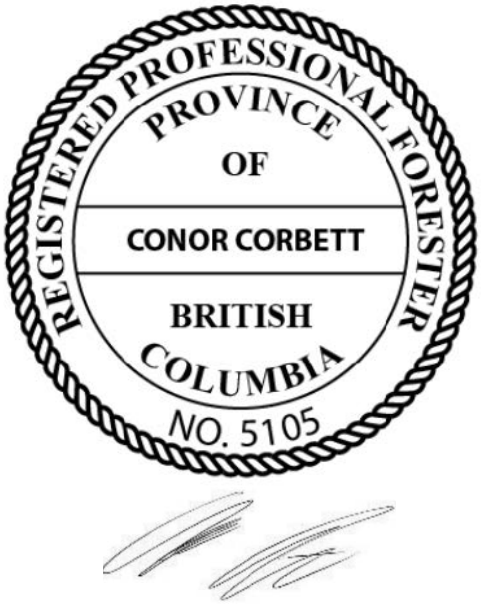
Fraser Valley Regional District

Community Wildfire Resiliency Plan

Fraser Valley Regional District

March 2026

Professional Signature and Seal



Registered Professional Forester	
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RPF Name	**RPF Number**
March 27, 2026	
Date Signed	
I certify that the work described herein fulfils the standards expected of a registrant of Forest Professionals British Columbia and that I did personally supervise the work.	

Authority of the Document

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Submitted to:	Submitted by:
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Updates and Amendments

The FVRD may make updates and amendments to incorporate changes to the context for this CWRP without invalidating the accuracy of the wildfire risk assessment or recommendations. This may include updates to demographic information, current status, or emergency management context. Any alterations or updates that may impact the wildfire risk assessment or CWRP recommendations will invalidate the endorsement of this CWRP by the signing professional. The signing professional can be contacted to determine if proposed amendments require a professional review.

Date of Update	By Whom	Items Updated

Frequently Used Acronyms

AOI	Area of Interest
BC	British Columbia
BCWS	British Columbia Wildfire Service
BEC	Biogeoclimatic Ecosystem Classification
BP	Burn Potential
CFFDRS	Canadian Forest Fire Danger Rating System
CFRC	Community FireSmart and Resiliency Committee
CI	Critical Infrastructure
CLPB	Cultus Lake Parks Board
CRI	Community Resiliency Investment
CWH	Coastal Western Hemlock (BEC Zone)
CWPP	Community Wildfire Protection Plan
CWRP	Community Wildfire Resiliency Plan
DPA	Development Permit Area
EA	Electoral Area
EDMA	Emergency and Disaster Management Act
EMCR	Ministry of Emergency Management and Climate Readiness
EMEC	Emergency Management Executive Committee
EMP	Emergency Management Plan
EOC	Emergency Operations Centre
ESS	Emergency Support Services
FBP	Fire Behaviour Prediction System
FCFS	FireSmart Community Funding and Supports
FD	Fire Department
FESBC	Forest Enhancement Society of British Columbia
FMP	Fuel Management Prescription
FPA	Fire Protection Area
FSCCRP	FireSmart Canada Community Recognition Program
FSR	Forest Service Road
FNESS	First Nations Emergency Services Society
FVRD	Fraser Valley Regional District
FVRD EM	Fraser Valley Regional District Emergency Management
GIS	Geographic Information System
HFI	Head Fire Intensity

HRVA	Hazard Risk and Vulnerability Analysis
HVRA	High Value Resources and Assets
IDF	Interior Douglas-Fir (BEC Zone)
IER	Indigenous Engagement Requirements
IGB	Indigenous Governing Body
ISI	Initial Spread Index
LRMP	Land and Resource Management Plan
MOF	Ministry of Forests
MOTI	Ministry of Transportation and Infrastructure
NDT	Natural Disturbance Type
OBSCR	Open Burning and Smoke Control Regulation
OCP	Official Community Plan
OGMA	Old Growth Management Area
PREP	Preparedness, Resiliency & Emergency Program
PSTA	Provincial Strategy Threat Analysis
RH	Relative Humidity
ROS	Rate of Spread
RPF	Registered Professional Forester
SARA	Species at Risk Act
SAR	Species at Risk
SOLE	State of Local Emergency
SPU	Structure Protection Unit
UBCM	Union of British Columbia Municipalities
VAR	Values at Risk
WHA	Wildlife Habitat Area
WRR	Wildfire Risk Reduction
WTA	Wildfire Threat Assessment
WUI	Wildland Urban Interface
WUIWRR	Wildland Urban Interface Wildfire Risk Reduction Plan

Acknowledgements

The Authors would like to thank the Fraser Valley Regional District (FVRD) for the support in developing this Community Wildfire Resiliency Plan (CWRP). FVRD staff from multiple departments invested substantial time in meetings, answering questions, and commenting on the contents of this document. Their knowledge, input and recommendations were invaluable to the development of this CWRP.

The CWRP was authored by Frontera Forest Solutions staff, with contributions from:

- Conor Corbett, RPF; Project Lead
- Anne-Marie Bouffard; Project Support
- Meagan Warkentin; Senior Review
- Wendi Zhang; GIS support
- Derek Li; GIS Support
- Holden Payne; Wildfire Behaviour Modeller

Visual design of this report was completed by Matt Shields (Purcell Forestry).

We would also like to extend a thank you to all public residents, stakeholders, and local First Nations that assisted in the development of this CWRP by providing information and collaborating toward the shared regional goal of wildfire resilience. Staff from the BC Wildfire Service (BCWS) also provided valuable input and contributed heavily to the analysis contained within this report. This report would not be possible without the Community Resiliency Investment (CRI) Program and funding from the Union of British Columbia Municipalities (UBCM).

The Community Resiliency Investment Program

The Community Resiliency Investment Program provides grant funding to communities for initiatives to reduce *wildfire risk*.

How To Use This Plan

This CWRP has been developed for the unincorporated electoral areas (EAs) of the FVRD. It captures the *wildfire risk*, and provides mitigation recommendations, for a large, diverse area. This CWRP is also intended for a variety of audiences, including emergency responders, elected officials, allies on the landscape and the residents of the FVRD. As such, this comprehensive document contains a large amount of information, and only certain information may be relevant to specific audiences. For ease of use, several tools have been embedded into this document so readers can quickly navigate to the most pertinent information.

In the body of this CWRP, **bold blue (or white) text** can be clicked when viewing this document digitally to quickly navigate to the relevant section. *Italicized terms* can be referenced in **Appendix A: Glossary of Terms**. The names of provincial and federal acts are italicized by convention and do not appear in the glossary. Hyperlinks to external sources outside this document appear in blue text. In the digital version of this document, they can be clicked to navigate the external source (on a device connected to the internet).

An **Executive Summary** on the following pages provides a high-level electoral area-wide summary of the CWRP's findings and recommendations for the FVRD. An **Action Plan** follows the Executive Summary, providing an overview of recommended *wildfire risk* mitigation activities for the FVRD to pursue to reduce *wildfire risk*. The **Table of Contents** provides links to all sections of this document.

The CWRP is organized by sections. The **Executive Summary** provides an overview of the context and background for this plan. **2 Relationships to Other Plans** provides an overview of key plans that inform and are related to this CWRP. **3 Community Description** reviews the important *values at risk* (VAR) within the FVRD EAs that can be impacted if or when wildfires occur. **4 Wildfire Risk Assessment** provides a summary of the factors driving wildfire behaviour, concluding with a *wildfire risk* summary that synthesizes the potential wildfire behaviour in the FVRD with the VAR.

The remaining sections of the document provide an overview of current *wildfire risk* mitigation activities, and recommendations for additional *wildfire risk* mitigation activities. These are categorized into the seven disciplines of FireSmart, with an introductory **5 Disciplines of FireSmart** section explaining the concept of FireSmart and the current FVRD FireSmart program. Recommendations are summarized at the end of each section in a summary table. These recommendations are combined into the overview **Action Plan** discussed in the previous paragraph. Appendices provide a summary of technical information that has informed this CWRP.

