COWICHAN VALLEY REGIONAL DISTRICT

Island Rail Corridor Towards a Shared Vision

Report

Stantec MODUS K Squared

PROJECT NUMBER 115824017

February 14, 2025

Design with community in mind

Land Acknowledgement

The CVRD is located in the traditional territory of Cowichan Tribes, Penelakut Tribe, and the Ditidaht, Halalt, Lyackson, Malahat, Pacheedaht, Pauquachin, Stz'uminus and Ts'uubaa-asatx First Nations, whose peoples have lived in these lands and waters since time immemorial.

Of these Nations with acknowledged traditional territory in the broader region, Cowichan, Halalt, Malahat, Penelakut, Stz'uminus, and Ts'uubaa-asatx have unique interest with respects to this project. These six Nations have, or have had, partial ownership of the Island Rail Corridor as members of the Island Corridor Foundation.

The lands that comprise the Island Rail Corridor were assembled through a series of land grants between 1884 and 1910. The grants included portions of Cowichan Tribes, Halalt First Nation and Stz'uminus First Nation Reserve lands that were expropriated without consultation or compensation to the Nations.

The task of developing a shared vision for the Island Corridor must be framed within this colonial history. In 2023, the CVRD Board passed a resolution supporting the right for reversion of bisected lands to be returned to First Nation Reserves. Recognizing and respecting the right to reversion has been an integral part of this process.

Preface

This Final Report is a compilation of several workstreams that were conducted by different technical specialists and therefore reflects the writing style of multiple authors. The outcome of each of these workstreams have been documented in standalone reports and memoranda and presented individually at previous Working Group meetings.

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Appendix Companion Report

Glossary / Abbreviations

Blue-listed	Species on the Government of British Columbia's blue-list considered to be of Special Concern in that they are vulnerable to human impact and natural events and can become threatened, endangered, or extirpated through a combination of biological characteristics or identified threats.
Budd vehicle	Budd Rail Diesel Car (operating train in the corridor until 2011)
Consist	A trainset that is composed of a number of cars
CRD	Capital Regional District
CVRD	Cowichan Valley Regional District
CVRD2	Comox Valley Regional District
DMU	Diesel Multiple Unit
E&N	Esquimalt & Nanaimo
FORT-VI	Friends of Rail to Trail - Vancouver Island
GIS	Geographic Information System
ICF	Island Corridor Foundation
IRC	Island Rail Corridor
m	metres
MoTI	Ministry of Transportation and Infrastructure
OCP	Official Community Plan
Stantec	Stantec Consulting Ltd.
SVI	Southern Railway of Vancouver Island
SRY	Southern Railway of British Columbia
TOA	Transit-Oriented Area

Report Structure

This report summarizes the various streams of work that have been undertaken as part of this project. Note that a Companion document containing appendices to this Report, has been created to reduce the sheer size of this document. The main tasks in this project can be divided between Engagement with landowners, authorities, stakeholders and the public to gather input and share outcomes, which has been supported by several technical work streams:

Chapter 1 **- Introduction:** this chapter provides project context and an overview of the corridor, the visioning process and the framework for the assessment of options.

Chapter 2 **- Island Rail Corridor History and Work to Date:** this chapter provides a succinct overview of the establishment of the corridor and recent studies relating to re-introducing services. Details on its characteristics and summaries of improvements and infrastructure upgrades, cost implications and stakeholder outreach and perceptions, is provided in the Companion Appendix document.

Chapter 3 **- First Nations Engagement**: this chapter provides a summary of engagement that took place as a part of the CVRD's visioning process, including the purpose of engagement, the process, a summary of outcomes and next steps.

Chapter 4 **- Additional Engagement and Collaboration:** this chapter includes a summary of public engagement, stakeholder interviews; and **Intergovernmental** collaboration that took place across a CVRD Working Group, neighbouring Regional Districts and the Island Corridor Foundation.

Chapter 5 **– Environmental Considerations:** this chapter addresses:

- **Natural Habitat** summarizes the characteristics and risks associated with using the corridor for alternative purposes and further details of this work can be found in the relevant appendices of the Companion document.
- **Remediation** describes the work required and associated costs to undertake environmental site assessments and remediation when land use changes are proposed. Technical details of these requirements are contained in the relevant appendices of the Companion document.
- **Climate Change**: this chapter focuses primarily on the physical risks associated with flooding and wildfire as it relates to the existing corridor and potential future uses. The chapter also provides some commentary on the role of the corridor in the context of regional resilience to these climate hazards.

Chapter 6 - Land Use and Transportation: this chapter addresses:

- **Land Use**: this assessment considers existing land use development, future plans and how these may accommodate population density to potentially support travel demand for rail services. Details on the assessment of the corridor and population estimates are provided in associated appendices.
- **Transportation**: an analysis was undertaken to identify positive and negative characteristics of the corridor with respect to supporting alternative transportation options as well as to estimating service requirements for passenger rail. Technical details are appended in the Companion Appendix document.

Chapter 7 **- Option Assessment**: this chapter provides a high-level review of the 4 corridor-wide, primary options that were developed based on above work streams.

Chapter 8 **- Next Steps:** this chapter provides a summary of steps for each of the technical disciplines to support future land use changes.

Executive Summary

Overview

Given the complex history of the land acquisition, the unused status of the Island Rail Corridor lands, unresolved First Nations legal actions and the shared ongoing commitments to reconciliation of British Columbia and Canada, there is an urgent need to develop a shared vision for the future use of this corridor that reflects the desires of all landowners, First Nations, government agencies, stakeholders and the public. Central to this debate, is the consideration of preserving a continuous corridor for rail use in the future based on anticipated population growth on the island, addressing the need to travel and promoting a sustainable alternative mode of travel.

Background

In 2023, the Ministry of Transportation and Infrastructure, committed $18 million through grants to five Regional Districts, and 14 First Nations to support cooperative work across the various First Nations and Regional governments on Vancouver Island, towards the *development of a shared vision* for the Island Rail Corridor (IRC). The grants allow for planning by affected First Nations and Regional Districts; and, for First Nations to assess concerns such as flooding, access, noise and safety issues where the corridor crosses their lands.

The task of developing a shared vision for the Island Corridor must be situated within the colonial history of the Esquimalt & Nanaimo (E&N) Railway land grants[1] and the legal context of bisected Reserve lands. First Nations with bisected Reserve lands have a right for the reversion of the lands. Legal actions seeking the reversion of Reserve lands were initiated by Snaw-Naw-As First Nation in 2015, and Cowichan Tribes and Halalt First Nation in 2016. Subsequently, in 2021, the Court of Appeal of British Columbia gave Canada until March 14, 2023 to make a decision about the future of the corridor and about whether or not it would fund restoration of rail service.[2] On the March 14, 2023 deadline, the Minister of Transport and the Province of British Columbia's Minister of Transportation and Infrastructure issued a statement that the reversion of the Snaw-Naw-As Reserve "*is the first step in the process of developing a shared vision for the future of the corridor*"; and, initiated a formal engagement process as a next step[3].

The CVRD contracted with Stantec in the Spring of 2024 to support the CVRD in undertaking this project and the outcomes of engagement, planning and technical work is documented in the Stantec-led report (CVRD Island Rail Corridor Shared Vision).

Within this context, the visioning process considers future corridor use through the lens of First Nations' interests, environmental impacts and risks associated with the existing corridor and potential changes in its use and focuses on identifying and evaluating the suitability of potential uses of the corridor in the short and long term, from a land use and transportation perspective. Input from First Nations, stakeholder organizations, the general public, the Island Corridor Foundation (ICF), other Regional Districts, and the CVRD Working Group, further refined initial findings to conclude with identification of a range of uses of the corridor within the CVRD that reflects what was heard through the engagement process. This Report includes a summary of the process in Chapter 1 and additional chapters are outlined below. The Report concludes with an Options Assessment and Next Steps.

[1] https://www.greatlandgrab.com/

[2] https://tc.canada.ca/en/binder/47-vancouver-island-rail-corridor

[3] https://www.canada.ca/en/transport-canada/news/2023/03/joint-statement-by-transport-canada-and-the-province-of-british-columbia-on-future-of-the-vancouver-island-rail-corridor.html

Corridor History and Work to Date

A background report was compiled that summarizes the history of the corridor as well as recent planning studies relating to the reintroduction of freight and passenger services, infrastructure improvement costs and engagement activities to gather feedback from local authorities, First Nations, stakeholders, and the public on their position and aspirations relating to the corridor.

This is outlined in Chapter 2 of the Report.

Engagement and Collaboration Overview

A comprehensive engagement and collaboration process was delivered to work towards a shared vision for the rail corridor. It included collaboration with other Regional Districts, a Working Group, and the ICF; as well as engagement with First Nations, stakeholders and the public.

First Nations Engagement

Through this process, the CVRD engaged with Cowichan Tribes, Penelakut Tribe, and Halalt, Malahat, Stz'uminus, and Ts'uubaa-asatx First Nations with the purpose to collaborate and build relationships ; to learn about each Nations' involvement in visioning and outcomes; to learn about each Nations' interest in different uses for the portions of the corridor that are within the CVRD (and outside of Reserve lands); and, to coordinate efforts and work collaboratively towards the development of a shared vision. Feedback that was received helped to inform the CVRD's project understanding, and the assessment of Options documented in Chapter 7 of this Report.

Engagement included outreach and communications throughout the project process. One-on-one meetings followed after the All Nations meeting which took place in September 2024. Common themes emerged from these discussions include that more work is needed to arrive at a shared vision, that Canada needs to be present at the table, and that First Nations need to be involved in a meaningful, collaborative, and mutually agreed to way, at all stages of planning, design, implementation and management.

This is outlined in Chapter 3 of this Report.

Additional Engagement and Collaboration

Public and Stakeholder Engagement

Stakeholders and the public were engaged to better understand their hopes for the future use of the corridor. The public expressed a strong desire for rail, with 79% of people selecting passenger rail as a transportation mode that best matches their vision for the future. This was followed by support for biking and hiking trails (49%).

19 organizations were interviewed as a part of the stakeholder engagement process. The feedback received was diverse, and not all stakeholder interests were aligned: seven expressed a desire for rail primarily, four expressed a desire for rail and trail, three supported trail use only, and five indicated they did not prefer any specific use.

Still, there were several ideas for a shared vision that emerged. These include that First Nations' rights must be respected and upheld, that the corridor should be maintained as much as possible to preserve its potential as a future transportation corridor, and that the corridor is a significant opportunity to support community needs, particularly as they relate to travel needs, reducing GHG emissions and promoting a shift from car dependency.

This is outlined in Chapter 4 of this Report.

Collaboration with Regional Districts, the Island Corridor Foundation and the CVRD Working Group

To align and coordinate visioning efforts, the CVRD formed a Working Group made up of Regional District and Incorporated Municipality staff. The CVRD also participated in meetings organized and hosted by the Island Corridor Foundation; and hosted a series of Regional District collaboration meetings.

Collectively, these three streams of collaboration resulted in information sharing across governments, process alignment, and input which informed technical deliverables.

This is outlined in Chapter 4 of this Report.

Technical Evaluation

The Corridor was assessed from an Environmental perspective to identify the risks and impacts relating to maintaining a rail service in the corridor, returning bisected lands back to their rightful Nation owners, or accommodating alternative land uses such as trails for active modes and/or alternate routes for emergency services.

Natural Habitat

A review was undertaken to identify preliminary environmental constraints relating to species and ecosystems at risk and recommended detailed environmental inventory and review when future development is considered.

This is outlined in Chapter 5 of this Report.

Remediation

As with most railway operations, there are potential and known environmental impacts created from rail lines which can be associated not only with the initial construction materials and maintenance operations, but also from the general operation of trains along the tracks.

It is recommended to conduct a non-intrusive assessment to determine whether additional intrusive work is required along the extent of the corridor within the CVRD region, the cost of which is estimated between $65,000 and $85,000. To establish alternative uses, remediation would include rail decommissioning and disposal and may include physical remediation, and risk assessment of contamination remaining in place. Estimated remediation costs vary based on the future land use (e.g. ranging from industrial land to more sensitive uses such as recreation or commercial). These costs per 100-metre section of corridor are estimated between $175K and $300K for physical remediation, and $95K to 170K for risk assessment.

This is outlined in Chapter 5 of this Report.

Climate Change

In general, the corridor is robust to the impacts of climate hazards, although it is exposed to flooding and wildfire risks at certain locations. The corridor presents a risk to regional resilience as it transfers flood risk to adjacent lands and with the redevelopment of the corridor, there is the opportunity to address this transferred risk. In this regard, significant comment has been received from First Nations relating to the environmental risks of flooding.

The corridor can also play an important role in regional wildfire suppression as either a rail line or a trail. Either option would allow for preventative fire patrols. The corridors role as a fire break is however limited, since it is insufficiently wide. This is also a risk that has been identified by Nations that have been consulted.

This is outlined in Chapter 5 of this Report.

Land Use

From a land use perspective, this study analysed the current land use make-up of different segments of the corridor, and a SWOT analysis to identify opportunities and constraints for future development potential adjacent to historic rail stations was conducted through the lens of the Province's Transit-Oriented Areas (TOA) legislation. The implications of this would have a significant impact on the built-form of the CVRD and its member municipalities through the development of mid-rise multi-storey residential and mixed-used buildings. The TOA legislation applies to both incorporated municipalities and unincorporated urban areas in regional districts.

Using the TOA legislation's minimum densities as a basis, this study also made population projections around historic station locations to determine if, over the longer term, passenger rail could be viable and to also determine the eventual frequency of service to satisfy the demand for travel. The land use policies of the CVRD and its member municipalities were also evaluated to determine if passenger rail and active transportation uses are supportable from a policy perspective. While there is clear policy direction supporting the creation of an active transportation corridor within the rail corridor's right-of-way, the policies are not as clear on the reintroduction of passenger rail. However, the policies are supportive of creating additional transportation options in the region to shift away from reliance of the personal automobile. The policies also support the use of public transportation infrastructure as a catalyst for land use change. As such, there is a strong inference that the transportation mode shift and land use change support the re-introduction of passenger rail along the corridor.

This is outlined in Chapter 6 of this Report.

Transportation

Transportation options have been identified based on existing and future land uses. The transportation options have been analyzed at a high level to identify the strong and weak points as well as the opportunities and threats they present.

This analysis is used as a basis to review the outcome of inputs received from Stakeholders and the general public, in order to consolidate options and undertake an options assessment that will lead to conclusions for identifying a transportation strategy for the corridor within the CVRD, leading to the adoption of a regional transportation strategy.

The future use of the rail corridor also needs to be aligned with the goals of the 2020 South Island Transportation Strategy that promote sustainable travel that support growth and densification; improve connections between travel modes and communities; improve the safety and reliability of active modes and vulnerable road users; and support and encourage active transportation options.

A planning framework was developed to assist with the assessment of the corridor and to facilitate stakeholder engagement to get meaningful input on the current and future use of the rail corridor.

An analysis of the Strengths, Weaknesses, as well as Opportunities and Threats (SWOT) of each of the 5 segments of the corridor was used to undertake a high-level assessment of the characteristics of each. This analysis addresses considerations relating to alignment with current land use and transportation plans, providing connections to travel destinations, connectivity to existing transit services, safety concerns relating to vulnerable users (corridor crossings, bridges, tunnels, etc.), risks associated with retaining a contiguous corridor and emergency response alternative routing needs.

A Transit Propensity model was developed to estimate potential rail ridership given population growth and densification. This was used to calculate the amount of service required and the number of trains required to deliver service, in order to identify costs estimations.

This is outlined in Chapter 6 of this Report.

Option Assessment

Based on the Land Use and Transportation SWOT analyses as well as the outcome of engagement efforts, several corridor options were reviewed. Note that the feasibility of options will be influenced by how First Nations choose to use the bisected Reserve lands in the future. The options which were assessed are:

1. Rail-Only: re-introduction of a rail service in the corridor
2. Trail-Only: convert the rail corridor to a multi-use trail for active modes (walking, cycling, hiking)
3. Rail & Trail: introduce a trail for active modes while enabling future rail operations
4. Other Uses/Reversion of Land: consider the remediation of bisected Reserve lands
5. Emergency access: this is not an option as such, but a discussion on its potential.

The analysis showed:

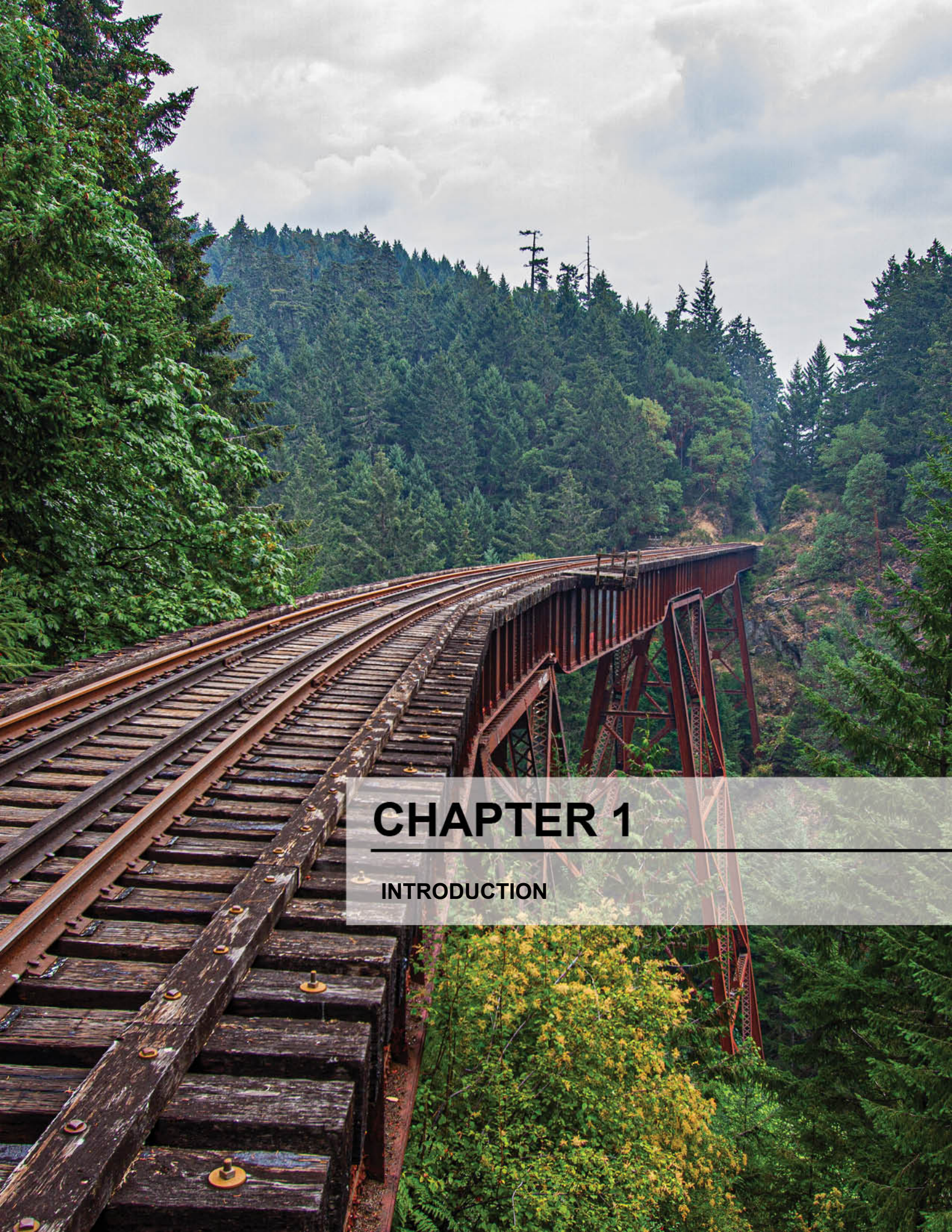
- Establishing Rail & Trail facilities in the corridor is the option with the highest cost due to the trail requirements adjacent to rail line. This preserves the opportunity for rail in the future when a business case can be made, and funding secured for both infrastructure and operations.
- That the selection of the lesser cost Trail-Only option ($55M) would preclude rail in the future as portions of the trail would be constructed on the rail bed. Costs reflect trail construction only and assumes that soil remediation not required. If soil remediation is required, costs could range between $76M and $225M for the CVRD section of the corridor in addition to the $55M trail cost.
- Reverted Land assumes that bisected Reserve lands of the corridor would require soil remediation with a cost estimate of between $175 to $300K per 100m corridor segment, for physical remediation. This option would not necessarily preclude its conversion to any of the options in the future although the cost for any option at a later date, would inevitably be higher than estimates presented in this Report.
- Selection of a Rail-Only option would preclude potential emergency access alternatives on the Malahat section. The rail option has a capital cost of $901M and annual operating costs of $32M.

Rail service refers to passenger service between Victoria to Courtenay as the service between Nanaimo to Port Alberni is likely to be limited to freight rail service (passenger rail service was suspended in 1953). Although previous analyses on behalf of MoTI suggested that there was limited potential for freight south of Nanaimo, rail freight could reduce truck traffic on the Malahat Highway and could be further explored if a Business Case was to be developed for reinstating passenger rail service.

It is important to highlight the requirement for a contiguous rail corridor to operate a rail service. The rail corridor includes 4.8 kilometres within Reserve lands in the CVRD, and it would be extremely challenging to secure alternative rail corridor realignments at these 5 Reserve locations. If access/agreements with First Nations are not forthcoming, it would make any rail corridor alternative effectively unfeasible. Furthermore, the rail corridor crosses various regional districts and other Reserve lands where the same access issues (and potential corridor realignment challenges) would apply, such as the example of the Snaw-naw-as First Nation where one kilometre of the railway track has recently been removed.

The re-introduction of rail would require integrated planning and the appointment of a regional/provincial body to oversee the planning, design, engineering, implementation, construction and operation of the rail service. This should be addressed with the other regional districts, affected Nations, and the provincial government prior to development of any business case.

This is outlined in Chapter 7 of this Report



CHAPTER 1

INTRODUCTION

1 INTRODUCTION

1.1 Project Context

Given the complex history of the land acquisition, the unused status of the Island Rail Corridor lands, unresolved First Nations legal actions and the shared ongoing commitments to reconciliation of British Columbia and Canada, there is an urgent need to develop a shared vision for the future use of this corridor that reflects the desires of all landowners, First Nations, government agencies, stakeholders and the public. Central to this debate, is the consideration of preserving a continuous corridor for rail use in the future based on anticipated population growth on the island, addressing the need to travel and promoting a sustainable alternative mode of travel. Figure 1-1 below shows the connections between levels of government and organizations and stakeholder groups with interests in the shared visioning process. It should be noted that First Nations identified in this diagram are members of the Island Corridor Foundation and other First Nations may have interests in the Island Rail Corridor, such as Lyackson, Pauquachin, Pacheedaht and Ditidaht First Nations.

