<p>The study considers routes using some portion of existing roadways (Routes 1, 2, and 3) that may be used as an emergency detour route.</p>
Other Comments	
	<p>It should be noted that the digitized copy of the report does not include graphics showing the exact route geographies.</p>

Vancouver Island Valley Link Study – Final Report			
Title	Vancouver Island Valley Link Study – Final Report		
Author	Novacorp Consulting and Ward Consulting		
Client	BC MOTT	Date	March 1993
Location	ACRD, NRD, CRD	District	Vancouver Island
Objectives			
This study's objectives were to create and apply an evaluation methodology for potential investments into secondary highway connections between Port Renfrew, Port Alberni, Lake Cowichan, and Cumberland/ Courtenay.			
Data and Data Sources			
Data used in the study included:			
<ul style="list-style-type: none"> • Average Annual Daily Traffic volumes • No vehicle classifications except for Highway 4 • No statistics on collisions except for Highway 4 • Timber land ownership • Existing (1989) and projected (2000) population and employment stats 			
Issues Identified			
Issues identified include:			
<ul style="list-style-type: none"> • No reasonable quality public road linking Port Alberni and Cumberland 			
Options Developed			
There were 12 potential routes between the communities that were considered:			
<ul style="list-style-type: none"> • 3 Alternatives between Port Renfrew and Lake Cowichan • 4 Alternatives between Lake Cowichan and Port Alberni • 5 Alternatives between Port Alberni and Cumberland / Courtenay 			
Additionally, three combinations of the various segments were also evaluated.			
<ul style="list-style-type: none"> • D1: A1-B2-C4 • D2: A2-B1-C1 • D3: A1-B2-C1 			





Findings and Recommendations

The study identified the preferred route connections between each community:

- Link A1 between Port Renfrew and Lake Cowichan
 - Lower capital cost, no new right-of-ways, fewer environmental impacts.
- Link B2 between Lake Cowichan and Port Alberni
 - Shorter length, lower capital cost, fewer impacts to logging operations.
- Link C5 between Port Alberni and Courtenay
 - Construction could be in phases, lowest capital costs.
- Corridor D1 (A1-B2-C4) as the combined evaluation segment.

Current Status

No new connections have been created since the submission of the study.

Relevance to Highway 4 Emergency Detour Route Options Study

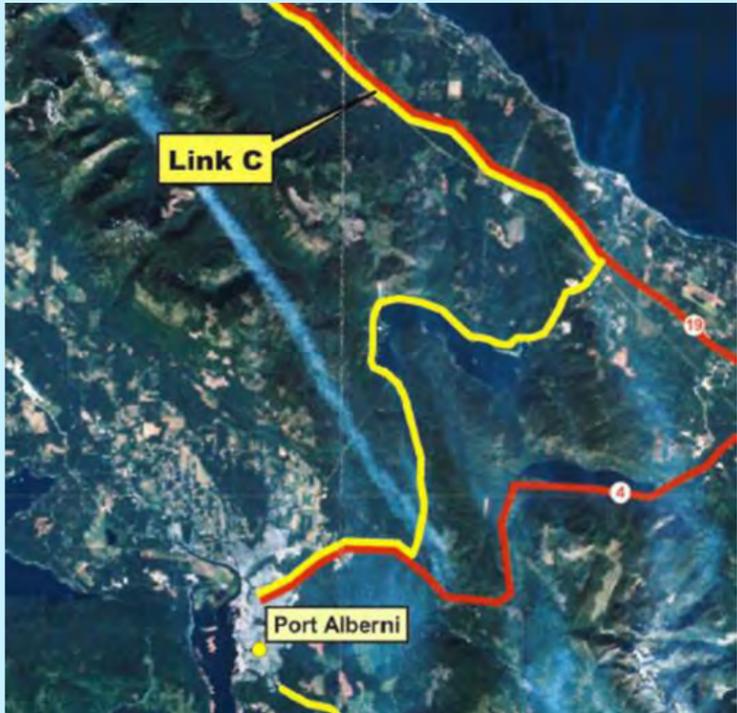
The various routes described in the studies primarily make use of existing roadways, which could be used as emergency detour routes.

Other Comments

None

Title			
Ministry of Transportation and Transit Valley Link Update			
Author	Focus		
Client	BC MOTT	Date	Sept 2004
Location	ACRD, NRD, CRD	District	Vancouver Island
Objectives			
<p>The objective of this study was to review and update the 1993 TJ Ward and Novacorp <i>Island Valley Link Study</i> using up to date data. The previous study looked at the economic viability of various road connections between southwestern Vancouver Island communities including Port Renfrew, Lake Cowichan, Port Alberni, and Courtenay.</p> <p>The update was not to be a complete repeat of the previous study, but rather an updated look at the most promising options. The study was broken into two phases, the first of which was screening the options down to a single route per destination pair, and the second was updating the analysis.</p>			
Data and Data Sources			
<p>The following data sources were used in the study:</p> <ul style="list-style-type: none"> • BC Stats 2003 population data • Census 2001 income dependencies 			
Phase 1 Option Screening			
<p>The option screening took place to reduce the number of alignment options from 12 to 3, one per destination pair. The previous options included:</p> <ul style="list-style-type: none"> • 3 Link A alignments (Port Renfrew to Lake Cowichan) • 4 Link B Alignments (Lake Cowichan to Port Alberni) • 5 Link C Alignments (Port Alberni to Lake Hwy 19 / Comox) <p>The screening considered if the recommendations on the most preferred routes would change based on new updated data or changing priorities on qualitative / subjective criteria.</p> <p>Quantified data included link distances, anticipated traffic volumes, benefit cost ratios, and construction costs.</p> <p>Link alignment options identified in the previous study that were screened in for analysis included A1, B2, and C4.</p>			



Title	Ministry of Transportation and Transit Valley Link Update
	
Phase 2 Option Analysis	
<p>The analysis included reassessments of the alignments, lengths, travel times, capital costs, traffic volumes, and economic benefits.</p> <p>Capital costs were based on a 2-lane rural road with 3.6 metre lanes and 1.5 metre shoulders. The alignments considered an 80 km/h paved and 60 km/h unpaved design speed.</p>	
Findings and Recommendations	
<p>The study showed that all three options were not economically viable, with each having a negative net present value and benefit cost ratio around 0.3.</p>	
Current Status	
<p>None of the options have been significantly developed to date.</p>	
Relevance to Highway 4 Emergency Detour Route Options Study	
<ul style="list-style-type: none"> • The Link B and Link C alignments could offer potential route alignments for emergency detours to Lake Cowichan or Highway 19, respectively. • It is noted in the study that the northwest slopes of Horne Lake are “unstable”. 	
Other Comments	
<p>None</p>	

Title			
Horne Lake Connector Study – Conceptual Design and Construction Cost Estimate			
Author			
ND LEA Consultants			
Client		Date	
BC MOTT		August 2005	
Location		District	
Horne Lake Region		Vancouver Island	
Objectives			
<p>This study's objectives were to investigate in greater detail potential route connections between Highway 19 and Highway 4 near Port Alberni based on improved mapping and previous studies. The end products of the study were conceptual designs of two route options around Horne Lake and associated high level cost estimates / benefit cost ratios based on quantified earthworks and assumed road usage.</p>			
Data and Data Sources			
<p>The following data sources were used in the study:</p> <ul style="list-style-type: none"> Digital Terrain Resource Information Management (TRIM) mapping <ul style="list-style-type: none"> 1:20,000 scale. 25 metre major and 5 metre minor elevation contours Traffic Volumes provided by BC MOTT <ul style="list-style-type: none"> Horne Lake / Hwy 19 intersection and Hwy 4 / Hwy 19 interchange Assumed average January MADT at 50% AADT, August MADT at 200% AADT Assumed average 3% annual growth over 5 year horizon Assumed 2 cases of diversions including 50% and 75% of SBR and EBL movements at Hwy 4 / Hwy 19 interchange Route Photographs Existing and anticipated route travel times based on estimate of 10 km/h over design speed, considering reduced speed areas. 			
Design Criteria			
<p>Routes were identified based on vertical topography constraints, natural and park boundaries, and the attempt to use preexisting roadways. Details are included below:</p> <ul style="list-style-type: none"> Horizontal Alignment <ul style="list-style-type: none"> Minimum 60 km/hr design speed with allowable reduced speed areas Vertical Alignment <ul style="list-style-type: none"> Maximum elevation of 422 metres above sea level Maximum grade of 10% Vertical curve crest K = 10, sag K=15 Cross Sections <ul style="list-style-type: none"> 100 mm asphalt 300 mm CBC 300 mm SGSB 0.6-1.0 metre wide ditches 			

Title				
Horne Lake Connector Study – Conceptual Design and Construction Cost Estimate				
Options Developed				
<p>The study initially identified ten potential alignments / variations, however only two were taken to evaluation, with the others being eliminated due to pass elevation, vertical alignment constraints, or route length. It was found that potential routes that began at the top of the Alberni hump resulted in excessive elevation gain and length, while to the east of the hump, alignments would be in very steep terrain (located between Mount Horne and Mount Wesley)</p> <p>The two evaluated options shared starting and ending points on Highway 4 and Highway 19, with Option 1 travelling on the south side of Horne Lake and Option 2 travelling on the north. Details of both options are summarized below:</p>				
OPT	LEN(KM)	MAJ. CROSSINGS (16M)	MIN. CROSSINGS (10M)	REDUCED SPD SECTIONS
1	25.4	3	5	2
2	26.7	2	5	2

Title	Horne Lake Connector Study – Conceptual Design and Construction Cost Estimate
Findings and Recommendations	
<p>The study found the alignments varied in cost between \$38.4 to \$45.5 million (2005). If constructed using the existing Horne Lake Road alignment, there would be anticipated cost savings of approximately ten percent.</p> <p>However, the study only considered benefits related to travel time savings resulting in B/C ratios of less than one for both options, and a final recommendation to not pursue either alignment.</p>	
Current Status	
No implementation of a connector route has occurred to date.	
Relevance to Highway 4 Emergency Detour Route Options Study	
This study includes potential alignments to consider as emergency detours and lists potential constraints of the starting connection point with regards to terrain.	
Other Comments	
None	

Title			
Horne Lake Connector Business Case			
Author	CH2M Hill		
Client	BC MOTT	Date	October 2016
Location	Horne Lake Region	District	Vancouver Island
Objectives			
This study's objectives were to develop and evaluate a potential connector roadway alignment between Highway 4 and Highway 19 around the Horne Lake Region, comparing potential localized improvements to the existing Highway 4 alignment. The Horne Lake alignment was primarily based on previous options, and the comparison was done using a multiple account evaluation process.			
Data and Data Sources			
The study included the following data sources:			
<ul style="list-style-type: none"> • Previous studies including: <ul style="list-style-type: none"> ○ Vancouver Island Highway Link Study, BC MOTT 1993 ○ Update to Vancouver Island Highway Link Study, Focus 2004 ○ Horne Lake Connector Study: Conceptual Design and Construction Cost Estimate, ND Lea 2005 ○ An unnamed alignment study commissioned by the ACRD and written by Binnie 2007 ○ Highway 19 Connector to Highway 4 via Horne & Lacey Lake Route Study, Binnie 2012 ○ Business Case: Horne Lake connector – Highway 19 to Highway 4, Apex Engineering 2014 • Geotechnical site reconnaissance and desktop study for the HLC option. • Environmental desktop assessment including: <ul style="list-style-type: none"> ○ Karst Topography ○ Agricultural Land Reserve ○ Parklands ○ Special Management Areas • Traffic Volume Data <ul style="list-style-type: none"> ○ Four publicly available BC MOTT short counts consisting of ○ 12-042 ○ 12-048 ○ 14-020 ○ 14-062 • Drive BC closure data 2008 – 2015 or 2016 • Collision Data 2008 – 2014 form the BC MOTT Collision Information System • Simplified EMME demand model created to determine diversion rates. • Roadside signage inventory (circa 2015) on Highway 4. 			

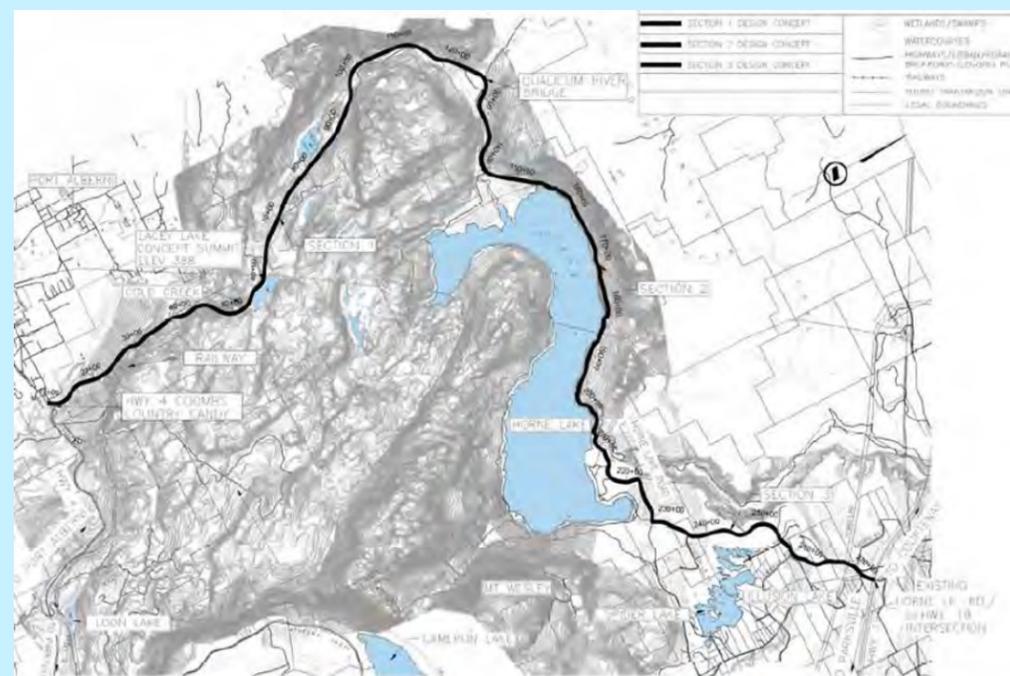
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<table border="1"> <caption>Table 5-1. Recommended Design Criteria for the Proposed Horne Lake Connector</caption> <thead> <tr> <th>Design Elements</th> <th>Proposed Design Values</th> <th>Comments/Notes</th> </tr> </thead> <tbody> <tr> <td>Functional Classification</td> <td>RAU</td> <td>Rural Arterial Undivided, Figure 440.B</td> </tr> <tr> <td>Design Speed (km/h)</td> <td>80</td> <td></td> </tr> <tr> <td>Posted Speed (km/h)</td> <td>80</td> <td></td> </tr> <tr> <td>Minimum Horizontal Curve Radius (m)</td> <td>250</td> <td></td> </tr> <tr> <td>Minimum Stopping Sight Distance (m) Sag</td> <td>85</td> <td>TAC Table 2.1.3.4</td> </tr> <tr> <td>Minimum Stopping Sight Distance (m) Crest</td> <td>140</td> <td>BC Supplement Table 330.F</td> </tr> <tr> <td>Minimum "K" Factor, Sag V.C.</td> <td>25-32</td> <td>TAC Table 2.1.3.4, Headlight control</td> </tr> <tr> <td>Minimum "K" Factor, Crest V.C.</td> <td>36-50</td> <td>BC Supplement Table 330.F, taillight/rock</td> </tr> <tr> <td>Maximum Superelevation (%)</td> <td>6</td> <td></td> </tr> <tr> <td>Maximum Gradient (%)</td> <td>6</td> <td>Preferred</td> </tr> <tr> <td>Lane Width (m)</td> <td>3.6</td> <td></td> </tr> <tr> <td>Median Width (m)</td> <td>N/A</td> <td></td> </tr> <tr> <td>Paved Shoulder Width (m)</td> <td>1.5</td> <td>BC MoTI design guidelines recommend 2.0 m shoulders; however, existing Hwy 4 has 1.5 m shoulders.</td> </tr> <tr> <td>Clear Zone Width (m)</td> <td>9.0</td> <td></td> </tr> <tr> <td>Design Vehicle</td> <td>WB20</td> <td></td> </tr> <tr> <td>Drainage</td> <td>Open ditch</td> <td></td> </tr> </tbody> </table>		Design Elements	Proposed Design Values	Comments/Notes	Functional Classification	RAU	Rural Arterial Undivided, Figure 440.B	Design Speed (km/h)	80		Posted Speed (km/h)	80		Minimum Horizontal Curve Radius (m)	250		Minimum Stopping Sight Distance (m) Sag	85	TAC Table 2.1.3.4	Minimum Stopping Sight Distance (m) Crest	140	BC Supplement Table 330.F	Minimum "K" Factor, Sag V.C.	25-32	TAC Table 2.1.3.4, Headlight control	Minimum "K" Factor, Crest V.C.	36-50	BC Supplement Table 330.F, taillight/rock	Maximum Superelevation (%)	6		Maximum Gradient (%)	6	Preferred	Lane Width (m)	3.6		Median Width (m)	N/A		Paved Shoulder Width (m)	1.5	BC MoTI design guidelines recommend 2.0 m shoulders; however, existing Hwy 4 has 1.5 m shoulders.	Clear Zone Width (m)	9.0		Design Vehicle	WB20		Drainage	Open ditch	
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Title Horne Lake Connector Business Case

The routes chosen were described in the text on page 2-1 as follows:

- Various alignments for a road connection between the Island Highway and Port Alberni have been explored in the past, as shown in Figure 1-1. These studies include:
- In 1993, BC MoTI initiated the *Vancouver Island Highway Link Study* to examine the economic viability of constructing road links between Port Renfrew, Lake Cowichan, Port Alberni and Cumberland/Courtney (BC MoTI, 1993).
 - In 2004, BC MoTI commissioned Focus to update the 1993 work.
 - In 2005, BC MoTI commissioned ND Lea to look at various alignments, north and south of Horne Lake to connect Hwy 19 and Port Alberni.
 - In 2007, the ACRD commissioned R.F. Binnie and Associates Ltd. (Binnie) to develop another alignment.
 - In 2012, BC MoTI commissioned Urban Systems to review the various alignments developed.
 - In 2012, the ACRD commissioned Binnie to develop a further alignment north of Horne Lake. At this time, RF Binnie was tasked with examining a number of potential routes and ultimately ruled out all but one possible route. Significant design work and evaluation of this route, referred to as the Lacy Lake Option, has been undertaken by the ACRD's consultants.
 - In 2014, ACRD commissioned Apex Engineering Limited to prepare a business case for the HLC based on the Lacy Lake Option.

The specific route chosen for the business case analysis uses forest service roads, Horne Lake Caves Road, and Horne Lake Road to connect to Highway 19.



Title Horne Lake Connector Business Case

The Highway 4 improvements that were analyzed in the study included the following (listed on page 7-1):

Table 7-1. Summary of Proposed Highway 4 Improvements

Project	Title	Description
1	WB Acceleration Lane at Hwy 4/Hwy 19 I/C	Provide acceleration lane for Hwy 19 SB to Hwy 4 WB
2	Hilliers Road Park and Ride	Provide Park and ride facility
3	Britain Boulevard Intersection	Provide median turning lane
4	Little Qualicum Falls Park Entrance Realignment	Extend passing lane, improve alignment and intersection
5	Keon Road Realignment	Realign hwy and extend passing lane
6	Gravel Pit Turnaround	Provide turnaround for EB and WB traffic
7	Cameron Lake Beach Access	Realign Hwy, improve intersection and provide off-hwy parking
7A	Angel Rock	Widen Hwy to provide wider shoulders
8	Beaufort Rest Area	Realign Hwy, improve intersection and provide off-hwy parking
9	Cathedral Grove Parking Area	Improve parking off-hwy and pedestrian safety
10	Chain-Up Facility	Provide chain-up facility for commercial vehicles includes U-turn
11	Realignment and Passing Lane Extension	Extend passing lane
12	Passing Lane Extension	Extend passing lane

Findings and Recommendations

The business case study found that both a potential connector route and improvement to the existing Highway 4 alignment would have negative net present values and benefit cost ratios below a value of 1.