Your Community: Key Findings

Many readers of this document may be most interested in the key findings for communities (hamlets) within the unincorporated areas of the FVRD. Key findings for each hamlet can be found in the following sections:

- **3.6 Community Summaries** provides a community description for each hamlet, with a summary of *values at risk* and wildfire response resources.
- **4.2 Community Wildfire Environment Summaries** provides key factors driving wildfire likelihood and potential wildfire behaviour for each hamlet.
- **4.5 Community Wildfire Risk Summaries** provides a brief description of wildfire risk for each hamlet.

Executive Summary

This CWRP is based on available public data and lands that are publicly accessible. Most lands in the Fraser Valley Regional District (FVRD) are either privately owned or Crown Public land, and therefore *wildfire risk* findings and recommendations may not reflect conditions across the entire area. While Crown Public Lands are under the lands management oversight of the Province of BC, Crown Public Lands are also traditional lands to many Indigenous Peoples. Throughout the body of this Community Wildfire Resiliency Plan (CWRP) you will see these referred to as Crown Public Lands.

This CWRP identifies wildfire risks, outlines education and planning needs, and recommends actions across the seven *FireSmart* disciplines: Education, Legislation, Cross Training, Development Considerations, Interagency Cooperation, Emergency Planning, and Vegetation Management. *Wildfire risk* is summarized in **Table 1**, and a summary of recommendations is provided in the Action Plan in **Table 2**.

Key Complexities

Recognizing key complexities helps address the challenges associated with siloed approaches to single-hazard management, and means acknowledging that there are many perspectives about how best to achieve this essential body of work and highlight reasonable and realistic opportunities across the landscape.

1 Regional district services are services local communities choose to enter into together, in most cases. This includes services like fire protection, garbage collection, or water systems. These services are established when:

- Someone or some group identifies a need (a community, a board, or a group of residents).
- FVRD studies that need, identifying costs, boundaries, and beneficiaries.
- Those affected agree, usually through a vote, petition, or consent.
- The service is officially created by bylaw and funded only by the people who use that service.

In short, each service is like a delegation of authority from the Province and FVRD must provide that service to the participating area funding it. Regional districts provide services that communities/participating areas ask for and agree to pay for. This is important to understand in relation to where and why services like fire protection may not exist.

2 The CWRP framework is determined by the Province of BC through funding programs and the BC Wildfire Service (BCWS). The new framework introduces "resiliency" as a requirement. This creates new opportunities under the BC Emergency and Disaster Management Act (EDMA) and its Indigenous Engagement Requirements (IER). These two frameworks add complexity to planning, as they are not yet fully aligned with the CWRP process. Regional districts also must offer compulsory services, like Emergency Management (EM) within the electoral areas. Expanding EM service to municipalities and First Nations is dependent upon the interest of those organizations entering into contracts for services, or other formalized regional or sub-regional service agreements.

3| Forests in the FVRD are diverse, with different species, densities, ages, and ecological and cultural values. EDMA requires risk assessments that account for these variations, while the IER emphasizes the use of Indigenous traditional and ecological knowledge and the inclusion of Indigenous perspectives in *wildfire risk* reduction strategies.

4| The current provincial CWRP template is long and technical, with a layout that is designed for a single jurisdiction. Regional districts have jurisdictional complexity with shared landscapes that overlap First Nations, surround municipalities, and many other overlapping agency authorities having jurisdiction for lands and infrastructure. The CWRP may, at times, not communicate clearly to residents or emergency responders. The EDMA requires plans to be clear and easy to use. The IER calls for plain-language communication and meaningful engagement with Indigenous communities. Where possible, this CWRP has been simplified and enhanced with supplemental tools to facilitate ease of use.

5| Not all recommendations in this plan are eligible for grants, often requiring creative adaptation to empower residents and community groups where there is a lack of funding for their efforts. The EDMA stresses the need for sustainable long-term funding, while the IER highlights the importance of providing resources that enable Indigenous communities to fully participate in wildfire planning and emergency management.

6| There is an emphasis in the CWRP requirements to include local Fire Departments (FD), however, electoral area (EA) fire services are primarily volunteers, with finite capabilities and narrow mandates. They do not provide service to the entirety of the landscape. They are often already underfunded and reliant upon conditional grants for essential supplies. Many of the halls are on lease lands, and many are not structured, trained, or funded to meet the expectation of on-request deployment support for wildfire response to complement the BCWS. The FVRD's seven departments operate under the Service Establishment bylaw provisions for specific capabilities in specific participating areas. Two additional FDs are wholly independent of the FVRD: Sunshine Valley Volunteer FD, a society FD; and Cultus Lake FD, an agency FD of the Cultus Lake Park Board—an independent park board enacted by the Cultus Lake Park Act of 1932.

The opportunities identified in this CWRP emphasize actions that are low barrier, likely to make incremental success, and are cost-effective. Additionally, many opportunities exist to leverage and empower people to take action at home and in their community to reduce risks through collective action.

Action matters. Resiliency takes a whole-of-community approach.

Summary of the Risk Assessment

Table 1. Wildfire risk assessment for the FVRD.

Risk Assessment
The purpose of a risk assessment is to identify the specific risks to a community and its assets. An ongoing review of the risk assessment should occur and an update to this CWRP should occur in 5 years.
The major identified risks for the FVRD unincorporated electoral areas are:
1. Wildfire risk varies throughout the region, largely due to wide variations in weather. a. Wildfire risk is highest in the EA A communities (Boston Bar, Canyon Alpine, and Nahatlatch & Keefers) and the community of Hemlock Valley. These are the areas where wildfires impacts are most likely to occur. b. Vulnerability to wildfire is increased in areas with limited egress routes. This includes the communities of Jones Lake, Post Creek, Cascade Bay, and Hemlock Valley. This is particularly concerning in Hemlock Valley, due to the elevated wildfire risk.
2. There have been extensive wildfire impacts in and around the FVRD's unincorporated electoral areas in the last 5 years.
3. Many communities lack formal fire protection, limiting wildfire response capabilities.
4. Many communities lack water supply, limiting wildfire response capabilities.
5. Regional districts have limited capacity and administrative options for reducing wildfire risk. Wildfire mitigation actions led by the FVRD must be contextualized in the FVRD's role.
6. The FVRD FireSmart Program has been supporting wildfire risk mitigation activities throughout the FVRD's unincorporated electoral areas. This program has been extremely effective, leveraging available grant opportunities consistently since 2021.
7. Grant funding has been critical in proactive wildfire risk mitigation by the FVRD. Ensuring continued access and eligibility for this grant funding is critical for ongoing FVRD led wildfire risk mitigation.

Action Plan

Table 2. Summary of recommendations in this CWRP.

Preamble to the Action Plan:

The action plan is a summary of all recommendations embedded throughout this CWRP. These recommendations are ordered in terms of recommended timeframe for completion. It is important to note that these recommendations are intended to be flexible, and adapted for the FVRD context as well as wildfire environment, both of which may evolve and change over time.