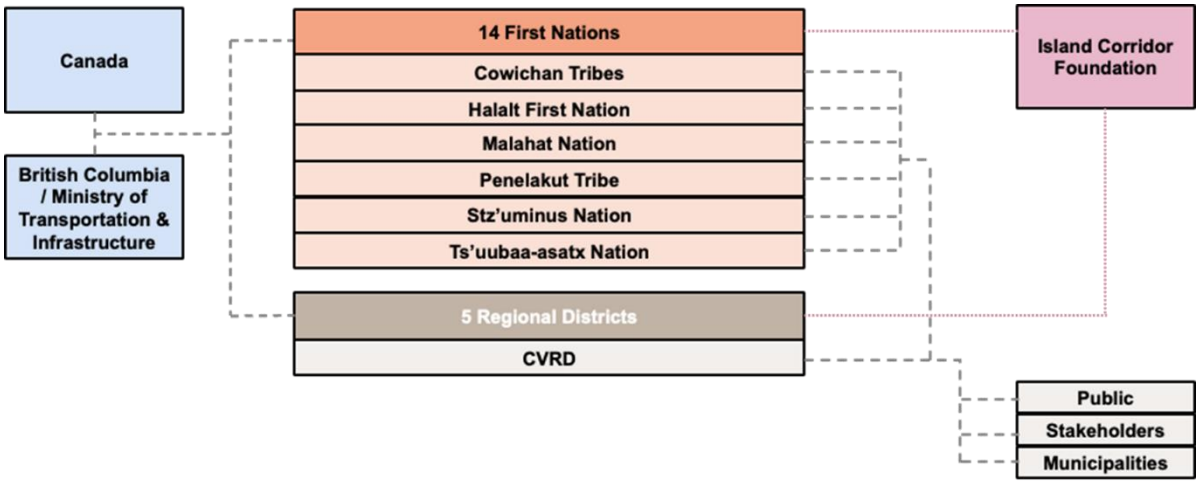


Figure 1-1: Parties with Interests in the Shared Visioning Process

In 2023, the Ministry of Transportation and Infrastructure, provided grants to five Regional Districts, and 14 First Nations to support public engagement, technical analysis, and cooperative work across the various First Nations and governments on Vancouver Island, *towards the development of a shared vision for the Island Rail Corridor* (IRC). The Cowichan Valley Regional District (CVRD) initiated a visioning process and contracted with Stantec in the spring of 2024 to support the CVRD in undertaking this project. This effort which included engagement, planning and technical work is documented in this Final Report.

INTRODUCTION

The process of developing a shared vision for the Island Corridor must be situated within the colonial history of the Esquimalt & Nanaimo (E&N) Railway land grants. Beginning in 1871, when British Columbia joined Canada, the creation of the E&N Railway resulted in the transfer of more than 800,000 hectares of land to the E&N Railway Company[4]. This transfer facilitated the construction of a railway starting in 1884. The full corridor is approximately 289 km long and runs between Victoria and Courtenay, through or adjacent to, 14 First Nations communities.[5] Disregarding Aboriginal rights and title, a vast amount of traditional territory was vested in private ownership, disconnecting First Nations from access to their lands and resources. This was achieved without consultation or compensation. Recognizing and respecting the right for the reversion of lands back into Reserves, has been an integral part of this process.

The Island Corridor Foundation (ICF), a non-profit society composed of First Nations and regional governments, has owned the Island Rail Corridor since 2003. Passenger operations ceased on the Corridor in 2011 due to safety concerns. With rail corridor not being used for rail purposes continuously for two years, Nations with bisected Reserve land may under some circumstances seek reversion of the lands. In 2015, with the lands no longer being used for railway purposes, the Snaw-Naw-As First Nation began seeking the reversion of former Reserve Lands through legal action against Canada and the Island Corridor Foundation. In 2016, Cowichan Tribes and Halalt First Nation filed similar court claims, however these claims are currently in abeyance while the Snaw-Naw-As First Nation action has proceeded.

In 2021, the Court of Appeal for British Columbia gave Canada until March 14, 2023, to determine if restoration is in the public interest, and whether it will fund restoration. If funding was not provided, or a decision was not made, Snaw-Naw-As could return to court seeking an order vesting the lands as Reserve lands. This court-imposed timeline resulted in the initiation of freight analysis and an engagement process with First Nations and implicated stakeholders, by MoTI in 2022. Engagement outcomes are summarized section 2.4 of Chapter 2 (MoTI 2022 Corridor Engagement).

In March of 2023, following up on 18 months planning and engagement, the Minister of Transport and the Province of British Columbia's Minister of Transportation and Infrastructure issued a statement regarding Snaw-Naw-As First Nation bisected Reserve lands and initiated a formal engagement process through an $18 million grant for Island Corridor Foundations to develop a shared vision:

> *"In support of our shared ongoing commitments to reconciliation, our governments have decided that reversion of the land bisecting the Snaw-Naw-As First Nation reserve is the first step in the process of developing a shared vision for the future of the corridor with First Nations…*
>
> *"There were many voices in favour of the restoration of rail infrastructure. Projected population growth, potential risks to critical infrastructure, including from extreme weather events brought by climate change, and wider economic and environmental policy objectives make this corridor of strategic transportation importance to the province. At the same time, those First Nations living along the line raised concerns about the impact restored rail service would have on their communities and have reiterated the importance of being involved in decision-making around the future of the corridor.*
>
> *"Canada and the Province of British Colombia acknowledge the importance of this corridor. As a result, we will begin a formal engagement process with affected First Nations on the next steps of the corridor for the mutual benefit of the province and First Nations. A partnership-driven approach represents the best way for moving forward together and achieving a collective vision for the corridor that benefits everyone."*[6]

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[4] https://www.greatlandgrab.com/

[5] https://tc.canada.ca/en/binder/47-vancouver-island-rail-corridor

[6] https://tc.canada.ca/en/binder/47-vancouver-island-rail-corridor

The CVRD acknowledges and supports First Nations' right for the return of Reserve lands that were removed from Reserves as a part of the E&N Land Grants (refer to Appendix B-1 – Maps of Bisected Reserve Lands). The length of the Island Rail Corridor in the CVRD is 71,780m of which the bisected Reserve lands equal approximately 4,845m in length. In 2023, the CVRD Board passed a resolution supporting the right for reversion of lands that were expropriated from reserves to be returned to the Reserve lands.

1.2 Overview of the Island Rail Corridor

The Esquimalt & Nanaimo (E&N) Railway, also known as Island Rail Corridor, is a shortline railway on Vancouver Island. It generally runs parallel to the Trans-Canada/ Highway between Victoria and Courtenay, with a branch line from Nanaimo to Port Alberni, generally running along to Highway 4. The Island Rail Corridor was built in 1886 by Robert Dunsmuir and was sold to Canadian Pacific in 1905 and consists of various segments including the Victoria Subdivision, the Port Alberni Subdivision, and the Wellcox Spur. The portion within the Cowichan Valley Regional District (CVRD) is a part of the Victoria Subdivision. This railway is connected to the mainland by rail barge services connecting Wellcox Yard in Nanaimo to the mainland of British Columbia.

In 1979, VIA Rail assumed operational responsibility for the E&N Railway passenger service. By the late 1990s freight operations were sold to Rail America in 1998. In 2003, it became evident that Rail America had plans to discontinue the rail operations. Acknowledging the significant socio-economic impact of the corridor, the five Regional Districts and 14 First Nations in the area collaborated to establish the Island Corridor Foundation (ICF). The ICF became the owner of the corridor, with the mission to safeguard and enhance the rail corridor on Vancouver Island. Their efforts aimed to ensure the continued viability and development of this vital rail corridor.

In February 2006, the Canadian Pacific Railway donated its 225 km portion of the railway right-of-way, which averages 30.48 m (100 ft) in width between Victoria and Courtenay, to the ICF.

In 2011, due to the disrepair of the railway, VIA Rail and Southern Railway suspended the Dayliner passenger service between Victoria and Courtenay indefinitely. The service had scheduled stops at Duncan, Nanaimo, and Parksville, with many other flag (on-request) stops along the way.

The railway has mostly fallen into disuse in the past 20 years. ICF is responsible for management of the rail property associated with the rail assets and contracts with third-party entities for the maintenance and operation of the railway. Freight service is restricted to the Wellcox Yard area in Nanaimo. Southern Railway of British Columbia (SRY) has been performing the operations and maintenance of the rail corridor.

The IRC extends from the City of Courtenay located in the Comox Valley Regional District (CVRD2) to Victoria in the Capital Regional District in the south of Vancouver Island, over a distance of 295 kms. Over this distance the Corridor passes through the Regional District of Nanaimo (RDN) where a spur line of the rail corridor extends to Port Alberni in the Alberni-Clayoquot Regional District. Beyond the RDN, the corridor passes through Cowichan Valley Regional District (CVRD) and this 71km section the corridor is the focus of this study.

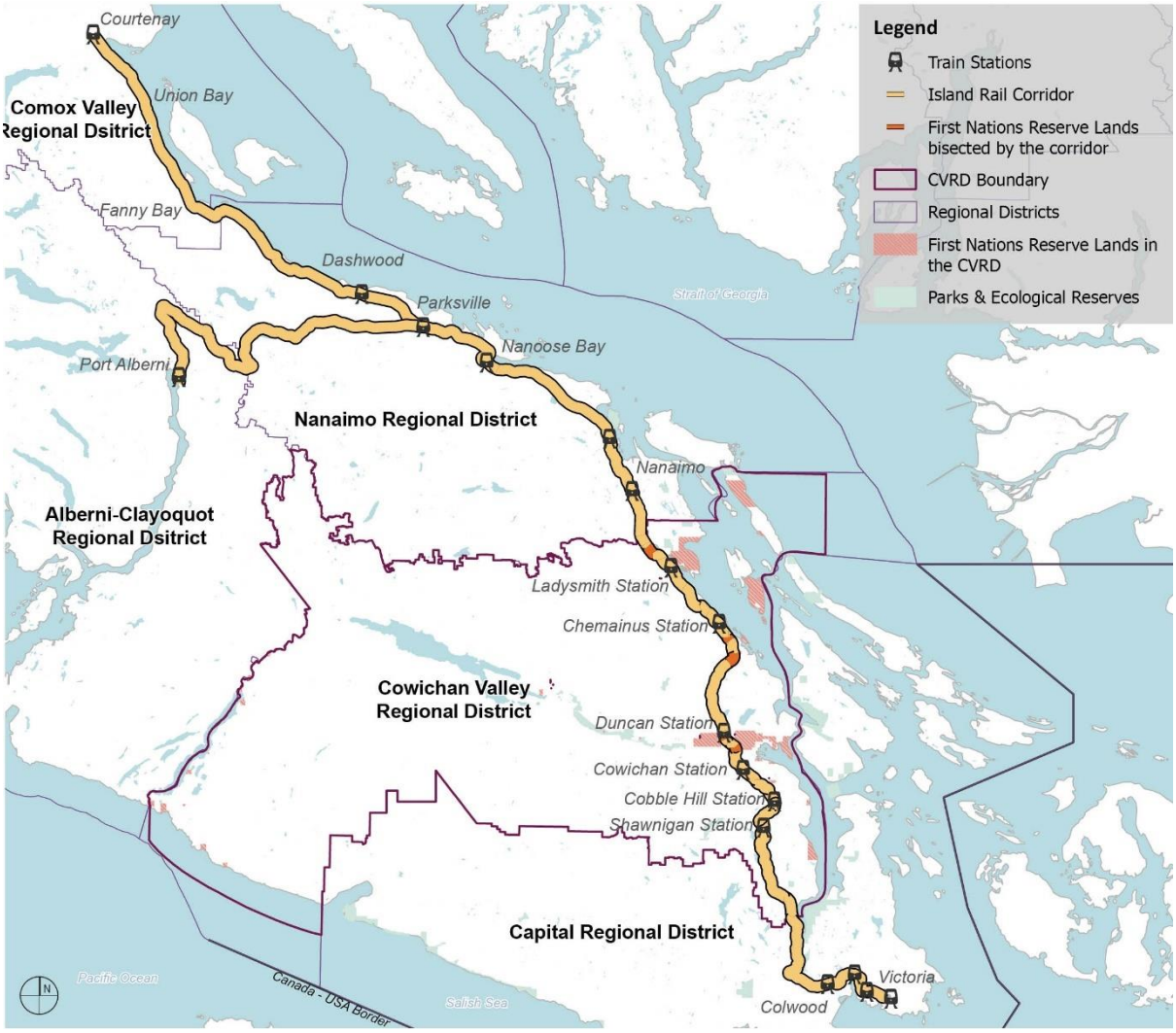


Figure 1-2: Extents of the Island Rail Corridor

Figure 1-3: Island Rail Corridor within the CVRD

On average, the Corridor is approximately 30m (100ft) wide and contains the now disused rail line. The width of the corridor does suggest that multiple uses may be accommodated. This could range from a rail service in conjunction with an active mode trail, to trails with speed-based, active mode separation (pedestrians vs electric micro mobility modes), or accommodating trails with alternative routing for emergency services in the event of highway closures.

It should however be noted that there are constrained areas along the extent of the corridor that typically consist of corridor narrowings for bridges crossing roads and rivers as well as a tunnel in the Malahat section of the corridor. This restricts the continuity of the corridor when attempting to accommodate multiple uses. In addition, there are numerous at-grade crossings with the surrounding road network which would require mitigation to address safety concerns.

1.3 The CVRD Island Rail Corridor Visioning Process

The visioning process included three phases of work:

1. Phase 1 Planning and Background Review - Spring of 2024. This phase was focused on engagement and project planning. It included a background review, GIS mapping, preparation of a First Nations Engagement Plan and a Public and Stakeholder Engagement Plan, letters sent to First Nations, establishment of a CVRD working group, participation in the provincial working group, drafting of technical memos, and the creation of webpage and storymap on PlanYourCowichan[7].
2. Phase 2 Analysis and Engagement - Summer and Fall of 2024. This phase included in-depth planning analysis, as well as stakeholder interviews and a public engagement survey questionnaire, letters to First Nations, the creation of a video of the corridor[8] (see Figure 1-4 below), and a public open house.
3. Phase 3 Engagement and Options Assessment - Fall 2024 to Winter 2025. It included engagement with First Nations, synthesis of public, stakeholder and First Nations engagement outcomes, evaluation of options, and the preparation of the Report.

Figure 1-4: Tzinquaw Dance Group, from the Island Corridor Video (© CVRD 2024)

Throughout the project, the CVRD also collaborated with other Regional Districts, hosted Municipal and Regional District staff Working Group sessions; and, coordinated with the Island Corridor Foundation.

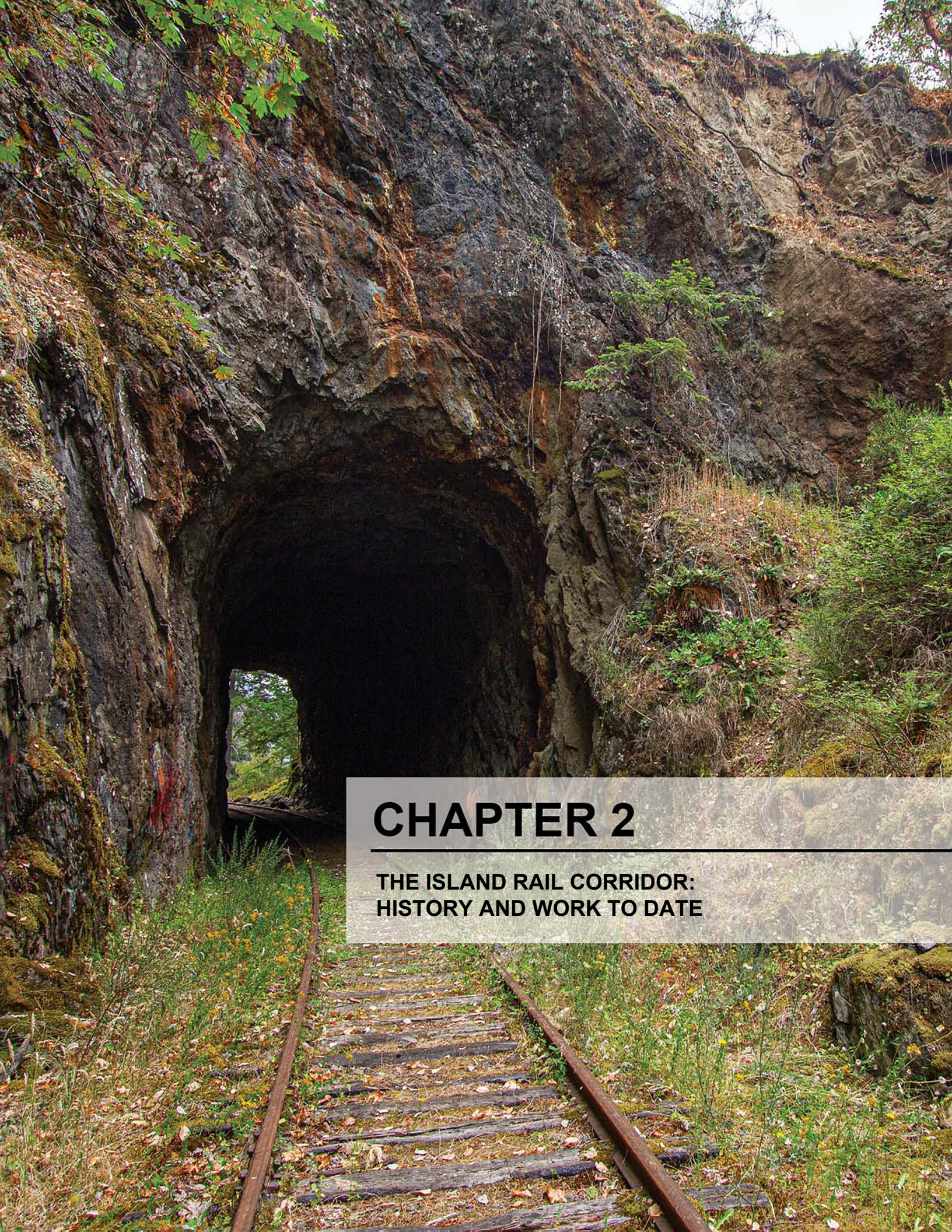
[7] Website and storymap: https://www.planyourcowichan.ca/island-corridor

[8] Corridor Video: https://www.youtube.com/watch?v=J7l45aA35HE

1.4 Scope of the Study and Options Assessment

The shared visioning process is serving to identify potential future use of the corridor. For the purposes of this assessment, the vulnerability of the corridor will consider the following five options together with remediation and upgrade requirements:

1. **Reinstating Rail Service:** A rail line that serves as a regional transit corridor and/or as freight transportation service to improve connectivity between residential areas, commercial cores, and regional destinations; strengthens the regional transportation network, offering an alternative to Highway 1; and provides critical access for emergency and evacuation services.
2. **Converting to a Recreational Trail and/or other uses**: Transforming the rail corridor into a recreational trail to offer connections to regional trails, access to parks and opportunities for tourism; improved connectivity between residential areas, commercial areas and schools; and an alternative route during emergencies.
3. **Converting to a Recreational Trail while enabling future Rail Operations**: Transforming the rail corridor into a recreational trail for active modes and maintaining the rail right of way to re-introduce rail services at a future date.
4. Returning Reserve Land to First Nations: The CVRD acknowledges and supports First Nations' right for the reversion of Reserve lands. This option considers the remediation cost of bisected Reserve lands.
5. **Emergency Access**: considering the provision of alternative routes for emergency vehicles in specific locations.



CHAPTER 2

THE ISLAND RAIL CORRIDOR: HISTORY AND WORK TO DATE

2 THE ISLAND RAIL CORRIDOR: HISTORY AND WORK TO DATE

The existing Island Rail Corridor, first known as the Esquimalt and Nanaimo (E&N) Railway, was incorporated on September 27, 1883. The terms of union required the government of Canada to undertake the construction of the railway, and the railway was mainly established to support the coal and lumber industry and the Royal Navy Base at Esquimalt Harbour. According to the E&N Historical Association website, the railway was sold to Canadian Pacific Railway (CPR)9 in 1905 and CPR extended the railway to Lake Cowichan. In addition, the mainline Victoria Subdivision extension from Parksville to Courtenay was completed and opened in 1914.

However, as industries like coal mining and logging declined, and with the popularity of automobiles and improved highways, rail traffic dwindled which led to financial difficulties for the railway. In the latter half of the 20th century, ownership of the E&N Railway changed hands multiple times, and some sections of the line were abandoned or fell into disrepair due to insufficient maintenance and investment. A detailed review of the history on E&N Railway is provided as **Appendix A** in the Companion Appendix report.

Over the past few years, several studies and reports were prepared regarding the Vancouver Island Rail Corridor, examining various aspects such as transportation, economic impact, environmental considerations, and community perspectives of the rail corridor. Below is a summary of the most recent work completed by MoTI and the ICF.

2.1 Corridor Evaluation (2011)

The purpose of the Island Corridor Foundation's study in 2011 was to provide a summary of the technical work completed, including an analysis of business markets of freight, commuter rail, intercity passenger service, and tourism.

- **Rail Corridor Infrastructure Assessment summary**: Previous studies have assessed the existing state of the Rail Corridor, evaluating its infrastructure, including tracks, bridges, and stations. These analyses aim to identify potential upgrades or repairs necessary to improve safety and efficiency. A summary of this assessment is provided below:
    - E & N Railway Corridor does not meet ideal loading standards as the original tracks were laid more than a hundred years ago. The rail is a mix of 80, 85-pound rail and 11 miles of 100-pound rail. This is suitable for carrying the current loads up to the limit of 263,000 pounds.
    - Overall, the track structure is in poor to fair condition. Most of the bridges along the E&N Rail Line were built during the late 19th and early 20th centuries. While timber structures like trestles and timber stingers, as well as timber components such as timber ties, have often been replaced over time, many of these timber elements are now approaching their typical lifespan. Additionally, numerous steel structures are nearing the end of their expected service life.
    - Potential scour poses a concern at multiple crossings along the E&N Rail Line. A thorough assessment of scour risks necessitates input from hydrology and hydraulics, as well as potential underwater inspections.

[9] CPR is now known as Canadian Pacific Kansas City (CPKC)

  - Infrequent use and deferred maintenance of the railway by the previous owners have resulted in deterioration of the infrastructure in some of the segments to a point where they are subject to slow operations or unusable. Tie replacements have not been sustained, leading to speed limit reductions for train operations, particularly related to freight rail operations. In the Malahat segment, there are areas where fallen trees and rock slides have resulted in debris on the track.
  - SVI has carried out some preventive maintenance within a limited budget to address safety-related repairs. These include some vegetation control and a testing and spot repair program to address the worst sites of tie decay.
  - In areas where the track is active, train communications are by cell phone and radio, and trains are issued permission to proceed based on scheduled traffic over the corridor during the course of the day as the track has no electrical circuits to support a signal system.
  - The corridor requires significant infrastructure investment to renew the railway, keep it in good working order and provide the future capacity to enhance passenger and freight services.
  - In summary, the challenge facing the corridor is a lack of reinvestment over the past two decades.

- The railway currently has the lowest annual traffic of any Canadian short line as there is no passenger rail service, and the freight rail service area is limited to a 10 miles radius around Wellcox Yard in Nanaimo. Therefore, rail traffic would need to increase substantially to sustain the ongoing operations and maintenance of the corridor.
- Commuter rail has certain requirements above basic repairs and needs a large enough travel market to be successful. 2026 passenger estimates for the Duncan-Langford-Victoria corridor do not support a 30-minute service.
- Freight was found to be the most significant business development opportunity and surveys indicate that the demand can be expected to increase with more frequent rail service.
- Overall, the existing railway freight and passenger markets are fairly small and the average cost of the improvements per passenger or per rail car would be very high ($36 per person trip and $5000 per railcar).
- The study noted that as there are a variety of business opportunities that could potentially emerge in the corridor, it recommended that a corridor strategy be developed and the objective of such a strategy would be to determine what conditions, and economic circumstances need to be in place to preserve the corridor for future uses.

2.2 Development Strategies for the Rail Corridor (2011)

The purpose of this study undertaken by IBI in 2011 was to provide the ICF with assistance in identifying incremental approaches to developing the railway business lines.

It noted that capital costs range between $70 to a $130 million to preserve the rail corridor and retain the then existing Via service, and that costs increase between $217 and $371 million to restore the Port Alberni line and implement frequent commuter rail service to the service. The report concluded that these costs would need to be justified by much higher freight and passenger traffic than what was being carried.

The following business lines were examined:

- **Passenger and commuter rail strategies**: This considered the integration of rail services with BC Transit and the provision of shuttle connections between stations to and from nearby residential and employment centres.