Although the alignment did have benefits in travel times, reliability, local access, and economic development, these were outweighed by the significant capital and maintenance costs.

The potential improvements to the existing Highway 4 alignment would have localized safety, accessibility, and reliability benefits, but these were also outweighed by high capital and maintenance costs.

Current Status

No known upgrades to the Horne Lake Connector are planned. However there have been several improvements made to the existing Highway 4 alignment such as the Highway 19 SB to Highway 4 WB acceleration lane.

Relevance to Highway 4 Emergency Detour Route Options Study

Provides potential route alignments that may be considered for emergency detour usage.

Other Comments

None

Appendix B

April 2025 Field Observations



HIGHWAY 4

EMERGENCY DETOUR ROUTE OPTIONS

Field Observations

April 2025

This document summarizes field observations from the Highway 4 Emergency Detour Route study. It focuses on key findings related to route lengths, travel times, and observed road conditions for the detour route options. These observations were gathered during field review conducted in September 2024 by a team of consultants and Ministry staff. The report is intended to provide a concise overview of the physical characteristics and travel feasibility of the reviewed routes.

Route 1A- Port Alberni to Youbou

Route 1A was used during the Cameron Lake Bluff Wildfire in 2023. This route starts to the west of Youbou at the end of the public road, at the firehall, 41 km from Highway 19 / Highway 18 intersection. The route then follows the private industrial roads, North Shore Road, Cowichan Main, and Carmanah Main to the Bamfield Main. It then follows the Bamfield Main, which was seal coated in 2023, to the southern limits of the City of Port Alberni and along city roads to Highway 4 in downtown Port Alberni.

ROUTE LENGTH AND TRAVEL TIME

The total distance from downtown Port Alberni to Highway 18 intersection with Highway 19 north of Duncan is 149.7 km and takes approximately 2 hours and 30 minutes. With 10.9 km of Port Alberni and MOTT roads, 36 km on Bamfield Main seal coat surface, 61.8 km on private industrial gravel roads, and 41 km on paved road and Highway 18.



FIGURE B1: PORT ALBERNI TO YOUBOU ROUTE 1A - ROAD CONDITIONS

OBSERVED ROAD CONDITIONS

The route terminates at Youbou Road, under MOTT jurisdiction, in the east, and Ship Creek Road outside of the City of Port Alberni in the west. Starting in the west, Bamfield Main is an industrial road, which was seal coated in 2023. It is maintained by Tsawak-Qin Forestry under Road Permit with the Ministry of Forests for those portions owned by the Crown and Mosaic Forest Management as private owners of a section of the route. The remainder of this route until just west of Youbou is gravel and includes a flat section of 20 km along a former rail line, followed by a long downhill and long uphill grade. The section starting at km 36 on Bamfield Main that is 15 km long towards Youbou is in poor condition.



FIGURE B2: PORT ALBERNI TO YOUBOU ROUTE 1A - LOW BRIDGE BARRIER EXAMPLE



FIGURE B3: PORT ALBERNI TO YOUBOU ROUTE 1A - SINGLE LANE BRIDGE AT NITINAT RIVER EXAMPLE

Route 1B- Nitinat to Lake Cowichan Alternative

Route 1B was identified after the field review and has not been reviewed in the field and has been included for information. A desktop investigation has been carried out.

ROUTE LENGTH AND TRAVEL TIME

The total distance from downtown Port Alberni to Highway 18 intersection with Highway 19 north of Duncan is 155.2 km and should take approximately 3 hours and 10 minutes. The route may have significant industrial traffic at times due to its mainline status.

OBSERVED ROAD CONDITIONS

The route follows the South Shore Road gravel section from the intersection with Route 1A at km 78.4, for 25.3 km along the south side of Cowichan Lake to the paved section. Further along South Shore Road through Honeymoon Bay to the roundabout in Lake Cowichan, then along Cowichan Lake Road to Highway 18.

Route 1B was identified as a potential alternative for Route 1A for emergency use in case of road blockage to allow emergency vehicles access. The route has gravel and paved sections.



FIGURE B4: SOUTH SHORE ROAD ROUTE 1B - GOOGLE IMAGE GRAVEL SECTION



FIGURE B5: SOUTH SHORE ROAD ROUTE 1B - GOOGLE IMAGE PAVED SECTION

Route 1C - Museum Main Alternative via North Shore Road

The Museum Main is a major industrial access road. The road is maintained in good condition due to the traffic requirements. The route follows Museum Creek and then climbs over a summit and drops down to run parallel the Nitinat River to Route 1A alignment near Kissinger Lake. This alternate is 24 km shorter than Route 1A and allows for a bypass of the poor road conditions on Carmanah Main. This option could be considered for emergency access in case of blockage on Route 1A.

ROUTE LENGTH AND TRAVEL TIME

The total distance from downtown Port Alberni to Highway 18 intersection with Highway 19 north of Duncan is 125.2 km and should take approximately 2 hours and 20 minutes. The route may have significant industrial traffic at times due to its mainline status and the rough sections would restrict it to emergency traffic only.

OBSERVED ROAD CONDITIONS

The gravel road is maintained by Mosaic Forest Management and is maintained only when the road is used for hauling and left during nonuse periods resulting in some sections of poor conditions. During the review, the road was in use so most of the road was in good shape. There is a section of new construction that has not been completed and therefore is in a rough condition, as shown below. Grades in some sections are steep and will pose an issue for any heavy commercial vehicles.



FIGURE B6: MUSEUM MAIN ALTERNATIVE ROUTE 1C- OBSERVED ROAD CONDITIONS

Route 1D Museum main Alternative via South Shore Road

Route 1D starts at the same location as Route 1B in Lake Cowichan. It follows South Shore Road and then heads north at Kissinger Lake in alignment with Route 1C.

ROUTE LENGTH AND TRAVEL TIME

The total distance between downtown Port Alberni and Highway 18 intersection with Highway 19 north of Duncan is 128.2 km, and travel time is approximately 3 hours and 10 minutes. The route has a paved surface on a majority of the route with 54 km of gravel road.

OBSERVED ROAD CONDITIONS

The road conditions align with the conditions of Route 1B on South Shore Road and with Route 1C on Museum Main.

Route 2A – Nanaimo to Port Alberni Alternate via Nitinat River Main

Route 2A provides a more direct route to/from Nanaimo and the ferries to the mainland. The route follows Nanaimo River Road to the end of the pavement then along the logging roads to Nitinat River Main heading south towards Kissinger Lake. From there Route 2A follows Route 1A/Route 1B to Port Alberni. This option meets Highway 19 37.5 km north of Route 1 and is 13.4 km from Duke Point ferry terminal.

ROUTE LENGTH AND TRAVEL TIME

The total distance is 166.2 km and the travel time is approximately 3 hours from Port Alberni to Nanaimo River Road Interchange on Highway 19. The route has a paved surface on most of the route with only 47.2 km of gravel road.

OBSERVED ROAD CONDITIONS

The road is maintained by Mosaic Forest Management and is maintained only when the road is used for hauling and left during nonuse periods resulting in some poor conditions. During the review, the road was in use so most of the road was in good condition. The paved sections have been maintained, however where culverts have been replaced, or other issues have impacted the pavement, it has been replaced with a gravel surface. The road does not have a roadside barrier in place except for a few short sections at some of the bridges. Grades in some sections are very steep and will make the route impassable for many heavy commercial vehicles.

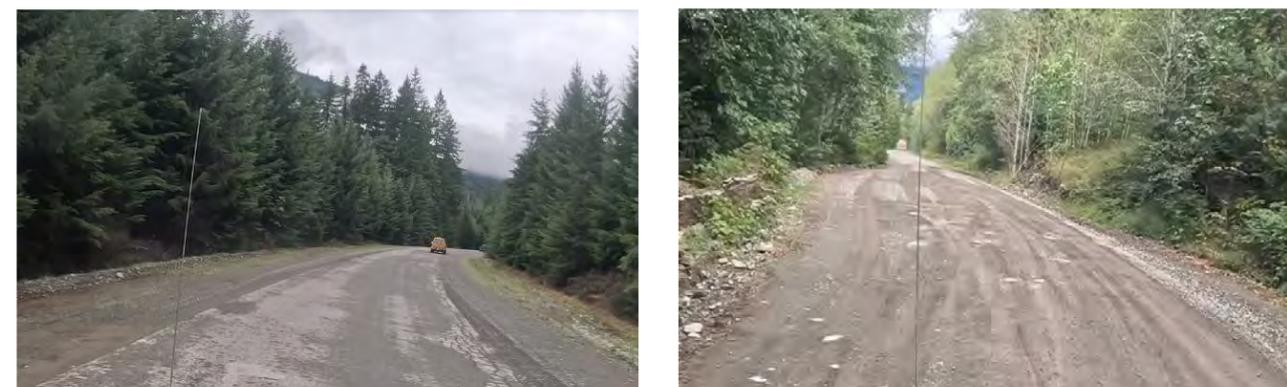


FIGURE B7: NANAIMO RIVER ROAD ROUTE 2A - OBSERVED ROAD CONDITIONS



FIGURE B8: NANAIMO RIVER ROAD ROUTE 2A - LOW BRIDGE BARRIER EXAMPLE

Route 2B Nanaimo to Port Alberni Alternate via Shaw Main

Route 2B starts at the same location as Route 2A north of Route 1A on Highway 19. It follows Nanaimo River Road then heads south on the Shaw Main. From there the alignment follows Route 1A on North Shore Road, Cowichan Main, Camanah Main and Bamfield Main.

ROUTE LENGTH AND TRAVEL TIME

The total distance from Highway 19 to Port Alberni is 160.5 km and takes approximately 2 hours and 50 minutes.

OBSERVED ROAD CONDITIONS

The section of the Route along Shaw Main was closed and could not be inspected.

Route 2C Nanaimo to Port Alberni Museum Main Alternate via Nitinat River Main

Route 2C starts at the same location as Route 2A and 2B and follows Route 2A until it meets the Museum Main. From there it goes north and follows the same alignments as Routes 1C and 1D.

ROUTE LENGTH AND TRAVEL TIME

The total distance from Highway 19 to Port Alberni is 113 km and takes approximately 2 hours and 20 minutes.

OBSERVED ROAD CONDITIONS

A majority of Route 2C is paved with about 43 km being gravel.

Route 2D Nanaimo to Port Alberni Museum Main Alternate via Shaw Main

Route 2D starts at the same location as Route 2A, 2B and 2C north of Route 1A on Highway 19. From there it follows Nanaimo River Road and Shaw Main, aligning with Route 2B until Kissinger Lake. At this point Route 2D heads north along Nitinat River Main and Museum Main following the same alignment as Routes 1C Route 1D.

ROUTE LENGTH AND TRAVEL TIME

The total distance from Highway 19 to Port Alberni is 133.8 km and takes approximately 2 hours and 35 minutes.

OBSERVED ROAD CONDITIONS

The section of the Route along Shaw Main was closed and could not be inspected.

Route 3A - Cumberland to Port Alberni

Route 3A follows the Comox Lake Road from Cumberland Highway 19 Exit 117. Comox Lake Road changes to Comox Logging Road at the end of the pavement and follows around the north shore of Comox Lake turning into South Main Road, Comox Lake Main, Ash Comox Connector, Great Central Main, and lastly Comox Main, to the pavement on Somers Road.

ROUTE LENGTH AND TRAVEL TIME

The total distance from Highway 19 to Highway 4 in Port Alberni is 77.6 km and approximately 1 hour 30 minutes to travel with radio control. The total section of gravel is 53.8 km. The paved section within Port Alberni runs along Somers Road, Beaver Creek Road, to Highway 4 for a total paved distance of 18.8 km.

OBSERVED ROAD CONDITIONS

The gravel road is maintained by Mosaic Forest Management and is maintained only when the road is used for hauling and left during nonuse periods resulting in some poor conditions. During the review, the road was in use so most of the road was in fair shape. There are many very narrow sections with steep drop-offs to the lake below. The road does not have a roadside barrier in place except for a few short sections at some of the bridges. Grades in some sections are very steep and will make the route impassable for many heavy commercial vehicles.

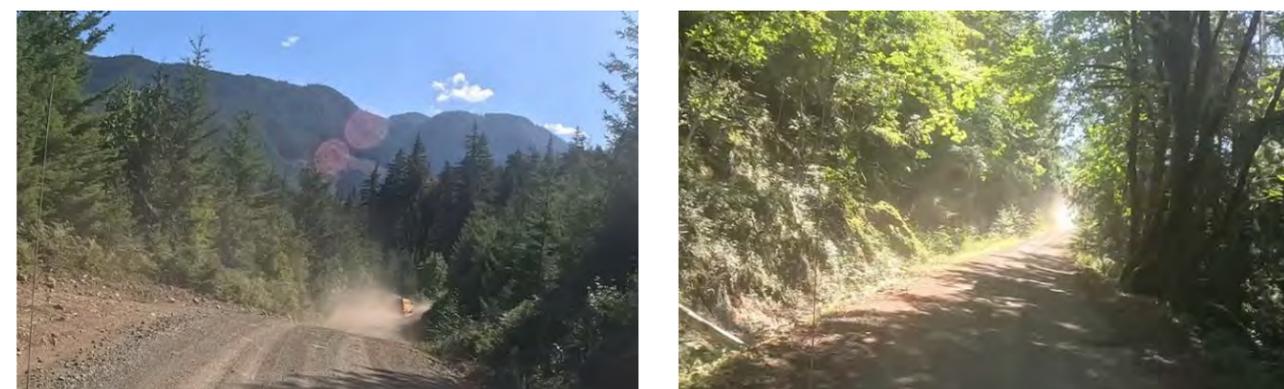


FIGURE B9: MUSEUM MAIN ALTERNATIVE ROUTE 3A - OBSERVED ROAD CONDITIONS

Route 3B - Cumberland to Port Alberni Alternate

Route 3B utilizes the same route from Cumberland as Route 3A to km 48.5 and uses Ash Main at the end of the Great Central Main, to the paved Central Lake Road. This route meets Highway 4 at a location 10.0 km west of downtown Port Alberni.

ROUTE LENGTH AND TRAVEL TIME

The total distance from Highway 19 to Highway 4 in Port Alberni is 73.8 km and approximately 1 hour and 30 minutes to travel.

OBSERVED ROAD CONDITIONS

The gravel road is maintained by Mosaic Forest Management and is maintained only when the road is used for hauling and left during nonuse periods resulting in some poor conditions. During the review, the road was in use so most of the road was in particularly good shape. The alternative would use Route 2 along Comox Lake to km 58.8. This alternative provides a particularly good gravel road and access to Highway 4 without going through the urban areas of Port Alberni.



FIGURE B10: ASH MAIN ALTERNATIVE ROUTE 3B - OBSERVED ROAD CONDITIONS



FIGURE 12: HORNE LAKE CONNECTOR ROUTE 4 - OBSERVED ROAD CONDITIONS



FIGURE B11: ASH MAIN ALTERNATIVE ROUTE 3B - LONG BRIDGE



FIGURE 13: HORNE LAKE CONNECTOR ROUTE 4 - ONE LANE BRIDGE EXAMPLE

Route 4 - Highway 19 - Horne Lake Connector

Route 4, the Horne Lake Connector, has been considered frequently by other investigations, and the route shown above is the existing industrial route that is currently used. The route starts at Highway 19 Exit 75 and follows Horne Lake Road for 4.7 km then onto Horne Lake Caves Road and on numerous logging roads to Loon Lake Main at Highway 4, 9.7 km east of downtown Port Alberni.

ROUTE LENGTH AND TRAVEL TIME

The total distance from Highway 4 to Highway 19 is 34.4 km and approximately 1 hour to travel. This route is a short distance, however, it has very steep sections and the logging roads are rough and poorly maintained in sections. The route would require construction for use as a detour.

OBSERVED ROAD CONDITIONS

The road is maintained by Mosaic Forest Management and is maintained only when the road is used for hauling and left during nonuse periods resulting in some poor conditions. During the review, the road was not in use so most of the road was in extremely poor condition. Grades are very steep and will make the route impassable for most of the vehicles currently using Highway 4.

Whereas on June 6, 2023, Highway 4 was closed at Cameron Lake Bluff, near Koen Road, due to a wildfire, and that a detour route from Port Alberni through Lake Cowichan via Bamfield, using forest-service and privately owned industrial roads was established by the Ministry of Transportation and Infrastructure (MOTI) on Wednesday, July 7, 2023, and was actively maintained until August 31, 2023;

And whereas the highway closure that occurred between June 6, 2023, and August 31, 2023, resulted in significant negative impacts on our residents' health, safety, and well-being, and it had devastating economic impacts resulting in the loss of jobs and permanent closure of local businesses, and that similar communities having only one access road in and out of their community experienced similar negative impacts during emergency activations:

Therefore be it resolved that AVICC and UBCM request the Ministry of Transportation and Infrastructure and the Ministry of Emergency Management and Climate Readiness work with communities, that have only one access road in and out of their community, to ensure the permanent establishment and maintenance of alternative or emergency transportation routes for use in the event of an emergency;

And be it further resolved that UBCM request the Ministry of Forests, Lands and Natural Resource Operations, coordinate with the Ministry of Transportation, the Ministry of Emergency Management and Climate Readiness, and appropriate local governments to conduct an inventory of active forestry roads that could be maintained for emergency evacuation purposes, and that the roads meeting the criteria for emergency evacuation purposes be maintained for these purposes by the Province in perpetuity.

Convention Decision: Endorsed

Provincial Response

Ministry of Transportation and Transit

The Ministry of Transportation and Transit collaborates with other ministries during emergency events, ensuring coordinated efforts to protect the people of British Columbia from disasters such as wildfires. This inter-ministerial approach strengthens preparedness and response strategies, helping mitigate risks and maintain critical infrastructure.

The ministry actively engages with partner ministries, local governments, Indigenous communities, and stakeholders to plan for possible disruptions. Part of this planning involves assessing alternative access routes, determining the most feasible options for communities in affected regions.

Currently, the ministry is conducting a study to explore alternative routes to Highway 4 in the event of an emergency. This report is expected to be completed by summer, providing valuable insights for future contingency planning.

Safety remains the ministry's top priority and concerns from the public are always at the forefront of decision-making, ensuring that unplanned closures are managed effectively and roadways are restored as quickly and safely as possible.



To: ACRD Transportation Committee

From: Mike Irg, Special Projects Director

Meeting Date: November 5, 2025

Subject: ACRD Secondary Route and Emergency Route Options

Purpose:

This report aims to provide the Transportation Committee with a status update on our work toward establishing both a permanent alternative emergency route as well as a permanent alternative route to Highway 4.

Summary/Discussion:

This past summer has again highlighted the vulnerability of the Alberni-Clayoquot Regional District (ACRD) having only one highway into the region with a population of over 33,000 residents. While Highway 4 remained open during the Wesley Ridge Wildfire, the Franklin River Road (a partially chip sealed and gravel industrial/forestry road from Port Alberni to Lake Cowichan) was closed due to the Mount Underwood Wildfire.

The extended closure of Highway 4 from the Cameron Lake fire in 2023, highlighted the need for a safe and reliable emergency secondary route that leads to a permanent secondary highway into the region. It also represented over \$60 million in economic impact to regional businesses (see attach report). The closure of the Franklin River Road/ Bamfield Main from the Mount Underwood fire in 2025, reemphasized this need for a permanent alternate route while also highlighting the value of the connection to Cowichan via the Youbou route.