Legend:

CWRP Section/Related Sections use the following abbreviations for the FireSmart Disciplines:

TRX	Cross-Training
DEV	Development Considerations
FS	Disciplines of FireSmart (overall)
EDU	Education
EM	Emergency Planning
IAC	Interagency Cooperation
LEG	Legislation and Planning
VEG	Vegetation Management

Actions are assigned priority by background colour:

- Highest priority (red)
- High priority (orange)
- Moderate priority (yellow)
- Low priority (green)

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
Ongoing Actions							
FS	TRX, EDU, EM, LEG, VEG	Share CWRP recommendations with relevant FVRD lead departments and identify FireSmart funding opportunities to achieve objectives.	Ongoing	FVRD EM	Staff time	FVRD EMP staff to meet annually to review implementation status.	This will ensure all FVRD departments are appraised of FVRD EM plans, and identify opportunities for collaboration.
FS		Maintain the FVRD Wildfire Resiliency Dashboard.	Ongoing	FVRD EM, FVRD Information Technology	Staff time, CRI Funding	Wildfire Dashboard is updated annually.	The Wildfire Dashboard should be updated with changes to geospatial data, as well as updates on completed wildfire risk resiliency actions.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
FS	EM	Maintain a staffing role that carries responsibilities for FireSmart programming, and wildfire risk reduction.	Ongoing	FVRD EM	Staff time, CRI Funding	FVRD has an EM Coordinator with responsibility for FireSmart programming.	This position is key to delivering FVRD FireSmart information, and streamlining funding access through the CRI allocation funding stream.
FS	IAC	Maintain membership in the Fraser Valley Wildfire Resiliency Collaborative.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	Active participation in this collaborative is maintained.	This collaborative serves the function of a CFRC; however, it is a shared organized structure that belongs to all members, with rotating hosts and all maintaining responsibility for their own programs and documents.
EDU		Continue to participate in community events with a FireSmart presence and resources.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	Aim to complete an event in each electoral area on an annual cycle.	Current uptake of this FVRD service varies by community. This may require additional FireSmart resources; in the absence of these resources, this frequency may not be possible.
EDU	TRX, FS, EM, LEG, VEG	Offer FireSmart information and presentations to resort and camp style accommodations across the electoral areas.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	Information provided when requested.	Partner agencies that may be considered for the hosting of evacuees or wildfire camps can be offered FireSmart training, education, assessments and rebates to help make safe respite areas across the landscape.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
EDU	VEG	Continue to provide FireSmart home assessment services to residents of FVRD unincorporated areas.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	Increased uptake in assessments annually.	Uptake on these assessments varies by community. Expansion of the FireSmart program to include local champions will likely increase uptake, particularly in communities with low uptake.
EDU	VEG	Complete/update FireSmart neighbourhood assessments for all communities in the FVRD unincorporated electoral areas.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	All communities receive neighbourhood recognition.	Most FVRD communities in unincorporated electoral areas have received an assessment. Outstanding communities include Baker Trails, Columbia Valley, Hatzic Island, Hatzic Prairie, Spuzzum, Nahatlatch & Keefers, and Othello. Assessments should be revised every 5 years.
EDU		Review and consider updates to the FVRD website content and consider FireSmart program content in addition to other web pages where information related to drought, water systems capacity, and fire services capacity also have correlating wildfire resiliency content added.	Ongoing	FVRD EM FireSmart, FVRD Communications	Staff time, CRI Funding	Website regularly updated.	Ensure this website is updated with available FireSmart resources for community members. Ensure FireSmart materials are up to date.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
EDU		Using CRI funding, consider creating pre-recorded webinars and videos for FireSmart on the FVRD website, and for use in PREP.	Ongoing	FVRD EM FireSmart, FVRD Communications	Staff time, CRI Funding	Aim to provide one educational webinar that is hosted on the FVRD website.	Ideally, the FVRD can create a localized webinar that is tailored to the unique circumstances of the FVRD unincorporated electoral areas.
EDU		If planning large wildfire resiliency projects ensure FireSmart communications, education and signage are present, where appropriate. Consider purchasing FireSmart Sandwich board signage with CRI grant funding	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	FireSmart events held in conjunction with projects.	Example of projects where signage should be installed include fuel management, Critical Infrastructure mitigation, etc. This may be achieved by partnering with regional partners (e.g., provincial government) when they are completing projects within the FVRD.
EDU		Provide FireSmart resources at key community information points.	Ongoing	FVRD EM FireSmart, FVRD Communications	Staff time, Communication resources, CRI Funding	Each community has access to resources.	Amenities on the landscape have been identified in the FVRD EMP Community Profiles.
DEV		Continue to conduct FireSmart Critical Infrastructure Assessments for all Critical Infrastructure in this CWRP.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	All Critical Infrastructure identified in this plan receives assessment.	This is partially completed. Achieving full completion will likely require support from regional partners in wildfire resiliency, particularly for Critical Infrastructure not owned or managed by the FVRD.
DEV		Continue to mitigate wildfire risks to eligible Critical Infrastructure.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	Vulnerabilities for all Critical Infrastructure identified in this plan are mitigated.	This consists of implementing the plan developed in the previous recommendation.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
IAC	VEG	Engage IGB's in relation to fuel mitigation projects	Ongoing	FVRD EM	Staff time	Occurs when needed.	This will be necessary if and when FMP projects are developed.
IAC	VEG	Continue to collaborate with regional partners on fuel management activities	Ongoing	FVRD EM FireSmart	Staff time	Ensure that the FVRD is aware of all fuel management activities that occur within the FVRD unincorporated electoral areas.	The provincial government is leading or planning multiple fuel management activities. The local WRR coordinator is a key resource in collaborating on these projects.
IAC	EDU, EM, VEG	Encourage fuel management activities led by external agencies.	Ongoing	FVRD EM FireSmart	Staff time	Obtaining community and FVRD support for fuel management activities throughout the region.	There are a number of projects within the FVRD that may be led by partners such as the provincial government agencies or other local governments. The FVRD can encourage and promote these projects and support introductions to community-level allies for community engagement and education.
IAC		Participate in subregional CFRC meetings when needed.	Ongoing	FVRD EM FireSmart	Staff time	FVRD joins all CFRCs when invited.	This will ensure FVRD is working at local scales for affiliated communities adjacent the FVRD electoral areas.
IAC		Continue to send appropriate staff to annual FireSmart BC Wildfire Resiliency and Training Summit.	Ongoing	FVRD EM FireSmart	Staff time, CRI Funding	Send two to four staff members to the annual conference.	This is a key training opportunity for ensuring FVRD EMP staff are up to date with the latest guidance and updates from the BC FireSmart program.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
TRX	EM, IAC	Host a pre-wildfire season work shop annually and include likely allies on the landscape in a wildfire emergency (both FVRD and non-FVRD fire and other emergency services).	Ongoing	FVRD EM, FVRD Protective Services	Staff time, CRI Funding	This requires support and engagement from parties external to the FVRD.	This will strengthen relationships in emergency management.
EM	EDU	Work with community groups to introduce PREP and invite them to become PREP Pods.	Ongoing	FVRD EM	Staff time	Community uptake in PREP Pods program is increased.	FVRD hosts the framework and tools/templates for PREP Pods to mitigate and prepare locally.
EM	EDU	Continue to promote and support resident participation in the FVRD emergency alert system.	Ongoing	FVRD EM	Staff time	Increased uptake of the Alertable emergency notification system.	This notification system should be promoted in conjunction with FireSmart educational events.
VEG	EDU, EM	Inspire neighbourhood vegetative clean-up days to assist in landscaping and FireSmart maintenance for homes in the community. Coincide with landscaping guides, and where possible introduce to local FireSmart landscaping partners for fire and drought resistant plants.	Ongoing	FVRD EM FireSmart	Staff time	Aim to complete an event in each community on an annual cycle.	Current uptake of this FVRD service varies by community. Aim to complete an event in each community on an annual cycle. This may require additional FireSmart resources; in the absence of these resources, this frequency may not be possible.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
Year 1 Actions							
FS	EDU, EM	Read and understand the sections on wildfire risk and the key factors that drive wildfire risk, as identified in this CWRP.	1	FVRD EM	Staff time	FVRD EMP staff meet to review the CWRP's risks and action items.	
EDU		Continue to support communities participating in the Local FireSmart Collective Program.	1	FVRD EM FireSmart	Staff time, CRI Funding	Interested communities achieve this recognition.	Previously called the FireSmart Neighbourhood Recognition Program, which the FVRD provided support to communities pursuing. This initiative must be community-led, but the FVRD can provide support as needed. The FVRD can promote and support this initiative to interested communities.
EDU	EM	Print and publish community wildfire risk summaries (one-pagers) to the relevant communities.	1	FVRD EM FireSmart	Staff time, CRI Funding, completed summaries	Community wildfire risk summaries completed and published.	These summaries were completed in parallel with CWRP.
LEG	FS, IAC	Share the CWRP with First Nations that are co-located among the FVRD electoral areas and invite collaboration where opportunities arise.	1	FVRD EM	Staff time	This CWRP is shared with alliend Indigenous Governing Bodies on the landscape.	An engagement process with allies on the landscape accompanied development of this CWRP. Follow up engagement should occur once this CWRP is finalized and published.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
IAC		Inform FVRD, allies, adjacent and overlapping jurisdictions, IGBs and the public of the new CWRP and dashboard.	1	FVRD EM FireSmart	Staff time	Information made available on FVRD website, as well as through existing community communication channels.	This dashboard provides up to date information on wildfire resiliency and wildfire risk, and is complementary to the ongoing nature of the FVRD EMP.
IAC	FS, LEG	Share the CWRP with First Nations that are co-located among the FVRD electoral areas and invite collaboration where opportunities arise.	1	FVRD EM	Staff time	This CWRP is shared with alliend Indigenous Governing Bodies on the landscape.	An engagement process with allies on the landscape accompanied development of this CWRP. Follow up engagement should occur once this CWRP is finalized and published.
EM		Update EMP with information from this CWRP.	1	FVRD EM	Staff time	Updated EMP.	Key sections of the EMP to update include the Hazard Awareness and FireSmart sections.
EM		Ensure CWRP is integrated into FVRD EMP document library.	1	FVRD EM	Staff time	Updated EMP document library.	A sample guide has been provided in this CWRP.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
Year 2 Actions							
FS		Identify opportunities to increase FireSmart assessments, public activities, and vegetative management through CRI grant funding. Opportunities may include: creating cost recovery mechanisms for other departments (such as Fire Services, Parks, Engineering, etc.) to help achieve wildfire risk reduction activities in their relevant areas.	2	FVRD EM	Staff time	Aim to expand wildfire risk reduction with as many allies as possible across all EAs in relation to the WUIs.	Providing local resources may increase efficiency of program, and increase local uptake of FireSmart resources.
EDU	TRX, EDU, EM, IAC	Consider developing a public-facing training calendar to facilitate educational events and cross-training opportunities throughout the region for wildfire risk reduction and wildfire coordination through Emergency Operations Centres.	2	FVRD EM	Staff time	Public facing calendar developed and maintained.	This will enhance uptake and access to training opportunities.
EDU		Consider creating policy for management of FireSmart rebates for populations that self-identify as being unable to physically complete mitigation activities.	2	FVRD EM	Staff time, CRI Funding	Continue Rebate program.	FireSmart rebates should be prioritized based on risk classification, and risk reduction for emergency planning allies. Prioritizing community amenities that could be used to shelter wildfire staff or evacuees, this program will have greater impact.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
EDU		Organize and host FireSmart and/or wildfire risk reduction awareness sessions for FVRD staff and volunteers.	2	FVRD EM FireSmart	Staff time, CRI Funding	Conduct a workshop or webinar every two years with staff representatives from other FVRD departments.	This will ensure consistent messaging between all FVRD departments and FVRD residents. This should focus on the FVRD's role in wildfire resiliency, particularly within the unincorporated electoral areas.
EDU		Introduce FireSmart for Educators resources to school principals to increase awareness of these tools. These may also be of interest to childcare providers and children's camp counsellors. These efforts could coincide with the Master of Disaster school programs to inspire workshops that aim at both risk reduction, readiness, and evacuations .	2	FVRD EM FireSmart	Staff time, SD interest and support, CRI Funding	Completion of events in FVRD Schools.	This requires support and interest from external school districts. There are four school districts in the FVRD.
EDU	EM	Update the FVRD Household and Individual Emergency Preparedness Workbook to include FireSmart information.	2	FVRD EM FireSmart	Staff time	Updated workbook.	
TRX	EM	Develop training for PREP Pods that effectively spreads FireSmart messaging and teaches people in communities how to amplify wildfire risk reduction and prevent wildfire startups.	2	FVRD EM, FVRD FireSmart	Staff time	Training Module and materials for PREP Pod Champions to implement.	Establishing these standards will streamline the process of developing these local coordinators. Key training includes FireSmart 101 and Local FireSmart Representative training.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
TRX		Encourage all fire departments in electoral areas to take basic wildfire suppression training to increase incident stabilization when dispatched to a fire start up that is not a structure fire. Where FVRD fire departments are achieving basic competencies, or are in high-risk areas, consider additional training opportunities.	2	FVRD Protective Services	Staff time	Identify a list of key courses for wildfire training.	This should focus on basic courses for wildfire suppression, such as WSPP-WFF1. The FVRD may choose to train only a selection of fire suppression staff in each department.
TRX	EM, IAC	Continue to deepen the connection with the non-FVRD fire departments and the relationships among them, the EM staff for EOC purposes, and FVRD fire departments as part of operational readiness for wildfire emergencies.	2	FVRD EM, FVRD Protective Services	Staff time		
EM		Create and integrate Wildfire Preparedness Conditions Guide into EMP	2	FVRD EM	Staff time	Updated EMP.	
EM	IAC, LEG	Share the FVRD Evacuation Route Guides with the Ministry responsible for forestry and Crown land management for awareness of the criticality of routes and the importance of wildfire risk reduction activities to protect those routes.	2	FVRD EM FireSmart	Staff time	Important egress routes incorporated into planning led by external provincial agencies.	This process occurred in parallel with the CWRP, but should continue with future provincial projects.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
VEG		Consider FireSmart Green Spaces Assessments for regional park trails identified in this plan.	2	FVRD EM FireSmart	Staff time, CRI Funding	Completion of assessments.	Note that some areas/trails may require more detailed assessments, such as a fuel management prescription. However, the greenspace assessment is much simpler, and a suitable first step for potential wildfire risk reduction activities. Implementation of these activities is a recommendation under Vegetation Management. Some assessments have already been completed.
VEG		Implement fundable Fuel Management Prescriptions that have been completed.	2	FVRD EM FireSmart	Staff time, Contractor, CRI Funding	Successful implementation of the Beaudry and Sumas Mountain FMPs.	These two FMPs are the most logical for the FVRD to pursue and coordinate. Other FMPs have been completed in the area, but are the responsibility of other regional partners in wildfire resiliency. As further FMPs are developed, more opportunities for implementation will develop.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
Year 3 Actions							
EDU		Using CRI grant funding, create a FireSmart Gardening and Landscaping guide that identifies plants, materials and resources suitable within the hardiness zones and WUI risk zones of the FVRD.	3	FVRD EM FireSmart	Staff time, CRI Funding	A list of suitable plants is provided on the FVRD FireSmart website.	
LEG		Consider developing wildfire risk management policies for regional and community park management.	3	FVRD EM, FVRD Regional Parks	Staff time, CRI Funding	Detailed policies on parks management that includes specific guidelines to reduce wildfire risk as part of parks operations.	This may be accomplished through revisions to the existing FVRD Regional Parks Strategic Plan (2014-2024), or through part of an update process to this plan.
DEV		Develop a planned approach for prioritizing mitigation of Critical Infrastructure FireSmart vulnerabilities.	3	FVRD EM FireSmart	Staff time	Vulnerabilities for all Critical Infrastructure identified in this plan are mitigated.	Prioritize mitigation of FVRD Critical Infrastructure FireSmart vulnerabilities based on risk level. Ensure this information is provided to Non-FVRD CI owner/ operators to inspire fire risk mitigative action.
DEV		Consider procurement activities and where appropriate, include wildfire risk mitigation within FVRD commissioned projects.	3	FVRD EM FireSmart, FVRD Development Services	Staff time, CRI Funding	Integration of wildfire considerations in FVRD commissioned projects.	This policy will be particularly important for Critical Infrastructure that is developed in the FVRD.
TRX	EM, IAC	Explore opportunities to include wildfire emergency training within the FVRD EM/EOC Training and Exercise Program and Plan.	3	FVRD EM	Staff time	Assessment completed, and training developed if feasible.	