- **Tourism strategies** considered identifying potential partnerships and funding opportunities for tourist rail services together with rail corridor trail developments. This included utilizing portions of the right of way to develop trails that would run alongside the rail tracks ("rail with trails") – which is possible due to the general corridor width of 100 feet to accommodate trails adjacent to railway tracks. At the time, the CVRD had completed a feasibility study that concluded that approximately 80% of the route was considered to be difficult or not practical for the development of trails.
- **Rail freight strategies:** to identify additional customers and tailor service option offerings to capture additional traffic, assess infrastructure requirements for extending direct rail services to additional sites and consider intermodal requirements.
- **Land use strategies**: Focused on retaining industrial and commercial uses in proximity to the rail corridor to better support markets for freight. In addition, employment locations (especially office and commercial) need to be concentrated near stations in the form of higher density developments. Transit oriented developments (especially higher density housing) in close proximity to rail stations is required to support the viability of rail and produce a lower average cost per rider.

2.3 South Island Transportation Strategy (2020)

A transportation strategy for the South Island, developed by the Ministry of Transportation and Infrastructure in 2020, is an integrated approach to support and provide sustainable travel options. The strategy identifies gaps and barriers to the provision of a robust and sustainable inter-regional transportation network.

The Vision of the strategy focused on:

- Building a sustainable economy that will create jobs to ensure that programs and services needed by our diverse and growing population, can be supplied.
- To be responsive and adaptable to changing situations (e.g. COVID-19) to support sustainable growth.
- To ensure the economy keeps pace with projected population. Implementing an integrated transportation strategy will help to address congestion and enable the seamless movement of people and goods.
- Providing people with affordable and efficient travel choices.
- Improving the connectivity of urban and rural areas.
- Integrating land use, housing and economic development.
- Creating safe and reliable trade corridors.

The strategy was developed by building on the extensive consultation that has been undertaken in the past with Indigenous and local governments and stakeholders. The feedback received was used to ensure that regional challenges were fully understood, and that priorities and aspirations were aligned with goals.

In advance the South Island Transportation Strategy, the Ministry developed the following goals for the transportation strategy:

- Identify sustainable options for a variety of travel modes
- Strengthen connections between travel modes and improved connections between communities
- Improve the safety and reliability of the transportation network
- Support and encourage active transportation options.

Reference is made to the E&N rail corridor in terms of:

- Exploring the potential of commuter rail on the Corridor between West Hills and Victoria.
- Encouraging the development of active transportation options are encouraged and encouraging growth of interregional trails in the CVRD and CRD such as the E&N rail trail and the Trans Canada regional trail.

This strategy demonstrates the Province's commitment to increasing the capacity of all transportation networks through sustainable travel choices and smart investment decisions. It provides a clear path forward to addressing transportation challenges and advancing the many opportunities to support an integrated transportation network for all modes of travel.

2.4 MOTI 2022 Corridor Engagement

An engagement initiative was initiated by the Ministry of Transportation and Infrastructure (MoTI) in 2022 as a result of the court-imposed timeline for the federal government to make a funding decision by March 2023 (this legal context is further detailed in Section 1.1, Project Context). MoTI partnered with the Island Corridor Foundation to facilitate engagement with municipal and regional staff and Indigenous groups directly impacted by the corridor with respect to their interest and possible future uses of the Island Rail corridor.

The purpose of engagement was to understand interests and potential short-, medium- and long-term opportunities for the corridor, ensuring that First Nation's interests are appropriately addressed as a transportation corridor or otherwise accommodating non-transportation uses.

It followed the comprehensive condition assessment of the entire rail corridor that was undertaken by MoTI in April 2020 to establish a complete and accurate picture of railway infrastructure requirements which included the cost of upgrading the rail line to meet standards needed to implement commuter service (between Victoria and Langford) as well as Inter-City Service between Victoria and Courtney. Subsequently, the ICF completed its own business plan in May 2020 that proposed to restore passenger and freight rail service to Vancouver Island by upgrading the existing rail corridor.

14 Nations as well as 29 municipal and regional government and stakeholder groups were invited to participate in meetings. Feedback received was submitted to both the provincial and federal governments for consideration to inform their decision with respect to funding and the continued use of the corridor in advance of the court-imposed deadline.

Nation engagement findings are summarized below:

- The Island Rail Corridor (IRC) runs directly through or adjacent to several First Nation communities. In some instances, this restricts access to areas within the community. Given the impacts of the corridor on some of these communities, there is limited interest in restoring rail service in the current corridor.
- There is potential for First Nations to develop portions of the corridor that transect their communities which could provide significant employment and economic development opportunities.
- There is continued concern relating to how land was taken for the original E&N corridor as well as the ongoing harmful impacts of this corridor. There is an expectation that the past and future impacts of the IRC will be reconciled - particularly given the untapped economic potential that would otherwise accrue to First Nation communities.

- Some nations are making plans for alternate use of these lands if rail services are not reactivated.
    - Concern about community health and safety implications of living near an active rail corridor (encampments, maintenance requirements, influx of non-indigenous people, flooding impacts, induced demand for travel, etc.).
    - Openness to consider all non-rail transportation due to the potential environmental benefits, however, use of the corridor for bikeways, trails or other forms of transportation should be secondary to nations interests.
    - Preference for priority use as a utility corridor (e.g. the provision of fiber optic services/natural gas to First Nation communities), including to address flooding.

Municipal and key stakeholder engagement results include:

- Strong support for maintaining the IRC as a transportation corridor with general recognition that in the short and medium term, an end-to-end passenger rail or transit bus service may not be affordable.
- Support for utilizing the corridor as an active transportation corridor in the short term with protection for future transit use so as to maintain the corridor.
- Demand for goods movement on Vancouver Island does not appear to be large enough to warrant end to end rate freight service.
- Communities along the corridor are making concerted efforts to densify and create employment centres that promote shorter commuting trips to reduce reliance on private automobiles. Several regional districts are actively developing regional trail plans that include the corridor.
- Most communities do not anticipate that the reinstatement of the IRC would have a significant impact on population or highway traffic volumes in the short to medium term.
- Most communities already use or would like to use the IRC as a utility corridor including sewer, water and telecommunications.
- Potential challenges that were identified relate to:
    - Majority of agencies recognize that cost to upgrade the corridor to ensure safe and convenient use would be high - particularly if it needs to be widened to accommodate multimodal use.
    - Travel times of previous and future rail service is seen as being too long to be a viable commuter rail service.
- Potential opportunities that were identified:
    - Due to the continued lack of clarity/direction around the future of the IRC, most communities and regional districts do not put much emphasis on the corridor when making land use and community planning decisions.
    - If the IRC were to be developed as a transportation corridor, it would likely lead to increased demand for housing and tourism.
    - As electric bike improvements increase the range of reliable travel distance, the attractiveness of the IRC as an alternative transportation corridor may significantly increase.

Feedback from this engagement initiative was shared with the Government of Canada and other decision makers in advance of the March 2023 deadline. Imposed by the Federal Court of Appeal to determine public interest and funding for the corridor stop.

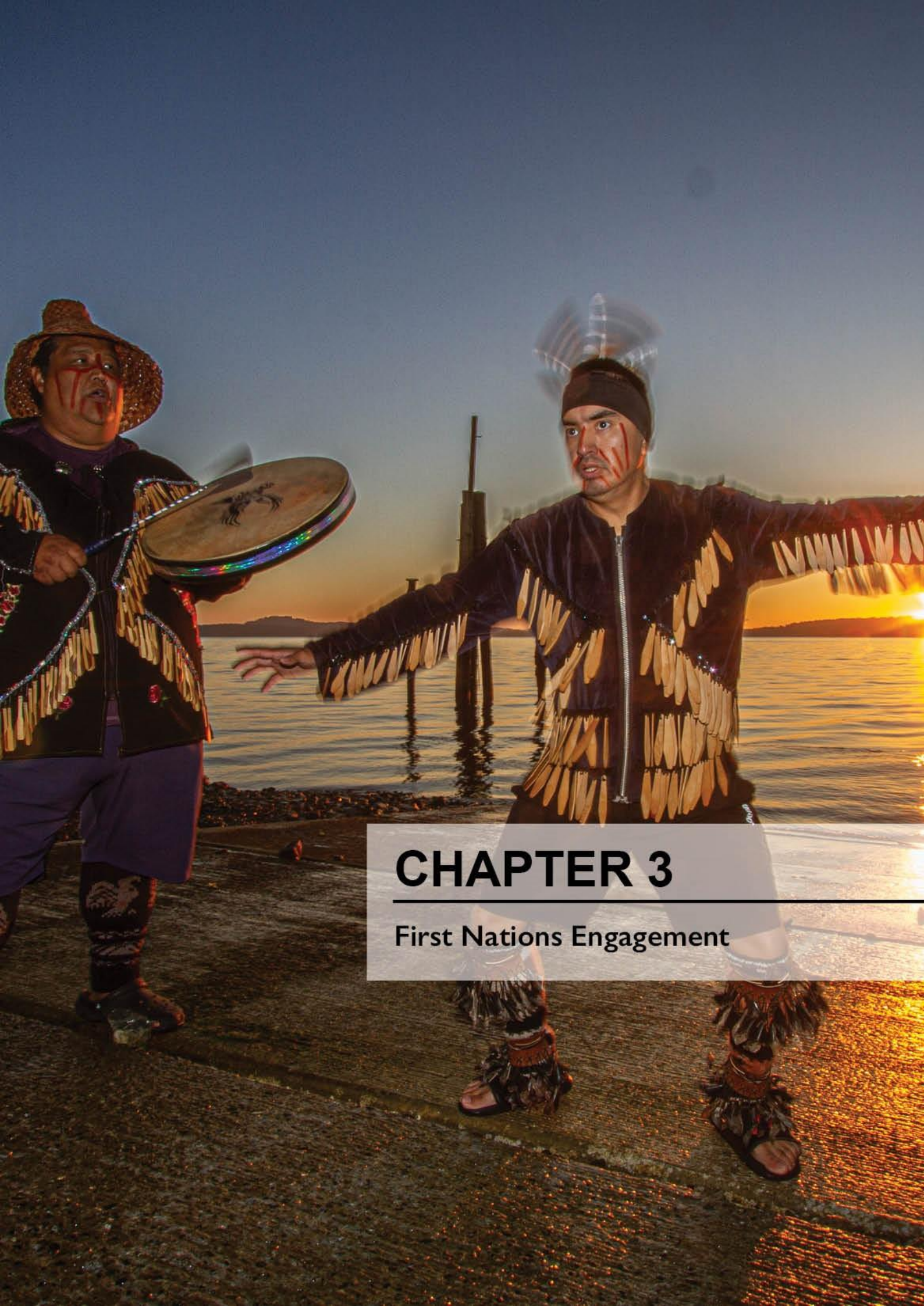
2.5 Conclusions

Over the past number of years, multiple studies have been undertaken to address:

- The condition of the corridor and estimates of cost for remedial work to upgrade the facility.
- Business case assessment to potentially reinstate passenger and freight services.
- The development of business strategies to guide future uses of the corridor.
- Engagement with stakeholders and First Nations to gather input on their thoughts and options on reinstating rail services in the corridor, and/or their perspectives on its future use.

Studies have identified that fixed costs to reinstate rail service on the corridor are very high. In addition, the demand for passenger travel and freight movement by rail is low. This does suggest that reinstating such a service will be inefficient and unproductive and very costly – both in terms of fixed and operating costs. Based on the above, there has been no commitment to work towards reinstating the rail service. For example, the recent reconstruction of the Inner Harbour crossing connecting Esquimalt and downtown in Greater Victoria, the provision of a rail facility was not retained therefore excluding the option of potentially extending a rail service to a final destination in downtown Victoria and thus requiring some form of a transfer for passengers to reach their end destination from the Vic west terminal site.

More focused consultation will assist in gathering more detailed information of needs, attitudes and preferences and positions on future uses of the corridor from all stakeholders in the community. These findings, together with collaboration with other Regional Districts, Nations and local authorities will allow for the development of a comprehensive shared vision of the future use of the corridor.



CHAPTER 3

First Nations Engagement

3 FIRST NATION ENGAGEMENT

3.1 Overview

First Nations engagement is integral and central to the development of a shared vision for the Rail Island Corridor (IRC) for several reasons. Working in collaboration with First Nations and local governments was the purpose of the grant that was received to undertake this visioning process. Significantly, the process of developing a shared vision for the Island Corridor must be situated within the colonial history of the Esquimalt & Nanaimo (E&N) Railway land grants[10] and the legal context of bisected Reserve lands[11] (further discussed in 1.1 Project Context).

The Cowichan Valley Regional District (CVRD) Board acknowledges and supports First Nations' right for the return of Reserve lands that were removed from Reserves as a part of the E&N Land Grants (refer to Appendix B-1 – Maps of Bisected Reserve Lands). The length of the Island Rail Corridor in the CVRD is 71,780 m of which the bisected Reserve lands equal 4,8450 m:

- Cowichan Tribes IR No. 1 in two locations, at approximately 780m and 750 m in length
- Halalt First Nation IR No. 2 at approximately 1,535 m in length
- Stz'uminus First Nation IR No. 11 at approximately 550 m in length
- Stz'uminus First Nation IR No. 12 at approximately 1,230m in length

In addition to engaging with Nations with bisected Reserve lands, the project team engaged Penelakut Tribe, Malahat and Ts'uubaa-asatx First Nations. Similar to the CVRD, all six of these Nations received funding as part of the $18 million grant from the Ministry of Transportation and Infrastructure and are undertaking their own visioning process.

With the corridor no longer being used for rail, the Nations with bisected Reserves have a legal right for the reversion of these lands. If they so choose to have these lands returned to Reserves, then the corridor will become non-contiguous from an ownership standpoint. This will influence whether or not rail or continuous trail are feasible future options for the corridor. The Nations could choose to use the lands for an alternative use, or they could choose to use the lands for rail (through a land lease, use agreement, or as owners and operators of a rail service).

In this regard, the Snaw-Naw-As First Nation brought legal actions against Canada and Island Corridor Foundation (ICF) in 2015, seeking the reversion of former Reserve Lands.

It was important to understand the Nations potential choice of future use to inform the Options Assessment in Chapter 7.0 of this Report. The Options Assessment considers the feasibility of rail, trail, rail and trail together, as well as the return of lands to Reserves for other uses, and emergency access.

[10] https://www.greatlandgrab.com/

[11] https://tc.canada.ca/en/binder/47-vancouver-island-rail-corridor

3.2 Objectives

The objective of First Nations engagement was to collaborate and build relationships with First Nations in the CVRD; to learn about each Nations' involvement in visioning and outcomes that they could share; to learn about each Nations' interest in different uses for the portions of the corridor that are within the CVRD (and outside of Reserve lands); and, to learn about the desired future use of bisected Reserve lands of the Cowichan Tribes, Halalt and Stz'uminus First Nation.

Members of the Island Corridor Foundation (ICF), including First Nations and Regional Districts were invited to participate in the Ministry of Transportation and Infrastructure (MOTI) visioning process in 2023. This work was supported by grants. Some of the six Nations participated in provincial meetings in 2023. The CVRD initiated its process in 2024 and Nations were initially advised of this by letter and email. Respecting the First Nations' process of participating in their All Nations meeting in September 2024, the CVRD held meetings with the six participating Nations through a series of one-on-one virtual meetings in November 2024. At these meetings, the Nations and CVRD shared updates on their respective visioning efforts and outcomes, asked questions and identified next steps for collaboration. The meetings resulted in a better mutual understanding of the ways that the six Nations and CVRD have been involved in the visioning process and conversations regarding future use of the rail.

Formal written communications, including the initial project referral letter, and project update letter are documented within Appendix B-2, B-3 of the Companion document.

3.3 Engagement Summary

During meetings, First Nations shared information about their involvement in visioning activities. First Nation involvement in the grant varied by Nation. Nation activities have varied based on community priorities and needs, and have included a range of internal discussions, technical studies, community engagement, participation in the Provincial project working group meetings and an All-Nations meeting held September 2024.

A clear message across meetings with all six Nations was that more work is needed to arrive at a shared vision, that Canada needs to be present at the table, and that First Nations need to be involved in a meaningful, collaborative, and mutually agreed to way, at all stages of planning, design, implementation and management. Of the Nations without bisected Reserve lands, we heard support for the decisions and direction of those Nations with bisected Reserve lands.

At the time of report writing, discussion notes were being reviewed by Cowichan Tribes and Penelakut Tribe to confirm reporting permissions. Cowichan Tribes had provided verbal permission during the meeting to report that they would like the see reversion of bisected lands to the Reserve.

From the Nations who confirmed reporting permissions, Halalt First Nation shared that they would like to see the land returned, and they are interested in better understanding the cost of different uses, what opportunities there might be to support economic development, and the potential for the corridor to help reduce the number of trucks that pass through the Halalt Reserve along the highway to reduce pollution and improve the environment.

The Malahat Nation indicated that they are working to re-establish a connection with their lands, undertaking studies, engaging with the Malahat community, and that the Island Rail Corridor may be important in addressing issues related to alternative access/routing for times when the Malahat Highway is shut down, and for community resiliency in emergency planning.

Ts'uubaa-asatx First Nation shared that there is huge opportunity for the corridor if First Nations can be adequately consulted and accommodated, and it is Ts'uubaa-asatx's belief that some of the Nations would possibly come on as partners. This corridor, if planned properly in an inclusive way, can provide great transportation, tourism, and industrial opportunities to alleviate a lot of the challenges on the island.

However, it will be critical to understand and appreciate the complexity of the lands in question and how it affects each Nation differently. Each Nation is going to have to be consulted with individually and accommodated to their respective liking—only then can a cohesive plan be derived.

Stz'uminus First Nation shared that they need time to go back to the community to get more of a feel from community members and Chief and Council. Without going back to the community, it is too early to speak for the Stz'uminus people.

The feedback that was received through engagement has contributed to informing the Options Assessment that is outlined in Chapter 7 of this Report. Additional meeting summaries and referral notes are included in the following pages.

3.3.1 Cowichan Tribes

Cowichan Tribes traditional territory extends widely throughout the Coast Salish area, extending as far east as Yale, across the southern half of Vancouver Island, the Gulf Islands and as far south as Sumas and Nooksak in Washington State12. In addition to these traditional territories, where ancestors traveled widely for fishing, hunting, visiting family Cowichan Tribes has nine Indian Reserves (IR), which comprise 2,389 hectares (5,903 acres) of land. Cowichan has also recently purchased several properties and submitted applications to have them added to the Reserve.[13] Of these reserves, Cowichan IR No. 1 has been bisected by the Island Rail Corridor in two locations since the early 1900s. The north portion is approximately 780m long and the south portion is approximately 750m long.

The rail has been inactive since 2013. In 2016, after Snaw-Naw-As First Nation's legal actions against Canada and the Island Corridor Foundation in 2015, Cowichan Tribes filed legal actions of a similar nature. These filings indicated that the land which the Island Rail Corridor sits on were no longer being used for railway purposes. Cowichan Tribes action was in abeyance at the time of report writing, while the Snaw-Naw-As First Nation action has proceeded.

A virtual meeting was held with the Cowichan Tribes referral coordinator and treaty analyst (November 6, 2024) and the meeting summary was under review by Cowichan Tribes to confirm reporting permissions at the time of report publishing, however, verbal permission was given in the meeting to share that Cowichan would like to see bisected Reserve land returned to the Reserve.

[12] Cowichan Tribes websites, https://cowichantribes.com/about-cowichan-tribes/land-base/traditional-territory

[13] Cowichan Tribes websites, https://cowichantribes.com/about-cowichan-tribes/land-base/reserves

3.3.2 Halalt First Nation

The Halalt First Nation's Comprehensive Community Plan notes that, since time immemorial, Halalt First Nation has lived in the area known today as the lower Chemainus Valley and Willy Island; and, that Halalt has two Indian Reserves: Halalt Island IR No. 1, and Halalt IR No. 2. Halalt IR No. 2 is located northwest of Crofton and serves as the residential and village centre for the Nation, with homes, band office and health centre uses. The Reserve is transected by TransCanada Highway 1, and the Island Rail Corridor.[14]

The length of rail line in Halalt IR No. 2 is approximately 1,535 metres and has been present on the site since the early 1900s. The rail has been inactive since 2013. In 2016, after Snaw-Naw-As First Nation brought legal actions against Canada and Island Corridor Foundation (ICF), seeking the reversion of former Reserve Lands, Halalt First Nation filed legal actions of a similar nature. These filings indicated that the land which the Island Rail Corridor sits on were no longer being used for railway purposes. Halalt First Nations' action was in abeyance at the time of report writing, while the Snaw-Naw-As First Nation action goes forward.

Chief James Thomas, the elected Chief of Halalt First Nation, shared the following in a meeting (November 21, 2024). At the beginning of the meeting, Chief James Thomas confirmed that reviewing and approving notes at the end of the meeting was sufficient. He shared his traditional name, and confirmed his position as the elected chief.

Discussion Summary

Chief James Thomas shared that the first option for Halalt is land back for the community; however, they have not had a real presentation in terms of feasibility. He shared that the Halalt view is looking at taking truck traffic off the highway from the transportation hub in Nanaimo to all the big stores, traffic impact could be alleviated, and transportation of goods on rail could be more cost effective. Halalt has 750 logging trucks going through reserve per week (approximately 39,000 per year). The community is not in favour of a trail going through the Reserve at any time. Chief Thomas would support transportation of goods on the rail based on taking trucks off the highway. But, in terms of rail, Chief Thomas asked what the long-term return on investment would be and expressed concern about the cost questions he would like answered.

Chief Thomas shared that he was not personally able to participate in the September 18th All Nations meeting and that their legal person may have attended (but this needs confirmation).

Beyond Reserves, Halalt has additional interests elsewhere in the lands that are adjacent to the corridor. Halalt purchased the farm of 33 acres next to them, just past one of their reservations which is not located within the flood zone. This land will be added to Reserve land (this is currently in process).

Chief Thomas noted that taking trucks off the highway would be an environmental win. He shared that you could see the diesel remnants on the snow next to the highway and in the Reserve. To reduce that would be beneficial to health and the environment. He added that a commuter train would be an issue as there is not enough parking in Duncan for a park-and-ride.

Chief Thomas grew up playing on the rail and advised that kids today don't know the danger of the train. If rail service returned, he is concerned about their safety. Additionally, drainage may be an issue. As an example, a recent flood saw two feet of water in Chief Thomas' house, 100 ft from the rail, and the community is replacing all 44 homes on the Reserve and 5 community buildings due to the floods of 2020 and 2021. The current IRC infrastructure might be contributing to the flooding. Two culverts have been installed since, but it remains to be seen if they are sufficient, and additional environmental upgrades will be important.

[14] Halalt First Nation, Comprehensive Community Plan, 2018-2019

Regarding hopes for the future of the IRS, Chief Thomas shared that as long as included Halat is included in the discussion they are satisfied, and he reiterated that land back is the priority. There were 10 acres of land expropriated for the rail. The rail line has split the Reserve, making cultural sites on other side of tracks inaccessible.

The project team let Chief Thomas know that they would be sharing the draft report back with him and the other Nations, and hoped to present the report before Christmas and that the report would go the CVRD Board in the New Year. Chief Thomas thinks that re-engaging after meeting with other Nations is necessary. Chief Thomas was unsure of availability through December as activity starts to scale down.

3.3.3 Malahat Nation

The Malahat Nation 2021 Comprehensive Community Plan notes that "through its history, Malahat Nation owned and occupied several village sites and resource areas. Two significant village sites are Keya (near the mouth of Shawnigan Creek) and Ma'le-'h'xe'l' (located between Verdier Point and McPhail). The territory around these villages was used for hunting, fishing, and berry gathering, as well as ritual and ceremonial activities." [15] Malahat Nation has two Reserves that are not bisected by the Island Rail Corridor. Malahat IR No. 11 is located several kilometres to the east of the Island Rail Corridor, and Goldstream IR No. 13 is located approximately a half of a kilometre to the east of the Island Rail Corridor at the south end of Finlayson Arm and outside of the CVRD near Goldstream Provincial Park.

A virtual meeting was held with Malahat Nation's Lands Manager and Referrals Coordinator (November 6, 2024).