Additionally, it is important to confirm that the extensive damage to rail trestles, estimated at \$150 million, around Cameron Lake that resulted from the Wesley Ridge fire in 2025 now means that utilizing rail for emergency access is not an option in the short and mid-term.

When Highway 4 is fully or partially closed, **only two practical transportation methods exist for leaving the region:** the challenging forest-industrial detour or air transport. Neither solution is ideal for daily or commercial use, underscoring the urgent need for alternative route development. It is essential to build sustainable and safe access to the region for the long term.

Next Steps:

A key role for the ACRD and Transportation Committee is to support the development of a feasibility study and business case that can be used by elected bodies in the region toward achieving both a permanent alternative emergency route in the near term, as well as a permanent alternative route to Highway 4 in the longer term. To achieve this objective, the following next steps should be reviewed, altered as deemed appropriate, and supported by the committee via recommendation to the ACRD Board.

- Request letters of support for a specified common vision from First Nations, Municipalities, local agencies and adjacent local governments.
- Identify economic opportunities that are created through the development of a new highway route.
- Support and coordinate ACRD lobbying efforts with local First Nations and Municipalities.
- Develop an inclusive plan that incorporates the safety, economic, social, and health requirements for a secondary highway into the region.
- Local and First Nations elected officials meet with the Minister of Transportation and Transit.

Time Requirements – Staff & Elected Officials:

Significant time is required of elected officials and committee members to lobby senior levels of government for the needed road access. More detailed estimates will be created once a clear path is identified.

Financial:

The ACRD Board has assigned \$75,000 toward this initiative. The cost associated with the development of an alternate route (emergency or permanent) has yet to be identified.

Strategic Plan Implications:

The ACRD 2024-2027 Strategic Plan identifies “alternative and emergency routes including but not limited to Highway 4” as an objective in section 4.1 Strategic Advocacy.

Policy or Legislation:

The Ministry of Transportation and Transit is responsible for all Highways in BC and all roads outside of incorporated municipalities. Of note is that most all identified alternative routes being discussed are a mix of private and provincial ownership. This adds complexity and possible cost to this initiative.

Options Considered:

1. Have a coordinated (all First Nation, local and regional government), local lobby effort to convince the Province of BC to establish an emergency access route as a first step and then build a secondary access road/highway that is open year-round. Treat the alternate access route as a strategic community and economic priority, not just an emergency measure.
2. Individual local governments and First Nations lobby individually with the Province.
3. Take a passive approach by allowing the Province to lead all work and engagement.

Submitted by: Michael Irg
Mike Irg, MCIP, RPP, Special Projects Director

Reviewed by: Cynthia Dick
Cynthia Dick, General Manager of Administrative Services

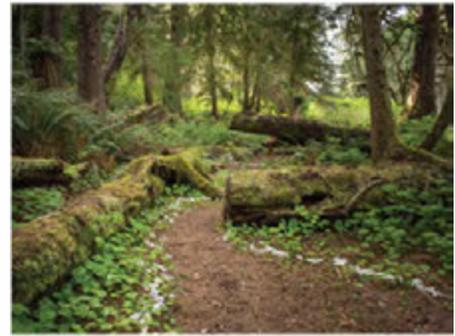
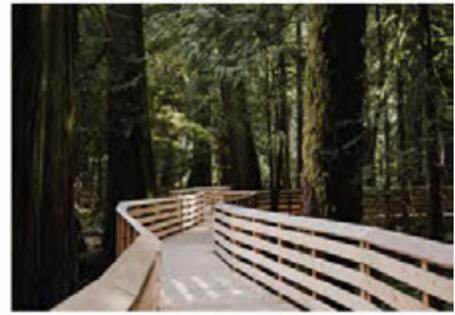
Approved by: Daniel Sailland
Daniel Sailland, MBA, Chief Administrative Officer

WCS engagement
+ planning

Highway 4 Disruption and Resiliency Solutions

Alberni - Clayoquot
Chambers of Commerce

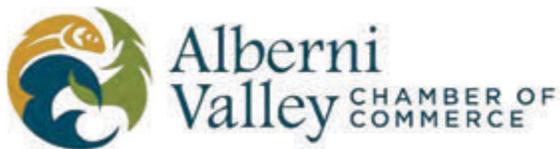
icet ISLAND COASTAL ECONOMIC TRUST
*The Highway 4 Disruption and Resiliency Solutions Report
was supported and funded by Island Coastal Economic Trust*



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Tyler Cave



Summary of Findings

Introduction

On June 6th, 2023, Highway 4, between Cathedral Grove/MacMillan Provincial Park and Koen Road (approximately seven kilometres), was closed in both directions at approximately 3:30 p.m. due to the growth of a wildfire at Cameron Bluffs above Cameron Lake. Although the emergency operations centre only activated for one day, the highway remained completely closed for two full weeks until June 23rd when the highway partially reopened with single lane alternating travel until July 17th. Throughout much of the summer and fall 2023, full daytime midweek closures with midday flushing occurred along with single lane alternating traffic at all other times.

Despite there being an alternate supported route for essential travel, the movement of goods, residents and travelers to the region was severely hampered by the initial full closure of Highway 4 and subsequent travel restrictions throughout 2023. The initial closure and ongoing disruptions had an immediate social and economic impact on island coastal communities and businesses in the Alberni-Clayoquot region and the ongoing restrictions continued to negatively impact the region's residents and economy.

In an effort to better understand the closure impacts and identify effective solutions, the Alberni-Clayoquot Chambers of Commerce (Tofino, Ucluelet, Port Alberni) supported an impact review and resiliency report.

The summary of findings and comprehensive report were informed by a broad-based engagement approach that included surveys, workshops, and focus groups, as well as research on practices from regions and areas frequently impacted by disruptions.

Six Major Closure Impacts

The following list introduces the six major impacts from the Highway 4 closure and continued disruptions as captured through project engagement activities.

1

Major delays and interrupted deliveries – up-and downstream:

Exports and imports to the region of essential goods and commercial supplies stopped and partial alternative road openings and closures continued to create uncertainty and delays in regional deliveries and shipping. These delays increased costs and decreased revenues for many businesses.

2

Significant loss of revenues and increased costs:

In addition to the delays in receiving business supplies/materials throughout most of June and the summer, visitor travel to the Alberni-Clayoquot region was also impacted significantly resulting in lost accommodation revenues. The traffic at the Highway 4 Junction counter in June 2023 was 38% below both 2022 and 2024 and remained comparatively low until November 2023. Lost revenue also occurred as a result of an inability to ship product. Increased costs were as a result of adapting to non-conventional shipping practices and of efforts to retain staff so as not to lose them altogether. Reported losses scaled up across local businesses during just the two-week Highway 4 closure amounted to a total estimated loss of \$60.5 million. Real losses to accommodation revenues alone for June 2023 alone, were estimated at \$9 million.

3

Serious disruptions to important services (health and other):

Equally important to the economic impacts experienced, service supply issues that already existed were exacerbated due to the highway closure and continued disruptions. Health care appointments were cancelled or delayed and transporting medical staff to the region became challenging and resource intensive. Transportation services halted and alternative opportunities became more limited due to the damage to vehicles and product travelling on secondary routes.

4

Increased anxiety and stress for business owners, compounding COVID financial stress:

The closure and disruptions coincided with COVID CEBA loan repayments for 28% of businesses surveyed and compounded the financial stress many businesses were already experiencing. Adapting to new processes, managing customers requests and dealing with the uncertainty created by the disruption and limited communication were overwhelming for staff.

5

Degradation of the workforce and workforce income:

Immediate impacts on the workforce were experienced, especially in tourism, due to a lack of work and therefore employment income. An estimated 1,280 staff were either laid off temporarily or left businesses due to a lack of work. Travel to work was also impacted, with 35% of the 279 businesses surveyed indicated that the highway closure had an acute impact on their workforce ability to get to work during or shortly after the disruption. Impacts on the workforce continued throughout 2023 with the continued highway disruptions.

6

Longer-term tourism revenue and reputation impacts:

Travel uncertainty, highway delays, misaligned ferry sailings and inconsistent tourism business refund policies throughout 2023 further degraded an already challenging visitor experience. The situation led to the immediate closure of some tourism experiences (until the route opened) and the permanent closures in some cases for businesses that could not weather the storm and continued disruptions. This loss of tourism experiences/services impacted the entire visitor experience.

Seven Solution Themes

A list of solution themes and associated action ideas emerged from the engagement and secondary research completed for this report. These themes were considered, evaluated and elaborated on during focus groups and through a workshop with regional rightsholders and stakeholders. Many organizations and levels of government can contribute to the seven solutions.

These solution themes were:

1

Critical infrastructure

Build critical infrastructure, such as alternative land routes, enhanced marine and air infrastructure, to ensure essential services and supply chains are not disrupted.

Possible Leads: Province, Alberni Clayoquot Regional District (ACRD) Transportation Advisory Committee (TAC)

2

Mechanisms and processes to improve communication

Add capacity to improve communications to public/visitors and stay relevant in a sea of social media reporting.

Possible Leads: Province - Ministry of Transportation and Infrastructure, BC Wildfire Service (BCWS), Tourism Emergency Response Team (TERT), Emergency Operation Centres (EOC), Destination Marketing/Management Organizations (DMO)

3

Planning and preparedness at multiple scales

Create/strengthen interagency governance, logistical and communications systems; build personal relationships between agency staff; provide training and contingency planning.

Possible Leads: Province, Alberni Clayoquot Regional District (ACRD), Communities, DMOs

4

Short and long-term recovery funding

Identify new/potential funding sources such as new tourism funds for disruption responses, BC emergency financial assistance, delayed government remittances and insurance solutions early, and secure.

Possible Leads: Province – Tourism Emergency Management Committee (TEMC), Federal DMOs, Chambers, Economic Development Organizations (EDO)

5

Business continuity planning assistance

Encourage and support business continuity planning across the region. Tailor mechanisms and approaches for delivering assistance so they are appropriate for a given sector and business capacity; continuity planning should coordinate and align with public sector continuity planning.

Possible Leads: Chambers, DMOs, EDOs, Province, Community Futures

6

Deeper business and community connections

Foster and deepen business and community connections throughout the region. Create structures such as an economic emergency preparedness group.

Possible Leads: Chambers, DMOs, EDOs, Province

7

Alternative business models

Develop alternative business models that reduce seasonality of local economies, especially in tourism and agriculture, to help businesses be less vulnerable to seasonal hazards.

Possible Leads: ACRD Agriculture/Sustainability Department, Alberni Farmers' Institute Tourism DMOs, 4VI (Vancouver Island DMO)

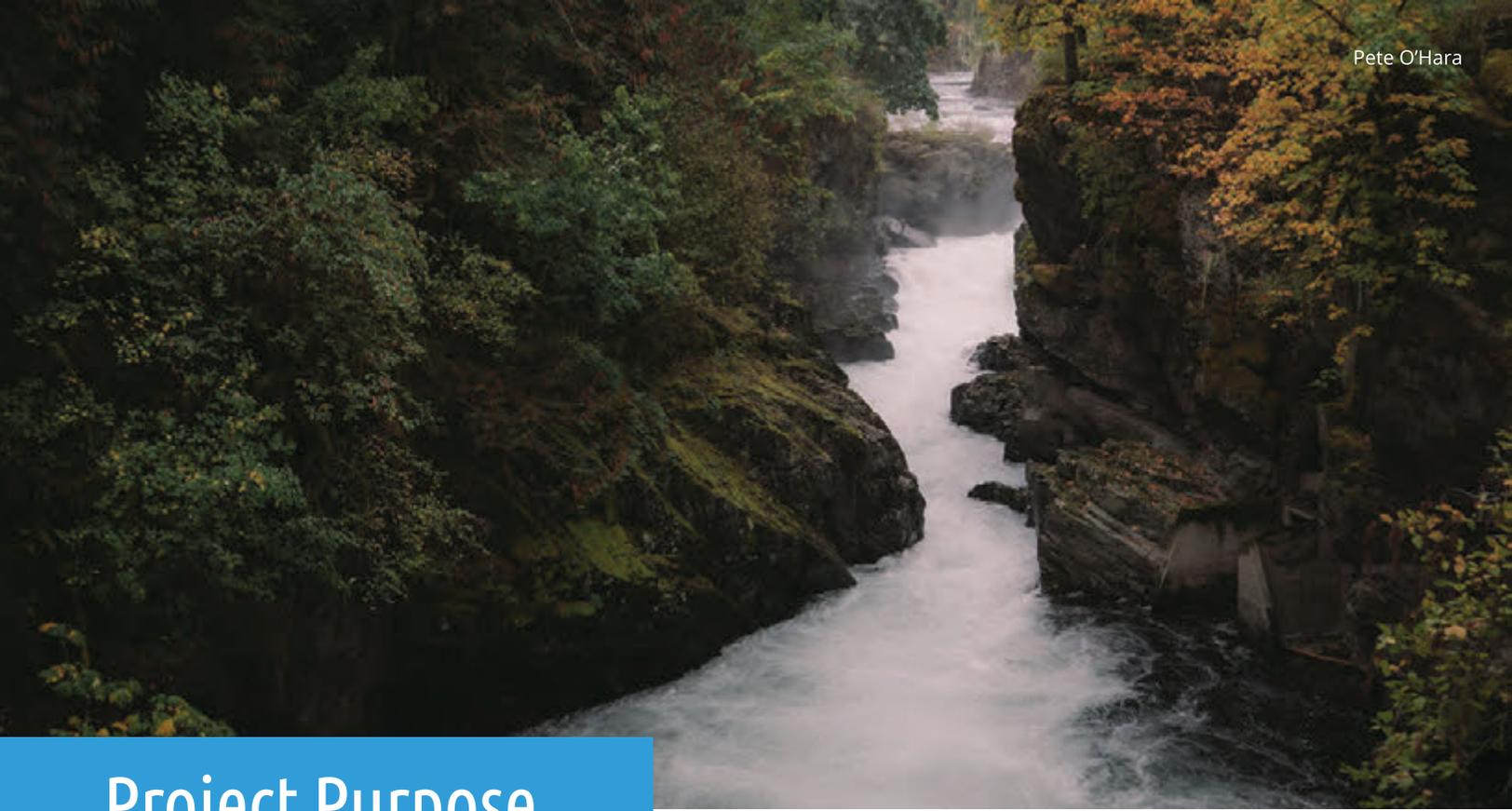


Next Steps

This review of impacts and exploration of solutions needs to be shared broadly in order to develop the momentum and commitment required to implement actions that ensure the region is better prepared to handle future disruptions. We recommend the follow next steps:

- 1** Create a communication plan and co-fund a campaign for stakeholders to share the Highway 4 closure and ongoing disruption consequences, economic impact and solution themes in order to develop implementation support from other levels of government or agencies.
- 2** Develop an implementation committee structure among the stakeholders and rightsholders considering connections to existing or new sub-committees for specific issues, e.g., Transportation Advisory Committee for land transport and other.
- 3** Consider the solution theme action ideas in more detail, assess them for effectiveness versus resources, and develop implementation plans for prioritized actions.

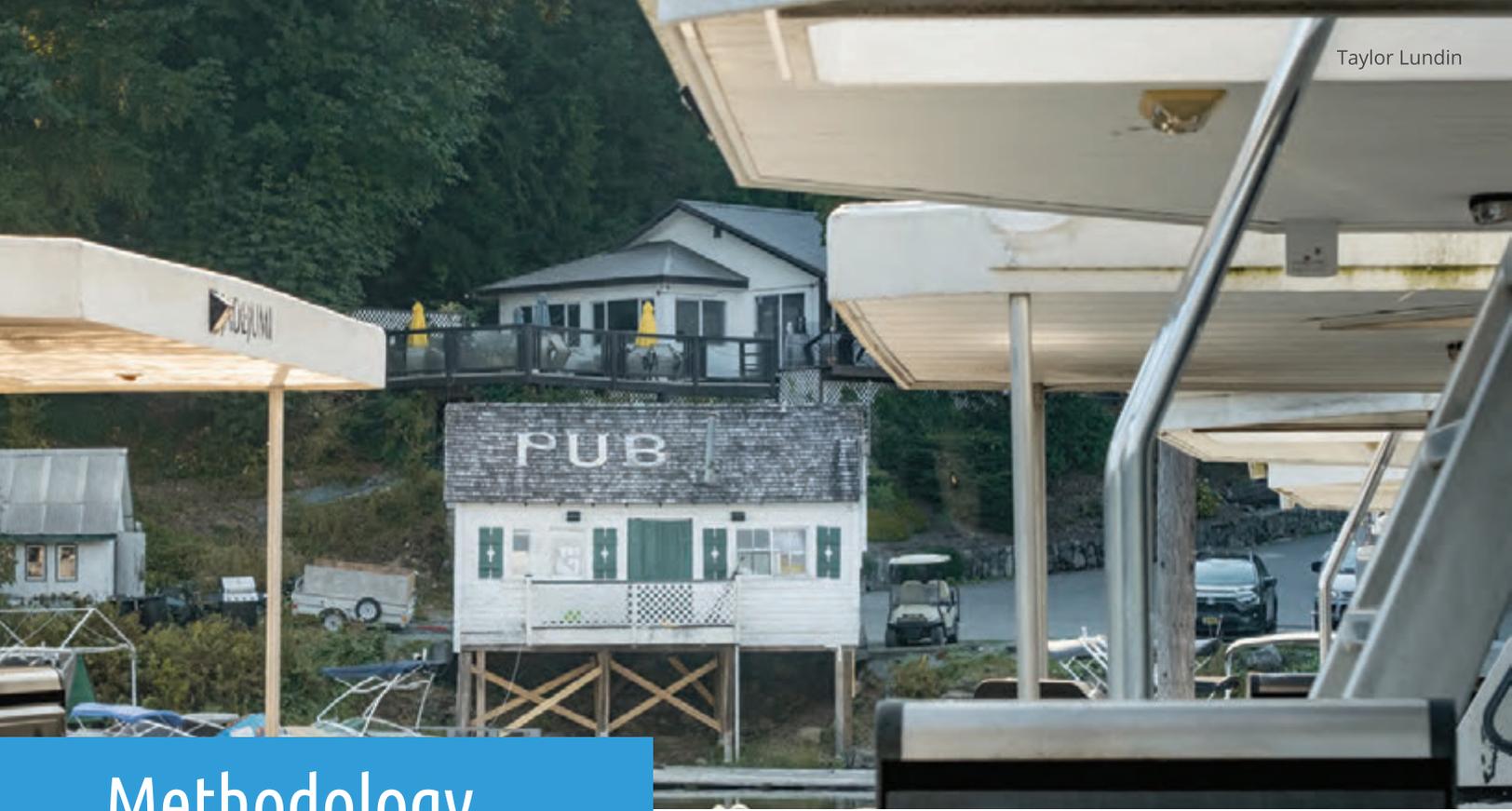
Further report details on the project purpose, methodology and findings follow.



Project Purpose

The purpose of this project is to engage with businesses, stakeholders and rightsholders in the ACRD region to better understand the impacts of the 2023 summer highway disruptions and to identify the key strategies for supporting affected businesses in the case of future challenges and for creating long-term resilience. The desired project outcomes are:

- ➔ An assessment of the impacts experienced by the region's local businesses, industries, and the tourism sector due to the highway closure and continued disruptions including a quantification of the economic losses.
- ➔ Identification of gaps and challenges in the region's long-term resiliency (including infrastructure, policies, programs, etc.), and strategies to address those gaps.
- ➔ Identification of individual and shared strategies to support business continuity and resilience in the event of future emergencies/challenges.
- ➔ Recommendations for investment by provincial, federal, and other agencies in the region to support economic resiliency.