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
TRX	FS	Explore the creation of policies and processes that maximize the grant funding and compensate for services rendered under the eligible grant opportunities.	3	FVRD EM	Staff time		
VEG		Create internal policy and/or process to enable FireSmart related extraordinary green waste to be funded internally under the FireSmart grant where planned community FireSmart events, chipping and binning events, or FireSmart home assessments have resulted in the green waste.	3	FVRD EM FireSmart	Staff time, CRI Funding	Successful program developed for reducing or waiving FireSmart green waste disposal costs.	
VEG		Consider accomplishing vegetation management in Regional Parks via seasonal crew funded by the CRI grant specific to this purpose, similarly to those serving in Engineering & Utilities.	3	FVRD EM FireSmart, FVRD Regional Parks	Staff time, CRI Funding	Mitigation needs identified in assessments are completed	
VEG		Develop fuel management prescriptions for areas identified in this CWRP.	3	FVRD EM FireSmart	Staff time, Contractor, CRI Funding	Develop FMPs for priority areas.	The FVRD may choose to adopt a phased approach for these FMPs, working on 1-2 per year.
VEG	DEV, EM	Continue the seasonal vegetative management roles in Engineering with an aim to: reduce vegetation outward to 30m, ensure removal of vegetative debris, and where relevant, invasive species removal.	3	FVRD EM FireSmart, FVRD Engineering and Community Services	Staff time, CRI Funding	Roles maintained.	There is considerable efficiency in maintaining these roles, rather than hiring contractors as needed.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
Year 4 Actions							
TRX	EM	Consider basic wildfire suppression training within the TR/EX and increase access to it for non-fire staff.	4	FVRD EM	Staff time, CRI Funding	Assessment completed, and training developed if feasible.	
Year 5 Actions							
FS	EDU, EM, LEG	Evergreen the CWRP and consider seeking grant funds for a full review and refresh five years from publication, or when triggers/ thresholds are achieved.	5	FVRD EM	Staff time, CRI Funding	CWRP continues to be accurate and up to date.	Complete full CWRP update in years ending with 6 or 1, and align updates with other work planning cycle of other FVRD EMP documents. Suggested triggers for minor revisions include large new developments, community boundary alterations, expansion or reduction to FVRD wildfire risk reduction services such as water systems and fire services, new census data. CWRP may be updated based on progress recorded on the recommendations dashboard.