Discussion Summary

Malahat shared that they have been working with other Nations, participating in meetings, and engaging with the Malahat community on the process through open houses. They have established a Guardian program, with the intent of re-establishing a connection to their land. One aspect of this is the creation of a virtual reality took which will provide community members with access to the corridor. The corridor is difficult to access, and this tool will give Elders and other community members an opportunity to see and experience what is there. This is a part of helping to re-establish a connection to the land. The CVRD project team noted that video footage that was gathered during the CVRD's visioning process might be useful to support the virtual reality project, and offered to share it with Malahat. Malahat also shared that they will be preparing a memo and are currently undertaking an ecosystem and natural asset inventory to look at threats, risks and assets.

Malahat shared that they support the rights of Nations with bisected Reserve lands and that they are not ready to share a position on a future preferred use for the corridor. However, they also noted that a secondary route for traffic is important because the Malahat community is highly impacted when the Malahat highway is closed, as vehicle traffic is redirected through their community, particularly to access the Brentwood-Mill Bay ferry. The Malahat Transportation and Mobility Plan speaks to this, and was referred to as another place to learn about this issue. Further to this, it was noted that emergency access for when the highway shuts down is important. Malahat Nation is especially concerned about wildfire risk. Additionally, they are seeing if there is community interest in a multi-modal corridor.

Malahat expressed an interest in being meaningfully integrated into ongoing project development and decision-making. Involvement, it was shared, should not be an afterthought or just for the purpose of checking a box on referral – rather it should be meaningful—including an opportunity to collaborate on

[15] Malahat Nation Comprehensive Community Plan, 2021

decision making, co-design, and co-management—a full spectrum. In addition to this, it was noted that Canada needs to be present at the table for meaningful collaboration.

3.3.4 Penelakut Tribe

Penelakut Tribe is a Hulqiminum speaking community. At the time of report writing, Penelakut Tribe had a total of 1,001 register community members, with four Reserve locations located adjacent to Chemainus and in the Southern Golf Islands. The four Reserve locations are Tsussie, Northern tip of Galiano Island, Tent Island and Penelakut Island[16]. The Reserves are not bisected by the Island Rail Corridor. Tsussie is located approximately half of a kilometre to the east of the Island Rail Corridor.

A virtual meeting was held with a Penelakut Tribe Economic Development Offices/Council Member (November 21, 2024). The questions that were discussed were shared after the meeting to allow input from others who were not present in the meeting, and the draft meeting notes were shared for review. The meeting summary was under review by Penelakut Tribe to confirm reporting permissions at the time of report publishing.

3.3.5 Stz'uminus First Nation

Stz'uminus First Nation traditional territory extends well beyond east Vancouver Island, across the Strait of Georgia east beyond Hope and Yale, north beyond Comox and Powell River, and south to Port Angeles and Everett in Washington. On east Vancouver Island, it includes four Reserves of more than 1,200 hectares.[17] Of these Reserves, Stz'uminus IR No. 11 and Stz'uminus IR No. 12 are bisected by the Island Rail Corridor, including a 550 m section of rail line in Stz'uminus IR No. 11 and 1,230 m in Stz'uminus IR No. 12. The rail line has been present on these sites since the early 1900s, and the rail line has been inactive since 2013. Stz'uminus IR No. 10 is located approximately 300 metres east of the IRC, and Stz'uminus IR No. 13 is located east from Ladysmith, across the Stuart Channel.

A Stz'uminus First Nation Land and Resources representative participated in the meeting. They shared that they need time to go back to the community to get more of a feel from community members and Chief and Council, before sharing whether they have a preferred future use for the corridor. Without going back to the community, it is too early to speak for the Stz'uminus people. Expanding on the question of how to weigh the benefits, tradeoffs and costs of different options, and bringing it to the community would be an appropriate approach.

The questions that were discussed at the meeting were shared to bring back to the Stz'uminus community for additional feedback. Stz'umininus inquired about whether the project team could support Stz'uminus community engagement, and it was confirmed that that would be possible, with the details to be determined.

[16] Penelakut Tribes website, https://penelakut.ca/about/

[17] https://www.stzuminus.com/our-story/

3.3.6 Ts'uubaa-asatx Nation

The Ts'uubaa-asatx Nation website notes that the Ts'uubaa-asatx Nation "have lived around the shores of Cowichan Lake for millennia, long prior to the arrival of Euro-Canadians. Ts'uubaa-asatx have always made their primary home on Cowichan Lake. The English translation of the name Ts'uubaa-asatx is "People of the Lake"."[18] The Ts'uubaa-asatx Nation Reserve is located on the north short of Cowichan Lake. It is not bisected by the IRC, and is located near the spur line which extends west to Cowichan Lake.

A virtual meeting was held with Ts'uubaa-asatx Nation's Strategic Advisor (November 5, 2024). During this meeting a joint decision was made to share a project update letter and list of questions with Ts'uubaa-asatx to allow input from others who were not present in the meeting (Appendix B-5). The letter and questions were formally tabled for discussion with Chief and Council. Ts'uubaa-asatx Chief Councilor Melanie Livingstone, Councilors Carol Livingstone and Sherry Livingstone were engaged, and provided the responses which were articulated by the Operations Manager Aaron Hamilton. The referral commentary is summarized below; and the referral questions and verbatim responses are captured in Appendix B-6.

Referral Response Summary

Ts'uubaa-asatx Nation were, at one point, a member of the Island Corridor Foundation. They resigned a year ago and have been discussions internally on how this corridor affects Ts'uubaa-asatx interests.

Regarding involvement in visioning process, Ts'uubaa-asatx Nation was involved in the September 18th meeting through written answers which were submitted in advance of the meeting in response to the questions being asked. For the visioning process overall, Ts'uubaa-asatx Nation noted that it will be critical to understand and appreciate the complexity of the lands in question and how it affects each Nation differently. For some it dissects directly through their lands and traverses right behind houses, etc. Each Nation is going to have to be consulted with individually to conclude what the affects will be and doing so collectively will be problematic from a solution-based process. If each Nation can sign on stating that they have been consulted and accommodated to their respective liking, only then can a cohesive plan be derived and planned. Up until then, Ts'uubaa-asatx Nation shared, that they don't see how this will be met with support from all Nations.

Ts'uubaa-asatx's greatest interest is the spur line that still comes out to Ts'uubaa-asatx core territory and is currently used as the Trans Canada Trail. Ts'uubaa-asatx was told that there is fibre optic cable that comes to the town along that corridor and feel that they should have been part of those talks on bringing such a critical piece of infrastructure to our lands. This line also could serve as a conduit for other infrastructure pieces in the future (natural gas, etc.) and Ts'uubaa-asatx would like to be present for such discussions.

There is huge opportunity for the corridor if First Nations can be adequately consulted and accommodated, and it is Ts'uubaa-asatx's belief that some of the Nations would possibly come on as partners. This corridor if planned properly in an inclusive way can provide great transportation, tourism, and industrial opportunities to alleviate a lot of the challenges on the island.

Regarding whether or not they support a specific a future use, Ts'uubaa-asatx's shared that it would highly depend on the nations whose lands are impacted by such a corridor.

[18] https://www.tsuubaaasatx.ca/

3.4 Next Steps

The draft report will be shared with all six Nations in January of 2025. A one-on-one meeting would be scheduled with Malahat Nation and Ts'uubaa-asatx Nation, and a follow up meeting with Cowichan Tribes, Halat First Nation, Stz'uminus First Nation and Penelakut Tribe was being scheduled for December 2024/January 2025.

3.5 Recommendation

In order to maintain momentum and build on the collaboration throughout the visioning process, ongoing collaboration and additional First Nation community engagement through continued funding support is required.

CHAPTER 4

ADDITIONAL ENGAGEMENT & COLLABORATION

4 ADDITIONAL ENGAGEMENT AND COLLABORATION

4.1 Public Engagement

4.1.1 Process and Purpose

The public was invited to participate in a survey and mapping activity to provide feedback towards a shared vision for the Island Rail Corridor in the CVRD. Feedback was received from August 26th to September 30th, 2024. The purpose of engagement was to better understand public interest in potential future uses and community priorities for the future of the IRC in general and by station area. A total of 4,109 surveys were completed, and 248 comments were received on the mapping activity.

The survey included questions about vision, future uses, and community needs that the IRC can address. The mapping activity included questions about destinations and locations for different uses.

4.1.2 Summary of Feedback

When asked what transportation mode(s) best matched their vision for the future, most survey respondents selected passenger rail (79%), followed by biking and hiking trails (49%), and then freight (42%).

Table 4-1: Transportation modes that best match respondents' vision for the future of the IRC.

Mode Selections	Number of Selections	Percentage of Respondents
Passenger rail	3,143	79%
Biking and Hiking Trails	1,964	49%
Freight rail	1,679	42%
None of the above	68	2%

Through a cross analysis of preferences by respondent area, the following observations were made:

- Electoral Area F has the highest preference for passenger rail.
- Electoral Area B and H have the lowest preference for passenger rail.
- Electoral Area H has the highest preference for biking and hiking trails.
- Electoral Area F has the lowest preference for biking and hiking trails.
- Lake Cowichan has the highest preference for freight service.
- Electoral Area C and I have the lowest preference for freight service.
- North Cowichan had responses from the most participants.
- Electoral Area I had responses from the least participants.

A detailed breakdown of responses by area is included in Appendix C-1 Preferred Future Transportation Use by Respondent Area.

Survey respondents were asked to select up to three other complementary uses for each of the station areas along the IRC in the CVRD: Chemainus, Cobble Hill, Cowichan, Duncan, Ladysmith, Malahat, and Shawnigan. The survey clarified that these could be in addition to a transportation use, and would be located within the corridor, next to the transportation use.

The top three choices in each area are bolded and highlighted in blue. Across all areas, except the Malahat area, survey respondents most often selected “active transportation connections” followed by “tourism amenities”, and then “emergency preparedness”. In the Malahat area, “emergency preparedness strategies” was the second most common choice, followed by “tourism amenities”.

Table 4-2: Most Commonly Selected Uses by Station Locations

	Active Transportation Connections	**Tourism Amenities**	**Recreation and Park Like Activities**	**Habitat and Ecological Connections**	**Emergency Preparedness Strategies**	**Unsure**
Chemainus	**2376**	**1741**	**1254**	1226	1089	253
Cobble Hill	**2407**	**1593**	**1329**	1204	1085	259
Cowichan	**2446**	**1675**	**1355**	1247	1117	219
Duncan	**2454**	**1819**	**1423**	1107	1160	190
Ladysmith	**2424**	**1758**	**1391**	1160	1056	255
Malahat	**2302**	**1476**	1082	1217	**1564**	231
Shawnigan	**2421**	**1597**	**1343**	1175	1178	275

When asked which of the following are the most important community needs for the Island Rail Corridor to support, survey respondents most often selected “improve transportation connections for people or goods” (30%), followed by “expand economic development and tourism” (18%).[19]

[19] *Respondents could ‘choose all that apply’.*

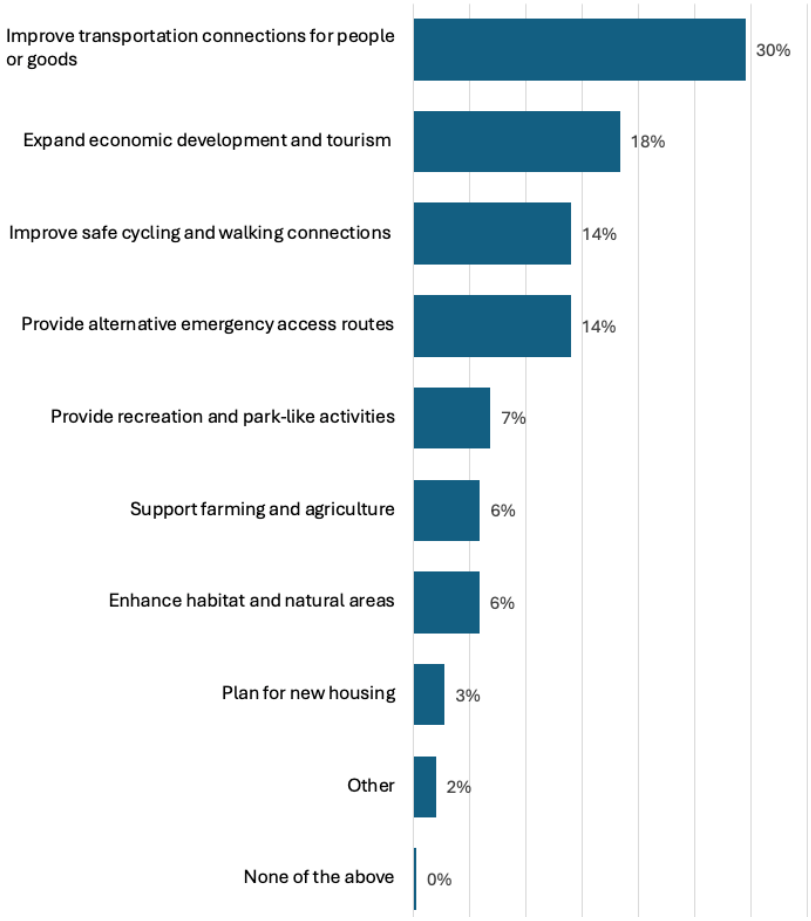


Figure 4-1: Most important community needs for the IRC to support.

In the community mapping exercise, participants often suggested opportunities to connect to existing trail networks (e.g., CRD E&N trail and Trans Canada Trail, among others), transportation hubs (e.g., BC Ferries and Nanaimo Airport), village and urban centres, and commercial destinations, both by trail and by rail. In addition, participants identified opportunities to improve emergency preparedness in the Malahat area, park-like activities near Cobble Hill and Shawnigan, habitat enhancements along the corridor, and housing near rail stations.

4.2 Stakeholder Engagement

4.2.1 Process and Purpose

The project team held 19 one-on-one interviews with key stakeholders between July 8 and August 23, 2024. Stakeholders represented organizations with interests in transportation, economic development, agriculture, environment, and utilities (refer to Appendix C-2 Stakeholder Organizations Interviewed and Contacted).

The purpose of the interviews was to gather feedback on potential opportunities and constraints along the corridor. During the 30-minute interviews, stakeholders were invited to provide feedback on the future use of the corridor and its potential role in transportation.

4.2.2 Summary of Feedback

The feedback received was diverse, and not all stakeholder interests were aligned. Overall, most interviewees expressed a desire for rail, followed by rail and trail, and then trail only. A breakdown of expressed preferences is below:

- Seven expressed a desire for rail primarily
- Four expressed a desire for rail and trail
- Three supported trail use only
- Four shared they did not prefer any specific use.

Still, there were several ideas for a shared vision that emerged. These include:

- Respect and uphold the rights of First Nations.
- Maintain a continuous corridor as much as possible (while respecting First Nations rights), to preserve the potential for future use as a potential transportation corridor.
- Improve Island connectivity for a range of transportation-related goals.
- Support sustainable travel and a shift from car dependency.
- Foster solutions to respond to regional trends and leverage the Island Rail Corridor to address community needs.

4.3 Collaboration

4.3.1 CVRD Project Working Group

A Project Working Group with CVRD Regional District staff and incorporated municipalities staff was formed to provide guidance into the process, review technical deliverables and provide advice at key project milestones. Working Group members represented the Municipality of North Cowichan, the City of Ladysmith, the City of Duncan, and CVRD Economic Development, Parks and Trails, Transit, Environmental Services, and Emergency Management.

The Working Group was invited to attend four meetings to review deliverables and inform the project team's work. Working Group members provided general project guidance, with specific input into transportation context, natural habitat, climate resilience, and project assumptions (focus on housing densities and timeframe of options). Refer to Appendix C-3 Working Group Meeting Dates and Topics.

4.3.2 Other Regional Districts

Collaboration across Regional Districts was coordinated to align planning efforts toward a shared vision. The CVRD coordinated these meetings which took place virtually.

Five meetings were held throughout the process, with Alberni Clayoquot RD, Capital RD, Comox Valley RD, Cowichan Valley RD, and Nanaimo RD participating. During these meetings, Regional District staff shared shard and learned about each other’s visioning processes.

4.3.3 Island Corridor Foundation

The project team participated in ongoing communications, information sharing, and collaborative meetings hosted by the Island Corridor Foundation (ICF) to align planning efforts.

The project team participated in nearly a dozen meetings with ICF throughout the project, including one-on-one meetings with CVRD; meetings designed to allow for information sharing and collaboration across consulting teams and meetings to bring together Regional Districts.

CHAPTER 5

ENVIRONMENTAL CONSIDERATIONS

5 ENVIRONMENTAL CONSIDERATIONS

5.1 Introduction

There is potential that upgrades to the rail corridor will intersect with areas of significant habitat value or site contamination. These interactions can have considerable affect to project designs, schedule, and cost as a component of addressing regulatory requirements (e.g., Contaminated Site Regulation, *Water Sustainability Act*). This section outlines the findings regarding potential site contamination and habitat values supported within and adjacent to the IRC. It also provides a series of recommendations to assist the CVRD in advancing design, permitting, and mitigation requirements.

5.2 Natural Habitat

A Geographic Information System (GIS) review of available background information specific to the natural habitat values supported within and adjacent to the Island Rail Corridor was completed. For the purposes of the review, the rail corridor was established as 30 metres wide. A 1-kilometre buffer was applied to the corridor to account for mobile environmental values (e.g., wildlife) and given that desktop data sources are not used as absolute representations of all potential values. The purpose of this assessment was to identify potential environmental constraints that may affect design, scheduling, and cost associated with proposed development within the corridor.

The study area was divided into three sections. The results indicated the following main constraints for each section:

- South section (Malahat to Duncan) – species and ecosystems at risk, the potential presence of the federally-listed Dun Skipper butterfly (Western population), and natural watercourse crossings
- Central section (Duncan to Chemainus) – species and ecosystems at risk, natural watercourse crossings, and critical habitat for the federally-listed Western Painted Turtle (Pacific population)
- North section (Chemainus to Oyster Bay – natural watercourse crossings and habitat supporting the “blue-listed” (Special Concern) Ermine (*anguinae* subspecies)

The presence of these and other valued habitat resources requires consideration under both provincial (*Water Sustainability Act, Wildlife Act*) and federal (*Species at Risk Act, Fisheries Act, Migratory Birds Convention Act*) legislation given the potential effects to design and schedule (and their effect on cost) that could result.

The review concluded that an environmental review, assessment, and field inventory be carried out as a matter of due diligence for future development that is being planned within the rail corridor. Environmental permitting is expected to be required for future development that interacts with watercourses, wetlands, or rare species/ecosystems. Additional review will allow the CVRD to consider these environmental features in the development process and either avoid or mitigate potential effects which can have a considerable savings in time and budget.

A full environmental summary report is included in Appendix D.

5.2.1 Next Steps

Next steps identified for additional assessment and the implantation of habitat-specific design criteria to minimize the potential for interactions between proposed corridor development and habitat are presented in this section.

ENVIRONMENTAL CONSIDERATIONS

It is recommended that environmental review, assessment, and field inventory be carried out as a matter of due diligence for future development planned within the rail corridor. Environmental permitting is expected to be required for future development that interacts with watercourses, wetlands, or rare species/ecosystems. Additional review will allow the CVRD to consider these environmental features in the development process and either avoid or mitigate potential effects which can have a considerable savings in time and budget.

Next steps should include the development and implementation of an environmental overview assessment which validates and expands upon the potential environmental issues and constraints identified during the desktop assessment. Objectives of this assessment should include, but not be limited to:

- Identify species and ecological communities of management concern that are potentially present at any proposed development location.
- Survey the Study Area and surrounding areas where critical habitat may be present or affected by development activities.
- Identify potentially sensitive features and habitats including, but not limited to, wildlife trees and habitat, nests, wetlands, and riparian and aquatic habitat for amphibian and fish species.
- Provision for a growing-season survey of invasive species and noxious weeds and plant species or ecosystems of management concern within locations where ground disturbance is anticipated.
- Work with design teams to evaluate and prioritize potential Project sites within the rail corridor to avoid and limit potential interactions with sensitive or valuable environmental features.
- Preparation of an Environmental Overview Assessment report(s) which outlines environmental constraints, particularly as it relates to permitting requirements.

The following design criteria should be considered by design teams for future development plans:

- Design with consideration of the Cowichan Valley Regional District Official Community Plan (OCP) and associated by-laws concerning Environmentally Sensitive Areas and Riparian Protection (CVRD 2023).
- OCPs for the municipalities through which the corridor passes (Duncan, North Cowichan, and Ladysmith).
- Avoid and limit effects to identified critical habitat of species of management concern (e.g., Western Painted Turtle, Dun Skipper, Ermine anguinae subspecies).
- Limit the removal of existing vegetation and encroachment within 30 m of riparian area habitats.
- Avoid parks and community greenspaces and trails and/or mitigate potential effects to the community.
- Avoid designing the Project within sensitive aquatic and riparian habitats and mitigate potential effects to water quality.
- Manage the risk of distributing invasive plant and noxious weed species around and/or off of the Project location with preconstruction confirmation by a qualified professional and implementation of recommended measures and Ministry of Transportation and Infrastructure Standard Specifications for Highway Design (Section 165 – Protection of the Environment).

The environmental constraints associated with these design criteria include:

- Delays associated with environmental permitting
- Species-specific timing windows which may limit the construction schedule
- Costs and time associated with implementation of species- and habitat-specific mitigation measures

The specific environmental constraints will be refined in conjunction with the validation of the environmental desktop results and advancement of future project development.

It should be noted that public engagement did not identify habitat protection and enhancement as significant issues of concern. Regardless, design efforts should strive to limit impacts to the extent possible, either through avoidance, limiting the footprint of potential impact, or restoring or enhancing habitat to mitigate impacts. This will also help facilitate environmental permitting.

A full environmental summary report is attached as Appendix D in the Companion Appendix document.

5.2.2 Conclusions

A review of available background information was conducted via a GIS assessment of available habitat “layers” supported within and adjacent to the IRC. Layers are GIS datasets that indicate the presence or potential presence of habitat features that could interact with development within the IRC. The review indicated that numerous natural habitat elements have the potential to interact with proposed development along most, if not all, of the IRC. This includes rare species and ecosystems, watercourse crossings, and other valued habitat components. Planning around these components, particularly with reference to Nation land in the event of land reversion, will be a significant consideration in avoiding or minimizing impacts to habitat, costs, and schedule delays due to permitting requirements under current legislation.

5.3 Remediation

5.3.1 Site Description and Background

As with most railway operations, there are potential and known environmental impacts created from rail lines. These can be associated not only with the initial construction materials, along with maintenance operations (such as impacted ballast rock and treated wooden rail ties), but also from the general operation of locomotives along the tracks with a general accumulation of small releases of petroleum hydrocarbons sourced from coal, diesel fuel, general oils and greases, as well as other contaminants such as metals or herbicide. This chapter provides an overview regarding the remediation process of the IRC within the CVRD.

5.3.2 Investigation Process

The investigation process in this document focuses on the actual rail corridor and its associated ballast up to 5 meters on each side of the tracks. No investigation beyond this limit has been considered at this time. The investigation process will depend on whether the subject IRC section falls under federal or provincial jurisdiction; however, the overall investigation process is similar between these two jurisdictions. A summary of the applicable guidelines/standards used for subsurface investigations on federal and provincial land is provided in Appendix E-1.

If the corridor does not continue to be used for rail purposes, environmental investigation would be required to determine levels of contamination resulting from the use as a rail corridor. In general, the investigation process is a phased approach, starting with an initial site investigation (Phase I Environmental Site Assessment [ESA; federal] / Stage 1 Preliminary Site Investigation [PSI; provincial]). This type of investigation is typically non-intrusive (i.e., no samples collected) and is largely dependent upon a review of available applicable records combined with interviews and a site reconnaissance. If indications of potential contaminant sources are identified during this preliminary stage, a Phase II ESA [federal] or Stage 2 PSI [provincial] will be completed as the next phase of the investigation process; this approach includes actual sampling of applicable media, where present (i.e., soil, groundwater, surface water, soil vapour), and analysis through a laboratory for various types of contaminants. If required, a Detailed Site Investigation (DSI) would then be conducted to delineate confirmed contaminants in soil, groundwater, soil vapour, sediment, and/or surface water, followed by remediation and/or risk assessment (which assesses the potential for human and/or environmental health risks in relation to the confirmed contamination). For the purposes of this memorandum, sediment and surface water have not been considered environmental media that will be investigated as it is unlikely they would be present within the portion of the IRC within the CVRD boundaries.