Methodology

Input was sought on the immediate and ongoing impact experienced by the region's local businesses and industries as well as on strategies to address gaps identified with respect to the region's resiliency from similar disruptions. Research included understanding the government emergency frameworks that apply in this situation as well as practices from other jurisdictions facing similar ongoing disruptions.

More specifically, engagement included:

- Drawing findings from the Alberni-Clayoquot Chamber/ Destination Marketing Organization Cameron Bluffs Impact Survey that was administered shortly after the disruption in 2023 and had a strong uptake from approximately 280 businesses.
- An initial workshop open to key organization stakeholders and all regional rightsholders in Fall 2023, attended by representatives from the Hupscath First Nation, Huu-ay-aht First Nation, Alberni Valley Chamber of Commerce, Alberni Tourism Association, Community Futures, Tofino Long Beach Chamber of Commerce, Alberni Clayoquot Regional District, City of Port Alberni, and the Ucluelet Chamber of Commerce.
- Interviews with industry and/or economic development agencies leaders in the region.
- Six online focus group discussions across the region.
- Final workshop open to key organization stakeholders and all regional rightsholders in Spring 2024, with contributions and attendance by representatives from the Ahousaht First Nation, Huu-ay-aht First Nation, Yuułuᑭiᑭᑦᑎᑦᑎᑦ First Nation, Alberni Valley Chamber of Commerce, Community Futures, Tofino Long Beach Chamber of Commerce, Tourism Tofino, Alberni Clayoquot Regional District, City of Port Alberni, Village of Tofino, District of Ucluelet, 4VI/Tourism Ucluelet, and the Ucluelet Chamber of Commerce.

Research included:

- Understanding government frameworks for emergency planning and supporting continuity planning in the region.
- Scan and summary case development to inform resiliency strategies and continuity planning.

Summary of Impacts

The following section provides a list of closure and ongoing disruption impacts and issues along with a summary of the related comments and findings.

Consequences of the Closure

THEME	SUMMARY OF RELATED COMMENTS/FINDINGS
<p>Major delays and interrupted deliveries – up - and downstream</p>	<ul style="list-style-type: none"> • Delays and disruptions of fuel, groceries and other critical needs such as pharmaceutical delivery caused immediate and ongoing concerns. • Exports from industrial, agricultural and fishing enterprises were specifically impacted requiring new storage or shipping approaches. • Standing supplier or delivery agreements held by specific organizations prevented them from receiving alternatively sourced goods. • Delayed deliveries had knock-on revenue/cost impacts for businesses requiring supplies or products for retail, construction and capital projects. • Partial road opening and closures continued to create uncertainty and delays in deliveries and shipping.
<p>Significant loss of revenues and increased costs</p>	<ul style="list-style-type: none"> • Lost revenues –Reported losses extrapolated across local businesses during the two-week Highway 4 closure alone amounted to an estimated loss of \$60.5 million. Losses were estimated at \$14.9 million in Port Alberni, an estimated \$14.5 million in Ucluelet and an estimated \$31.2 million in Tofino. (See Economic Impact Section.) • Short term lost revenues were a result of: <ul style="list-style-type: none"> • Delays getting business supplies/materials, product and visitors to the Alberni-Clayoquot region during most of June and throughout the summer with continued disruptions. • Short-term inability to ship resources or products, especially in agriculture and marine retail, to market, resulting in lost sales. • Businesses experienced increased costs as a result of: <ul style="list-style-type: none"> • Special packaging arrangements to prevent damage to goods on interim alternative travel routes. • Using alternative routes which led to mechanical and suspension damage to trucks. • Adapting to new processes. • Trying to retain the workforce through the disruption so as not to lose them altogether.

<p>Serious disruptions to important services (health and other)</p>	<ul style="list-style-type: none"> • The disruption exacerbated service supply issues that already existed in the area, such as a lack of health care professionals, veterinarians, etc. • An inability to access important health care appointments led to significant delays in accessing future make-up appointments. • Transportation of medical staff or nursing services to the Alberni-Clayoquot region were delayed due to fuel limitations, and flights for medical staff were costly. • Transportation services tried to use alternative routes; however, damage to vehicles resulted in a reduction in services. • Veterinarian and medical supplies for domestic and livestock animals, as well as abattoir services for livestock ready for market, became limited.
<p>Increased anxiety and stress for business owners, compounding COVID financial stress</p>	<ul style="list-style-type: none"> • Employees and business owners experienced a significant amount of stress adapting processes and managing customers and clients during a time of uncertainty. • The closure and ongoing disruption coincided with COVID CEBA loan repayments for 28% of businesses,¹ which compounded the financial stress many businesses were already experiencing. • June is typically the start of the busiest time of the season for many of the tourism businesses, and the length of delays and uncertainty about ongoing revenue impacts heightened anxiety.
<p>Degradation of the workforce and workforce income</p>	<ul style="list-style-type: none"> • A lack of work, and therefore employment income, created immediate impacts on the workforce, especially in tourism. • An estimated 1,280 staff were either laid off temporarily or left businesses due to a lack of work. • Employment insurance was not available to all employees and not immediately, creating an ineffective support system. • Workers experienced challenges traveling to employment to/from the eastern side of the island and faced increased commuting costs once routes opened. • Workers who couldn't retain employment or who required income left the area; the flow of new workers was also reduced during that time, creating an even bigger ongoing work force issue than usual in the Alberni-Clayoquot region.
<p>Longer-term tourism revenue and reputation impacts</p>	<ul style="list-style-type: none"> • Travel uncertainty, highway delays, misaligned ferry sailings throughout 2023 further degraded an already challenging trip experience. • Inconsistent deposit/refund approaches resulted in confused visitors, lost deposits and complaints from visitors to destination marketing organizations. • Visitors adjusted their travel choices throughout 2023 to avoid the uncertainty of the Alberni-Clayoquot region and booked elsewhere. • Extraneous business loss and additional costs led to the immediate closure of some tourism experiences (until the route opened) and to permanent closures in some cases. • Loss of tourism experiences/services impacted the entire visitor experience.

¹ Chamber Survey. Those answering “Yes” to the following “Is your business still paying off a CEBA (Canadian Emergency Business Assistance) loan?”

Response/Recovery Issues

THEME	SUMMARY OF RELATED COMMENTS/FINDINGS
<p>Lack of a funding support response (insurance, government resources, etc.)</p>	<ul style="list-style-type: none"> • Many businesses did not have reserves and cash flow in June to get through a 15-day disruption and beyond, especially when many were repaying CEBA loans. • Even when available, insurance support didn't materialize immediately. • A lack of, and inconsistent access to, business interruption insurance relief was the one of the largest concerns for businesses. Only one out of 279 businesses who participated in the survey indicated they could claim insurance. This lack of access was in some cases related to the timing of emergency declaration processes/protocols. • Emergency funding and/or remittance relief was not offered to businesses from other levels of government.
<p>Lack of streamlined and effective communications</p>	<ul style="list-style-type: none"> • Communication challenges - mostly related to the initial communications during the disruption and alternative route opening - were one of the most consistent reoccurring themes and led to uncertainty and an inability for resident, visitors and organizations to adapt/prepare as required. These communication challenges continued during the highway closures and partial openings, albeit with some improvements. • The volume of communication through the variety of public, private and citizen channels was overwhelming and led to a lack of cohesion and clarity. • Overwhelmed businesses and business organizations were unable to communicate effectively to customers, visitors and suppliers and the lack of clear communications led to cancellations. • Post-disruption communications by provincial organizations did not provide certainty to visitors about the travel experience and did not support the recovery.
<p>Lack of room inventory in Port Alberni and Parksville/Nanaimo (for people to stay if road closes)</p>	<ul style="list-style-type: none"> • There was a lack of accommodation at either end of the highway to support people displaced by the travel disruption.

Economic Impact

CONTEXT

When considering the economic impact of the Highway 4 closure it is important to highlight that the primary economy of the ACRD is diversified across forestry, fishing/agriculture, manufacturing, and tourism activities. These core industries support a host of other industries such as construction, retail, health, transportation and public admin. All industries combined accounted for a regional labour force of 15,645 and just under 2,000 business in 2021. ²

The ACRD and regional labour force and economy is highly dependent on highway access to and from the region. Of the ACRD labour force, 63% or 9,835 people commute to a fixed workplace³ and 39% or 3,815 of them commute between communities within the ACRD. Another 1,025 or 17% of the commuting workforce travels outside the ACRD to a fixed workplace and 70% or 725 of them travel to the Nanaimo, Comox Valley, Strathcona or Cowichan Valley Regional Districts.

The regional workforce on the east side of Vancouver Island travels to the ACRD for work as well, with about 490 commuting from Nanaimo, Comox Valley, Strathcona or Cowichan Valley Regional Districts to a workplace within the ACRD.

In addition to labour force travel, many industries such as manufacturing, agriculture, fishing and wood products/forestry rely on the highways for shipping products or receiving supplies. In the case of tourism, over 96% of the individual 600,000 annual visitors to Tofino travel by vehicle and the large majority of those are travelling from the east side of the island to, or through Port Alberni using Highway 4.

Most people travel to the Vancouver Island region during the peak summer months, July to September, and just over one-quarter of other Canadians, US and other international travellers visited during the spring months from April to June. While a large amount of the \$1.77 billion (2014) Vancouver Island tourism economic impact is due to visitation to the southern portion of the island, the ACRD area also accounts for a significant amount of economic impact from the three tourism centres of Port Alberni, Ucluelet and Tofino. Tofino estimates annual spending at \$295 million, 2,670 direct tourism jobs, and \$57 million in tax impact with \$24 million of that targeted to provincial governments (2019)⁴. The District of Ucluelet generates between \$50 and \$60 million dollars in spending each year, employing 400-500 people⁵ and contributing \$19 million in tax impact, with \$8 million of that targeted to the provincial government in the past years,⁶ which was approximately one-third of Tofino's.

This contextual information makes clear that the ACRD region is a significant economic generator for the province that highly depends on the flow of goods and people to and from the region.

“The closure has caused us in Parksville to commute to Port Alberni through the Bamfield Cowichan road. Four hours before work, four hours after work. Making it a very long day.

Our son manages the shop so he travels back and forth along with myself or another. We are not able to be open every day. We closed our shop all last week and are open this week every second day.”

² Canada Census 2021

³ Canada Census 2021, Commuting destination by main mode of commuting, age and gender: Canada, provinces and territories, census divisions and census subdivisions Employed labour force aged 15 and over.

⁴ Economic Impact of Tourism 2019 <https://tourismtofino.com/site/assets/files/5754/economic-impact-of-tourism-in-tofino-2018-4mar2019.pdf>

⁵ <https://ucluelet.ca/community/parks-recreation/ucluelet-tourism-plan>

⁶ 2016 Resort Municipality Initiative economic impact report

ECONOMIC IMPACT METHODOLOGY

An economic impact assessment examines the effects of a project, industry, event or policy on the economic region under study. The steps of an assessment are broadly as follows and each step has a range of approaches to aid in the development of results.

1. Measure the direct impact of the event, project, policy, etc.
2. Build an economic model of that contribution/impact on the regional economy.
3. Estimate the direct, indirect and induced impacts on categories such as gross domestic product, employment, wages and salaries generated and impacts on taxes.
4. Communicate the results to decision makes, stakeholders and others.

Steps 1 and 4 are within the scope of this report. Considering the extent of the Highway 4 disruption through all four steps is outside what is possible with the inputs provided or captured within the extent of this project. Additionally, the economic impact review focussed primarily on the immediate closure and disruptions in June 2023, despite the clear understanding and engagement indicating that impacts continued throughout 2023.

The methodology for capturing the impact of the Highway 4 closure on the Alberni-Clayoquot region economy is based on the following information.

1. Engagement sources:
 - a. Considering the findings in the Cameron Bluffs Impact Survey conducted by the Alberni-Clayoquot Chambers and Destination Marketing Organizations (DMOs) to their members and across the regional business community that was administered shortly after the disruption in 2023 and had a strong uptake from approximately 280 businesses. Economic losses captured in the survey were extrapolated to reflect total loses from the business community.
 - b. Individual input from some larger businesses in the region or business that experienced a significant impact to revenues
2. Economic metrics
 - a. A high-level review of the impacts on hotel revenue in the areas where the Municipal Regional District Tax (MRDT) was collected in 2022, 2023 and 2024.
 - b. Comparison of Employment Insurance (EI) claims in the region from 2022/2023.
 - c. Reporting on the impact of the highway closure.

Engagement Sources

The Cameron Bluffs Impact Survey (Appendix C) was conducted by the Alberni-Clayoquot Chambers and Destination Marketing/Management Organizations (DMOs) with their members and across the regional business community shortly after the Highway 4 disruption in 2023. The survey had strong uptake throughout the region (280 businesses responded), though uptake in Port Alberni was somewhat less than in Tofino and Ucluelet on a relative basis. Economic losses captured in the survey were scaled up to reflect total losses due to immediate disruptions, by using total business license numbers from each of Tofino, Ucluelet and Port Alberni.

Key findings:

- Of the 279 survey participants only 17 indicated no economic loss during the two-week closure period.
- The total reported loss for survey participants amounted to \$10.2 million with \$1.5 million reported in Port Alberni, \$6 million reported in Tofino and \$2.9 million in Ucluelet.
- Extrapolating the reported losses across local businesses with business licenses (not-homebased) amounts to a total estimated loss of \$60.5 million during the two-week closure. Losses were estimated at \$14.9 million in Port Alberni, \$14.5 million in Ucluelet and \$31.2 million in Tofino.

“We, like many businesses here, rely on tourism and visitors, especially in the summer. Our revenue is down 56% for the month of June and if other businesses are experiencing similar declines due to the road closure we may see some otherwise viable businesses have to close as a direct result. Especially those less established than ours, of which there are many given how many businesses have opened in the past few years here.”

Figure 1 Survey reported and extrapolated loss during the two-week road closure



period (June 6-24) by community

Source: Cameron Bluffs Impact Survey, 2023

- The largest loss reported in the survey amounted to \$600,000, and 26 of the 279 survey participants reported losing \$100,000 or more in revenue.

Other:

- 35% of the 279 businesses surveyed indicated that the highway closure had an acute impact⁷ on their workforce during or shortly after the disruption. This finding isn't surprising given the number of employees commuting around and out of the ACRD.
- A total of 230⁸ staff were either laid off or left businesses during the disruption, with many business cutting back hours or paying staff just to keep them available when they highway opened. Extrapolating the survey report across all businesses resulted in an estimated 1,280 employees being laid off or that left for lack of work.

“We unload and transport fresh seafood to other locations and our customers had to redirect their boats to unload in other locations which in turn cost us lost revenue and our employees lost wages.”

⁷ Chamber Survey, Those indicating 1 or more in response to the survey question “How many staff have you lost or laid off as a result of this situation?”

⁸ Part time staff were counted as 0.5

Economic Data

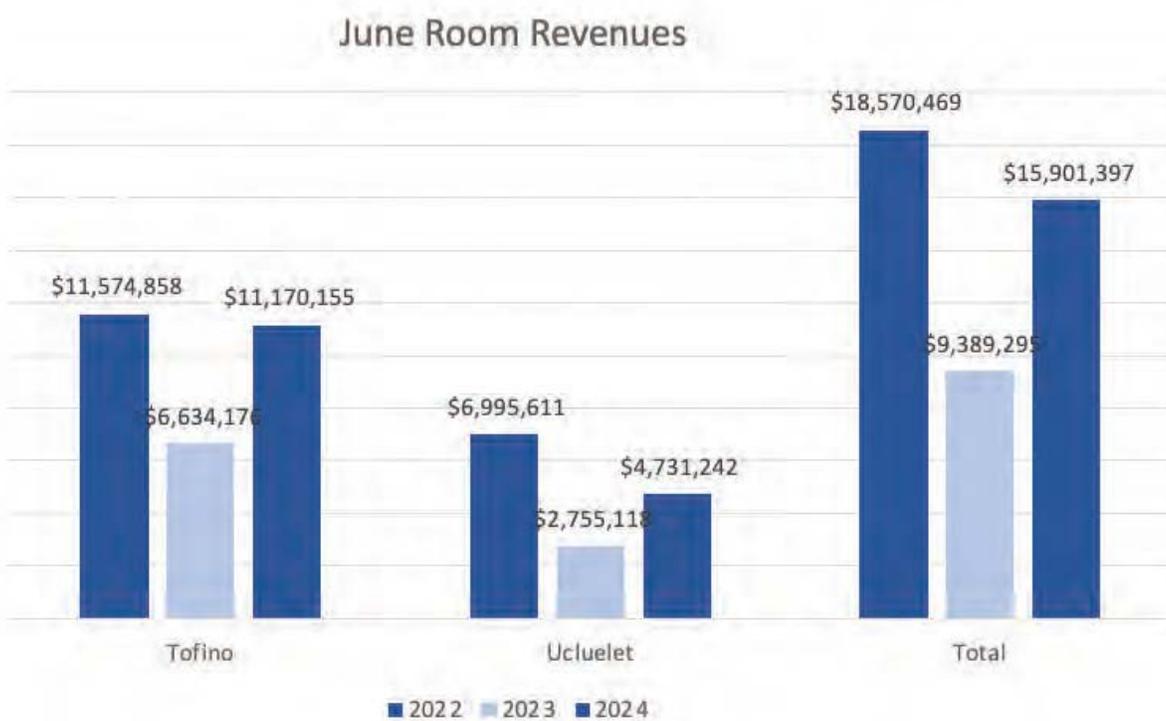
MUNICIPAL REGIONAL DISTRICT TAX AND HOTEL REVENUE IMPACTS

The Municipal and Regional District Tax (MRDT) is an up-to three percent tax applied to sales of short-term accommodation in participating areas of British Columbia collected on behalf of municipalities, regional districts and eligible entities. Both Tofino and Ucluelet have been collecting MRDT for over a decade; as such, MRDT figures scaled up to reflect room revenues provides a good indication of tourism activity. The Alberni Valley started collecting MRDT in February 2023, as such there is no comparison from 2022.

The Highway closure and ongoing disruptions had an immediate impact on room revenues in the region at least through June 2023. Room revenue combined for Tofino and Ucluelet in June 2023 was \$9.2 million or 49% lower than in June 2022. Tofino room revenue was \$4.9 million or 43% lower, while Ucluelet was \$4.2 or 61% lower. Despite June 2024 room revenues in Ucluelet not returning to 2022 levels, both communities generally recovered room revenue over the course of 2023 and the first half of 2024 as compared to 2022. Despite the return of room revenues, many tourism operators indicated that costs increased during this timeframe.

“We will not be able to see the actual impact of the closure until our month end to calculate how much revenue was lost for our Cafe and Sports Bar. Currently our tracking has us down over 500 room nights for the hotel alone. We have had to cancel many shifts for staffing due to cancellations and low numbers.”