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
EDU		Transition current FireSmart Recognized Neighbourhoods to the new BC FireSmart Collective model.	5	FVRD EM FireSmart	Staff time, CRI Funding	Interested communities achieve this recognition.	Previously called the FireSmart Neighbourhood Recognition Program, which the FVRD provided support to communities pursuing. This initiative must be community led, but the FVRD can provide support as needed. The FVRD can promote and support this initiative to interested communities.
DEV		Continue to incorporate wildfire as a natural hazard for all OCPs that apply to FVRD unincorporated electoral areas.	5	FVRD EM FireSmart, FVRD Development Services	Staff time, CRI Funding	All OCPs include wildfire as a natural hazard.	This has been recently completed for EA C, which provides a model for future OCP updates. It is beneficial if the language in each OCP is consistent. A single wildfire hazard mapping exercise for the entirety of the FVRD unincorporated electoral areas will increase efficiency, rather than completing this analysis during each OCP update.
DEV		Consider administrative tools available for land use regulation that continue to foster wildfire risk reduction in high risk areas.	5	FVRD EM FireSmart, FVRD Development Services	Staff time	Practical tools identified.	

CWRP Section	Related Sections	Action	When (Year)	Lead	Resources	Metric for Success	Notes
DEV		Consider the development of a strategy to increase wildfire resiliency throughout FVRD's current land use planning and development framework.	5	FVRD EM FireSmart, FVRD Development Services	Staff time, CRI Funding	Opportunities within existing framework identified.	This is presented as an opportunity for an alternative to other DEV recommendations. Some headway has been made with wildfire hazard assessment Terms of Reference.
TRX		Consider the functions of a FireSmart Wildfire Forest Professional and whether that would help FVRD achieve the FireSmart program objectives.	5	FVRD EM, FVRD FireSmart	Staff time	Develop existing FVRD EM Coordinator—FireSmart into a Wildfire Professional role.	A sample description outlining qualifications and responsibilities is available on the FireSmart BC website.
EM	TRX	Consider acquiring wildfire specific suppression equipment for the FVRD's FDs, coordinated with wildfire training.	5	FVRD EM, FVRD Protective Services	Staff time, CRI Funding	Wildfire equipment acquired and staff trained to use, deployed strategically in FVRD.	It is important that this equipment be closely coordinated with training, to ensure staff are sufficiently trained to use and deploy this equipment.
EM		Consider conducting a water supply analysis for FVRD unincorporated electoral areas to determine water supply availability fire suppression.	5	FVRD EMP, FVRD Engineering and Community Services	Staff time, CRI Funding	Completed assessment of FVRD water systems for water supply availability for suppression needs.	This assessment will provide valuable information on water availability for fire suppression. This can be added to the Wildfire Planning Dashboard once complete, and shared with suppression partners such as the BCWS.

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1: Introduction

Wildfire is a healthy and natural part of our ecosystems in British Columbia. However, wildfires also have great potential to disrupt our communities. With warming temperatures and changing precipitation regimes due to climate change, the frequency, severity, and size of wildfires in BC has been increasing over the last decade. 2017 and 2018 were two of the worst *wildfire seasons* in BC history—with 1.2 and 1.3 million hectares burned respectively. The 2021 *wildfire season* was notable as well, with approximately 868,000 hectares burned, 181 community evacuation orders, and 304 community evacuation alerts, some of which occurred within the Fraser Valley Regional District (FVRD) and others which resulted in evacuees being supported in the FVRD. The 2023 *wildfire season* in British Columbia continued this distressing trend, with a record setting 3 million hectares burned across the province. Specific incidents, such as the West Kelowna Fire, Shuswap Fire, and Donnie Creek Fire, drew national attention and highlighted the escalating challenge of managing wildfires amid changing climatic conditions.

The FVRD has been severely impacted by wildfire in recent years. The 2021 Long Island wildfire in Electoral Area (EA) C resulted in remote island evacuation orders. The 2022 Flood Falls Wildfire in EA B led to evacuation orders, and presented significant suppression challenges due to the steep terrain present. 2023 had more than 100 wildfires occurring in the FVRD EAs with ignitions in all eight EAs. Recently, in 2025, alerts were issued for the community of Cascade Bay in EA C due to the nearby Bear Creek Wildfire, Yale due to the nearby Sailor Bar wildfire, and Coquihalla Lakes in Area B for the Mines Creek fire outside the FVRD north of its boundary with the Thompson-Nicola Regional District. However, the most significant recent wildfire in the FVRD was the 2023 Kookipi Wildfire. This wildfire was large at nearly 20,000 hectares, and spread extremely quickly into the FVRD EA A community of Nahatlatch & Keefers. This wildfire caused the destruction of nearly 30 structures, including 6 homes and some businesses.

Wildfires can be tremendously damaging. Although often there is a focus on large, dramatic wildfire events, even small wildfires can cause significant disruptions. Rural communities, such as many of those in the FVRD's unincorporated electoral areas, are often at the highest risk of wildfire. These areas often lack structural fire protection, which in turn makes obtaining fire insurance very challenging. Uninsurable losses due to wildfire impacts are not eligible for Disaster Financial Assistance in the province of BC, therefore properties with a high level of *wildfire risk* are also likely to experience more significant impacts and challenges recovering from wildfire. Resiliency to wildfire in these rural areas requires homeowners pursue *FireSmart* principles, which can often be a key driver in structures surviving wildfire. The FVRD's role is to support these residents, through providing various *FireSmart* tools and resources.

Wildfire Risk

Wildfire risk is an assessment of the combined probability and consequences of severe wildfire.

The increased presence of wildfire across BC and within the FVRD has created an increased need for proactive *wildfire risk* prevention and mitigation. Advances in modern wildfire science, expansion of prevention funding programs, and the role of BC local governments in disaster and emergency management have also evolved to address *wildfire risk*. A focus on the prevention of structure loss and community impacts in the *Wildland-Urban Interface* (WUI), the area where communities meet the forest, is becoming vital to reducing *wildfire risk*. This FVRD Community Wildfire Resiliency Plan (CWRP) for the FVRD aims to update present *wildfire risk* information in the FVRD to captures these wildfire trends, and identifies strategies for mitigation within the FVRD's role as the local government for its unincorporated EA communities.