Details of the investigation process are contained in Appendix E-2.

If the corridor continues to be used as a railway, environmental investigation would likely not be required at this time, although investigation and remediation would be required at the time of future decommissioning and land use change. If a section of the corridor is being transferred/sold/given to another entity, investigation/remediation requirements would be determined in the transfer agreement between the two parties and investigation/remediation may be a requirement of the agreement whether or not the land will continue to be used for rail purpose.

5.3.3 Estimated Investigation Costs

The approximate investigation costs to complete a Phase I ESA / Stage 1 PSI, Phase II ESA / Stage 2 PSI, and DSI of the rail corridor are summarized below.

Table 5-1: Estimated Investigation Costs

Investigation Requirement	Low	High
Corridor-Wide Ph I ESA / Stage 1 PSI	$65,0000	$85,000
Ph II ESA / Stage 2 PSI	$750,000[1]	$825,000[2]
DSI	$2,700,000[3]	$5,775,000[4]
Total Cost (assuming a total of 72 km)	**$3,515,000**	**$6,685,000**

Notes:

[1] Assumes 1 borehole every 100 m (BC ENV P6 regulatory approval would be required for this) using hand implements only with no groundwater being encountered/sampled

[2] Assumes additional 5 km of corridor (i.e., 50 additional boreholes) will require investigation beyond 1x borehole per 100 m section using hand implements only with no groundwater being encountered/sampled

[3] Assumes delineation of 25% of Ph II ESA / 2 PSI locations require additional investigation (i.e., 3 additional boreholes) using mechanical advancement (i.e., drilling) with groundwater being encountered/sampled

[4] Assumes delineation of 50% of Ph II ESA / 2 PSI locations require investigation (i.e., 3 additional boreholes) using mechanical advancement (i.e., drilling) with groundwater being encountered/sampled

5.3.4 Decommissioning, Remediation and Risk Assessment

Following the DSI, which may require subsequent targeted investigations, confirmed on-site contamination would be suitably delineated both vertically and horizontally at that point. Using that confirmed information, remediation options and associated requirements would be considered based on subject section characteristics such as access, associated infrastructure, contaminated soil and/or groundwater quality and quantity, etc. Remediation may include physical remediation (excavation and removal of contaminated soil/groundwater), risk assessment (contamination remaining in place requiring evaluation and control of risks related to contamination), or a combination of these two processes.

Prior to remediation, rail decommissioning would be expected to include:

- Removing rail tracks, fasters, etc. (to be recycled)
- Removing cross ties (for disposal)
- Excavating ballast (for disposal or reuse where possible)

Current decommissioning, remediation, and/or risk assessment cost estimates, as noted in the 2024 Thurber report, include remediation of the general APECs and PCOCs associated with rail corridors (i.e., rail beds and herbicide application) and does not account for any additional APECs that may be determined during the phased investigation process. Remediation costs would depend on this determination, as well future land use of the subject section. **Table 5-2** below outlines the estimated remediation costs typical for rail corridors, with the lowest costs being associated with the subject section remaining being used as industrial land use; costs would then subsequently increase dependent on land use conversion to more sensitive development, such a recreational or commercial retail.

Table 5-2: Estimated Remediation Costs Per 100-Metre Section[1]

Investigation Requirement	Physical Remediation		Risk Assessment	
	Low	High	Low	High
Consulting Fees	$25,000	$40,000	$15,000	$30,000
Decommissioning/ Disposal (Contractor, Rail ties, ballast disposal)[2]	$80,000	$140,000	$80,000	$140,000
Disposal (Contaminated Soils)	$35,000	$55,000	-	-
Remediation Contractor	$20,000	$40,000	-	-
Backfill	$15,000	$25,000	-	-
Total[3]	**$175,000**	**$300,000**	**$95,000**	**$170,000**

Notes:

1- Table modified from Thurber Engineering Ltd. (2024) "Island Railway Corridor, Vancouver Island, BC Typical Railway Corridor Assessments and Remediation Options"

2- If remediation is conducted to meet land use requirements other than Industrial Land Use (IL), then more stringent guidelines and standards apply. This typically adds 15 – 25% to the above costs. Metal recycling cost savings has been included in this cost estimate

3- For the 72 km transect of rail corridor that is situated in the CVRD's boundary (i.e., 720 sections at 100 m intervals), assuming a cost range between $95K - $300K per 100 m, the expected remediation/risk assessment costs are estimated to range between $68.4 - $216M.

The estimated remediation costs have the following assumptions:

- 50-100 metric tonnes (MT) of creosote-treated wood for disposal
- 300-500 MT of track ballast material for disposal
- All linear 100 m sections are contaminated to 0.3 m below ground surface (mbgs), and that another 50% of that section is contaminated to 1 mbgs
- 200-300 MT of metals and petroleum hydrocarbon contaminated soil for disposal in addition to 100--200 MT of only petroleum hydrocarbon contaminated soil for disposal
- Remediation through risk assessment assumes contaminated areas would be paved to mitigate potential exposure pathways
- Risk assessment assumes no physical remediation or requirement for a remediation contractor
- Costs do not include consideration for off-site migration outside of the rail corridor
- Costs assume no groundwater or soil vapour contamination, and are only related to rail-derived contamination
- Costs do not include federal or provincial site closure costs (e.g., BC ENV Certificate of Compliance or other regulatory instrument)
- These costs are general in nature and actual costs will largely depend on the extent and type of actual contamination (if any) found through these investigations

5.3.5 Potential Funding Opportunities

Funding opportunities may be available at both the federal and provincial levels to assist with the financial burden of investigation and remediation of the rail corridor. Some of the potential funding opportunities that may be applicable to one or more corridor section include the following:

- **Green Municipal Fund**: funding for local governments pursing innovative projects that tackle climate change, reduce greenhouse gases, while also delivering environmental, economic, and social benefits.
- **Outdoor Recreation Council of BC**: funding for outdoor recreation initiatives, accessibility programs, maintenance of trails, purchase of supplies. Some examples are the active transportation fund, recreation foundation BC, indigenous sport, physical activity and recreation council, active communities grant and nature smart climate solutions fund.
- **Contaminated Sites On-Reserve Program**: responsible for managing contaminated sites on Reserve Lands and any lands that fall under Indigenous Services Canada's responsibility.

5.3.6 Conclusions and Next Steps

The following steps are recommended towards the decommissioning and remediation of the IRC:

- Conduct a Phase I ESA across the 72 km of corridor within the CVRD region and determine where additional investigation is required. The cost for this investigation is estimated between $65,000 and $85,000.
- Determine which IRC sections within the CVRD region will require additional investigation and/or remediation/risk management.
- Determine future intended land uses for each section requiring additional subsurface investigation/remediation to inform corresponding assessment and mitigation requirements.
- Conduct Phase II ESAs/DSIs where further investigation is required to determine extents of contamination and potential remediation/risk management strategies
- Continue to refine investigation and remediation/risk management costs during each phase of subsequent investigation as verification/delineation are achieved.
- Perform further research into the viability and timeline of funding opportunities. If viable funding opportunities are identified/confirmed for one or more IRC section, initiate the funding application process as required.

5.4 Climate Change & Resilience

As we look forward to a shared vision that benefits the whole of Vancouver Island; in particular, the First Nation communities, and the future of the rail corridor, it is important to look out over a horizon of 50 to 100 years. Over these long-time horizons, the nature of our changing climate becomes an important factor for consideration.

This section of the report looks at how the environment might impact the rail corridor and focuses specifically on *climate* hazards, such as extreme storm events, wildfires, and flooding. There are other important environmental hazards such as landslides and earthquakes, however they are not included in this assessment. This section also includes a discussion on the role of the rail corridor in regional resilience.

5.4.1 Methodology

The climate vulnerability assessment was conducted in two stages, a desktop study and an evaluation of climate vulnerabilities. First a desktop study was completed of applicable regional climate hazards and their trends according to downscaled climate projections. The vulnerability scan covered the following climate hazards.

- Flooding: Fluvial and Coastal
- Wildfire: Interface fires and air quality
- Extreme Heat
- Cold snaps, snow
- Windstorms

Second, the exposure of the rail corridor to each of these hazards was evaluated and the associated impacts were considered. The evaluation was based on interviews with staff with relevant experience operating infrastructure along the corridor. Participants are identified in the table in Appendix F-1, along with a description of their experience. Interview participants were asked a series of questions, which were provided in advance. They were asked about (1) previous events and experiences with each of the extreme weather conditions and its impact to the future use of the corridor; and (2) anticipated impacts from future extreme weather events. Interviews were 30-60 minutes and conducted virtually over a video call using project reference materials.

5.4.2 Climate Change and Climate Hazards

This section provides a summary of climate change and the relevant hazards to the rail corridor, focusing on flooding and wildfire. A complete overview of the five climate hazards is provided in Appendix F-2, and a summary of the 2 predominant hazards (flooding and wildfire) is provided below.

CVRD is located on Vancouver Island, which is characterized by warm, dry summers and mild, rainy winters with infrequent freezing temperatures. Temperatures in the Cowichan Valley region are generally exhibiting a warming trend. To understand anticipated future climate conditions in the CVRD, current and historical data from regional Environment Canada weather stations was analyzed in relation to projected global climate trends. Future climate conditions were projected based on Intergovernmental Panel on Climate Change (IPCC) global atmospheric emissions and climate data scenarios, while current and historical weather data was retrieved from Environment Canada records from weather stations located in the CVRD.

The future climate conditions that are represented are based on a ‘business as usual’ climate scenario, which the IPCC refers to as SSP5-8.5 – a scenario that reflects the Shared Socio-economic Pathway representing a fossil fuel intensive world. Based on this scenario, it is assumed that global carbon emissions will continue to rise until 2100. This scenario was selected because climate adaptation plans typically use this scenario for planning purposes as it is the most conservative. The planning horizon for the Corridor is

75 years. Therefore, climate projections in this memo reference anticipated conditions in the CVRD until 2100. These projections were then used estimate potential extreme weather events and general long-term patterns and trends that could be expected to be experienced in the CVRD. **Figure 5-1** shows the time periods that have been considered in this study.). Due to the limitation of the data source for some climate parameters (e.g., flooding), future projections may not extend to the end of century.

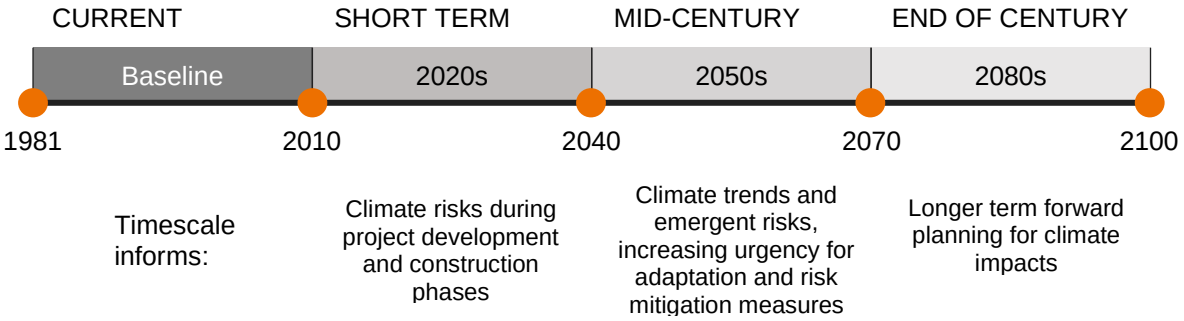


Figure 5-1: Time Periods Considered in this Study

5.4.2.1 Flooding

The hydrology of the Cowichan Valley is characterized by wet winters and dry summers. Severe flood events tend to occur when warm Pacific cyclonic depressions that pass over the Strait of Georgia generate high rates of precipitation. Precipitation amounts vary within the CVRD region. Studies showed that annual and extreme precipitation amounts increase rapidly with elevation due to orographic effects, i.e., moist air is forced to rise due to contact with mountains, as a result, forming clouds and precipitation as the moisture in the air cools and condenses. Higher autumn rainfall amounts of 1200 to 1400 mm are reported in the headwaters of the Cowichan River basin than the lowland areas (200 to 400 mm).[i] High precipitation rates in the headwaters translate to heavy flows in rivers and streams. Severe fluvial flood events in the CVRD are often a combination of rainfall and snowmelt from November to March. However, debris and log jams along creeks and channels are important factors in flooding (CVRD 2019).

British Columbia has experienced significant flooding events caused by extreme precipitation that are produced by atmospheric rivers every year since 2001 (PCIC 2013). A strong atmospheric river in November 2021 resulted in two days of intense precipitation, which was the costliest natural disaster in BC's history (Gordan 2023). Towards the end of this century, research suggest that atmospheric rivers will likely be about 25% longer and 25% wider and will transport about 50% more water vapor globally under the RCP8.5 scenario (Espinoza et al. 2018). The impact on the BC coast, including the CVRD, is expected to be significant. This was shared anecdotally by the Halat FN who experienced significant flooding during the 2021 atmospheric river, causing damage to all 44 homes on the Reserve and 5 community buildings. Flood mitigation measures were introduced following that event.

In general, climate projections show that wetter winters and drier summers are expected for the CVRD. The precipitation is expected during increasingly extreme events, with about 30% more precipitation on very wet days (95th percentile wettest days indicator) and 65% more on extremely wet days (99th percentile wettest days indicator) (CVRD 2017). In contrast to the projected increased intensity of wet events, the amount of rain in summer is expected to decrease by 17%, and the duration of dry spells will be lengthened by about 20%, from 22 consecutive days to 26 days by the 2050s.

To screen for the exposure of the rail corridor to flood hazards, a cursory review was conducted of current and past CVRD flood hazard assessment projects. The review was limited to clearwater flood hazards only. Debris flows, erosion hazards, and geohazards for example were not reviewed. The review only assessed the planform (horizontal) extent of flood inundation: the hydraulic performance of railroad infrastructure such as bridges, culverts, and erosion and scour protection measures were not assessed. Flood mapping studies were reviewed for five waterbodies: the Chemainus River, Shawnigan Lake, Cowichan River, Koksilah River, and the coastline (see Appendix F-2) Based on the review, several flood hazard vulnerabilities were identified for the rail corridor within the study area, which are discussed in Section 5.4.3.

5.4.2.2 Wildfire

Wildfires along the corridor and in the upstream areas present an important hazard. Direct interface with the rail line may disrupt service and maintenance. Appendix F-2 provides details on the Wildland Urban Interface (WUI) threat level for the CVRD which defines areas where structures are located, and which are potentially exposed to flames, heat or embers from a wildland fire. Based on the potential for fire spread, regions are assessed for the level of threat on a scale from low to extreme and the WUI threat map shows the rail line runs through areas at extreme risk to wildfires.

In the upstream areas, wildfires can increase vulnerability to flooding and landslides as burnt areas are susceptible to a loss of vegetation, a decrease in soil infiltration capacity and stability. Flooding and landslides are most common within two years of a wildfire. On average from 1970-2017, 8000 wildfires occurred across Canada annually (Canadian Forest Service 2022). There were 32 large wildfires (greater than 200 ha) within a 100 km radius of Duncan during the 1946-2023 period based on the Canadian Wildland Fire Information System. This radius captures the entire rail lines as well as the upstream areas. This radius captures the entire rail lines as well as the upstream areas.

Projected warmer temperatures, changes in precipitation, and intensification of drought events are expected to increase wildfire risk along the corridor. Fires are anticipated to be more severe and fire seasons longer in duration. Fire occurrences are expected to increase by 10-25% by the 2080s in CVRD region based on data from the Canadian Climate Center.

5.4.3 Climate Change and Infrastructure Vulnerability

The vulnerability of infrastructure is closely tied to its use and function. For instance, a rail line may become crucial for transporting passengers or goods. Natural hazards impairing its function may have economic and mobility impacts. Disruptions from extreme weather events and natural hazards can lead to significant financial losses and widespread delays. In contrast, a recreational trail, though important for leisure and tourism, has a lower overall vulnerability. Its impact in the event of a disruption, such as damage from erosion or fallen trees, is more localized, and the consequences are far less critical to the functioning of nearby communities.

Currently, as of summer 2024, the shared visioning process is serving to identify potential future use of the corridor. The values and preferred potential rail line functions expressed to date by stakeholders include active transportation, recreation, tourism, infrastructure (e.g., installation of water, hydro and gas), and emergency access routes. For the purposes of this assessment, the vulnerability of the corridor will consider three future scenarios, namely reinstating rail service, converting the corridor into a multi-use recreational trail, and returning segments of land to First Nations. In the case of Scenario 2 and 3, segments of the corridor could be used for infrastructure provision, such as watermains or flood management. These alternative uses are currently less defined and as such are not considered for the purpose of this vulnerability assessment. Currently, it is not known how land might be used if returned to First Nations. These potential future uses are not sufficiently defined for the purpose of this assessment. It is recommended that an assessment of climate vulnerability be undertaken in the event the land is returned to the First Nations.

The evaluation of flood and wildfire vulnerabilities to the rail and trial options are discussed below, and the vulnerabilities related to extreme heat, cold and snow, and wind are documented in Appendix F-3. The assessment is based on a desktop study, literature review, as well as interviews with three interview participants to understand their prior experience with climate hazards. The participants have professional working experience in the operations and maintenance of the rail line and/or civil infrastructure along the corridor. Participants were asked to comment on their experience with the relevant climate hazards as it relates to the rail corridor. The structured conversations covered direct vulnerabilities of the corridor to changing climate hazards. Participants were also asked to comment on the role of the corridor more broadly to the resilience of the region. The discussions on regional resilience were limited to impacts from flooding and wildfire.

5.4.3.1 Flooding

Rail Vulnerabilities to Flooding: As described in Appendix F-2, there are several possible avenues for flood exposure along the corridor. Based on prior modeling work for Chemainus River, Koksilah River, the Cowichan River and Shawnigan Lake, the rail line may be overtopped by 1 to 2 m during 200-year events. In certain areas water velocities may be greater than 1 m/s. In discussion with participants, the following potential vulnerabilities to the rail line were discussed.

- **Overtopping and erosion:** Historically, there have been observed events of overtopping of the tracks (i.e., floodwaters flowing over the dikes and onto the rail line). However, the impact to the rail line has been limited. It may result in disruption of service, which may be restored as floodwaters dissipate. Participants also confirmed that coastal flooding from high tide events has not impacted the rail line historically. High velocity water flows may cause erosion. Erosion has been observed, particularly at Shawnigan Lake; the impacts tend to be minor and easily repairable with rip rap. Should overtopping become a significant disruption to the rail line and the resilience of its operations, the ballast and track could be elevated to minimize exposure; and culvert capacity could be increased to allow for water to flow more freely downstream. Raising the rail line would need to be done for large stretches of the corridor as the tracks would need to maintain a gentle grade.

- **Debris clogging channels and culverts:** Although climate change is expected to increase the intensity and frequency of storms, recent flood events such as the November 20, 2009 event on both the Cowichan and Koksilah Rivers, were greatly exacerbated by logs and debris blocking river and creek channels and causing elevated water levels (NHC 2021). Therefore, mitigating overtopping risks can be addressed through maintenance of upstream rivers and creeks. Similarly, culverts may become clogged by debris, limiting their capacity. If left unattended upstream water levels can rise. The culvert at Holland Creek in Ladysmith clogs frequently as high flow events carry debris and the cross-section of the culvert is narrow. The highway is upstream of the rail line at this location and is more vulnerable to bank erosion due to backwater events, according to the interview participant from Ladysmith. The Town of Ladysmith's maintenance crews routinely clear debris and it is unlikely that backflows would reach the crest of the rail line. Crews prioritize clearing the culvert at this location roughly once a year. They anticipate this may increase up to three times a year due to climate change.

Trail Vulnerabilities to Flooding: In the event the corridor is converted into a trail, vulnerabilities may be similar to that of a rail line however less severe. A lower vulnerability stems from the use of the corridor. A full-service rail line is assumed to serve economic ends, transporting goods and people. Whereas a trail would primarily serve as recreational. In its current form, the rail line has limited vulnerability to flooding. As a trail, the corridor is not expected to be see unmanageable damage due to overtopping or erosion.

Rail and Regional Resilience: An in-service rail line would play a role in the resilience of the region against flooding. In November 2021, the CVRD declared a state of emergency due to severe flooding caused by an atmospheric river that brought record-breaking rainfall to Vancouver Island (Bell 2021). This weather event triggered widespread flooding, landslides, and road closures, severely impacting communities across the district. The Malahat section of Highway 1, a key route linking the Cowichan Valley to Victoria, was also heavily affected, with landslides and water damage causing prolonged closures. Emergency services were

deployed to assist with evacuations, road safety, and flood mitigation efforts. Meanwhile, the rail corridor was not impacted by the storm and was able to support emergency response.

Although the rail corridor provides redundancy to the transportation network, providing a robust alternative to Highway 1, its presence on the landscape also presents a transfer of flood risk to upstream lands. As it stands, the rail line acts as a dike running through the valley. During flood events, the corridor holds back water, inundating upstream areas. During the 2021 atmospheric river event, Emergency Management Cowichan was left to "respond to the unintended hydraulic consequences of the rail line." If resilience is a value for the future of the region, the rail line as a source or contributor of risk is critical to consider. Although in its current form the rail corridor is a source of risk, it could be retrofitted with higher capacity culverts or bridges to allow for water to flow more freely and limit flooding upstream. However, this may transfer flood risk downstream.

Trail and Regional Resilience: Similarly, a trail would be able to play a role in regional resilience. A trail would have a lower requirement for structural integrity than a rail line. If the intended use is for hiking and cycling, there is more flexibility in how corridor segments can be designed and used. This presents an opportunity to address the transferred flood risks described above. Segments of the rail line could be removed and replaced by pedestrian bridges, allowing water to flow more freely downstream rather than become detained. In fact, a trail network could be designed to accommodate flooding including opportunities for wetlands or bioswales.

In emergency situations, it is anticipated that the trial can still serve as an alternative route for emergency services as it does now, however its capability in this regard may be limited by the how segments are used, whether for other infrastructure or for accommodating flooding. In an event like the 2021 atmospheric river, it would likely not be able to serve as an alternative for passenger or freight transportation.

5.4.3.2 Wildfire

Rail Vulnerabilities to Wildfire: The rail corridor passes through a densely wooded region vulnerable to wildfires. The rail corridor is therefore exposed to interface wildfires. In the event of train service restoration, the rail line may be vulnerable in the following ways.

- **Physical damage and service disruptions:** Wildfire interface with rail infrastructure can cause physical damage. The intense heat from wildfires can cause thermal expansion and buckling of steel rails and structures. Wooden components such as ties and sleepers may be damaged by fires. Smoke and ash can damage electrical and signaling equipment. Wildfires can create slope instability, debris flows, and landslides., Widespread fires along the corridor may impair service until fires are extinguished and damage to the rail line is repaired.

- **Rail as a source of fire risk:** Trains operations can in certain conditions cause fires along the tracks in various ways. Sparks from the locomotive's exhaust or worn brakes can ignite dry vegetation nearby. Train parts, like bearings or traction motors, may overheat and start fires as well. Additionally, maintenance work like grinding or welding the rails can produce sparks. Flammable cargo in rail cars can catch fire under certain conditions (Transportation Safety Board of Canada, n.d.). One participant noted that the ownership of the rail line would exempt the operator from federal regulations that would mandate certain best management practices. As a result, it would be incumbent on the operator to address this risk voluntarily.