Figure 2 Estimated June Room Revenues for Tofino and Ucluelet 2022-2024



Source: BC Stats and Ministry of Finance; September 6, 2024

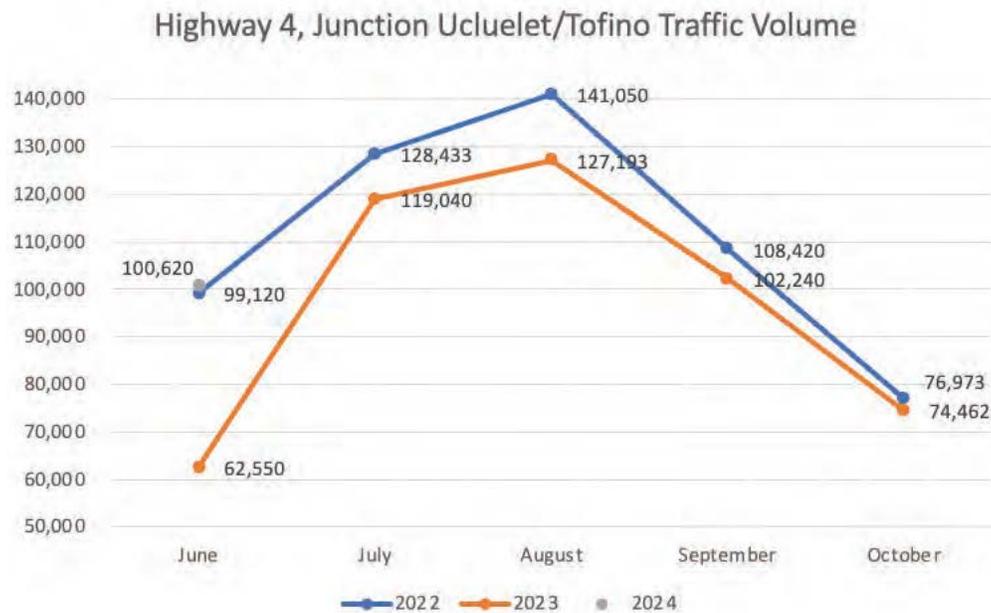
OCCUPANCY RATE

Tourism Tofino also has occupancy rates estimated by a third party using input from accommodators. Comparing June occupancy in Tofino from 2022 to 2023 reveals a drop of 35% between those two years.

TRAFFIC

The only active Ministry of Transportation and Infrastructure (MOTI) traffic counter on Highway 4 during the closure was at the Tofino/Ucluelet junction area. This traffic counter captures visitor, business and local traffic and so it is not a perfect representation of visitor traffic. That said, it can provide another window into some of the economic impacts from the Highway 4 closure. The traffic at this counter in June 2023 was 38% below both 2022 and 2024. The traffic at this counter continued to remain below 2022 traffic counts right through the summer visitor period to October 2023. By November 2023, traffic volume increased and generally matched the 2022 November counts.

Figure 3 Highway 4, Junction Ucluelet/Tofino Traffic Volume June-October 2022-2024



Source: Destination BC Tourism Dashboard; September 6, 2024

EMPLOYMENT INSURANCE BENEFITS

Many employers reported that employees were not easily able to access employment benefits during the disruption. Some employees had not worked the required hours and others had to wait initially before applying. The number of employment insurance beneficiaries receiving regular benefits⁹ in the ACRD during 2023 were slightly higher at 1,930 for the period of June-October compared to 1,810 during the same months in 2022. Of those receiving benefits in June, the percentage receiving benefits without any declared earnings was 87% in 2023 compared to 83% in 2022. Further analysis will be required to understand if these differences from year to year are a result of the Highway 4 closure.

“Everyone is doing there best but hard on us as owners and on staff as generally they are new employees to town. We have tried to give our staff work instead of offering to lay off mostly for moral and so that they will stay and many are laid off from other jobs and do not qualify for employment insurance.”

2022	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Total
Regular benefits	350	440	400	270	350	1810
Regular benefits with declared earnings	60	50	40	40	30	220
Regular benefits without declared earnings	300	390	370	230	320	1610
Regular benefits with declared earnings %	17%	11%	10%	15%	9%	12%
Regular benefits without declared earnings %	83%	89%	90%	85%	91%	88%

2023	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Total
Regular benefits	300	440	500	320	370	1930
Regular benefits with declared earnings	40	50	70	40	60	260
Regular benefits without declared earnings	260	390	440	270	320	1680
Regular benefits with declared earnings %	13%	11%	14%	13%	16%	13%
Regular benefits without declared earnings %	87%	89%	86%	88%	84%	87%

Source: Statistics Canada. Table 14-10-0323-01 Employment insurance beneficiaries by census division, monthly, unadjusted for seasonality

⁹ Benefits paid to claimants who have temporarily or permanently lost their job. To be eligible for regular benefits, claimants must have become unemployed through no fault of their own.



Summary of Existing Programs, Resources and Case Learning

Provincial

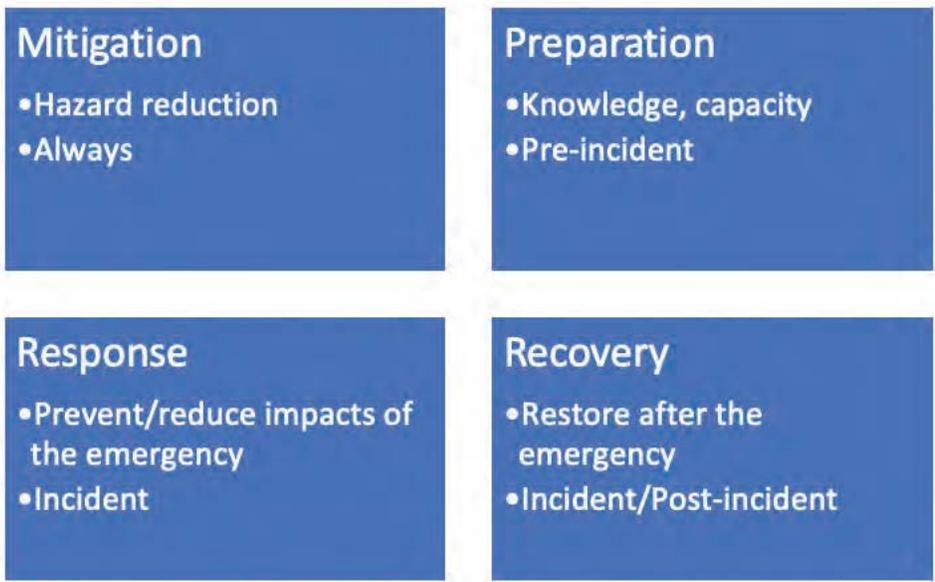
EMERGENCY MANAGEMENT IN BC

Emergency management planning and responses in Canada is carried out by all levels of government and partners such as Indigenous communities, municipalities, volunteer and non-governmental organizations, private sector, infrastructure owners and operators and volunteers.

Provincial and territorial governments have responsibility for emergency management within their respective jurisdictions. The federal government exercises leadership at the national and international levels relating to emergency management responsibilities in its particular jurisdictions and on lands and properties under federal responsibility. While these two levels of government have responsibilities across their respective jurisdictions and lands, in an emergency, **the first emergency response is almost always local or provincial given that emergencies most often occur locally**. If the local capacity is overwhelmed, provincial and federal agencies can respond to requests for assistance.

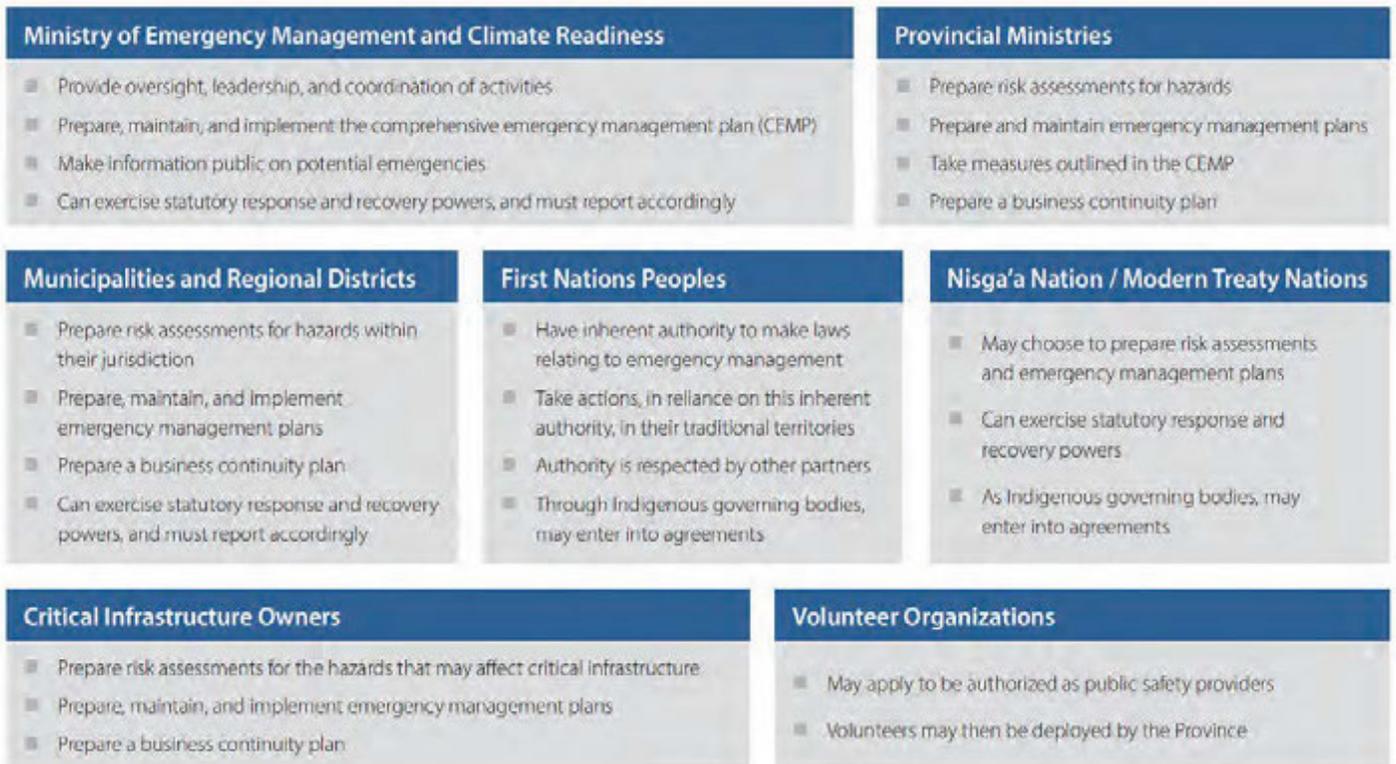
Emergency management consists of four components: prevention/mitigation, preparedness, response and recovery. Traditionally the focus has been on preparedness and response; however, there has been a shift in focus to proactive prevention/mitigation and recovery. BC's new emergency management approach (Modernized Emergency Management Legislation), adopted in 2023, addresses each of these components.

Figure 4 EM BC Framework



The modernized approach to emergency management in BC outlines the emergency management roles for various actors. Implementation for the new approach currently includes developing policy and guidance to support local authorities and others as well as post-emergency financial assistance. As of 2024, these regulations are still in development.

Figure 5 Emergency Management Roles in BC



POST-EMERGENCY FINANCIAL ASSISTANCE UNDER REVIEW

Under BC's original Emergency Program Act, regulations set out a framework for providing financial assistance (commonly referred to as "disaster financial assistance" or "DFA") to restore uninsurable losses that are essential to homes, livelihoods, or communities. The current provincial financial assistance program supports the reestablishment of basic essentials and is not designed to cover all losses. Financial assistance is not available for all emergencies and the provincial government must declare an event as being "eligible" in order to begin accepting applications. This program is currently under review in 2024 and 2025 in order to better align with the adoption of the new approach to emergency management in BC as well as to a federal program that intends to reimburse provinces for a portion of recovery costs.

BC TOURISM EMERGENCY MANAGEMENT FRAMEWORK

In 2022, the tourism industry along with provincial ministries and agencies developed a framework to support the sector with emergency management throughout the four components, namely mitigation, preparedness, response and recovery. Given the importance of tourism to the region's economy it is worth noting that the intent of the framework in aligning with the BC emergency management system is to reduce the industry's vulnerabilities and risks and impacts on the visitor experience during emergencies. Implementation of the framework is carried out by a Tourism Emergency Management Committee (TEMC) made up of core representatives from Destination BC (DBC), Emergency Management BC (EMBC), Regional Destination Management Organizations (RDMOs), B.C. Destination Marketing Organizations Association (BCDMOA) and Indigenous Tourism BC (ITBC).

Resources from the TEMC include emergency communications modules, emergency messaging guidance and hosts industry resources such as Local Economic Recovery and Restart Toolkits, as well as Prepared BC guides for tourism operators and small businesses.



Regional

EMERGENCY OPERATIONS WITH ACRD GOVERNMENTS

Indigenous Community Emergency Planning

In addition to the roles described in Figure 5, under the federal Emergency Management Act, First Nations need to maintain an essential level of preparedness for emergencies and disasters on their lands.

Municipalities and Regional District Emergency Planning

The Alberni-Clayoquot Regional District (ACRD) coordinates emergency services and Emergency Operations Centre (EOC) support to all areas within the regional district and the City of Port Alberni. Services and actions identified include emergency mitigation, preparedness, response, and recovery measures. The ACRD Emergency Program collaborates with emergency response organizations, local authorities, First Nations, provincial agencies, volunteers, and stakeholders to reduce disaster risks and improve regional resiliency.

Tofino and Ucluelet both have emergency management plans in place that outline how the communities will manage major emergencies or disasters and collaborate with other jurisdictions.

Communities also have EOCs that centralize information about the emergency, coordinate emergency response among municipal departments and agencies, identify critical needs, and establish emergency response priorities. In addition, the EOC provides timely information to the public concerning the major emergency or disaster. Emergency support services (ESS), a provincial program for local authorities and Indigenous governments to deliver services to the public in an emergency, are also present to help provide short term assistance such as food, lodging, clothing, emotional support, etc.

APPLYING POTENTIAL STRATEGIES

Applying the emergency planning framework

Emergency management planning is a whole group effort and is continuously improving through learning, engaging with stakeholders and reviewing the on-ground response and recovery experience related to emergencies and disasters. BC is in the midst of an emergency planning evolution and the ongoing process provides an opportunity for communities to provide input.

The Highway 4 disruption response and recovery efforts benefited from previous years of developing and continuously improving emergency management approaches. Many efforts during the response and recovery were effective and well executed. Despite these efforts the disruption still caused significant impacts on the Alberni-Clayoquot region communities. Table 1 identifies which component and incident timeframe activities require further planning/execution improvement in order to address the impacts experienced.

Table 1 Consequences of the Highway 4 Disruption

Impacts	Planning component
<ul style="list-style-type: none"> Major delays and interrupted deliveries – up- and downstream Significant loss of revenues and increased costs Increased anxiety and stress for business owners, compounding COVID financial stress Lack of streamlined and effective communications Lack of a funding support response (insurance, government sources, etc.) 	Response – During the incident Recovery – During and post-incident
<ul style="list-style-type: none"> Serious disruptions to important services (health and other) Lack of room inventory in Port Alberni and Parksville/ Nanaimo (for people to stay if road closes) 	Response – During the incident
<ul style="list-style-type: none"> Degradation of the workforce and workforce income Longer-term tourism revenue and reputation impacts Lack of a funding support response (insurance, government sources etc.) 	Recovery – During and post-incident

Using the emergency management framework as a guide, the solutions offered to reduce these impacts during the inevitable future disruptions are contained in mitigation efforts, preparation and heightened response and recovery activities and programs. The responsibility for these improvements, like emergency planning itself, needs to be shared.

BUSINESS CONTINUITY PLANNING

One preparation approach that has been employed to some success in other jurisdictions and which is now required by government entities in BC is called business continuity planning.

Business continuity planning develops and then tests a plan for keeping a business/organization going during an unplanned disruption or unforeseen event. These plans include some of the following components:

- An understanding of the types of disruptions that are most likely to impact the business
- A sense of/list/assessment of the critical functions and processes that keep businesses running smoothly
- Measures in place to address disruptions in the supply chain and resolve employee displacement and loss of the workforce
- Trained employees who are aware of business continuity procedures and/or how to respond in the event of a disruption
- Adequate insurance coverage for mitigating financial losses during a broad set of disruptions
- Strategies for financial resilience (adjusting costs, increasing revenues) in the face of unexpected events
- Annual training scenarios to practice implementing the plan.

Experience of recent disasters in Canada has shown that businesses and organizations that already have business continuity plans respond to and recover from unexpected events more quickly and effectively. A detailed emergency response and business continuity plan can maximize the chances of a successful recovery by eliminating hasty decision-making under stressful conditions.¹⁰ In fact, one of the benefits of well-practiced business continuity plans is reduced uncertainty and the related stress that comes with trying to operate during disruptions.

¹⁰ https://www.bceda.ca/disaster_preparation_and_recov.php

CONTINUITY PLANNING CASES

Several community and business continuity cases explored as part of the background research provided an opportunity to learn from other jurisdictions and businesses. The most relevant cases for this work included the Regional Municipality of Wood Buffalo in Alberta, New Orleans in Louisiana and a collection of large and small business examples (Appendix A).

Common themes:

1. Urgency and importance – The urgency or importance of developing continuity planning for businesses and/or led by government jurisdictions as a response to repeated natural disruptions or one major disruption in one situation.
2. Common steps used – Business continuity planning generally includes a common set of steps that includes: 1. Understanding the business financial model and critical functions; 2. Understanding and assessing risks; 3. Developing strategies and plans for the business to continue (IT, Suppliers, Employees, Communications, Operations); 4. Training others; 5. Testing and learning; 6. Reviewing and adapting.
3. Part of a larger approach to disruptions – Business continuity planning is just one component of the activities required to help a jurisdiction to respond and recover to a disruption. It is vitally important for organizations and their actions to support/rely on the actions implemented by other larger entities such as provincial governments.
4. Support for small business – Larger government or business entities have resources for business continuity planning; however, this is not usually the case for smaller organizations, which rely on external supports. The experiences in Wood Buffalo and New Orleans both highlight the benefit of supporting the capacity of businesses to develop continuity plans.

BUSINESS FEEDBACK ON CONTINUITY PLANNING

Interviews and focus groups with businesses in the ACRD/West Coast included continuity planning as one of the main topic areas. Questions explored the prevalence of continuity planning and how continuity planning was approached or used during the immediate and ongoing disruption to businesses. The main findings concluded that:

5. Very few businesses in the region have continuity plans.
6. Continuity approaches were employed during the disruptions; however, these were ad-hoc and due to the resourcefulness of some local businesses rather than pre-planned.
7. Incomplete continuity support is provided in existing emergency planning and preparation tools provided by emergency management BC.

Strategies used to continue business during the Highway 4 disruption

1. This disruption took most businesses by surprise so the strategies that were enacted were on the whole reactive rather than proactive.
2. The disruption from COVID and other road disruptions conditioned some of the response (e.g., cost cutting), but overall, there was a minimal degree of preparedness for another disruption. Ironically, one lesson from COVID was that businesses could expect funding support – which did not come.
3. Many businesses were forced to adjust their pricing; however, they still carried fixed costs for staffing, overhead and inventory.
4. Collaboration was an effective ad hoc strategy.
5. The use of the FSR road, along with surrounding communications, was helpful for some businesses, residents and visitors and less helpful for others who required a paved disruption-free route.

If we did not make alternate arrangements (driving and getting our stock/ heat pumps, furnaces, air conditioners, etc.) we would have lost roughly \$214,036.24 in revenue. We are also out approximately \$3000 in hotel fees, \$1300 in food costs for employees, \$700 in flights, and about \$800-\$1000 in gas.

Available business continuity plans and programs

1. There is very little awareness amongst interviewees of available business continuity support, programs or businesses that have business continuity plans. Continuity plans and pre-identified measures to mitigate business disruptions were limited to a handful of larger entities.
2. Some of the larger businesses reported having related plans for immediate emergency management (response to onsite emergencies), and staff trained in implementing them, but the extent to which these were used or deemed useful during this disruption is unclear.
3. There is a need for business continuity supports that meet the needs of small businesses that are currently in survival mode (i.e., do not have time and resources for planning as they are just trying to keep their business afloat).
4. There is a need for all levels of government to share responsibility to support impacted businesses with funding for short- and longer-term recovery and preparedness. There is also a need for a community-wide approach to planning rather than putting the onus (exclusively) on businesses.

What might business continuity support look like?