The Wildland-Urban Interface

The Wildland-Urban Interface, or WUI, consists of those areas where structures or communities are located in or adjacent to combustible wildland vegetation. The WUI includes both interface and intermix zones. Interface occurs where developed areas meet wildland vegetation with a clearly defined boundary. Intermix occurs where structures are interspersed throughout wildland vegetation and no clear boundary exists.

Photo 1. Wildland-urban interface (WUI) near Cultus Lake.

1.1. Overview

CWRPs are the next generation of *Community Wildfire Protection Plans* (CWPPs) in British Columbia. CWPPs were introduced in 2004 as a comprehensive and science-based approach toward *wildfire risk* reduction planning that reflects local priorities and provincial goals for wildfire mitigation. A series of CWPPs were developed for the FVRD in 2019 for its unincorporated EAs.

The Province's format for CWPPs has since evolved into the CWRP framework, a new iteration of plan that focuses on a broader approach to overall resilience to *wildfire risk* management. Key provincial goals of the revised CWRP process are:

- Increasing communities' capacity and understanding of *wildfire threat* and risk.
- Fostering greater interagency collaboration across administrative boundaries.
- Being more responsive to the needs of different types of communities throughout British Columbia.
- Developing achievable and accountable action items for reducing *wildfire threat* and risk.

Specifically, the new CWRP process addresses the seven principles/disciplines of FireSmart Canada which notably cross-pollinate with disaster and emergency management responsibilities[1]:

1. Education
2. Vegetation Management
3. Legislation and Planning
4. Development Considerations
5. Interagency Cooperation
6. Cross-training
7. Emergency Planning

Through a competitive bid process in 2025, Frontera Forest Solutions Inc. was retained by the FVRD to develop a new CWRP for the unincorporated EAs where the FVRD provides local government services, inclusive of Emergency Management. This represents a step forward for the FVRD's existing Emergency Management Program, within which the wildfire mitigation program is hosted, and results in replacing the 2019 CWPPs and setting forth a vision for the next phase of *wildfire risk* mitigation and wildfire resiliency planning, with the applied lens of disaster and emergency management.

Wildfire Threat

Wildfire threat is the ability of a wildfire to ignite, spread, and consume organic material (trees, shrubs, and other organic materials) in the forest. The major components used to define wildfire threat are fuel, weather, and topography, also known as the wildfire environment. Wildfire threat identifies the probability of severe wildfire and is a key input to assessing *wildfire risk*.

The CWRP must be understood within the context of the *Local Government Act* of BC and the *Community Charter* for local governments. This can lead to complexities, where the CWRP process may not be fully evolved to match the accountabilities and authorities of local governments. The *Emergency and Disaster Management Act* of BC emphasizes the need for planning approaches for disaster risk reduction that incorporate local context. This CWRP has been designed to respect those context based drivers, with recommendations specifically tailored for the FVRD's Emergency Management Program policy environment and the organizational context of the FVRD.

1 See: https://www.firesmartcanada.ca/what-is-firesmart/understanding-firesmart/seven-firesmart-disciplines/

1.2. CWRP Goals

The purpose of this CWRP is to identify *wildfire risk* within and surrounding communities of the FVRD's eight unincorporated EAs, and to provide strategies for reducing identified threats and risks. Specifically, the landscape-level *wildfire risk* assessment of this CWRP will inform strategies that will aim to:

- Reduce the likelihood of wildfire entering the communities within the FVRD's EAs.
- Increase the safety of community members in the event of a wildfire, including egress safety.
- Reduce the impacts/losses to property and *Critical Infrastructure* (CI) by employing *FireSmart* principles.
- Capture opportunities and provide recommendations to reduce the negative economic and social impacts of wildfires within the FVRD.
- Highlight opportunities for Indigenous Governing Body (IGB) collaboration on *wildfire risk* reduction activities for mutual benefit and risk reduction without negatively impacting Indigenous Cultural and Traditional interest for areas off reserve that have been defined by an IGB for engagement under the Emergency and Disaster Management Act (EDMA).

It is important to note that this CWRP is focused on the unincorporated EAs that the FVRD directly administers. Member municipalities of the FVRD (Mission, Chilliwack, Harrison, Kent, Hope, and Abbotsford) are not included in the study area for this CWRP, with the exception of the FVRD regional parks which are often located within municipalities. Similarly, the First Nations Reserve lands within the FVRD are also not included in the study area for this CWRP. The FVRD acknowledges that Crown Public Lands are also the Traditional Lands of many First Nations. With this awareness, opportunities have been presented throughout the project inviting Indigenous Governing Bodies (IGBs) to be informed about the learnings and information. External to this project, Municipalities and First Nations may pursue independent CWRPs, tailored to their unique circumstances and governance structures.

A further FVRD goal of this CWRP is to identify where and how unique facets across the landscape, such as the Cultus Lake Park Board, can find information specifically tailored to the hyperlocal circumstances and identify opportunity for the FVRD to empower greater *wildfire risk* reductions where there is another oversight and administration body with primary responsibility that include administration, public works, fire services, park management, and beach management.

Critical Infrastructure

Critical infrastructure includes any assets owned by the Provincial government, local government, a public institution (such as a health authority or school district), a First Nation or Treaty First Nation that are essential to the health, safety, security or economic wellbeing of the community and the effective functioning of government, or assets identified in a Local Authority Emergency Plan Hazard, Risk and Vulnerability and CI assessment.

1.3. CWRP Development Summary

The study area for this CWRP consists of the FVRD's eight unincorporated EAs (defined as the *Area of Interest* or "AOI"), with a focus on the WUI. The WUI is the landscape where structures and other human development meet or intermingle with undeveloped vegetated, or wildland forested areas (See **3.2 Wildland-Urban Interface**). For the purposes of this CWRP, the WUI is defined as a one-kilometre buffer around structures and development within the study area.

This CWRP focuses in particular on the 30 main settled areas within the FVRD's unincorporated EAs. Some of the 30 settled areas (sometimes referred to as 'hamlets') also have Community Profiles in the FVRD Emergency Management Plan (EMP) based on Census 2021 demography. An additional handful did not have enough population for a local Census profile and have been presented in the CWRP with no correlating EMP profile.

This CWRP was 100% grant funded by the Province of BC, through the Community Resiliency Investment (CRI) program administrated by the Union of British Columbia Municipalities (UBCM). This program provides funding for local governments in BC to address *wildfire risk*, and the CWRP is a key foundation element for accessing CRI funding programs. As such, the CWRP must include all content requirements associated with CRI funding. While the UBCM requires that a CWRP must 'align' with the template provided, there are no policy-based requirements for the final product to be structured on the template. However, there are funding requirements for 100% of the template-content to be within the final CWRP. This includes presenting the required CWRP content and information required within the province's guidance document, identifying a suitable WUI or a series of suitable WUI's that meet CRI guidelines, and following a standardized process for *wildfire risk* analysis.

Photo 2. Chilliwack River and Bell Acres.

In developing this CWRP, the consultants worked through five key phases:

1. **Project Kick-off, Background Research, and Interviews** occurred at the beginning of the project. This project phase required extensive support from the FVRD staff throughout all phases of the project. Frontera worked closely with staff from the FVRD Emergency Management program, including the Emergency Management and *FireSmart Coordinator*, to ensure this CWRP was closely aligned with their program. In parallel, Frontera conducted extensive background research, as well as supported information sharing with stakeholders. Engagement with local IGBs was led by the FVRD on a government-to-government basis, with Frontera providing technical support.
2. **Field Assessments** were conducted to evaluate *wildfire threat*, *Values at Risk* (VAR), and potential areas for mitigation. Frontera visited areas of potential high *wildfire threat*, as well as critical VAR, to ensure biophysical factors of *wildfire risk* were captured.
3. A **Wildfire Risk Assessment** was then conducted, combining background research and field assessments to determine *wildfire risk* for the FVRD. This assessment used advanced *wildfire risk* modelling software to identify *wildfire risk* both at the regional scale, and at the community scale for the 30 hamlet communities within the FVRD's eight EAs.
4. **The CWRP document was developed** to assemble all the factors that drive *wildfire risk*, a narrative summary of the *wildfire risk*, summarize current *wildfire risk* mitigation activities, and provide a strategy for future *wildfire risk* mitigation. Included in this CWRP are multiple maps, summary tables, and graphics to summarize this information.
5. **A Final Presentation was provided** by Frontera staff to elected officials and staff of the FVRD. This presentation summarized key findings of the CWRP, and outline mitigation options for the FVRD in future *wildfire risk* mitigation.