Trail Vulnerabilities to Wildfire:

- **Physical damage and service disruptions**: During a wildfire, a trail would be less vulnerable to physical damage than rail since there would be less infrastructure and equipment critical to its function. The trail may not be usable due to fires in adjacent areas, and wildfire may cause subsequent debris flows that impact the trail.

- **Trails as a source of fire risk:** Trail use might increase the risk of fires as civilians may start fires intentionally or unintentionally along the corridor.

Rail and Regional Resilience: Although there are risks to the rail line from wildfire, the rail line may improve the region's resilience to wildfire by limiting the spread of fires and enabling fire response.

- **Access for fire suppression:** The rail line acts as an access point to fight fires. Currently, rail operators can work with forestry teams to supply water for fire suppression. Rail cars are equipped with specialized firefighting equipment including water tanks and hoses to combat fires near tracks. Furthermore, Southern Railway of Vancouver Island (SVI) conducts fire patrols near Nanaimo, and historically this service has been more widespread. These measures help minimize damage and ensure the safety of rail operations.

- **Fire break:** The rail corridor may provide a small benefit as a fire break; however, the benefits are limited as it is insufficiently wide. Therefore, the benefit is limited. For the corridor to serve this function, more forest would need to be cleared and the vegetation between each side would need to be maintained, which would be expensive.

Trail and Regional Resilience: As with a rail line activation, the trail may be able to serve as an access point for firefighting purposes. The trail may be used for preventive fire patrols. Its function as a fire break would be equally limited.

5.4.4 Conclusion & Next Steps

The purpose of this assessment was to understand how potential future uses of the rail corridor may be vulnerable to climate change. Future options for the corridor are characterized by three scenarios: rail service restoration, conversation of the corridor for use as a recreational trial, and returning segments of the lands to First Nations. The corridor may act as an alternative transportation route during normal and emergency scenarios. The vulnerability of these options depends on their function and usage. As the use of the land by First Nations is unclear, further study is required to understand the vulnerability of this scenario. The assessment looked at the impact to rail or trail options due to flooding, wildfire, extreme heat, cold and snow, and windstorms.

Physical Impacts: In general, the corridor is robust to the impacts of climate hazards, as demonstrated by the events of November 2021. The atmospheric river triggered widespread flooding, landslides, and the closure of the Malahat section of Highway 1, while the rail corridor was unimpacted and was able to support emergency response. Although the rail line is exposed to flooding at certain locations, the impacts from overtopping and erosion should be manageable to either rail or trail operators. Debris from logs and sediment clogging culverts, rivers and creeks is an important driver of flood risk, and these are issues must be addressed through pro-active maintenance. In the context of wildfire impacts, the rail line itself is susceptible to direct damage from fires, such as thermal expansion of rails (buckling), signal or electrical wire damages, and damage to wooden infrastructure. Rail operations also pose their own risk with the possibility of ignition from sparks, friction or overheated train components. Trail usage would also present a fire risk from the accidental or intentional fires started by people hiking or using electronic bikes for example. Physical impacts from extreme heat, cold and snow, and wind to both rail and trail are likely manageable.

Regional Resilience: In addition to the physical risks to the rail and trail options, the assessment touched on the role of each in the resilience of the region. A fulsome and systematic analysis of this question is beyond the scope of this assessment. Nonetheless, the commentary provided by interview participants is informative. The discussions on regional resilience were limited to the flood and wildfire hazards, as these events may have more widespread impacts to the region and its transportation system.

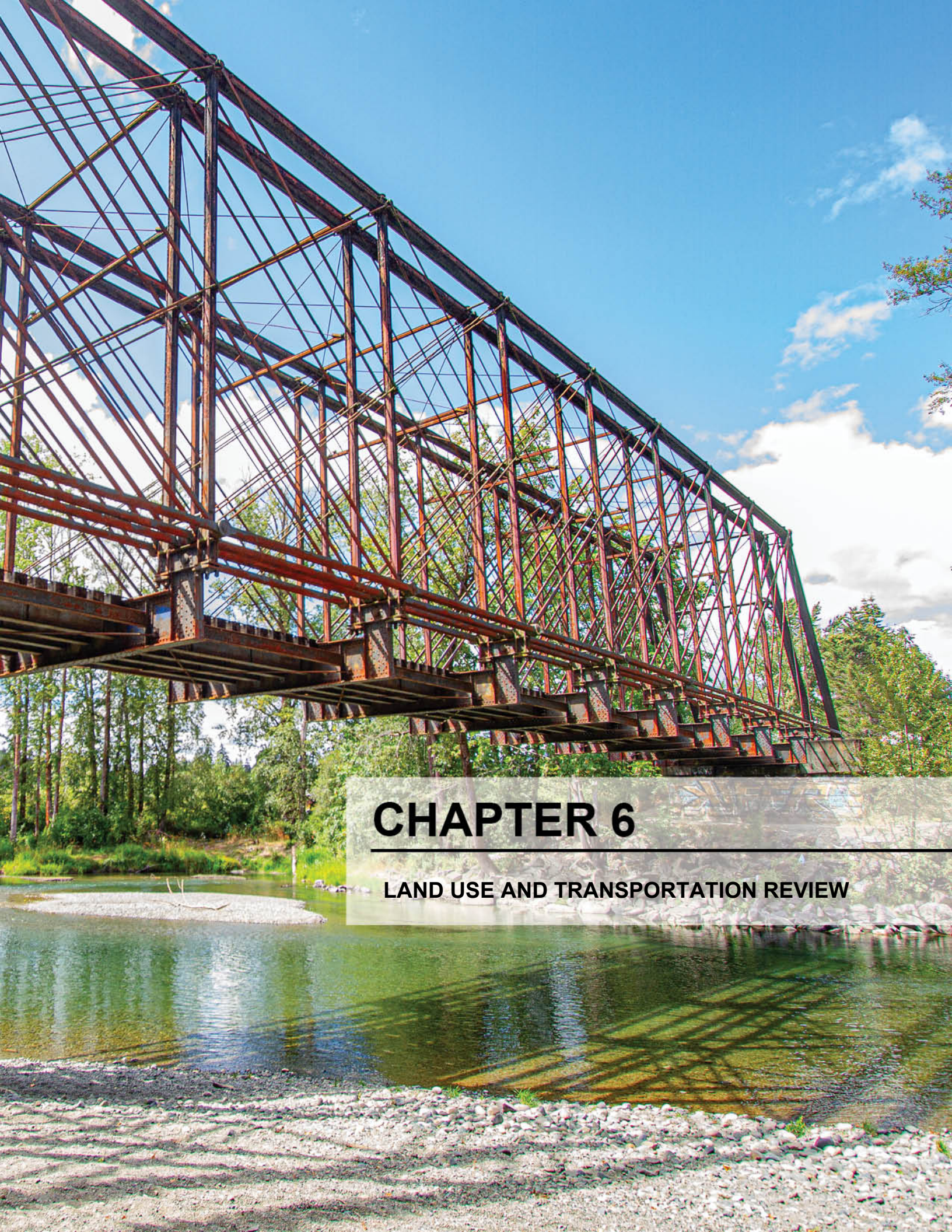
Participants all agreed that restoration of rail service would improve resilience of the transportation system on the Island, providing a redundant route to Highway 1. For the Town of Ladysmith, there is only one road in and out. The main highway is not only vulnerable to floods and landslides, but also to earthquakes. A rail

line could be vital in the event of an emergency, providing a rapid evacuation route. Moreover, the rail line would have the ability to store food and other critical supplies within trains and rail network, according to one participant. In addition to the transport of goods, the rail network can improve supply chain resilience with its capacity for storage. A trail would not be able to serve in the same capacity.

Indeed, the rail corridor would provide redundancy to the transportation network and a robust alternative to Highway 1. However, it also presents a risk to regional resilience in two key ways. First, the rail line acts as a dike running through the valley, holding back flood waters. Therefore, its presence on the landscape transfers flood risk to adjacent lands. With the redevelopment of the corridor, there is the opportunity to address this transferred risk. For the rail option, it could be retrofitted with higher capacity culverts or bridges to allow for water to flow more freely and limit flooding upstream. However, this may transfer flood risk downstream. Similarly, for the trail option, segments could be removed to allow water to flow more freely downstream, or the trail could be designed to accommodate flooding.

In terms of regional wildfire risk, the corridor can also play an important role in wildfire suppression as either a rail line or a trail. Either option would allow for preventative fire patrols. The corridors role as a fire break is however limited, since it is insufficiently wide.

The corridor's location and robustness present a valuable opportunity to improve regional resilience. Both rail and trail options present unique possibilities to provide redundancy and support emergency management. They each also present unique risks and challenges, both in terms of their physical vulnerability to climate hazards as well as the risks they pose. In the case of the reversion of land to First Nations, the regional and asset resilience would depend on its land use designation. It is recommended that any option taken continue to review and incorporate the resilience of the region to the ongoing risks to natural hazards and climate change. Furthermore, it is recommended that a study of the resilience of the transportation network be conducted to fully understand the potential role of the corridor in this regional context.



CHAPTER 6

LAND USE AND TRANSPORTATION REVIEW

6 LAND USE AND TRANSPORTATION REVIEW

6.1 Introduction

The CVRD is participating collaboratively with all levels of government (First Nations, local, provincial, and federal), the Island Corridor Foundation, stakeholders and the public to develop a shared vision for the future use of the Corridor with the goal of utilizing this valuable asset to ensure that it is available for use by all residents along the corridor today, but also does not preclude any future opportunities. This Chapter seeks to define the potential benefits, risks and challenges for different uses in the CVRD portion of the corridor and to align these aspirations with the vision being created for the remainder of the corridor. This includes understanding the impact of and to the First Nations' lands, where the rail corridor is located adjacent to, or transects Reserves.

This Chapter documents the assessment of land use and transportation characteristics in proximity to the Corridor in the CVRD to identify the feasibility and suitability of options for its future use.

As a first step, options were identified based on the existing and future distribution of land uses and the outcome of a high-level analysis of the strengths and weaknesses of options, as well as the opportunities and threats that they may present. This is used as a basis to review the outcome of inputs received from Stakeholders and the public to consolidate options. An Options Assessment uses this information to review the issues, risks and costs associated with the different potential options that will inform the conclusions and next steps for adopting a transportation strategy for the corridor.

It should be noted that this document is not a business case. This report provides information that could be used as input to a future business case and identifies next steps towards this goal.

To assist in the process of gathering input from stakeholders and the public, and the review of the corridor the Corridor was divided into 5 segments based on the nature of existing land use and highlighting the primary station locations (see **Figure 6-1**).

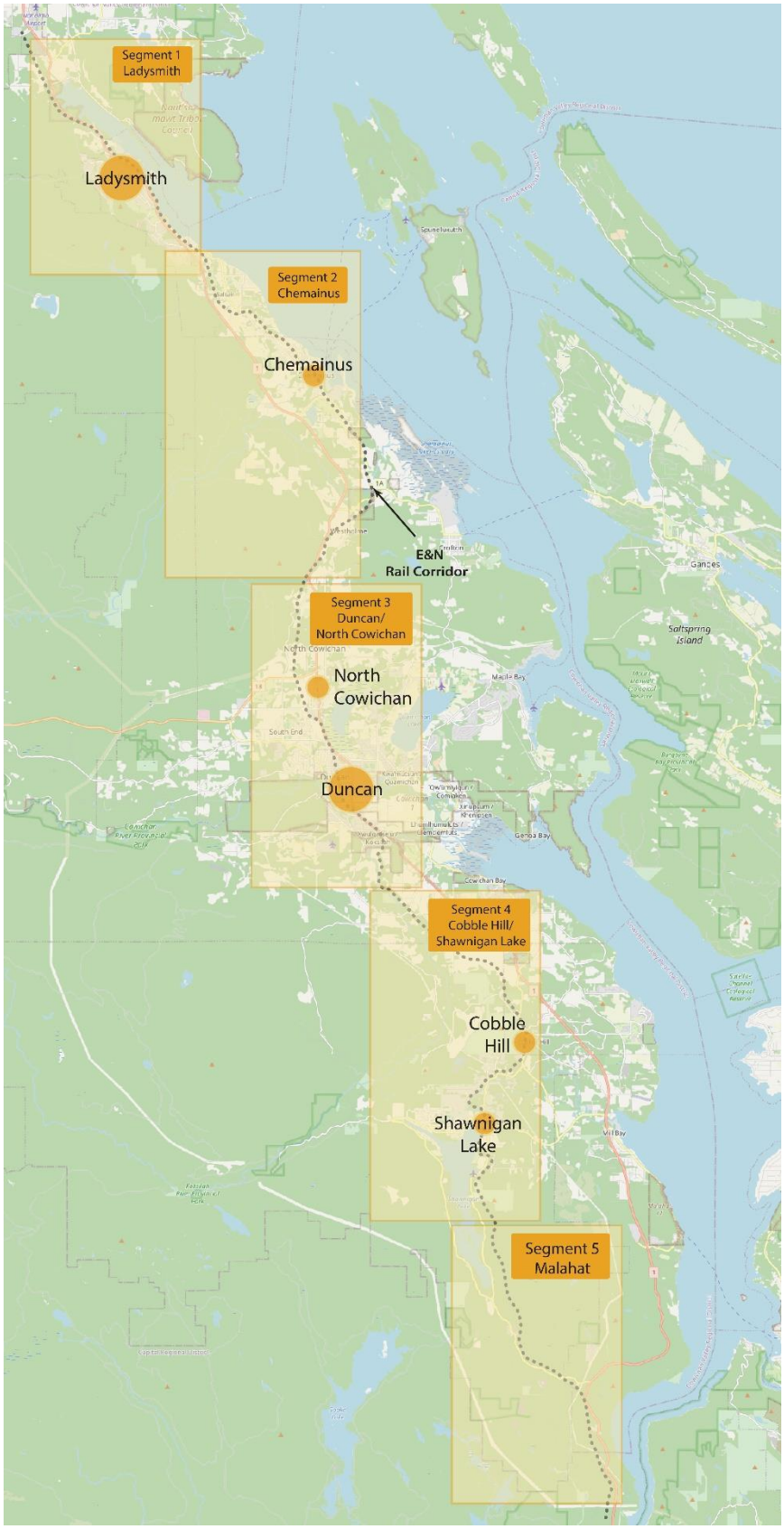


Figure 6-1: Corridor Segments

6.2 Land Use Planning

6.2.1 Introduction

The land use configuration of the CVRD and its member municipalities have historically been influenced by the presence of the rail corridor. Towns and villages grew around historic station locations and the rail corridor has the potential to have further influence on the region's land use configuration. Through consultation, it has become clear that the residents of and visitors to the CVRD would like to see a reintroduction of passenger rail onto the corridor. However, this could have a substantial impact on the region's current built environment.

6.2.2 Opportunities and Constraints

The land use implications of the reintroduction of commuter and inter-regional passenger rail to the Island Rail Corridor are substantial. The region is typified by small villages, towns, and cities, interspersed with protected agricultural land and forested areas. The implications of the Province's Transit Oriented Areas (TOA) legislation when contemplating the reintroduction of passenger rail are significant. While it would occur over time, there is the possibility of substantial urban development in the areas adjacent to station locations. This would have to be planned for from a servicing perspective as the existing water, sanitary sewer, and stormwater infrastructure may not be equipped to deal with the development that would be permitted under the Province's TOA requirements. This would substantially alter the CVRD's character and its member municipalities' current development patterns in a way that residents may not be entirely comfortable with. There may well be a public concern that the CVRD would change from a largely rural and small city-built form to an urban nodal built form.

The TOA legislation applies to different public transportation modes in the Province with different "tiers" being applied to different modes. For example, the Lower Mainland's Skytrain system includes Tiers 1 to 3 and requires the greatest amount of residential density with a catchment area up to 800 metres from the station location. Bus Exchange's and West Coast Express Stations include Tiers 4 & 5 and require a moderate level of density with a catchment area up to 400 metres from the station location.

The TOA legislation applies to both incorporated and unincorporated areas (as demonstrated by the University Endowment Lands requirement to prepare a TOA around the UBC Bus Exchange in Vancouver (UEL, 2024)) and means that lands under the CVRD's jurisdictions are also subject to these requirements. The Province's TOA legislation as applied to the Island Rail Corridor would likely require the adoption of Tier 4 and Tier 5 densities that currently apply to the Lower Mainland's West Coast Express rail service (Province of BC, 2024).

The densities required for the Tier 4 and Tier 5 TOA catchment areas are as follows:

- Tier 4
  - Distance from Station: 0 – 200 metres
  - Minimum Allowable Density: 3.5 Floor Area Ratio
  - Minimum Allowable Height: 10 storeys

- Tier 5
  - Distance from Station: 200 - 400 metres
  - Minimum Allowable Density: 2.5 Floor Area Ratio
  - Minimum Allowable Height: 6 storeys

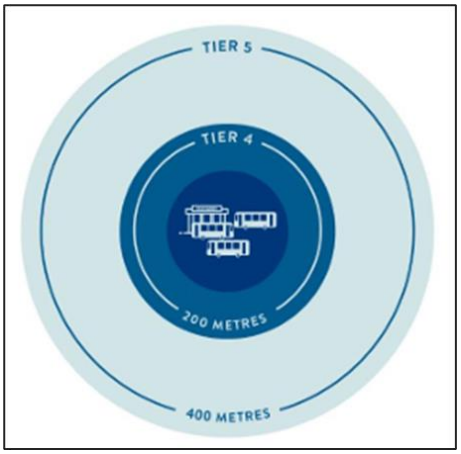


Figure 6-2: TOA Rings around Passenger Rail Stations

Under the Province's TOA legislation, local governments are required to designate TOAs and then amend their Official Community Plans and Zoning Bylaws to meet the minimum density and height requirements for the Tiers that apply in their specific circumstances. In the case of the CVRD and its member municipalities, that would require adopting the Tier 4 and Tier 5 minimum densities outlined above.

In addition to the potential for increased residential development potential around station areas, there is also potential for increased industrial land use activities near or adjacent to the rail corridor, especially if the corridor is linked to an ocean serving port. Increased residential and industrial activity would also result in increased demand for commercial services. This would also require updates to the respective community's Official Community Plan to designate more land for industrial purposes.

6.2.2.1 Constraints

In order to facilitate the minimum levels of density that the Province's TOA legislation requires, the CVRD and its member municipalities will need to create a suite of servicing plans beyond what has been contemplated to this point. The population estimates in Section 2.4 outline that significant upgrades to the water and sanitary sewer networks will be required to support a growing population. Upgraded higher capacity lines would be required, and new pump and lift stations would need to be planned for. Existing stormwater drainage patterns would be altered with increased runoff due to the urban nature of the development possible around the station areas. This would require increased investments into conveying water to prevent flooding during intense rainfall events.

The current population of the CVRD's villages, towns, and member municipalities may have significant concerns with the potential changes to the District's current character due to urbanization associated with the Province's TOA legislation. We anticipate that existing residents will have concerns about planned future growth and the creation of urban nodes in what is generally a semi-rural area characterized by farmland, small villages, towns, and small cities. While the agricultural land is protected by the ALR, the built form in the existing urban areas would not be protected and 6 to 10 storey buildings would, over time, be developed in areas adjacent to the corridor's rail stations. While this potential development is not as intense as is required in the Lower Mainland, it is still a substantial evolution from the existing context which current residents experience.

6.2.3 Land Use SWOT Analysis

The land use characteristics of the areas adjacent to the rail corridor as they currently exist is important to define to get a baseline on how the introduction of a passenger rail system that serves a significant north/south corridor along eastern Vancouver Island could impact future development in the CVRD. This study breaks down the Island Rail corridor into five distinct segments as noted in the Introduction/Methodology section. For the purpose of this study, station locations are assumed as still being the historic stations on the corridor; however, a revitalized passenger rail network may require slightly different station locations due to land use changes and development that has occurred. While transit-oriented development is not required to support high levels of service, should passenger rail service be provided into the region, the TOA legislation will most-likely result in the areas around stations being designated as transit-oriented areas further supporting service levels are station area population increases. As such, the CVRD and its member municipalities will likely be required to adjust land use policies accordingly. The SWOT analyses evaluate different aspects of land use and growth potential through the lens of the Province's TOA legislation. Other considerations such as commercial areas that draw movement by commuter and passenger rail and industrial rail service that draws freight movement are also possibilities; however, the potential for land use change brought through the requirements of the TOA legislation is the primary consideration in this analysis.

An analysis of the Strengths, Weaknesses, as well as Opportunities and Threats (SWOT) of the land use potential of each segment was used to undertake a methodical high-level assessment of the characteristics of each segment. This analysis addresses the following considerations:

- Are there development restrictions and what are they?
- Is land available to development?
- Are there residential densification opportunities?
- Is densification supported by existing plans?
- Can the estimated population growth be accommodated into station catchment areas?

The current land use characteristics and SWOT Analysis are detailed in Appendix G-1.

6.2.3.1 Land Use Policy Considerations

This Report considered a range of policy documents. A list of these reports is provided in the reference section. These documents include key directions for growth and highlight varying levels of importance for developing a range of transit and active transportation options to support the regional and local needs of the communities.

The land use policy review is detailed in Appendix G-2.

The policy documents for the CVRD and its member municipalities do not have a lot of language specifically related to the Island Rail Corridor; however, when considering the policies related to encouraging the use of active transportation and public transit, there is a strong policy case that supports the reintroduction of passenger rail to the corridor and the creation of an active transportation pathway along the Island Rail Corridor in the form of a multi-use path/cycle superhighway adjacent to the rail. The policies align with the concept of favouring intensification around key transit nodes and the connectivity between higher density residential living and access to transit options, be that active transportation or passenger rail, throughout the region and the greater opportunity to connect the region's largest communities through these options.

With the exception of the Halalt First Nation, other First Nations' planning and policy documents were not made available for this analysis. Any future actions must complete an analysis of applicable planning documents to comply with First Nation policy considerations.

6.2.4 Population Estimates Around Stations

Population estimates for the areas around each station area have been prepared. These areas or “rings”, have been broken down into 4 distinct area:

- TOA Tier 4: 0 – 200 metres from the station location
- TOA Tier 5: 200 – 400 metres from the station location
- Kiss and Ride: 400 m – 3.2 km
- Park and Ride: 3.2 km – 8km

These station area rings have been chosen based on the Province’s TOA legislation for the innermost rings with the Kiss and Ride and Park and Ride rings being on established based on traditional driving distance influences of a station from other agencies such as Calgary and Vancouver to determine station catchment areas.

The following table outlines three possible growth scenarios of the population within the rings with Scenario 1 showing the current or baseline population, Scenario 2 showing projected population growth without the adoption of the Province’s TOA legislation, and Scenario 3 showing a projected population at full build-out (all parcels being developed to the maximum square footage) with TOA legislation in place.

Table 6-1: Population Growth Scenarios

		Scenario 1	Scenario 2	Scenario 3
Station	**Tier Ring**	**Current Population**	**Current Projected 2041 Population**	**Estimated Population with Provincial TOA Build-Out**
Ladysmith	Tier 4 - Inner	299	279	2,027
	Tier 5 - Outer	447	424	5,225
	Kiss & Ride	8,214	8,689	8,689
	Park & Ride	6,686	7,252	7,252
	Subtotal	**15,646**	**16,644**	**23,193**
Chemainus	Tier 4 - Inner	19	18	6,612
	Tier 5 - Outer	283	269	14,733
	Kiss & Ride	5,517	6,517	6,517
	Park & Ride	4,994	5,836	5,836
	Subtotal	**10,813**	**12,640**	**33,698**
Duncan	Tier 4 - Inner	228	255	4,142
	Tier 5 - Outer	644	716	8,529
	Kiss & Ride	22,444	27,186	27,186
	Park & Ride	15,802	18,028	18,028
	Subtotal	**39,118**	**46,185**	**57,885**
Cowichan	Tier 4 - Inner	34	36	4,805
	Tier 5 - Outer	63	67	779
	Kiss & Ride	1,338	1,408	1,408
	Park & Ride	30,069	33,856	33,856
	Subtotal	**31,504**	**35,367**	**40,848**
Shawnigan Lake	Tier 4 - Inner	51	50	4,324
	Tier 5 - Outer	30	29	7,730
	Kiss & Ride	7,130	7,070	7,070
	Park & Ride	12,356	13,206	13,206
	Subtotal	**19,567**	**20,355**	**32,330**
Cliffside	Tier 4 - Inner	0*	0*	6,938
	Tier 5 - Outer	119	196	10,668
	Kiss & Ride	2,467	2,498	2,498
	Park & Ride	11,835	12,155	12,155
	Subtotal	**14,421**	**14,849**	**32,259**
Total		**131,069**	**146,040**	**220,213**

The land use population projection methodology is detailed in Appendix G-3.