With respect to business continuity support, the process needs to be easy as smaller businesses' time and energy for planning is limited and is focussed on the core business instead of what "might" happen. Some ideas to support business continuity include:

1. Creating templates and guides based on business types to allow businesses to generate a continuity plan more easily.
2. Providing funding to businesses to develop continuity plans – funding could be used by the business to hire someone to help create the continuity plan with them.
3. Community /region wide approach or cohort – A guidebook and template could be used as part of a cohort program that is delivered through a few workshops that help the businesses focus on developing their continuity plans with others. The cohort model provides an opportunity for learning from others as well as a social contract of sorts to compel participants through the process. Creating plans and testing the plans in scenarios with other businesses reduces the initial need for each business to have multiple key staff included in the training.
4. Sector wide template customized by one-on-one interviews – Combining a sector guide and template with funding for a trained facilitator to interview businesses and lead a scenario workshop could provide the opportunity for business owners to receive a plan that is 80% completed.



Summary of Solution Themes

Over the course of the situation assessment, impact analysis, emergency systems review and case study research a list of solution themes and associated action ideas emerged. These solutions became the main content to consider, evaluate and elaborate on during focus groups and the final workshop with rightsholders and stakeholders. Slides and notes from this workshop are in Appendix B.

These solution themes are:

1. **Critical infrastructure**

Build critical infrastructure, such as alternative land routes, enhanced marine use and air infrastructure, to ensure essential services and supply chains are not disrupted.

2. **Mechanisms and processes to improve communication**

Add capacity to improve communications to public/visitors and stay relevant in a sea of social media reporting.

3. **Planning and preparedness at multiple scales**

Create/strengthen interagency governance, logistical and communications systems; build personal relationships between agency staff; and, provide training and contingency planning.

4. **Short and long-term recovery funding**

Identify new/potential funding sources such as new tourism funds for responses, BC emergency financial assistance, delayed government remittances and insurance solutions early, and secure.

5. **Business continuity planning assistance**

Encourage and support business continuity planning across the region. Tailor mechanisms and approaches for delivering assistance so they are appropriate for a given sector and business capacity; continuity planning should coordinate and align with public sector continuity planning.

6. **Deeper business and community connections**

Foster and deepen business and community connections throughout the region. Create structures such as an emergency preparedness group.

7. **Alternative business models**

Develop alternative business models that reduce seasonality of local economies, especially in tourism and agriculture to help businesses be less vulnerable to seasonal hazards.

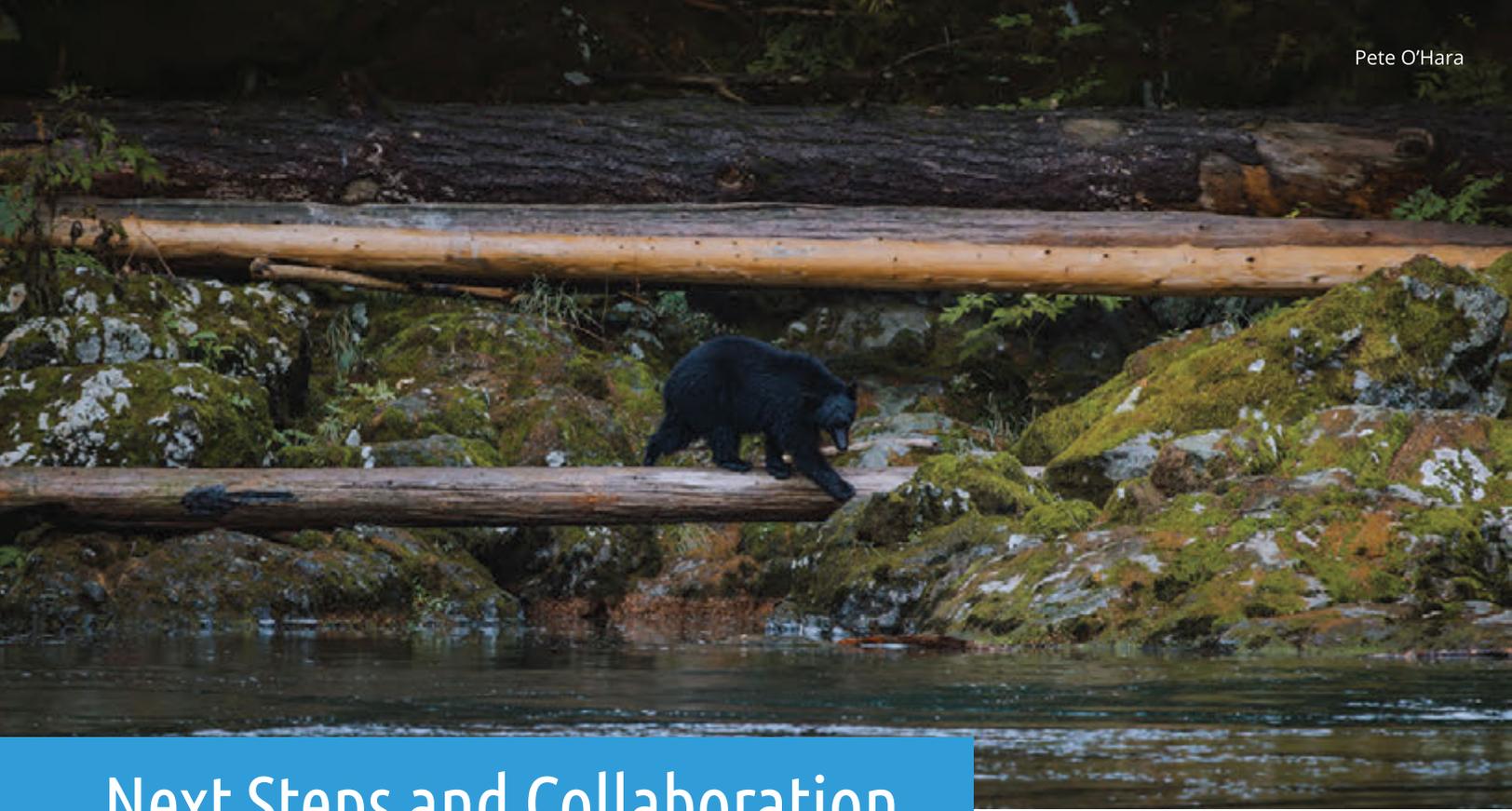
The following table outlines the solutions themes and associated actions in more detail:

THEME	Possible actions to support solutions themes <i>(should be reviewed and developed into an implementation plan)</i>
<p>1. Critical infrastructure</p> <p>Build critical infrastructure, such as alternative land routes, enhanced marine use and air infrastructure, to ensure essential services and supply chains are not disrupted.</p> <p>Possible Leads: Province, ACRD TAC</p> <p>Consequences addressed:</p> <ul style="list-style-type: none"> • Delayed/ interrupted deliveries • Loss of access to services • Long-term impacts to tourism / travel reputation 	<p>Land routes:</p> <ul style="list-style-type: none"> • Provide a guarantee of safety on the immediate Cameron Lake slope to avoid ongoing impacts. • Prioritize land transportation options in the region (including rail), inform the ACRD Board and then collectively advocate for these options to higher levels of government. (TAC). • Develop a specified scope and associated budget for the exploration and prioritization of transportation options including a secondary route in and out of the Alberni Valley. • Finalize an Emergency Detour Planning Study to look more closely at potential alternate access options for the Alberni-Clayoquot region (MOTI). • Improve coordination with the ferry traffic and better communication between entities (Ferry/MOTI) . • Ensure electronic communication signage for early notification and train people to be ambassadors on alternate routes to support first time travelers. • Seek out and provide clarity on insurance for personal or rented vehicles using alternative routes. <p>Marine routes:</p> <ul style="list-style-type: none"> • Build on the success of using the Alberni Valley marine highway to move products and extend planning for shipping from Port Alberni to Ucluelet. Port Alberni Port Authority was able to assist Catalyst Paper with shipping requirements. <p>Air routes:</p> <ul style="list-style-type: none"> • Improve the Port Alberni float plane dock and servicing area for customers. • Develop specific actions that support and build off the successes of using fixed wing aviation transport. <p>Supply chain resiliency:</p> <ul style="list-style-type: none"> • Identify warehousing opportunities and spaces in the Alberni-Clayoquot region or east coast that can act as “buffers” for the disrupted flow of goods. • Conduct a supply chain study to identify vulnerabilities from certain types of disruptions and possible alternative routes solutions, e.g., land to marine options.

<p>2. Mechanisms and processes to improve communication</p> <p>Add capacity to improve communications to public/visitors and stay relevant in a sea of social media reporting.</p> <p>Possible Leads: Province (MOTI, WILD, TERT), EOCs, DMOs</p> <p>Consequences addressed:</p> <ul style="list-style-type: none"> • Increased anxiety and stress for business owners • Long-term impacts to tourism / travel reputation • Lack of communications (channels, messages) – mixed messages • Confusion and wariness of visitors 	<ul style="list-style-type: none"> • Ensure early monitoring of communication and miscommunication on social media. • Work with MOTI and Wildfire BC to improve communications and to increase their certainty of messaging. • Ensure an Information Officer corrects any miscommunication, as well as provides frequent accurate updates to avoid public panic or fear. • Ensure EOC ‘s have two staff assigned to communications - one for social media and another for media. One person managing both is too much, especially at the beginning of an incident. • Create pre-determined communication plans with specific messaging developed in a timely manner, e.g., for helping educate the public on how to travel safely on unfamiliar (gravel) roads. • Ensure the Ministry of Jobs Economic Development and Innovation works collaboratively with the Chamber of Commerce on procedures for future incidents. • Develop and distribute a central e-mailing list for communicating what is going on to avoid using social media – even non-members, etc. • Create a volunteer or paid program to support human to human communication with real time information. • Promote the use of the Voyent Alert app for the region.
<p>3. Planning and preparedness at multiple scales</p> <p>Create/strengthen interagency governance, logistical and communications systems; build personal relationships between agency staff; and provide training and contingency planning.</p> <p>Possible Leads: Province, ACRD, Communities, DMOs</p> <p>Consequences addressed:</p> <ul style="list-style-type: none"> • Increased anxiety and stress for business owners • Long-term impacts to tourism / travel reputation • Lack of communications (channels, messages) – mixed messages • Confusion and wariness of visitors 	<ul style="list-style-type: none"> • Create a schedule to meet regularly to build relationships and trust before future incidents. Pre-established relationships and familiarity between agencies were key factors to the effectiveness of the response. • Initiate ongoing training to bring people together to learn and feel more comfortable with the in a response, especially as additional and necessary people are trained and assigned to roles for emergency response. • Develop the ability to enact emergency responses sooner to address indirect impacts from emergencies. • Work with Wildfire BC to understand and address wildfire prioritization protocols to ensure a holistic consideration of possible impacts and therefore resource allocation. • Require another category of “emergency” that allows adequate resource responses to situations like what was experienced for the two weeks. • Develop a list of “what if’s” for future responses with group lodging activations that last longer than two days. Example: Develop floor plans for sleeping assignments, set up shower facilities, and plan for ongoing food services. • Create a plan for essential service providers (for example, nurses and teachers who work in the Alberni valley couldn’t get in and out), and identify and secure their availability in times of crisis.. • Confirm what actions can be taken when provincial task numbers are not provided for needed resources. Example: extended group lodging was provided after the detour route was opened. • Develop tools to quickly assess the needs and realistic expectations of visitors/ evacuees.

<p>4. Short and long-term recovery funding</p> <p>Identify new/potential funding sources such as new tourism funds for responses, BC emergency financial assistance, delayed government remittances and insurance solutions early, and secure.</p> <p>Possible Leads: Province (TEMC), Federal DMOs, Chambers, EDOs</p> <p>Consequences addressed:</p> <ul style="list-style-type: none"> • Loss of revenues /increased costs • Increased anxiety and stress for business owners • Immediate impact on staffing • Lack of a funding support response 	<ul style="list-style-type: none"> • Work with provincial agencies to develop funding systems to help businesses retain staff and keep businesses afloat in some situations, especially given the importance of tourism to the province. • Develop support for a policy to delay remittance – GST, MRDT, payroll taxes, etc. as having this cash flow could be more valuable to businesses than new funding. • Advocate for a modernized financial assistance program during the province’s 2023 and 2024 consultations for the B.C.’s Modernized Emergency Management Legislation. • Consider creating a resort municipality relief fund, where some portion of the resort community’s hotel tax (or some other source of revenue) gets paid into a fund, which could be applied for/accessed by a community at a time of economic interruption to help relieve their businesses. • Support businesses to ensure they know about and how to access appropriate insurance. • Better understand and deploy Service Canada Work Sharing Agreement approaches where it makes sense. • Develop a provincial disaster insurance program, like ICBC, to fill the gaps related to the private market. • Learn from the review of the Disaster Recovery Economic Assistance Initiative and apply to future situations – many businesses did not/could not access it.
<p>5. Business continuity planning assistance</p> <p>Tailor mechanisms and approaches for delivering assistance so they are appropriate for a given sector and business capacity; continuity planning should coordinate and align with public sector continuity planning.</p> <p>Possible Leads: Chambers, DMOs, EDOs, Province</p> <p>Consequences addressed:</p> <ul style="list-style-type: none"> • Loss of revenues /increased costs • Increased anxiety and stress • Immediate impact on staffing • Lack of a funding support response 	<ul style="list-style-type: none"> • Develop a community/region wide approach to business continuity planning programming. • Provide support to make business continuity planning easy and effective such as templates by business type, and coaches to customize. • Align continuity planning with the provincial Tourism Emergency Management Committee. • Leverage new emergency management legislation to require government ministers, municipalities, regional districts, critical infrastructure owners, and public sector agencies to have business continuity plans. Make sure plans include essential workers’ housing during disruptions.

<p>6. Deeper business and community connections</p> <p>Foster and deepen business and community connections throughout the region; create structures such as an emergency preparedness group.</p> <p>Possible Leads: Chambers, DMOs, EDOs, Province</p> <p>Consequences addressed:</p> <ul style="list-style-type: none"> • Delayed/interrupted deliveries • Increased anxiety and stress • Loss of revenues /increased costs 	<ul style="list-style-type: none"> • Develop an emergency preparedness business group: a “command central” for businesses to connect, collaborate and support each other’s needs such as sharing of supplies and infrastructure. • Leverage the successes after coming out of COVID and this incident, e.g., learnings on how to collaborate, diversifying the supply chain. • Match up short term community needs and the skill/assets sets that exist, for example, using commercial kitchens to prep food for locals or for food banks if they not required for tourism. • Develop a community wide continuity plan to support each other and businesses. • Use continuity planning processes to collaborate and develop logistics plans to support businesses through disruptive incidents.
<p>7. Alternative business models</p> <p>Develop alternative business models that reduce seasonality of local economies, especially in tourism and agriculture, to help businesses be less vulnerable to seasonal hazards.</p> <p>Possible Leads: ACRD Agriculture, Alberni Valley Agriculture Institute Tourism DMOs, 4VI</p> <p>Consequences addressed:</p> <ul style="list-style-type: none"> • Delayed/interrupted deliveries • Increased anxiety and stress • Loss of revenues /increased costs 	<ul style="list-style-type: none"> • Continue tourism DMOs’ efforts to increase visitation during shoulder seasons and smooth out visitation. • Identify and pursue the West Coast multiplex as infrastructure supporting offseason visitation for concerts, trades shows and other. • Research which agriculture sectors may have the ability to shift the timing of harvest and livestock finishing to avoid higher risk (for disruption) seasons and support this shift.

A black bear is walking across a large, fallen log that spans a stream. The log is positioned horizontally across the middle of the frame. The bear is in the center of the log, moving from left to right. The stream is in the foreground, and the background is a dense forest with mossy rocks and trees.

Next Steps and Collaboration

This review of impacts and exploration of solutions needs to be shared broadly in order to develop the momentum and commitment required to implement actions that ensure the region is better prepared to handle future disruptions. In order to do this, the following next steps are recommended:

1. Create a communication plan and co-fund a campaign for stakeholders to share the Highway 4 closure and ongoing disruption consequences, economic impact and solution themes in order to develop implementation support from other levels of government or agencies.
2. Develop an implementation committee structure among the stakeholders and rightsholders considering connections to existing or new sub-committees for specific issues, e.g., Transportation Advisory Committee for land transport.
3. Consider the solution theme action ideas in more detail, assess them for effectiveness versus resources and develop implementation plans for prioritized actions.



Appendices

Appendix A. Resiliency Case Studies

Regional Municipality of Wood Buffalo Wildfire

REGIONAL MUNICIPALITY OF WOOD BUFFALO - HORSE RIVER WILDFIRE (2016)

INCIDENT

The Horse River Wildfire was first spotted on the afternoon of May 1, 2016, in the Regional Municipality of Wood Buffalo (RMWB), Northern Alberta. Due to extremely dry, warm, and windy conditions, it quickly spread throughout the region, and almost 88,000 people were evacuated. While no loss of life occurred because of the Wildfire, during the evacuation two young lives were tragically lost on Highway 881 in a motor vehicle accident. By the middle of June, the Wildfire was under control and RMWB communities began to shift their efforts to recovery.

IMPACT

The community lost 1,595 buildings and structures, containing 2,579 dwelling units. Overall, the 2016 wildfire resulted in an estimated \$3.8 billion in insurable losses. Some studies showed the event led to an overall socioeconomic impact nearing \$10 billion. It's the costliest natural disaster in Canadian history.

ACTIONS TAKEN

Prior to the fire, the 10 municipalities that make up the Region, had taken many steps to prevent, mitigate and prepare for an emergency, including planning for business continuity. The Regional Emergency Operations Centre and Incident Command System guided the response. Recovery was focused on the following pillars: People, Rebuild, Environment, Economy and Mitigate. A key learning coming out of this event is the importance of up-to-date business continuity plans.

PLAN AT A GLANCE

Components of RMWB's Business Continuity Guidebook

- What, why, and how of business continuity planning
- Six steps for developing a plan
- How to stay informed in the event of an emergency
- Tips for being prepared
- Facts from past events



LESSONS LEARNED

Enhance and update existing Business Continuity Plans: In alignment with the CSA Z1600-14 Standard and Sendai Framework, the RMWB is now working to maintain and update their existing Business Continuity Plans with current operational processes and organizational structures. Regular updates are important because they capture organizational and process changes, and provide an opportunity for the RMWB to incorporate leading practices that were identified since the last update. See Business Continuity Guide Book and Template below.

Formalize existing Business Continuity Plans as part of standard operating procedures during emergencies and disasters: One recommendation made to the RMWB following this emergency was to establish a designated individual or group whose role it is to create, maintain, and update its Business Continuity Plans. This also includes maintaining staff awareness around the Business Continuity Plans, including awareness of their purpose and their practical implication for departments and individuals. Familiarizing staff with existing Business Continuity Plans helps integrate them into emergency or disaster responses.

Legal and regulatory compliance: The RMWB's Municipal Emergency Management Plan is more robust than the guidelines provided through the provincial Community Emergency Management Plan and has started to meet some aspects of the Canadian Standards Association's Z1600-14 Emergency and Continuity Management Program.

CONCLUSION

Over the past three decades, the communities and residents of the RMWB have experienced multiple wildfires in their region, which have resulted in temporary road closures and evacuations; though none quite at the scale of the Horse River Wildfire.

This history of wildfire provided the RMWB with the opportunity to enhance its government operations and business continuity planning as well as the maturity of its emergency management capabilities.

RESOURCES: [RMWB's Business Continuity Guidebook](#) and [Business Continuity Template](#)

Sendai City, Japan, Earthquake and Tsunami

SENDAI CITY, JAPAN - GREAT EAST JAPAN EARTHQUAKE AND TSUNAMI (2011)

INCIDENT

In 2011, Japan was hit by the Great East Japan Earthquake (GEJE). The unprecedented scale of destruction offered many lessons for infrastructure resilience, risk identification, reduction, and preparedness, and disaster risk finance.