Area of Interest

The Area of Interest (AOI) for a CWRP includes all the area that lies within the municipal boundary, regional district boundary, or First Nations land including First Nation reserve land, land owned by a Treaty First Nation (as defined by the *Interpretation Act*) within treaty settlement lands, or land under the authority of an Indigenous National Government boundary.

FVRD WUI

Unless otherwise noted, "FVRD WUI" refers to the WUI surrounding the unincorporated electoral area that does not overlap with other local government or First Nation jurisdiction.

FVRD Emergency Management Plan

The FVRD Emergency Management Plan (EMP) includes Community Profiles for most of the 30 settled areas in the FVRD unincorporated areas. These Community Profiles provide a summary of key information for emergency management, including demographics based on the latest (2021) census demography. Some of the communities did not have enough population for a local census profile, and as such are presented in the CWRP without a correlating EMP profile. The EMP can be accessed here.

2: Relationships to Other Plans

The CWRP, as well as any *wildfire risk* mitigation plan or activity, relates to many plans that inform or may be informed by the CWRP. CWPPs or CWRPs may exist for the community or neighbouring communities. This CWRP was additionally informed by the previous three CWPPs developed for the FVRD in 2019 for its eight unincorporated EAs.

Given that much of the land within the FVRD EAs is Crown Public Land, provincial wildfire plans are also relevant. The Ministry of Forests (MOF) is responsible for *wildfire risk* analysis and mitigation on Crown Public Lands, all of which is assessed and guided by *Wildland Urban Interface Wildfire Risk Reduction (WUIWRR) Tactical Plans*. Two WUIWRRs have been developed that overlap the FVRD's EAs. The 2025 Chilliwack South WUIWRR Tactical Plan covers the Chilliwack River Valley in EA E. The 2025 South Fraser Canyon WUIWRR Tactical Plan covers portions of EA A and B in the Fraser Canyon. The MOF is also currently developing two additional WUIWRRs for the Hope area in EA B, as well as the Harrison area in EAs C and G. These plans are expected to be complete in 2026. For more discussion on these WUIWRR plans and how they relate to wildfire mitigation in the FVRD, see the Vegetation Management section of this CWRP.

There are also a host of the FVRD's bylaws, plans, and policies, that relate to the CWRP and *wildfire risk* mitigation and structure fire protection services. Additionally, since much of the WUI for the FVRD's EAs overlaps with provincial Crown Public Lands, there are numerous provincial plans that are pertinent to *wildfire risk* mitigation. Primarily these plans address vegetation management on Crown Public Lands, and may only be relevant in specific circumstances.

All relevant plans, bylaws, and regulations were reviewed as part of the background research of this CWRP. Given the large quantity of plans reviewed, providing comprehensive details on all plans reviewed would result in considerable unnecessary information within this CWRP. As such **Table 3** summarizes the plans that were most pertinent to this CWRP. This includes the aforementioned CWPPs, WUIWRRs, and the FVRD's bylaws. **Table 3** provides a brief overview of these plans and documents, with more details provided in the relevant sections of the CWRP.

Wildland Urban Interface Wildfire Risk Reduction Tactical Plan

These plans are wildfire risk mitigation plans developed by the provincial government. They identify opportunities for vegetation management to reduce wildfire risk, but are limited to Crown public lands within a specific study area.

Photo 3. View of North Bend and vicinity.

Table 3. Key plans and their relationship to this CWRP.

Plan Type	Plan Title	Relationship to CWRP	Important Findings or Notes
FVRD Plans and Documents relevant to this CWRP			
Previous CWPP/CWRP	Fraser Valley Regional District, Zone A Community Wildfire Protection Plan (2019)	This CWPP identifies wildfire risk and mitigation options for the FVRD's EA A and EA B.	These CWPPs provide valuable context and wildfire risk information that has informed this CWRP. This planning process led to the development of the FVRD FireSmart program, which is foundation of wildfire mitigation in the FVRD. It must be noted that the provincially provided funding requires modernization to the "resiliency" approach versus the former "protection" approach.
Previous CWPP/CWRP	Fraser Valley Regional District, Zone B Community Wildfire Protection Plan (2019)	This CWPP identifies wildfire risk and mitigation options for the FVRD's EA C, EA F and EA G.	
Previous CWPP/CWRP	Fraser Valley Regional District, Zone C Community Wildfire Protection Plan (2019)	This CWPP identifies wildfire risk and mitigation options for the FVRD's EA D, EA E, and EA H.	
Emergency Management Program Framework	FVRD Emergency Management Program Policy (2023)	The EMPP is a framework enacted as policy. It defines the FVRD EM program environmental and organizational contexts as program drivers and structures the program through a "level of service" lens. The EMPP defines the "core services" of the EM program.	The EMPP is the foundational framework to the FVRD integrative and comprehensive approach to Emergency Management. The EMPP provides oversight, direction, and scope to the EM program. This document is central to FVRD Emergency Management.
Emergency Management Plan (EMP)	FVRD Emergency Management Plan (2024)	This EMP describes the way that FVRD connects its everyday accountabilities and authorities to the FVRD Emergency Management Program. This plan also describes the FVRD's community profiles and potential risk factors.	This document is central to the FVRD's Emergency Management, and the CWRP has designed to align with the FVRD structure and role described within this EMP. This EMP is referenced multiple times throughout this CWRP.
Hazard Report	FVRD Hazard Report (2023)	This document identifies hazards and consequences of those hazards potentially resulting in emergencies in the FVRD EAs. EM planning is based on hazards and the FVRD Hazard Report is a key driver for the approach undertaken in the EMP.	This plan identifies wildfire as a hazard in the FVRD. This CWRP provides a more detailed analysis to establish wildfire risk, and provides mitigation recommendations.
Regional Growth Strategy	FVRD Regional Growth Strategy (Bylaw No. 1706, 2023)	Regional growth strategies are adopted by regional districts that direct long-term planning. This aids in identifying areas of growth and future infrastructure needs in a region, which are then incorporated into OCPs.	This strategy identifies regional goals relevant to the CWRP including: limiting development in areas of environmental hazards (4.2),implementing recommendations from community wildfire plans, and continuing the FireSmart program (7.3 c). This strategy also includes a policy for advocacy for evacuation routes.