The difference between the growth scenarios is quite clear. Without Transit Oriented Area development policies (Scenario 2), the areas around the stations are projected to have a population of 146,000 based on a realistic medium term population growth rate, versus a TOA population growth rate (Scenario 3) that provides for a 50% increase, to 220,200.

It should be noted that there is overlap between a number of stations in the corridor based on their spacing and the extent of their catchment areas. This is accounted for in the Transit Propensity Model which is documented in Appendix G.6.

6.2.5 Land Use Conclusions

While each identified Segment of the corridor is distinct, they also share many similarities in that, with the exception of the Malahat segment, all have an urban core area and feature rural residential, resource extraction and agricultural uses, outside of their respective central areas. The Malahat segment is unique as it is characterized by limited rural residential uses, no urban core area, and a significant amount of parkland. All Segment areas feature similar strengths, weaknesses, opportunities, and constraints.

The policy frameworks of the CVRD and its member municipalities support the creation of active-transportation networks and using the corridor for this purpose. These different policy frameworks also support the use of transit to encourage a mode shift away from the personal automobile and to use transit as a catalyst for land use change; however, there are limited policies that relate directly to using the CVRD rail corridor specifically for passenger rail. While it can be inferred that the transportation mode shift and land use change support the reintroduction of passenger rail, if the CVRD and its member policies are really committed this outcome, new policies will need to be introduced into the Official Community Plans and Transportation Strategies of the region's respective governments.

The population projections based on the Province's TOA legislation illustrate the potential for significant land use reform and population growth in the CVRD. The small cities and villages along the corridor would see a significant intensification over time as the development of new housing units occurred. This would address the current housing supply crisis and contribute to passenger rail ridership numbers that increases the financial viability of passenger rail service.

6.2.6 Next Steps

Any next steps related to the reintroduction of passenger rail will be dependent on direction from the Provincial Government. Assuming that the Province provides funding for passenger rail projects, it is likely that the areas around station locations would be added to the list of transit stations around which local governments must designate TOD areas.

At that point, CVRD and its member municipalities would be required to take the following actions:

- Confirm the transit station category (assumed to be equivalent to West Coast Express stations)
- Confirm the locations and types of TOAs (assumed to be Bus Exchange or West Coast Express TOA)
- Confirm density requirements
- Map all TOAs
- Designated TOAs by Bylaw
- Prepare TOA Plans (optional but encouraged)
- Study servicing and amenity requirements and adjust Development Cost Charges and Amenity Cost Charges Bylaws accordingly.
- Implement density and parking requirements in Official Community Plans and Zoning Bylaws.

6.3 Transportation Planning

6.3.1 Introduction

Transportation options have been identified based on existing and future uses. The transportation options have been analyzed at a high level to identify the strong and weak points as well as the opportunities and threats they present.

This analysis is used as a basis to review the outcome of inputs received from Stakeholders and the general public, in order to consolidate options and undertake an options assessment that will lead to conclusions for identifying a transportation strategy for the corridor within the CVRD, leading to the adoption of a regional transportation strategy.

The overall goal of a transportation strategy and plan is to establish and improve a connected and integrated transportation network that addresses travel demand and promotes alternative travel options that discourage the use of private vehicles based on potential development patterns. Travel options should include the provision of transit services as well as the promotion of active modes of travel such as walking, cycling, e-bikes, etc. This strategy includes the entire alignment, particularly when examining rail-based options, but is focused on the CVRD and the five segments and must also be in unity with a common vision for the entire corridor.

The future use of the rail corridor needs to be aligned with the following goals that were developed for the 2020 South Island Transportation Strategy:

- Ensuring sustainable options for a variety of travel modes that include growth and densification and promoting transit and active modes
- Strengthening connections between travel modes and improve connections between communities
- Improving the safety and reliability of the transportation network especially as it relates to active modes and vulnerable road users
- Supporting and encouraging active transportation options by prioritizing improvement in accessibility and infrastructure.

6.3.2 Methodology

Three methodologies have been developed to assist with the assessment and identification of corridor options:

6.3.2.1 Corridor Typologies

A planning framework was developed to assist with the assessment of the corridor and to facilitate stakeholder engagement to get meaningful input on the current and future use of the rail corridor. The framework proposed a typology approach to identify opportunities (activities, transportation modes and infrastructure) based on the land use characteristics for each corridor segment (see Appendix G-4).

6.3.2.2 SWOT Analyses

An analysis of the Strengths, Weaknesses, as well as Opportunities and Threats (SWOT) characteristics of each segment was used to undertake a methodical high-level assessment of the characteristics of each segment. This analysis addresses the following considerations:

- How does the corridor align with current land use designations?
- Are alternative corridor uses supported by transportation plans?
- Does the corridor provide connections to specific travel destinations such as places of employment, shopping, schools, parks and existing trails?
- Can alternative mode infrastructure be accommodated in the corridor, and whether it can co-exist adjacent to a rail alignment ("rail and trail")? To what extent could separate micromobility infrastructure be accommodated (pedestrian walkways) from bikes/electric micromobility facilities (scooters, cargo bikes, e-bikes, etc.)?
- How can connectivity to road-based public transportation services be achieved (i.e. are there viable connection points to the bus network) to potentially act as a feeder service to the corridor?
- Are there safety concerns relating to vulnerable users (corridor crossings, bridges, tunnels, etc.) that need to be addressed?
- Are there risks associated with retaining a contiguous corridor for potential future rail services and if so, are there options that can be considered to reconnect the alignment, so that it remains contiguous?
- Is there a need to consider establishing emergency response alternative routing, and can the corridor accommodate emergency services?

Details of this analysis is documented in Appendix G-5 and summarized below:

- **Ladysmith**: This segment lends itself well to establishing active mode facilities to support tourism and connections to the Town of Ladysmith. It should be noted that the position of the Oyster Bay First Nation on the future use of the corridor has not been articulated at the time of writing.
- **Chemainus**: There is the opportunity to establish active mode facilities in the rail corridor to primarily expand the regional trail network in this area.
- **Duncan/North Cowichan**: There is significant opportunity to utilize the rail corridor to establish active mode facilities in the Duncan/North Cowichan Segment to provide an alternative mode of travel and connect urban origins and destinations. It should be noted that the rail contiguity may potentially be at risk and that further work will be required to assess alternative alignments to preserve contiguity. In addition, densification of this area may be limited by the extent of floodplains.
- **Cobble Hill/Shawnigan Lake**: The Corridor is suited for accommodating the expansion of the regional trail system and specifically providing access to tourist attractions in the Cobble Hill and Shawnigan Lake areas.
- **Malahat**: Due to the sparse population and development in this area, this segment of the Corridor primarily lends itself to expanding the regional trail network and potentially accommodating an alternative route for emergency services when unforeseen Malahat road closures occur.

6.3.2.3 Transit Propensity

A Transit Propensity model was developed to examine the potential for rail ridership based on urban development scenarios. This model uses basic information on population to predict potential transit ridership based on the catchment areas of rail stations. The influence of the station is made up of two components:

- The inner area around the stations within walking distance and is under the provincial legislation for higher densities based on the proximity of rapid transit services
- The larger outer area that is applicable to driving for drop-off or parking at stations.

This model uses assumption to derive rail ridership demand in the peak and off-peak periods of the day. In turn, this is used to inform the supply of service to meet the travel demand and rudimentary schedules are developed to identify the number of trips and peak vehicle requirement (number of trains) to deliver the service. See Appendix G-6 for further details.

3 population scenarios were considered in the model:

- Scenario 1: Existing population
- Scenario 2: Planned build-out based on accepted population growth rates
- Scenario 3: Provincial potential buildout that reflects provincial guideline on population densities around rapid transit service lines.

Model results suggest that a service with a trip frequency ranging between every 15 and 22 minutes in the peak hour in the peak direction (southbound, towards Victoria) is required, to accommodate the estimated rail ridership. Based on the round-trip time between Victoria in the south and Courtenay in the north, this will require between 13 and 22 3-car trains to deliver the service.

As mentioned, the model provides an indication of the potential use of a transit service based on generalized assumptions. This review indicates that there is potential for ridership on a rail service traveling through the CVRD but is predicated on the following assumptions:

- The necessary infrastructure is in place to support access to rail including transit services and park and ride in mobility hubs at station locations.
- The service connections in the CVRD, Nanaimo, Courtenay/Comox and Victoria are sufficient so as not to diminish the propensity to use the service. This includes local and regional road-based transit services primarily provided by local authorities and regional districts in partnership with BC Transit.
- The rail line is fully developed north and south of the CVRD and is contiguous in nature,
- Trains run the entire length of the line - from the Capital Regional District in the south to the Courtenay Station in the Comox Valley Regional District in the north.

6.3.3 Comprehensive Transportation Assessment

It is important to assess the entire corridor with a view to maintain the rail corridor for implementing rail service at some future point in time.

This requires that the rail corridor is preserved in its entirety (beyond CVRD boundaries) to remain contiguous. The risk of maintaining contiguity needs to be addressed in view of desire to return the land that was previously acquired from First Nation Reserve lands for the purposes of the IRC to their rightful owners. It has been noted that, within the CVRD, the Corridor bisects and/or runs adjacent to four First Nations (see Appendix B-1). This may require realignment studies to assess the implications and costs related to reconnecting the corridor where contiguity may potentially be impacted as highlighted in Appendix H-3.

As part of adopting this use as a long-term vision for the corridor, the following issues need to be addressed to pursue the re-instatement of rail service in the corridor:

Rail ridership versus service capacity: existing studies do not provide a clear distinction between the passenger capacity of rail versus the actual demand for travel. An Origin-Destination analysis is required to update the demand for travel together with providing an insight into trip purpose. For example, the demand for north-south travel on Vancouver Island to and from the CVRD needs to be quantified together with the identification of origins and destinations.

Rail Technology: The most recent studies have assumed a one-for-one replacement of the previous rail service and has not addressed current, alternative rail technology options which need to be considered to identify the most suitable application to accommodate passenger rail and/or freight rail.

Urban Development Opportunities: Passenger demand will be a function of the ability to increase population along the corridor. The CVRD should ensure that land which is both developable and desirable for higher density use along the corridor, is identified. This may help elevate the planning discussion about how much additional population and thus ridership demand might be possible to support a revitalized rail network. This will allow for comparing with the population that can be accommodated within catchment areas around rail station locations along the corridor in the CVRD based on land use plans and provincial incentives to increase densities around transportation services. This will serve to provide an indication of the potential contribution to rail ridership by CVRD residents.

Service and safety standards: Discussions with different stakeholders has revealed a variation in the understanding of rail-related service and safety standards relating to required railway upgrades to reinstate rail services. Work is required to inform stakeholders of current standards and requirements relating to the provision of passenger rail versus freight rail services. This should also address to which extent standards and requirements are impacted by different rail technologies.

Transportation Networks: A rail service proposal should not be seen in isolation. The rail proposal needs to be integrated into the overall transportation network that should include ferry service, local and regional bus services as well as other complementary modes. This includes rideshare, transportation service providers (e.g. Uber, Lyft), car share programs, micromobility modes (e-bike, e-scooter), accessible transportation services, active modes as well as private vehicles (e.g. providing park and ride and, pick-up/drop-off facilities).

Costs: The latest cost estimates for the upgrading of infrastructure as well as ongoing operating costs were undertaken in 2021 and since then significant cost escalations have been experienced throughout the rail-based transportation industry. When considering funding and affordability, it is crucial that realistic cost estimations are available based on the modern 3-car, self-propelled DMU's that are currently widely used. It must also include the cost of infrastructure needed at stations to allow use by area residents outside the station walksheds such as drop-off and park and ride facilities, assessment of rolling stock requirements to deliver rail services (including spares) and operations and maintenance facility located in the vicinity of the corridor.

6.3.4 Stakeholder Input Summary and Evaluation

A summary of inputs from stakeholders, partners and the public is reiterated below, to put the findings of proposed corridor uses into perspective.

Interviews were conducted with key stakeholders to identify their perspective on issues such as transportation, economic development, agriculture, environment, and utilities as it related to the rail corridor. Key themes that emerged are summarised below:

- Being respectful and upholding the rights of First Nations who have bisected Reserved lands and a right for reversion.
- Maintaining the continuous nature of the corridor as far as possible to preserve the potential for future use as a potential transportation corridor. It should be noted that stakeholders were not aligned on the mode of transportation.
- Improving Island connectivity such as connecting smaller communities with urban cores, connecting and expanding tourism destinations, connecting residential areas and employment destinations; and, connecting beyond CVRD boundaries to other transportation hubs (e.g., ferries, airport, bus services).
- Supporting sustainable travel and a shift from car dependency.
- Fostering innovative solutions to help respond to regional trends such as population growth, changing demographics, climate change, and affordability.
- Recognizing the opportunity and value that the Corridor offers and leverage it to address community needs.

A summary of the major findings the public stakeholder engagement is provided below:

- 56% of respondents live in the CVRD with an additional 18% that work there, suggesting that the findings reflect local needs and desires well.
- **Passenger Rail**: 79% of respondents identified passenger rail as one of the components of their vision for the future of the IRC. Related comments noted the opportunity to reduce car dependency, connect to transportation hubs, and support future population growth.
- **Active connections**: 42% of survey respondents identified biking and hiking trails as one of the components of their vision for the future of the IRC and comments reflected a desire to see the corridor connect existing trails and parks, tourist destinations, and village centres.
- **Freight rail**: 42% of respondents cited freight rail as one of the components of their corridor vision.
- Community needs identified in order of importance are as follows:
    - Improved transportation connections (30%)
    - Expanded tourism and economic development (18%)
    - Improved safe cycling and walking connections (14%)
    - Provision of emergency access routes (14%)

From the stakeholder and public input, it is evident that there is significant support for reinstating rail services. Many respondents did recognize that this would potentially only be achievable in the longer term and shared concerns regarding the cost of implementation. Respondents also noted the importance of planning for long-term community growth and climate resilience as well as the need for cross-jurisdictional coordination.

It is also evident that there is a strong desire to implement active trails to improve connections safely and that the corridor can be used to support tourism amenities, and connections to local destinations, shopping, and services.

Addressing and improving emergency preparedness particularly in the Malahat area was cited as the 4th highest community need. In this regard it should be noted that in recent years, a number of unforeseen events have occurred that necessitated the closure of Highway 1 between Victoria and Duncan, due to extreme weather events and significant traffic incidents. When this occurs, it highlights the absence of appropriate alternative routes. For example, in November 2021 the Malahat section of the Highway was closed for a prolonged period due to an atmospheric river event that triggered widespread flooding and landslides, disrupting traffic between Victoria and CRD. In this case, the only alternative route was via Port Renfrew and Cowichan Lake - a detour of more than 3 hours.

While maintaining the continuity of the corridor, it does also offer opportunity to establish improved connections between communities, between origins with destinations, to tourism destinations, and establishing regional connections beyond CVRD boundaries. In addition, alternative uses will promote alternative modes and support sustainable travel and a reduction in car dependency.

6.3.5 Conclusions

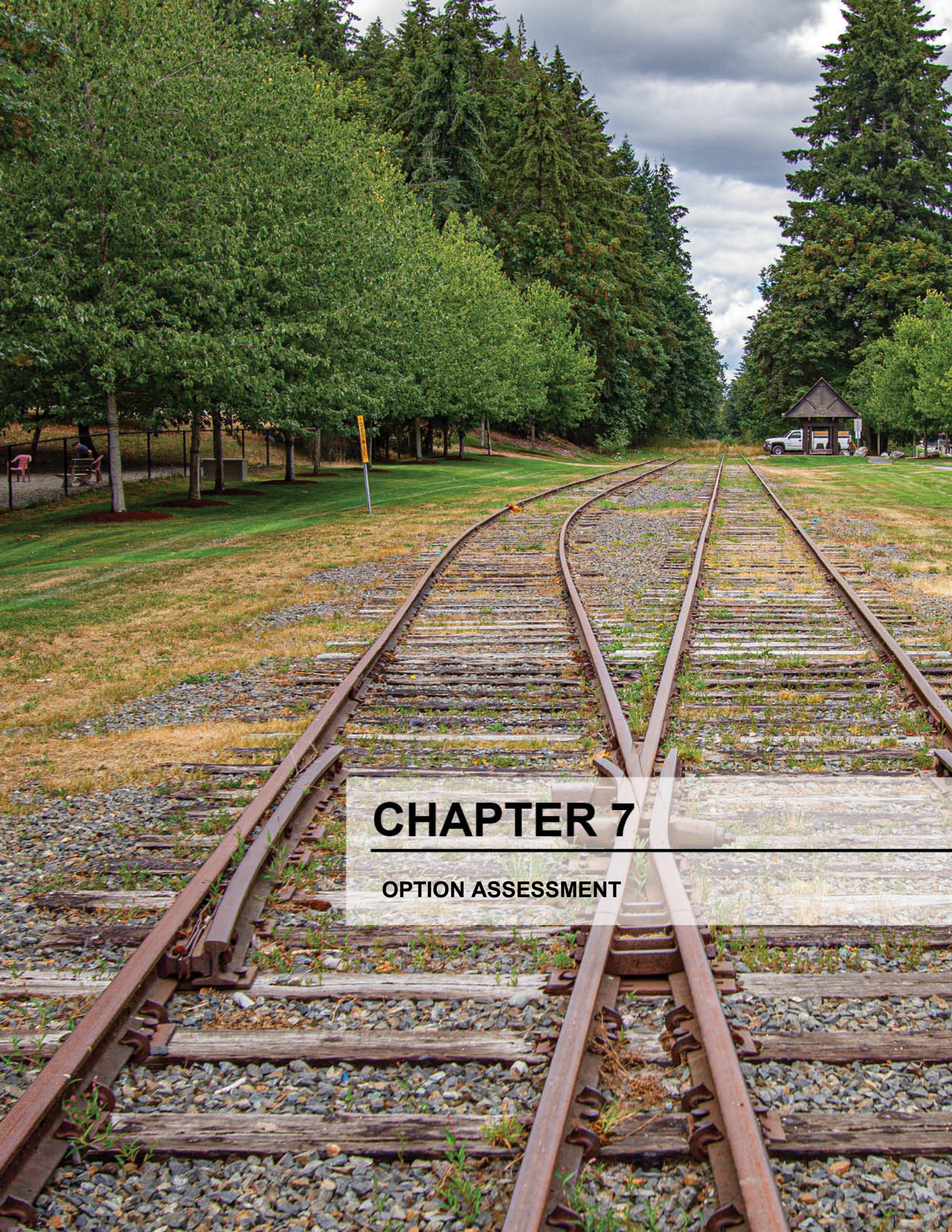
Based on the review of previous work, analysis of the land use and transportation components of corridor segments and the outcome of engagement efforts, the following conclusions can be drawn:

- Adopting the preservation of the continuity of corridor for the potential re-establishment of rail service in the longer term and working with Nations and landowners to promote the social value and economic benefit of safeguarding this option for future use.
- In the short term, utilizing the rail corridor to provide value to the community by taking advantage of its width to expand the regional trail network to accommodate active mode infrastructure thereby improving connections and promoting the use of alternative modes. Although active mode facilities can be accommodated such not to impede a rail right of way, work is required to assess how to accommodate a multi-use facility at pinch points along the corridor, such as bridges and tunnels. In addition, work will be required to address safety considerations at level crossings, as well as include an assessment of remediation requirements and costs.
- Undertaking a transportation study to assess to which extent portions of the IRC can be utilized and the estimated cost of doing so, to accommodate alternative routes for emergency services such as police, fire and ambulance services, particularly as it relates to the Malahat section of Highway 1.
- Connectivity to the northern and southern regions of the IRC are critical in the debate about how to preserve and utilize this corridor and the CVRD will be wholly reliant on similar desires for long term utilization or preservation of the corridor for rail uses and connections into neighbouring regional districts. Recommendations adopted by the CVRD need to be presented and discussed with all rights holders and other stakeholders to reach agreement on the identification of an overall, regional and shared vision, that is supported by all.

6.3.6 Next Steps

In the event of adopting the preservation of a continuous corridor as a vision that is supported by all interest groups, it is recommended that next steps focus on undertaking preparatory work to support the reinstatement of rail in the future. This includes:

- Travel origin-destination analyses to quantify travel demand and connecting and integrating rail service with existing transportation networks to ensure riders can reach their final destinations.
- Proactively promoting urban development and densification through updated land use plans.
- Investigating appropriate alternative rail technologies, their requirements, and associated costs.
- Confirming current rail and safety standards including remediation requirements and costs.
- When considering affordability, it is crucial that realistic cost estimations are available. This requires undertaking updated cost estimates related to infrastructure improvements and ongoing operating costs, to determine whether a viable business case for such a rail service can be made. This should include the identification of sources of funding and addresses the extent of funding to be raised through local taxes.



CHAPTER 7

OPTION ASSESSMENT

7 OPTION ASSESSMENT

7.1 Introduction

Understanding the feasibility of different transportation options and especially of a regional rail service is dependent in the CVRD on the decision of First Nations with bisected Reserve lands, and how they choose to use these lands in the future. First Nations have a right for the reversion of bisected Reserve lands, and if they choose to have these lands returned to the Reserve, then the corridor will become non-contiguous from an ownership standpoint. This may limit interregional transportation options if the Nations do not wish to see rail as a future use. However, these Nations may also choose to allow for a rail use through a land lease, use agreement, or as owners and operators of a rail service. In the CVRD, Cowichan Tribes, Halalt or Stz'uminus First Nations Reserve lands are bisected by the corridor. These Nations were engaged through this process to understand if they had identified a preferred use. Outcomes of engagement are summarized in 3.0 First Nations Engagement

This Chapter reviews the following potential options for use of the corridor. They include:

- Rail-Only: The re-introduction of a rail service in the corridor.
- Trail-Only: Conversion of the rail corridor to a multi-use trail for active modes (walking, cycling, horse riding, etc.)
- Rail & Trail: The introduction of a trail for active modes while enabling future rail operations.
- Other Uses/Land Reversion: No rail or trail use; leaving the overall corridor as is, and remediating bisected Reserve lands.
- Emergency access: This is not an option per se, but a discussion on its potential.

All options need to be considered within the context of the ownership status of the rail corridor (see Section 1.1 - Project Context).

7.2 Option Definition

7.2.1 Rail-Only

Section 6.3.2.3 provides a discussion on potential demand and assumptions on the rail service to be provided. It highlighted the need for a continuous rail corridor and an overall integration into the transportation network and it assumes a 'full' rail line proving service between Victoria and Courtenay.

This study does **not** consider the following:

- Passenger service between Nanaimo/Parksville and Port Alberni (passenger service was suspended in 1953).
- Commuter service between Langford and Victoria (located outside the CVRD) other than as the expected end point for any southbound rail service through the CVRD.
- Freight rail service. This service was suspended in 2012 except for the 10-mile (16km) section around Wellcox Yard in Nanaimo. Most of the freight potential will be on the Nanaimo to Port Alberni section providing a link between the harbours of Port Alberni and Nanaimo (located outside the CVRD) as shown in Appendix H-1.