IMPACT

The event resulted in the total destruction of more than 123,000 houses and damage to almost a million more. The costs resulting from the earthquake and tsunami in Japan were estimated at \$220 billion USD.

ACTIONS TAKEN

In response, the local government, along with national and international organizations, initiated a comprehensive recovery and reconstruction effort.

To support local businesses, the Sendai City Government provided financial assistance, tax relief measures, and subsidies for rebuilding efforts. They also established temporary business support centers to provide guidance on administrative procedures and access to resources.

PLAN AT A GLANCE

Components of Sendai City's Business Continuity Plan (BCP) - 2014

- Concrete actions that need to be taken by each department when a large-scale earthquake or tsunami happens
- Officials understand their roles and how to prioritize their duties.
- Based on our experiences and the lessons learned from the Great East Japan Earthquake.
- The plan aims to protect the lives, health and property of citizens, minimize the effect on citizens' lives, and allow work responding to disasters to start quickly, as well as to continue to provide basic government services and return to normal operations as soon as possible, even if a large scale disaster prevents the city offices from functioning as normal.



LESSONS LEARNED

Numerous lessons across multiple sectors have been learned over the past decade because of GEJE reconstruction and analysis. Three common themes are:

Proactive planning is vital: Even though disasters will always be unexpected, if not unprecedented, planning for disasters has benefits both before and after they occur.

Collaboration is key: To strengthen the resilience of infrastructure, preparedness, and finance for the next disaster in Japan, national and local governments, infrastructure developers and operators, businesses and industries, communities and households have been building better systems by prearranging mechanisms for risk reduction, response and continuity through collaboration and mutual support.

Resilience is an iterative process: Many adaptations were made to the policy and regulatory frameworks after the GEJE. Past disasters show that resilience is an interactive process that needs to be adjusted and sustained over time, especially prior to a disaster.

CONCLUSION

These lessons from the GEJE on the importance of BCPs and pre-arranged agreements both emphasize larger principles that can be brought to bear in the context of emergent climate and public health crises. They demonstrate that collaborative efforts between government agencies, business associations, and community leaders can help expedite the recovery process and restore economic activity after disaster strikes.

By making disaster preparedness a key consideration for all organizations, and bringing diverse stakeholders together to make plans for when a crisis strikes, these strengthened networks and planning capacities have the potential to help mitigate emergencies and benefit everyday operations of organizations and countries.

RESOURCES: [Sendai City Business Continuity Plan](#) and [Sendai Report](#)

Gaile Media Business Continuity

INTERNET MARKETING GAILE MEDIA FIRM GOES MOBILE IN FACE OF HURRICANE HARVEY (2017)

INCIDENT

In August 2017, Hurricane Harvey slammed into Southeast Texas, ravaging homes, and businesses across the region. Over 4 days, some areas received more than 40 inches of rain. By the time the storm cleared, it had caused more than \$125 billion in damage.

IMPACT

Numerous small businesses were devastated by the hurricane. Gaile Media, a small Internet marketing agency, was almost one of them. Despite being located on the second floor of an office building, Gaile's offices were flooded when Lake Houston overflowed.

ACTIONS TAKEN

The flooding was so severe, nobody could enter the building for three months. When Gaile's staff were finally able to enter the space after water levels receded, any hopes for recovering the space were quickly dashed. The office was destroyed, and mold was rampant. Yet, business continued as usual with owner Brandon Gaile and his staff working from home and accessing files from the cloud.

PLAN AT A GLANCE

Components of a Robust Business Continuity Plan (BCP)

While specific details of Gaile Media's Business Continuity/Disaster Recovery (BC/DR) plan are not available, typical components that are commonly included in such plans, include:

- Risk Assessment and Business Impact Analysis (BIA);
- Business Continuity Strategies;
- Emergency Response Plan
- Backup and Recovery Plan
- IT Disaster Recovery Plan
- Crisis Communication Plan
- Vendor and Supplier Continuity Plan;
- Training and Awareness Program
- Testing, Maintenance, and Review
- Documentation and Governance



LESSONS LEARNED

While the company never returned to its building, its operations were hardly affected. Key lessons from Gaile Media's approach to weathering Hurricane Harvey and maintaining business operations are:

Risk Assessment: is vital for identifying and preparing for potential threats to business operations. This includes assessing both internal and external factors that could disrupt business continuity.

Comprehensive Planning: Gaile had taken the time to develop a Business Continuity / Disaster Recovery Plan, and familiarize staff with it.

Backup Systems and Redundancies: Having backup systems and redundancies in place can help businesses maintain operations during emergencies. As directed through its Business Continuity / Disaster Recovery Plan, Gaile kept most of its data stored in the cloud, which allowed staff to work remotely through the storm and after. Even with the office shuttered, they never lost access to their critical documents and records.

Employee Training and Awareness: Employees play a critical role in business continuity. Gaile Media likely advocates for employee training and awareness programs to ensure that staff members understand their roles and responsibilities during emergencies.

Be adaptable

When it came time to decide where to relocate, the owner decided to keep the company decentralized, allowing workers to continue working remotely (and providing a glimpse of how other businesses around the world would similarly adapt to disaster during the Covid-19 pandemic three years later). What is more, is the move to remote work has saved Gaile thousands of dollars a year in overhead – rent, utilities, and commuting costs.

CONCLUSION

Had the company kept all its data stored at the office, the business may never have recovered. Gaile's Business Continuity / Disaster Recovery Plan helped them identify risks and take proactive steps to protect core business functions during and following an emergency.

NEW ORLEANS BUSINESS CONTINUITY GUIDE

PARKWAY BAKERY & TAVERN

Jay Nix, Owner



Parkway Bakery and Tavern has a long history, dating back to 1911, when it opened as a bakery in the Bayou St. John neighborhood. The restaurant has experienced a number of storms, including catastrophic flooding during Hurricane Katrina, and managed to reopen just two months later with a renewed understanding of their risk.

In 2012, Jay Nix experienced a different kind of risk that affected his business: an extended power outage due to Hurricane Isaac. With the hurricane approaching, Jay and manager Jamie Kennedy had to decide how to prepare. Shuttering the restaurant prematurely would mean loss of revenue and they still weren't sure whether the storm would affect New Orleans. However, if it did affect their business they faced the potential loss of their perishable inventory.

Understanding the effect a power outage would have on its inventory, Justin Kennedy, manager and head chef, decided to act preemptively: he rented a refrigerated truck. Justin began transferring the frozen items to the refrigerated truck. The remaining inventory was documented for insurance purposes, and then given out to neighbors who were also suffering from the power outage. The outage lasted 10 days, during which Parkway needed to stay in touch with its employees so they would know when to come back to work.

Before the event, Jay made sure he had an updated list of all employee contact information, and set up a designated time and phone number for employees to check in. Jay and Justin understood their business depended on their staff, and provided incentives for employees to come back after the extended closure. In Jay Nix's words, "If you have your people back, you can make anything happen."

Another issue they dealt with was the need to communicate with their customer base, and how to inform them when they would be open again. They decided to take out an ad in the newspaper to announce their reopening after the power was restored.

Jay also helped make the neighborhood more resilient to future flood damage and became a business leader within the water management community and installed an innovative parking lot that reduces street flooding in their neighborhood.

For more information on how to "Know Your Key Customers, Contacts, Suppliers and Vendors," see the OFB-EZ toolkit, p. 10.

For more information on "Working Together as a Community," see page 9 of this guide.

For more information on "Protecting Your Inventory & Perishables," see page 10 of this guide.

For more information on assessing risk to your business, see Section 2: Assessing Your Structure and Level of Risk of the New Orleans Building Hardening Guide.

DONG PHUONG BAKERY

Kevin Tran, Son of Owners



The Tran family started Dong Phuong Bakery in the 1980s on Chef Menteur Highway in New Orleans East. Kevin Tran's parents immigrated to New Orleans in the 1970s, and took over an existing Vietnamese restaurant, expanding it to include a bakery.

The family business was fortunate during Hurricane Katrina. While many other parts of New Orleans East were hard-hit by the flooding, Dong Phuong's did not flood. The restaurant benefitted from having a fairly secure building, with a backup generator, shuttered windows, and a site on relatively high ground. Leaks in the roof and a flooded storage unit caused some damage, but were repaired quickly.

Compared to other parts of the city, the population in this part of New Orleans East came back quickly to rebuild. Dong Phuong's customer base returned, even as demographics shifted after the storm. As a result of having to close the restaurant before dark in the aftermath of Hurricane Katrina, when National Guard troops were still patrolling the city, the family decided to stick with the shorter business hours and downsized their menu to make things easier for the staff.

The tightly run family business means that the owners are always present. Kevin's parents and uncle know their emergency policies and procedures by heart and due to the small staff size, it is easy for them to keep in touch with employees. Low employee turnover – two of their waitresses have been with Dong Phuong's for over 25 years – means that employees return after an evacuation. Dong Phuong's ability to return quickly following an event speaks to the value of it being a small, community-based business.

For more information on how to "Know Your Operations," see the OFB-EZ toolkit, p. 6.

For more information on how to "Know Your Employees," see the OFB-EZ toolkit, p. 8.

For more information on assessing risk to your business, see Section 2: Assessing Your Structure and Level of Risk of the New Orleans Building Hardening Guide.

Toyota Business Continuity Practices

TOYOTA'S OUTSTANDING BUSINESS CONTINUITY PRACTICES(2011)

INCIDENT

Toyota Motor Corporation, one of the world's leading automakers, faced a significant challenge when the Great East Japan Earthquake and Tsunami (GEJE) struck on March 11, 2011. The disaster caused widespread devastation, loss of life, and infrastructure damage throughout Japan, affecting numerous businesses, including Toyota.

IMPACT

Registering 9.0 on the Richter scale, the GEJE was one of the most powerful earthquakes ever recorded. It caused a tsunami with waves that reached heights of up to 133 feet (40.5 meters) in some areas. As a result, there were nearly 16,000 fatalities, more than 6,000 injuries, and extensive infrastructure damage.

ACTIONS TAKEN

In the immediate aftermath of the earthquake, Toyota temporarily shut down production at all of its plants in Japan as a safety precaution. This decision was made to ensure the safety of employees and assess the impact of the disaster on its facilities and supply chain. Next, Toyota quickly mobilized teams to assess the damage to its production facilities, infrastructure, and supply chain network. This assessment was crucial for determining the extent of the impact on its operations and formulating a recovery plan. Finally, Toyota prioritized the well-being of its employees and provided support to those affected by the earthquake. This included assistance with housing, transportation, and other essential needs. Additionally, Toyota contributed to relief efforts in affected communities by providing financial support and donating vehicles for transportation and rescue operations.

PLAN AT A GLANCE

Toyota's Business Continuity Management Principles

Regardless of the magnitude and impact of a disaster, Toyota will prioritize humanitarian aid and community recovery before looking to restart its own operations. With this overarching objective, Toyota has sought to engage directly with communities, through signing multiple collaborative disaster aid agreements with numerous cities across Japan, particularly those which are at higher risk.



LESSONS LEARNED

Toyota's response to the crisis stood out as exceptional in several key ways:

Resilience through Diversified Supply Chain: Toyota's proactive approach to diversifying its supply chain allowed it to mitigate the impact of supply disruptions caused by the disaster. This diversification strategy set Toyota apart from many other companies in the region that relied heavily on single-source suppliers, making them more vulnerable to disruptions.

Swift Recovery and Minimal Production Disruption: Toyota's ability to resume production relatively quickly, reaching full production capacity within months, was exceptional. This swift recovery contrasted with the experiences of other automakers and manufacturers that faced extended production shutdowns and delays.

Effective Business Continuity Planning: Toyota's adherence to ISO 22301 standards and its comprehensive business continuity management system (BCMS) demonstrated the effectiveness of its planning and preparedness efforts. This level of planning and its execution set Toyota apart as a leader in business continuity management.

Employee Safety Priority: Toyota's commitment to employee safety was evident in its actions during and after the disaster. The fact that there were no fatalities among its employees due to the earthquake and tsunami was an exceptional achievement.

CONCLUSION

Toyota's exceptional response to the 2011 Great East Japan Earthquake and Tsunami can be attributed to its proactive business continuity planning, diversified supply chain, efficient communication, and unwavering commitment to safety. These qualities distinguished it from many other companies in the region that faced greater challenges and uncertainties during the crisis. Toyota's case serves as a valuable benchmark for businesses seeking to enhance their resilience and preparedness for similar disruptions. It underscores the critical importance of proactive planning and implementation in achieving exceptional outcomes during times of crisis.

New Orleans Emergency Preparedness Plan

Incident (s)

Hurricane Katrina, a catastrophic Category 5 hurricane, struck the Gulf Coast of the United States, particularly devastating the city of New Orleans, Louisiana, in August 2005. The storm's powerful winds and storm surge lead to widespread flooding that inundated homes, businesses, and infrastructure.

Impact

The impact on businesses was profound, with many facing severe damage, destruction, and economic losses. Small businesses, in particular, struggled to recover, facing challenges such as property damage, supply chain disruptions, and loss of customers. Major industries like tourism, hospitality, and fishing were significantly affected, with long-term repercussions on employment and economic stability. The hurricane exposed vulnerabilities in disaster preparedness and infrastructure, prompting calls for improved resilience and emergency planning.

Actions Taken

NOLA Ready, launched in 2010, is the emergency preparedness campaign and communication system initiated by the New Orleans Office of Homeland Security and Emergency Preparedness (NOHSEP). It promotes the concept of business continuity, especially in a city vulnerable to natural disasters.

Following Hurricane Katrina, NOLA Ready broadened its focus beyond individual preparedness to include initiatives aimed at enhancing the resilience of businesses within the city. NOLA Ready collaborated with organizations and industry stakeholders to develop comprehensive business continuity strategies. The strategy [guide](#) for businesses is a key resource and [other resources](#) are also available.

These continuity strategies encompass a range of measures designed to ensure that businesses can continue operations and fulfill their commitments to employees, customers, and stakeholders, even in the face of adversity. Key components include risk assessments, continuity planning, and the establishment of protocols for communication, resource management, and alternate operating procedures.

Through outreach, training, and resources, the campaign equipped businesses with the knowledge and tools necessary to identify potential risks, mitigate vulnerabilities, and implement effective continuity measures.

NOLA Ready also facilitates collaboration and information sharing among businesses, fostering a culture of resilience and mutual support within the local business community. By encouraging partnerships and networking, the campaign helped businesses leverage collective expertise and resources to enhance their preparedness and response capabilities.

At a Glance

Planning promoted for businesses include three steps:

1. Plan: Understand hazards for disruptions and potential impacts on businesses
2. Implement: Write a [preparedness plan](#)
3. Practice: Test exercises and evaluation

To support these efforts NOLA Ready launched the [Partners in Preparedness program](#) to engage and support New Orleans small business owners, employers, and their employees in preparing for emergencies. Partners in Preparedness is a training (to build capacity) and recognition (to spread the word and normalize) program. ALL partners receive the Partners in Preparedness SEAL and CERTIFICATE. These icons and certificates can be displayed on social media accounts, webpages, or on business or organization's walls to show a commitment to preparedness.

Lessons Learned

NOLA Ready work goes far beyond business continuity planning and considering all the various functions four important lessons stand out:

1. Community and business engagement: Involving residents and businesses in preparedness efforts, considering concerns and needs is important. This engagement is where the business continuity resources live.
2. Effective communication: Using multiple communication channels through a recognizable handle helps to increase the effectiveness of communication.
3. Adaptability: Situations requiring an emergency response or potential solution to disruptions need to be adaptable to the specific situation.
4. Partnerships: Collaboration is critical with all levels of government, community organizations and businesses.

Conclusion

By integrating business resilience into its broader preparedness framework, the campaign has helped strengthen the city's overall resilience and ability to recover from disasters, ensuring that New Orleans remains a resilient and vibrant economic hub even in the face of adversity.

Appendix B Workshop and Notes

ACRO Hwy 4 Resiliency

Solutions workshop June 24/2024

Welcome

Today's Objectives

- Confirm final incident themes
- Share and refine strategies/solutions
- Prioritize strategies/solutions

Also...

- Update on what we've done and heard
- Share key learnings

Agenda

- Realize
- Agenda review
- Introductions
- Quick look back and review of steps
- Framework installation
- Confirm final themes
- Strategies/solutions introduction
- Participation exercise
- Next steps

Online meeting tips:

- Mute your mic please
- Feel free to turn off video
- Use the "thumbs" up function
- Feel free to use the chat for questions or comments
- Take a break.

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Project Purpose/Outcomes

Purpose:
To engage with businesses, stakeholders and rightsholders in the ACRO region to understand the impacts of the 2023 summer highway closure and to identify the key strategies for supporting affected businesses in the case of future challenges and creating long-term resilience to future highway closures and disruptions.

Process and timeline

Engagement

- DISCOVERY 1 & 2**
 - Engage with Stakeholders (Business, BCRA, FRC, Age-Related Risk Review, Resilient and Resilient) and community of rightsholders.
- Focus group #1**
 - Use the Framework of Common and ACRO
 - Identify key themes and needs
 - 22 small group sessions
 - Facilitated by business development support and facilitator
 - Facilitated by business development support and facilitator
 - Facilitated by business development support and facilitator
- Focus group #2**
 - Use the Framework of Common and ACRO
 - Identify key themes and needs
 - 22 small group sessions
 - Facilitated by business development support and facilitator
 - Facilitated by business development support and facilitator
 - Facilitated by business development support and facilitator
- Output**
 - Key learnings
 - Key themes

Framework - Jargon

- Impact and Priority Needs Themes - high level
- Strategy/Solution Themes - high level areas of improvement to address needs/gaps
- Ideas - shared in reports, in workshop or interviews/focus groups

Impact themes

- Transportation (road, rail, air, sea and other modes, including pipelines)
- Loss of access to essential services and products
- Loss of income, employment, BCRA, FRC, Age-Related Risk Review, Resilient and Resilient
- Loss of community and social connections, including FRC, Age-Related Risk Review, Resilient and Resilient
- Loss of community and social connections, including FRC, Age-Related Risk Review, Resilient and Resilient

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Needs themes

- Make infrastructure safe and resilient
- Ensure that all services, including essential services, are available when needed
- Ensure that all services, including essential services, are available when needed
- Ensure that all services, including essential services, are available when needed

BREAK

Emergency Management - BC

Emergency Management - BC

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Emergency Management - BC

Business Continuity Planning

A plan (ideally one that has been tested before hand) for keeping the business going during an unplanned disruption or unforeseen event.

- Business continuity plan
- Business continuity plan
- Business continuity plan

New Orleans

Fort MacMurray

Business Continuity Plan

- What's new forward
- Make a plan
- Test the plan
- Review and update the plan
- Communicate the plan
- Train employees
- Rehearse the plan
- Rehearse the plan

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Strategy solutions process

- Identify the core problem and develop strategy solution themes
- Develop a few potential approaches to address the problem
- Identify, test, and prioritize
- Develop reports

Strategy solution themes

Theme	Needs addressed	Examples
1) Critical infrastructure for essential services and supply chains are not disrupted. Safe alternative routes are available and should consider needs for all, as well as by land.	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains 	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains
2) Workplaces and businesses are resilient and able to recover in a timely and effective manner.	<ul style="list-style-type: none"> Loss of income Loss of employment Loss of community and social connections Loss of community and social connections 	<ul style="list-style-type: none"> Loss of income Loss of employment Loss of community and social connections Loss of community and social connections

Strategy solution themes

Theme	Needs addressed	Examples
3) Planning and preparation to ensure resilience including the development of emergency response, mitigation, and communication systems for better response	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains 	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains
4) Short and long term recovery building blocks for essential services and supply chains to be in place during and after a disruption.	<ul style="list-style-type: none"> Loss of income Loss of employment Loss of community and social connections Loss of community and social connections 	<ul style="list-style-type: none"> Loss of income Loss of employment Loss of community and social connections Loss of community and social connections

Strategy solution themes

Theme	Needs addressed	Examples
5) Mechanisms and approaches for ensuring business continuity, emergency response, mitigation, and communication systems for better response	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains 	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains
6) Planning and preparation to ensure resilience including the development of emergency response, mitigation, and communication systems for better response	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains 	<ul style="list-style-type: none"> Disrupt critical infrastructure Loss of access to essential services and supply chains Loss of access to essential services and supply chains

Strategy solution themes

Theme	Needs addressed	Examples
7) Development of alternative business models, such as remote work, digital services, and other innovative approaches to ensure business continuity	<ul style="list-style-type: none"> Loss of income Loss of employment Loss of community and social connections Loss of community and social connections 	<ul style="list-style-type: none"> Loss of income Loss of employment Loss of community and social connections Loss of community and social connections

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JAMBOARD!