7.2.2 Trail-Only

There are numerous trails for active modes across the CVRD with the Cowichan Valley Trail as the prime example and the majority located on converted disused rail corridors (see Appendix H-2). The one exception is the section alongside the island rail corridor between Chemainus and Ladysmith where the trail is located alongside the island rail corridor.

The definition of trail is that the entire corridor is utilized by trail users and could be a single corridor, or it could be separated to allow users of different speeds to use different sides of the corridor (i.e. separate cycling from pedestrians or electric assist modes from pedestrians).

The conversion of the rail corridor to trail would preclude the future use of the corridor for rail use, unless the rail alignment was maintained (see below for Rail & Trail).

7.2.3 Rail & Trail

Rail and Trail presumes that, in the long term, there is the ability to accommodate a rail service and a trail system in the same right of way. This is similar to sections of the corridor in the Capital Regional District (E&N Trail) as shown in these images.

There are currently two trails operating parallel to the rail corridor in the CVRD. These include the section between Chemainus and Ladysmith (9.5 km part of the Cowichan Valley Trail) and the Friendship Trail in Duncan (1.3km).

The development of a Rail & Trail option would not preclude the re-introduction of rail services to the corridor at a later date. If rail service was introduced, the crossing of creeks and rivers for active modes on the trail would be an issue and most likely require additional funding to create an active mode crossing parallel to rail bridges if a continuous trail was desired.

7.2.4 Other Uses/Land Reversion

This option excludes rail or trail use; leaving the overall corridor as is, and remediating bisected Reserve lands.

7.2.5 Emergency Access

The main transportation constraint in the CVRD is the Malahat section of the Trans-Canada Highway. The Malahat is a narrow and steep 25 kilometre stretch of highway between Victoria and Duncan with high traffic volumes. It is often congested and suffers from incidents and closures with limited alternative routes for traffic in case of accidents.

The atmospheric river flood event in November 2021 washed out approximately 50m of the northbound lane and led to road closures and extensive reconstruction. An MoTI study looked at a range of alternatives to the Malahat but decided against pursuing any further. The MoTI study did not consider the E&N corridor in its assessment as it focused on general traffic detours on the surrounding Malahat road network, rather than focusing on emergency access.

7.3 Option Assessment

7.3.1 Rail-Only

7.3.1.1 Rail Corridor Continuity

A contiguous rail corridor is required to operate a rail service. The rail corridor includes 4.8 kilometres in Reserve lands in the CVRD as shown in Appendix B-1. The provision of alternative rail corridor realignments at these 5 reserve locations would be challenging as noted in Appendix H-3 and based on these constraints, alternative rail alignments around the Reserve lands are not considered as being feasible.

If Nations choose not to allow for rail service on these lands, then it would render a rail use unfeasible. Furthermore, the rail corridor crosses various regional districts (and other reserves) where likelihood that the same access issues (and potential corridor realignment costs) would apply. As indicated in 7.3.4, at Nanoose Bay (north of Nanaimo) one kilometre of railway track has been recently removed by the Snaw-naw-as (Nanoose) First Nation.

7.3.1.2 Potential Rail Ridership

Appendix G-6 presented an estimation of the rail ridership potential. This was estimated through the development of a Transit Propensity Model which uses basic information on population to predict potential transit ridership based on the catchment areas of rail stations as well as mode split assumptions.

Three population scenarios were considered in the model:

- Scenario 1: Existing population
- Scenario 2: Planned build-out based on accepted population growth rates
- Scenario 3: Provincial potential buildout that reflects provincial guidelines on population densities around rapid transit service lines.

The model results suggest that a service with a trip frequency up to every 15 minutes in the peak hour in the peak direction (southbound, towards Victoria) is required to accommodate the estimated rail ridership in Scenario 3.

7.3.1.3 Rolling Stock

Appendix H-4 presents an assessment of rolling stock alternatives. Consistent with the analysis in Appendix G.6 it recommends a self-propelled, 3-car Diesel Multiple Unit (DMU) train as the most suitable as it would not require trackside or overhead power and used extensively throughout the world for intercity travel. The feasibility of larger commuter trains will depend on the Malahat tunnel dimensions and subject to further review.

Based on the required frequencies and the round-trip time between Victoria in the south and Courtenay in the north, it will require between 13 and 22 3-car trains to deliver the service. This will incur a fleet capital cost estimated between $264M and $432M.

7.3.1.4 Rail Capital Cost

Rail capital costs were developed as part of previous studies. These vary based on route length and service type (inclusion of commuter rail between Langford and Victoria or Parksville-Port Alberni section), infrastructure specification (Initial, Intermediate or Ultimate), inclusion of rolling stock and price base (2020 $ or 2022 $).

Appendix H-5 presents the Island Rail Corridor Condition Assessment (IRCCA, 2020) and Vancouver Island Rail Initial Business Case (ICF, May 2022) rail construction costs. It also includes the estimated rail construction costs (including rolling stock and updated price base) for the Ultimate infrastructure specification of more than 8 passenger trains per day for a Victoria-Courtenay intercity service.

Figure 7-1 presents a comparison of these rail capital costs. It shows the high costs of the combined commuter and intercity service presented in the IRCCA ($1.3B) and the relatively low capital costs in the ICF business case for a similar scope ($460M). This is also reflected in the cost per kilometre.

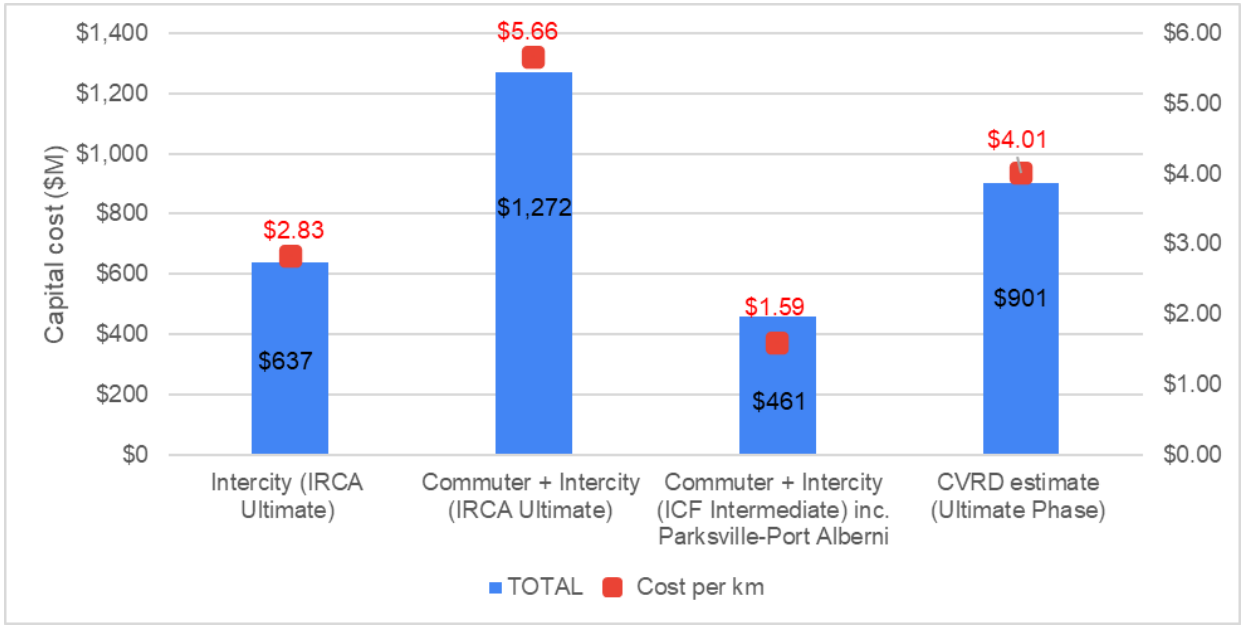


Figure 7-1: Rail *Capital Cost Comparison (2023 $)*

7.3.1.5 Rail Operating Cost and Subsidy

The estimation of rail operating cost was based on the rail service headways identified in Appendix G-6. Based on the estimated annual service kilometres and using TransLink's West Coast Express operating

and maintenance costs statistics ($0.133 per service kilometre), this resulted in the following annual operating costs:

- Scenario 1: $31.8M
- Scenario 2: $35.2M
- Scenario 3: $49.6M

With respect to fare revenue, current single cash fares on the express bus between Victoria and Cowichan/Duncan and Shawnigan Lake (66CVX and 99CVX respectively) is $10, while the single cash fare between Duncan and Nanaimo (70CVX) is $7.50. Therefore, assuming an average rail fare of $15 (the average of a range of ticket types such as single fare, weekly, monthly, concessions and distances), it would result in an annual revenue of $26M for Scenario 1. This equates to an annual shortfall and thus a required subsidy of $6M. The results for the 3 options are included in **Figure 7-2**.

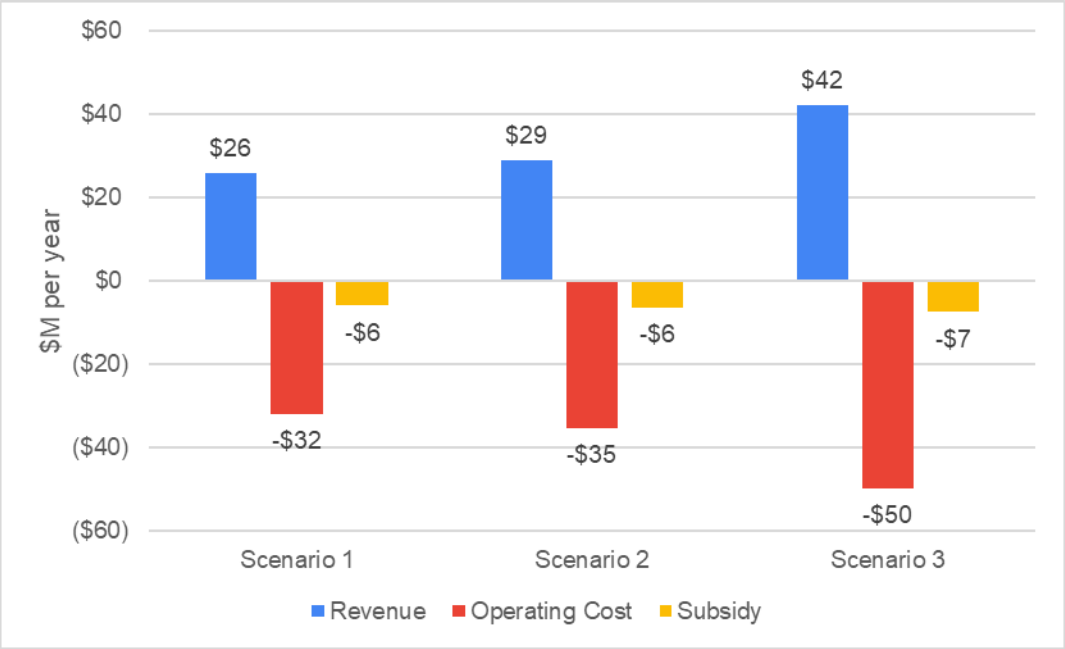


Figure 7-2: Revenue, Operating Cost and Subsidy *of Scenarios*

7.3.2 Trail Only

Similar to the Rail Only option, a continuous trail within the CVRD would require support by Nations for this use within their Reserve lands (see Section 7.3.1.1). The difference with the Rail Only Option is that trail sections could still be provided along the corridor on non-reserve land although it would not enable a continuous trail along the length of the CVRD and would require the use of local streets to provide linkages. A trail option would need to be designed to allow for sensitive integration with agricultural land, in those areas where the trail would run through or adjacent to the Agricultural Land Reserve.

Trail costs based on 'Island Rail Corridor to an Active Transportation Trail Feasibility Report' (April 2023) by Friends of Rail to Trail Vancouver Island (FORT-VI) were estimated at $55M (see Appendix H-6 for further details).

Trail maintenance costs vary considerably based on trail surface, volunteer contributions, vegetation and level of amenities. An assumed a cost of $4,400 per kilometre and would result in annual cost of $315,000 for the CVRD section of the corridor.

The trail construction cost estimate by FORT-VI excluded soil remediation. The cost estimate assumed no soil would be removed as the trail would be built on the existing rail bed. If soil and site remediation were required (see Section 5.3) this would increase the cost of trail considerably to between $76M and $225M depending on low/high estimate and industrial/non-industrial use.

7.3.3 Rail and Trail

Similar to the Rail Only and Trail Only options, providing a continual rail and trail on the corridor in the CVRD would require support by Nations for this use within their Reserve lands (see Section 7.3.1.1). If these uses are not desired by the Nations, then trail could be provided along the corridor outside of Reserve lands. It would not enable a continuous trail along the length of the corridor in the CVRD and would require the use of local streets to provide the continuous link and effectively would be the same as the Trail Only option.

The feasibility of the Rail and Trail option is also dependent on corridor width limitations as this will have a considerable impact on option feasibility and cost. The corridor is generally about 30 metres wide, which would accommodate both uses, however, when rail service is introduced, the crossing of creeks and rivers via bridges and trestles would become pinch points that likely would require additional active mode crossings parallel to the existing crossing (16 crossings in the CVRD). This would need to be considered if this option was to be pursued.

Construction cost estimates for the Rail and Trail option are estimated to be $129M based on a $2.1M per kilometre estimate from the E&N Rail Trail between Victoria and Langford. The E&N Trail is close to completion and considerably more costly than the Trail Only cost, because it requires:

- Maintaining the tracks and trestles for train traffic.
- Safety fence between the rail line and the trail.
- Safety improvements at rail crossings to meet Transport Canada's Canadian Railway-Roadway Grade Crossings Standards (this includes specific intersection safety upgrades such as barriers, signals and pedestrian crossings).

7.3.4 Other Uses/Land Reversion

Conversion of the corridor from its former rail use to non-rail and/or non-trail uses could require soil remediation in certain areas, depending on the proposed future use. Chapter 6.3 presents the implications and cost requirements of soil remediation which are estimated to be between $76M and $225M to remediate the entire length of the corridor within the CVRD, based on two future use scenarios: industrial use (which has a lower cost) and a non-industrial use (which has a higher cost).

This Other Uses/Land Reversion option considers the remediation of First Nations Reserve lands within the CVRD. Approximately 5km of the rail corridor passes through Cowichan Tribes, Penelakut First Nation, and Halalt First Nation Reserve lands. Physical remediation costs for this length of corridor are estimated to be between $8.75 based on an industrial use to $15 million based on a non-industrial use, and Risk Assessment could be between $4.75 to $8.5million.

This option would not preclude the corridors conversion to rail and/or trail use in the future, although costs do escalate over time.

7.4 Emergency Access

As indicated in Section 7.2.5, extensive analysis was carried out by MoTI on general traffic routing alternatives to the Malahat for trips between Victoria and northern island destinations. The analysis did not consider the E&N corridor as a potential route or routing for emergency vehicles only.

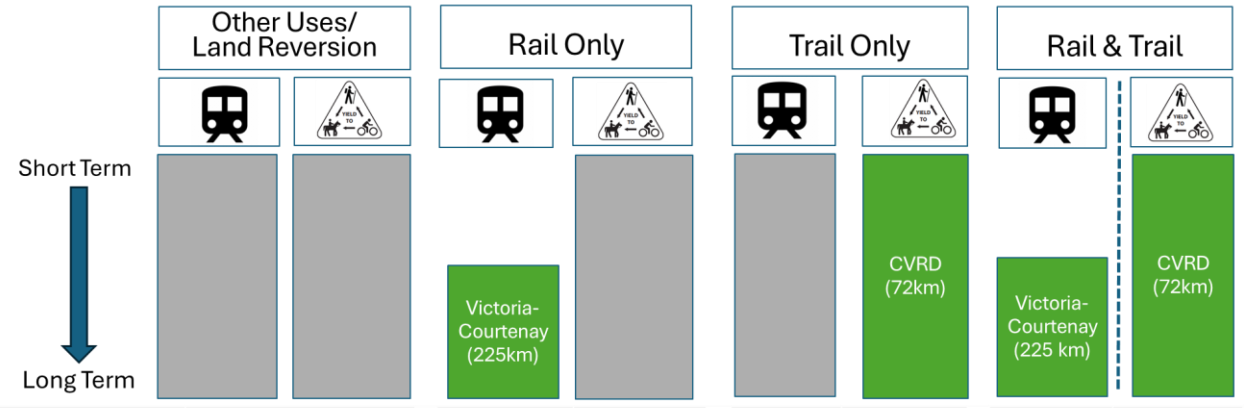
No analysis has been undertaken on the emergency routing potential of Trail or Rail & Trail infrastructure, including the Malahat segment of the corridor**.** To accommodate emergency vehicles to operate on the corridor would potentially require asphalt surfacing and a wider right of way to provide emergency vehicles with a suitable route. The use of section of the trail for this purpose would also likely require the temporary closure of the trail and an emergency operation procedure.

Costs were not estimated for emergency access requirements and emergency access would not be possible with the Rail Only option.

7.5 Conclusions

A summary of the Options Assessment is depicted in **Figure 7.3** and shows that:

- Enabling **Rail & Trail** on the corridor is the highest cost option due to the trail requirements adjacent to rail line. This preserves the opportunity for rail in the future when a business case can be made and funding secured for both infrastructure and operations.
- The selection of the lesser cost ($55M) option of **Trail Only**, would preclude rail in the future as parts of the trail would be constructed on the existing rail bed. Costs reflect trail construction only and assume that soil remediation is not required. If required, the cost of soil remediation could range between $76M and $225M for the CVRD section of the corridor in addition to the $55M trail cost.
- Selection of the **Rail Only** option would preclude potential emergency access alternatives on the Malahat section. The rail option has a capital cost of $901M and annual operating costs of $32M.



	Other Uses/ Land Reversion		Rail Only		Trail Only		Rail & Trail	
Capital Cost	$9M-$15M for Reserve Land soil remediation		$901M	N/A	N/A	$55M*	$901M	$129M**
Annual operating cost	-	-	$32M	-	-	$0.3M	$32M	$0.3M
Emergency Access?	Potential		No		Potential		Potential	
Public Support* **	NA		49% respondents (Rail only)		18% respondents (Trail only)		31% respondents (Rail & Trail only)	

* No soil remediation assumed. If required, soil remediation costs range between $76M-$225M
** Higher cost compared to Trail Only as it requires safety fence and improvements at bridges and rail crossings
*** Survey responses to the various options. They differ from Engagement results in Chapter 4 that reflect double counting (e.g. Passenger Rail including responses to Rail Only and Rail and Trail)

Figure 7-3: Option Assessment Summary

- **Other Uses/Land Reversion** does not mean the rail corridor remains as is. A change in land use would require soil remediation with an estimated cost between $76M and $225M for the entire CVRD section of the corridor. Physical remediation of impacted Reserve lands in the CVRD is estimated to be between $8.75 to $15 million, and further Risk Assessment could be an additional $4.75 to $8.5million
- Rail service is focused on passenger service between Victoria and Courtenay as service between Nanaimo and Port Alberni is likely to be limited to freight.

It is important to highlight the benefits of the identified options which are summarized in **Table 7-1**.

Table 7-1: Option Benefits

Theme	Other Uses/Land Reversion	Rail Only	Trail Only	Rail & Trail
Transportation		Improved transit travel time	Additional travel opportunities for local trips	Improved transit travel time
		Improved transit travel reliability	Expansion of Cowichan Valley Trail network	Improved transit travel reliability
		Improved transit service accessibility		Improved transit service accessibility
		Additional travel opportunities for local trips		Additional travel opportunities for local trips
				Expansion of Cowichan Valley Trail network
Economic development	Enable development of rail corridor land	Enables densification around stations	Direct, indirect and induced economic impacts estimated at $95M	Enable densification around stations
		Increased island economic activity by improving island connectivity	Active holiday activities to support green tourism	Increased island economic activity by improving island connectivity
		Tourism potential		Tourism potential
		Direct, indirect and induced economic impacts of rail		Direct, indirect and induced economic impacts of rail
				Active holiday activities to support green tourism
Environment	Maintenance of wildlife corridor	Reduced GHG emissions resulting from mode shift from cars to rail	Encouragement of active mode travel and reduced GHG emissions resulting from reduced car use	Reduced GHG emissions resulting from mode shift from cars to rail
	Opportunity to restore watershed function, where the corridor creates a barrier	Encouragement of active mode travel and reduced GHG emissions resulting from reduced car use	Maintenance of wildlife corridor	Encouragement of active mode travel and reduced GHG emissions resulting from reduced car use

CHAPTER 8

NEXT STEPS

8 NEXT STEPS

Below is a summary of next steps for each of the technical disciplines:

Environmental Considerations: Natural Habitat

It is recommended that an environmental review, assessment, and field inventory be carried out as a matter of due diligence for future development that will be planned within the rail corridor, which may, or may not include the reversion of lands back to their rightful owners. Environmental permitting is expected to be required for future development that interacts with watercourses, wetlands, or rare species/ecosystems. Additional review will allow the CVRD to consider these environmental features in the development process and either avoid or mitigate potential effects which can have considerable savings in time and budget.

Environmental Considerations: Remediation

If the corridor continues to be used as a railway, an environmental investigation may not be required at this time. Investigation and remediation would be required at the time of future decommissioning and/or change in land use.

It is anticipated that if a section of the corridor is being transferred to another entity, investigation/remediation may be a requirement and/or would be determined in the transfer agreement between the two parties irrespective of whether or not the land will continue to be used for rail purposes.

Investigation, if required, would include at minimum a Phase I Environmental Site Assessment (ESA) to identify if/where additional investigation is required. Additional investigation would include a Phase II ESA (and could also require a Detailed Site investigation) to determine extents of contamination and potential remediation/risk management strategies.

Environmental Considerations: Climate change

The corridor's location and robustness present a valuable opportunity to improve regional resilience especially relating to flooding and wildfire. Both rail and trail options come with unique possibilities to provide redundancy and support emergency management. They each also present unique risks and challenges, both in terms of their physical vulnerability to climate hazards as well as the risks they pose. In the case of the reversion of land to First Nations, the regional and asset resilience would depend on its land use designation. It is recommended that any option taken, continue to review and incorporate the resilience of the region to the ongoing risks to natural hazards and climate change. Furthermore, it is recommended that a study of the resilience of the transportation network be conducted to fully understand the potential role of the corridor in this regional context.

Land Use

Although land use policies of the CVRD and its member municipalities indicate clear policy direction supporting the creation of an active transportation corridor within the rail corridor's right-of-way, they are not as clear on the reintroduction of passenger rail.

However, the policies are very supportive of creating additional transportation options in the region to shift reliance of the personal automobile towards alternative modes of transportation like public transit. The policies also support the use of public transportation infrastructure as a catalyst for land use change. As such, there is a strong inference that the transportation mode shift and land use change support the reintroduction of passenger rail along the corridor.

Going forward, in the event of support to reserve the corridor for rail use in the longer term, the policies and plans of the CVRD and member municipalities should be refined to reflect the incorporation of the rail

corridor as an active mode facility into the urban fabric, and promote and support increased densities that will increase the viability of road-based transit services.

Transportation

To support the reinstatement of rail in the future, the following preparatory work is required to promote such a service:

- Proactively promoting and supporting urban development and densification through updated transportation plans.
- Promoting the expansion of exiting road-based transit services to encourage mode shifts away from the private car.
- Undertaking origin-destination tripmaking analyses to identify and quantify travel demand.
- Updating transportation networks to service major destinations and ensure that rail services connect to, and are integrated with, existing networks for passengers to reach their final destinations.
- Investigating the development and improvement of appropriate alternative rail technologies, and their associated requirements and costs.
- Confirming current rail and safety standards including remediation requirements and costs.
- When considering affordability, it is crucial that realistic cost estimations are available. On the one hand it requires undertaking updated cost estimates related to infrastructure improvements and ongoing operating costs, and on the other hand, the estimation of ridership and thus fare revenue to offset costs, to determine whether a viable business case for such a rail service can be made. This should also include the identification of sources of funding and address the extent of funding to be raised through local taxes.

CHAPTER 9

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