Strategy solution themes

- What was added or refined?
- Questions to others?

Poll

Strategy solution themes

- How do you feel about these top 3 being emphasized?
- What would you replace one with and why?

Next Steps

- Draft report - Project leads
- Communications materials - summary report
- Final materials
- ?

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Thank you!

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Notes

THEME	DETAILS	Notes from stickies: to consider in implementation planning.
<p>1. Critical infrastructure</p>	<p>Build critical infrastructure, such as alternative land routes, enhanced marine use and air infrastructure, to ensure essential services and supply chains are not disrupted.</p> <p>Possible Leads: Province, ACRD TAC</p>	<p>Land routes – Rail?</p> <p>Seek out clarity on insurance for vehicles using alternative routes – tourism, car rental companies</p> <p>Buffering supplies by having with arrival port, warehousing/distribution from the Alberni Valley to the Coast and elsewhere.</p> <p>Air</p> <p>Planning for additional air support in disruptive situations with PCA</p>
<p>2. Mechanisms and processes to improve communication</p>	<p>Add capacity to improve communications to public/visitors and stay relevant in a sea of social media reporting</p> <p>Possible Leads: Province (MOTI, WILD, TERT), EOCs, DMOs</p>	
<p>3. Planning and preparedness at multiple scales</p>	<p>Create/strengthen interagency governance, logistical and communications systems, build personal relationships between agency staff, provide training and contingency planning</p> <p>Possible Leads: Province, ACRD, Communities, DMOs</p>	<p>Ensure that the business community is represented on the EOC to help respond and recover more quickly</p> <p>Review the progress and value of the BC Hotel Association emergency booking portal</p> <p>Better understand and deploy Service Canada Work Sharing Agreement approaches where it makes sense.</p> <p>Make a live visual org chart of all the organizations and roles involved to support during and after disruptions</p> <p>Host a session to agency roles, overlapping activities and gaps in order to update mutually approved responsibilities.</p> <p>Community futures role in recovery is important</p> <p>United way wants to help but may have been underutilized.</p> <p>Emergency communications strategy grant – NYLA follow up.</p>

<p>4. Short and long-term recovery funding</p>	<p>Secure funding, including early identification of new/potential funding sources such as new tourism funds for responses, BC emergency financial assistance, delayed government remittances and insurance solutions</p> <p>Possible Leads: Province (TEMC), Federal DMOs, Chambers, EDOs, Community Futures)</p>	<p>Better understand and deploy Service Canada Work Sharing Agreement approaches where it makes sense.</p> <p>Community futures seems to have a role to play</p> <p>Development of a provincial disaster insurance program to fill the gaps related to the private market – e.g. ICBC</p> <p>Learn from the review of the Disaster Recovery Economic Assistance Initiative and apply to future situations. – many businesses did not/could not access it.</p>
<p>5. Business continuity planning assistance</p>	<p>Tailor mechanisms and approaches for delivering assistance so they are appropriate for a given sector and business capacity; continuity planning should coordinate and align with public sector continuity planning</p> <p>Possible Leads: Chambers, DMOs, EDOs, Province</p>	<p>Better understand and deploy Service Canada Work Sharing Agreement approaches where it makes sense.</p> <p>*3 chambers and CF working together to deliver continuity work.</p> <p>Carrot and stick – discount on insurance</p> <p>Essential workers living locally or who commute need to be housed during disruptions</p>
<p>6. Deeper business and community connections</p>	<p>Foster and deepen business and community connections throughout the region; create structures such as an emergency preparedness group</p> <p>Possible Leads: Chambers, DMOs, EDOs, Province</p>	<p>Supply chain study to understand exposure and opportunities for local options? X2</p> <p>Chambers facilitate collaboration – continue this.</p> <p>Inventory of resources locally.</p> <p>Funding:</p> <p>UBCM Community Emergency Preparedness Fund</p> <p>The Community Emergency Preparedness Fund (CEPF) is a suite of funding streams intended to enhance the resilience of local governments, First Nations and communities in responding to emergencies and to reduce risks from future disasters due to natural hazards and climate-related risks.</p> <p>https://www.ubcm.ca/cepf_</p>
<p>7. Alternative business models</p>	<p>Develop alternative business models that reduce seasonality of local economies to help businesses be less vulnerable to seasonal hazards. Especially in tourism and agriculture.</p> <p>Possible Leads: ACRD Agriculture, Alberni Valley Agriculture Institute Tourism DMOs, 4VI</p>	<p>Support the west coast multiplex as infrastructure supporting offseason visitation – concerts, trades shows other.</p> <p>https://www.westcoastmultiplex.org/</p> <p>Understand and invest in agriculture that isn't dependent on fresh food exports and small windows of revenue generation. E.g. oyster machine Food hub</p>

Appendix C Engagement Tools

Chamber Survey Questions:

1. Business Name
 - a. Doing business - Alberni Valley
 - b. Doing business - Oceanside
 - c. Doing business - West Coast
 - d. Doing Business - Other
1. How many years has your business been in operation?
2. Has your business been impacted by the Hwy 4 closure due to the Cameron Bluffs Wildfire?
3. If your business has been affected, how much revenue do you anticipate losing during the two-week road closure period (June 6-24)? Please give an approximate dollar value.
4. If you anticipate a loss of revenue following the road opening, please indicate that approximate amount in dollar value
5. What are your business' immediate needs as a result of this situation?
6. What resources do you anticipate requiring in the coming weeks and months?
7. How many staff have you lost or laid off as a result of this situation? [Enter Number, Full-time/Part-time Status or N/A]
8. How many of your employees are not eligible for Employment Insurance (EI) [insert number or N/A]
9. Is your business still paying off a CEBA (Canadian Emergency Business Assistance) loan?
10. Were you able to claim Business Interruption Insurance in this situation?
11. Is there anything else we should know about the impact of the Wildfire/Road Closure on your business? Please use this space to elaborate on any question prior or things we missed.

Interview Guide:

ACRD Economic Outreach Interviews

Interview Objectives

1. Confirm the major issues and themes related to the incident and following the incident through the summer.
2. Understand how businesses and other organizations managed "to continue" through the initial closure and subsequent closures/impacts. What were the strategies they employed?
3. Understand the proliferation of business continuity planning programs within each community and the businesses in that community. (Describe what it is)
4. What supports are needed in the interest of furthering continuity planning in the region? What is missing?

Introduction (5 min):

Thank you. WCS Engagement + Planning, is working on behalf of the Ucluelet, Tofino and Port Alberni Chambers of Commerce, to explore issues related to the Highway 4 closure that occurred on June 6th, 2023. Your input will inform recommendations we make on behalf of West Coast Island communities to other levels of government regarding business disruption preparedness strategies for preventing future business disruptions.

Purpose: To review context and purpose of the interview and go over the confidentiality parameters.

- “Thank you for setting aside some time to talk with me today.”
- “The purpose of this interview is to better understand the experience and impact of last summer’s Highway 4 road closure on businesses and organizations in your area of the West Coast of Vancouver Island.
 - In particular, we’re curious about how businesses/organizations managed “to continue” through the initial Highway 4 road closure and subsequent closures/impacts that occurred last summer; specifically, the strategies and tactics that businesses used to stay open during the road closure and recover in the weeks and months that followed.
 - We also hope to gain a deeper understanding of what business continuity planning programs and other supports exist and/or are needed within your community or the broader region.
- Your input today will inform recommendations on behalf of the West Coast communities to other levels of government as regarding business disruption preparedness strategies that will aim to prevent future business disruptions.
- “We have a lot to go over and only have an hour to chat, so I’ll try to keep us on track, if you don’t mind.”
- “I am taking notes, but **our conversation is not being recorded** and no one outside the research team will see my notes.”
- **“There will be a list of organizations interviewed in the report we are preparing for the Chambers of Commerce and West Coast communities, but no interviewee will be quoted in the report.** Do you have any questions about the interview or broader project before we begin?”

The interviewee’s work (5 min):

Purpose: Warm up the interviewee. Don’t spend more than a minute or two on this.

- Can you provide an overview of your organization and its key operations?

Objective 1 - Confirm the major issues and themes related to the incident and following the incident through the summer (10 min)

- During last summer’s Highway 4 road closure what were the biggest challenges [ISSUES] businesses in your area faced?
 - During the closure – **June 6th to June 26th**
 - Once the highway was re-opened – around **June 27th to Aug 31 when it reopened to two way traffic**
 - Prompt: To what degree did you encounter / experience any of the following?
 - Delayed/interrupted deliveries
 - Loss of access to services
 - Loss of revenues/increased costs
 - Lack of funding support response
 - Difficulty for staff to get to work?

- During last summer’s Highway 4 road closure what would have helped businesses in your area overcome the challenges you just described or get back to business as usual? [NEEDS] OR: What would help your business be better prepared for future business disruptions?
 - Prompt: To what degree would the following have helped?
 - Infrastructure (e.g. another road)
 - Provincial disaster/emergency response priority for the region
 - Immediate relief strategies (mostly funding/insurance) for businesses/employees
 - Promotions/communications/marketing in months following
 - Collaborative strategies for sharing of existing supplies
 - Emergency/temporary air service for visitors/supplies
 - More/better cell phone service

Objective 2 - Understand how businesses and other organizations managed “to continue” through the initial closure and subsequent closures/impacts. What were the strategies they employed? (10 min)

- What measures did businesses in your area take to stay open last summer during the closure of Highway 4? OR What did they do to minimize disruption?
 - During the closure?
 - In the immediate aftermath?
 - Prompt:
 - To what extent were these actions proactive (planned ahead) or reactive (spur of the moment)?
- At the time of last summer’s road closure, did businesses have any of the following:
 - *A plan (ideally one that had been tested before hand) for keeping the business going during an unplanned disruption or unforeseen event? (A Business Continuity Plan) Y/N/IDK *(if yes, ask to see it at end of interview)
 - *A sense of/list/assessment of the critical functions and processes that keep businesses running smoothly? Y/N/IDK
 - *Measures in place to address disruptions in the supply chain? Y/N/IDK
 - *Trained employees who were aware of your business’s continuity procedures and/or how to respond in the event of a disruption? Y/N/IDK
 - *Insurance coverage for mitigating financial losses during disruptions? Y/N/IDK
 - *Strategies for financial resilience (adjusting costs, increasing revenues) in the face of unexpected events? Y/N/IDK
 - All question prompts:
 - Yes
 - Tell me more
 - What prompted you to have that in place?
 - What resources / materials /support, if any, were helpful in developing/having that?
 - No
 - Why not?
 - Is that something you’d be willing to develop with the right kind of support?
 - I don't know
 - Is there someone else in your organization I can speak with who might know?

Objective 3 - Understand the proliferation of business continuity planning programs within each community and the businesses in that community. (Describe what it is) (10 min)

- Are there programs / services / resources (in your community/ available to you) that help businesses /organizations (like yours) plan for unforeseen events and be better prepared, for example some of the strategies we just spoke about? Y/N/IDK
 - Prompts:
 - Yes
 - Tell me more
 - What kind of support do they offer?
 - Have you used them?
 - Do you think what they offer is valuable / effective?
 - No / I don't know
 - Would you use them if they existed?
 - Do you know of helpful businesses continuity programs or supports available in other communities / regions?
- What's needed to ensure (existing and/or future) programs /services /resources for business continuity planning are relevant and accessible, and to encourage broad uptake / enrollment?
 - Prompt:
 - For instance: financial assistance, marketing, diverse communications and training materials etc.

Objective 4 - what supports are needed in the interest of furthering continuity planning in the region? What is missing? (10 min)

Aside from financial assistance...

- What would help businesses / organizations (like yours and others) in the region plan and be better prepared for unforeseen events, such as last summer's road closure, in the future?
- What additional supports are needed to help businesses / organizations (like yours and others) in the region avoid or mitigate business disruptions from unforeseen events in the future?
 - Prompt: What's missing/ to what degree would the following help?
 - Infrastructure (e.g. another road)
 - Provincial disaster/emergency response priority for the region
 - Promotions/communications/marketing in months following
 - Collaborative strategies for sharing of existing supplies
 - Emergency/temporary air service for visitors/supplies
 - More/better cell phone service

Wrapping Up (5 min)

Purpose: To pick up any higher-level thoughts the interviewee may have.

- Are there any other lessons learned from last summer's road closure that pertain to business continuity that you'd like to share with me?
- [If business indicated in earlier question that it has a business continuity plan] Would you be willing to share your business continuity plan with me? Do you know of other businesses we could reach out to with business continuity plans?

Closing (5 min)

Purpose: Close off in a way that allows for follow-up and that lets the interviewee know how much you appreciate their input.

- [if didn't finish] "Unfortunately, we didn't get to talk about all the things I was hoping we'd have time for. Would you mind if I called you back later this week or sometime next week to finish up? I think we could do that in about 15 minutes or so."
- [if finished] "Would you mind if I were to contact you by email to confirm specific points related to our discussion, if needed?"
- "Thank you very much."

Focus Group guide:

ACRD Outreach Focus Groups

Invitation:

You are invited to participate in a Hwy 4 closure focus group to help ground some of the initial insights uncovered through a preliminary review of the closure impacts on west coast businesses.

Your input will inform recommendations that the West Coast Chambers of Commerce make on behalf of West Coast Island communities to other levels of government regarding business disruption preparedness strategies for preventing future business disruptions.

The focus group session will include an opportunity to consider the impact themes unearthed in surveys completed immediately after the closure as well as some of the solution themes identified to date. We also hope to gain a deeper understanding of what resources and other supports exist and/or are needed to support the continuation of business activities during these types of disruptions.

We hope you can find some time to participate in this important initiative.

Focus group sessions for Tofino businesses will be offered at the following dates and times:

Online Session 1: [May 14th , 9:00 am – 10:30 am - click here to register](#)

Online Session 2: [May 22nd, 3:30 pm – 5:00 pm – click here to register](#)

If you are not available or feel that a colleague is more suited to the topics, please feel free to forward this invitation to them.

Warm regards,

LOCATION , Chamber of Commerce

Project background: The Ucluelet, Tofino and Port Alberni Chambers of Commerce, have hired WCS Engagement and Planning to explore the impacts of last years Highway 4 closure and to facilitate sessions to identify solutions that will help out during future disruptions. The project will support the West Coast Chambers of Commerce in making recommendations to other levels of government regarding business disruption preparedness strategies. The project is being completed with funding from Island Coastal Economic Trust.

Focus Group

Objectives:

- Communicate project essentials to participants
- Ground truth findings to date and brainstorm/test preliminary strategies

Context:

- This initiative:
 - To engage with businesses, stakeholders and rightsholders in the ACRD region to understand the impacts of the 2023 summer highway closure and to identify the key strategies for supporting affected businesses in the case of future challenges and creating long-term resilience.
 - Managed by the West Coast Chambers, funded by Island Community Economic Trust to minimize costs to Chambers and local governments and we are working toward a June draft report.
 - Work to date has included synthesizing survey themes from Chamber Survey, workshop with key organizations and rightsholders, interviews with chamber/economic development organizations, research on some practices in other areas – case studies.
 - Your input today will inform recommendations on behalf of the West Coast communities to other levels of government as regarding business disruption preparedness strategies that will aim to prevent future business disruptions.
- Project background: The Ucluelet, Tofino and Port Alberni Chambers of Commerce, have hired WCS Engagement and Planning to explore the impacts of last years Highway 4 closure and to facilitate sessions to identify solutions that will help out during future disruptions. The project will support the West Coast Chambers of Commerce in making recommendations to other levels of government regarding business disruption preparedness strategies. The project is being completed with funding from Island Coastal Economic Trust.

Timing	Topic/Question	Notes
0-5	Introduction to project and process	As above. We will share some findings to date and gauge your thoughts on them, nuances, anything missed.
5-10	Introduction to each other	Quick round of introductions
1:15		
10-15	Findings	
15-30	Do these themes summarize the key issues/ challenges resulting from the highway closures? Anything to add?	
30-40	Findings	

40-65	<p>Are these the priority needs to manage these issues? What is missing? Think about your community?</p> <p>Which ones impact the whole region and which impact some of the region and/or some businesses (rather than all)?</p>	
	Quick Break	
65-70	<p>Solutions</p> <p>Do these capture the Solutions effectively?</p> <p>Which are the most important?</p> <p>Anything to add?</p>	
70-85	Discussion	
85 mins	<p>Business continuity plans</p> <p>This is what we heard, what do you think about it? How could it be more effective?</p>	
90 mins	End	

Focus Group Presentation Slides

The presentation consists of 12 slides, each with a number in the bottom left corner:

- Slide 1:** WCS logo, ACRD HWY 4 Economic Impact Outreach, FOCUS GROUPS SPRING 2024.
- Slide 2:** Welcome slide with a scenic landscape photo.
- Slide 3:** Today's Objectives: Communicate project essentials, Ground truth findings to date and brainstorm/test preliminary strategies.
- Slide 4:** Project Purpose/Outcomes: Purpose: To engage with businesses, stakeholders and rightsholders in the ACRD region to understand the impacts of the 2023 summer highway closure and to identify the key strategies for supporting affected businesses in the case of future challenges and creating long term resilience to future highway closures and disruptions.
- Slide 5:** Process and timeline: A Gantt chart showing the project schedule from May to July.
- Slide 6:** Focus Group objectives: To share and confirm the impacts of highway closure organized into themes/categories; To share and confirm solution themes; To capture priority strategies for resilience; To explore business continuity planning and steps to use.
- Slide 7:** Issues related to the closure: Diffused/intermittent deliveries; Loss of access to services; Loss of materials; Lack of funding support; Lack of communication; Long term impacts; Increased anxiety; Inconsistent and longer term impact on staffing; Lack of water services.
- Slide 8:** Needs as a result of the closure: Safe alternative routes; Operational and logistic considerations; Emergency response preparedness; Needs for support in the case of the emergency; Stress and resilience; Mental health; Distributed communication.
- Slide 9:** Solution strategy themes: Planning and implementation; Identify critical business operations; Critical operations to ensure essential services; Operational support to reduce the necessity of all business types; Support and support recovery; Identify and support for future resilience; Resilience to support business continuity planning.
- Slide 10:** New Orleans: History of natural disasters; Launched NOLA Ready in 2012; Resilience of approach and continuity approach; Businesses that fulfil their commitments to employees, customers, and stakeholders; Risk assessment, continuity plan, recovery, emergency management and alternate operating procedures; Outreach and training.
- Slide 11:** Fort MacMurray: Business Continuity Template.
- Slide 12:** Fort MacMurray: Business Continuity Template diagram.
- Slide 13:** Fort MacMurray: Business Continuity Plan details.
- Slide 14:** Business Continuity Plan: A plan that allows you to keep your business going during an unplanned disruption or emergency.
- Slide 15:** Next Steps: Current reality report; Workshop; Draft report in June.
- Slide 16:** Thank you! WCS logo.

WCS engagement
+ planning