Plan Type	Plan Title	Relationship to CWRP	Important Findings or Notes
Official Community Plans (OCPs)	Area A OCP – Boston Bar, North Bend, and Canyon Alpine (Bylaw 804, 1994) Area B OCP – Yale, Emory Creek, Dogwood Valley, and Choate (Bylaw 150, 1998) Area B and C OCP- Portions of EA B and C (Bylaw 800, 1986) and amendments Area G OCP – Deroche, Nicomen Island, and Sumas Mountain (Bylaw 866, 2009)	OCPs describe a long-term vision for the community they apply to. OCPs guide local government decision making through a series of objectives and policies. OCPs are central and critical documents, as all bylaws adopted must be consistent with the OCP.	These OCPs are diverse, reflecting the diversity of the communities within the FVRD's EAs. Any recommended wildfire policy or bylaw must be consistent with the relevant OCP. See **7 Legislation and Planning** and **8 Development Considerations** for additional discussion. OCPs do not apply to all lands.
Official Community Plans (OCPs)	Area C OCP - Hemlock Valley (Bylaw 1626, 2021)	These OCPs, in addition to the above notes, have specific wildfire provisions. These provisions vary, and are described in the column right. Note that many of these OCPs include provisions for assessments by a wildfire forester. These are not to be confused with FireSmart Assessments, which are a different methodology outside of the development context.	Policy 4.7 includes a requirement for wildfire hazard assessment by a professional forester in areas where development has a high wildfire hazard. This report is intended to ensure development employs wildfire risk mitigation techniques consistent with FireSmart.
	Area C OCP – Portions of EA C – Harrison Mills and Lake Errock (Bylaw 1747, 2024)		Policy 6.3.4 includes a requirement for wildfire hazard assessment by a professional forester in areas where development is within 500m of moderate, high, or extreme wildfire hazard. This report is intended to ensure development employs wildfire risk mitigation techniques consistent with FireSmart.
	Area D OCP – Popkum and Bridal Falls (Bylaw 1501, 2018)		Policy 9.5.3 - A wildfire hazard assessment by a professional forester may be required in areas where development has a high wildfire hazard. This report is intended to ensure development employs wildfire risk mitigation techniques consistent with FireSmart.
	Area E and H OCP – Columbia Valley, Lindell Beach, and Chilliwack River Valley (Bylaw 1115, 2011)		Policy 10.4.3 - A wildfire hazard assessment by a professional forester may be required in areas where development has a moderate, high, or extreme wildfire hazard. This report is intended to ensure development employs wildfire risk mitigation techniques consistent with FireSmart.
	Area F OCP – Hatzic Valley (Bylaw 999, 2010)		Policy 8.4.1 – New development in areas of high wildfire hazard must minimize risk of interface fire hazards to people and property.
Regional Parks Strategy	FVRD Regional Parks Strategic Plan 2014-2024	This document outlines the objectives for management of FVRD Regional Parks, with strategies for achieving those objectives.	Opportunities for including wildfire risk mitigation initiatives are discussed in **7 Legislation and Planning.**

Plan Type	Plan Title	Relationship to CWRP	Important Findings or Notes
Provincial Plans relevant to this CWRP			
Wildfire Risk Reduction Tactical Plans or projects	Chilliwack South WUIWRR Tactical Plan (2025)	Tactical plans guide fuel management to reduce wildfire risk on Crown Public Lands within a landscape. This tactical plan area overlaps with portions of the Fraser Valley in EA A and B.	Several vegetation management areas have been identified within EA A and EA B Two candidate areas overlap with the WUI for this CWRP, one east of Boston Bar and one west of North Bend. See **12 Vegetation Management** for more discussion.
Wildfire Risk Reduction Tactical Plans or projects	South Fraser Canyon WUIWRR Tactical Plan (2025)	Tactical plans guide fuel management to reduce wildfire risk on Crown Public Lands within a landscape. This tactical plan area overlaps with the Chilliwack River Valley in EA E.	Several vegetation management areas have been identified within EA E, however none of these areas are within the WUI of this CWRP. See **12 Vegetation Management** for more discussion.
Provincial Landscape Unit Plan Background Reports	There are 21 landscape units plans that overlap with the FVRD for sustaining elements of biodiversity.[2]	These plans set out objectives on Crown Public Lands for sustaining biodiversity within the landscape unit. Some areas within these landscape units, particularly OGMA, are legally protected (see legal orders below).	Any proposed vegetation management activities that overlap protected areas established in these landscape units must ensure activities are consistent with the direction included in the plan. See **12 Vegetation Management** for more discussion.
Provincial Orders for Landscape Units and Objectives	Each of the above landscape units is enabled through a separate legal order.	These orders delineate OGMAs and/or Wildlife Habitat Areas within the landscape unit. These areas legally protected from most forest harvesting activities.	

2 See: https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions/south-coast-region-plans/chilliwack-lu

3: Community Description

This section provides an overview of the study area for the FVRD CWRP, with a focus on the values that may be impacted by a wildfire. In sections **3.1** to **3.4**, information is provided at the regional and EA scale. Section **3.6** provides brief summaries of values at risk for each community identified in the CWRP.

3.1. Area of Interest

The *Area of Interest* (AOI) for a CWRP is defined as the local authority boundaries of the local government. The AOI for this CWRP is the electoral area boundaries of the FVRD, and sets aside municipalities and First Nations Reserve lands, regardless of overlap or co-location. The FVRD subdivides the AOI into eight separate EAs for administrative purposes. Within these EAs are numerous unincorporated communities. For the purposes of emergency planning, these communities require a special focus, as these are where most residents of the FVRD's unincorporated EAs reside, and is also where most *Values at Risk* (VAR) are located in the AOI.

Photo 4. View of Columbia Valley.

The FVRD is located in the southwestern portion of British Columbia, and is bordered by Metro Vancouver, Squamish-Lillooet Regional Districts to the west, while east and northeast the FVRD is bordered by the Thompson-Nicola Regional District and the Regional District of Okanagan-Similkameen. Within the FVRD, there are six incorporated municipalities: the Cities of Abbotsford, Chilliwack, and Mission, the Districts of Hope and Kent, and the Village of Harrison Hot Springs – resort municipality. These incorporated municipalities are not included in the AOI. Also within the FVRD is the Cultus Lake Park Board, a unique administrative area that operates independently of the FVRD for specific administrative activities. The Cultus Lake Park Board is included in this AOI only where relevant for the specific responsibilities the FVRD has within that area. There are numerous First Nations communities co-located among the FVRD, with independent IGBs and community members living on First Nations Reserve lands that are not included within the AOI for this CWRP. The FVRD acknowledges that collaboration is essential and most First Nations have their own *FireSmart* programs that are already part of the Fraser Valley Wildfire Resiliency Collaborative.

The FVRD covers a large, diverse area, spanning over 13,000 km^2 with just over 12,000 km^2 of which are in the EAs. The most prominent geographical feature is the Fraser River and its surrounding valley which is dominated by urban development and agriculture. Beyond this river valley, the Coast and Cascade mountains rise steeply and abruptly, leading to widespread mountainous terrain. Most of the EAs and unincorporated communities in the FVRD AOI are located either outside, or on the periphery of the Fraser River Valley, in or near the more mountainous terrain present. An exception to this is EA A and B, where the Fraser River Valley is narrow and steep, and the FVRD's unincorporated communities are primarily located on the steep terrain surrounding the river. **Table 4** summarizes the communities in the FVRD EAs, and identifies which EAs these communities are within.

Table 4. The FVRD's EAs and communities.

Electoral Area	Unincorporated Communities	
A	Boston Bar	Nahatlatch & Keefers
	Canyon Alpine	North Bend
B	Dogwood Valley	Spuzzum
	Laidlaw	Sunshine Valley
	Othello	Yale
C	Cascade Bay	Hemlock Valley
	Harrison Mills	Lake Errock
D	Bridal Falls	Popkum
	Jones Lake	
E	Baker Trails	Post Creek
	Bell Acres	Slesse Park
F	Durieu	McConnell Creek
	Hatzic Prairie	
G	Deroche	Hatzic Island
	Dewdney	
H	Columbia Valley	Cultus Lake South
	Cultus Lake North	

Photo 5. View of Harrison Mills.

3.2. Wildland-Urban Interface

The WUI occurs where homes, structures, and *Critical Infrastructure* (CI) are found adjacent to or intermixed with vegetated lands. For the purpose of the provincial FireSmart Community Funding and Support program[3], which is funding this CWRP, the eligible WUI is defined as a one-kilometre buffer from areas where structure density is greater than 6 structures/km^2. A structure is defined as a residence, business, or CI. This one-kilometre buffer represents a reasonable distance that embers from a wildfire can travel and ignite a structure. The WUI for the FVRD CWRP has been updated using the community structure locations.

Within the FVRD, the WUI differs significantly from the AOI. A majority of the FVRD's AOI is uninhabited, with few human VAR of wildfire. As such, the WUI of the FVRD's unincorporated EAs is the focus of this CWRP. A majority of the WUI for this CWRP surrounds the communities identified in **Table 4**. There are also circumstances where the WUI extends beyond the AOI, when communities are located near the boundaries of the AOI. These areas are included for context, but the FVRD has limited ability to administer *wildfire risk* mitigation activities in areas where the WUI is outside of their jurisdiction. The total area of all the WUIs in the FVRD is approximately 513.93 km^2, shown in **Figure 1.** The following sections summarize in more detail the communities in each EA.

3 See: https://www.ubcm.ca/cri/firesmart-community-funding-supports

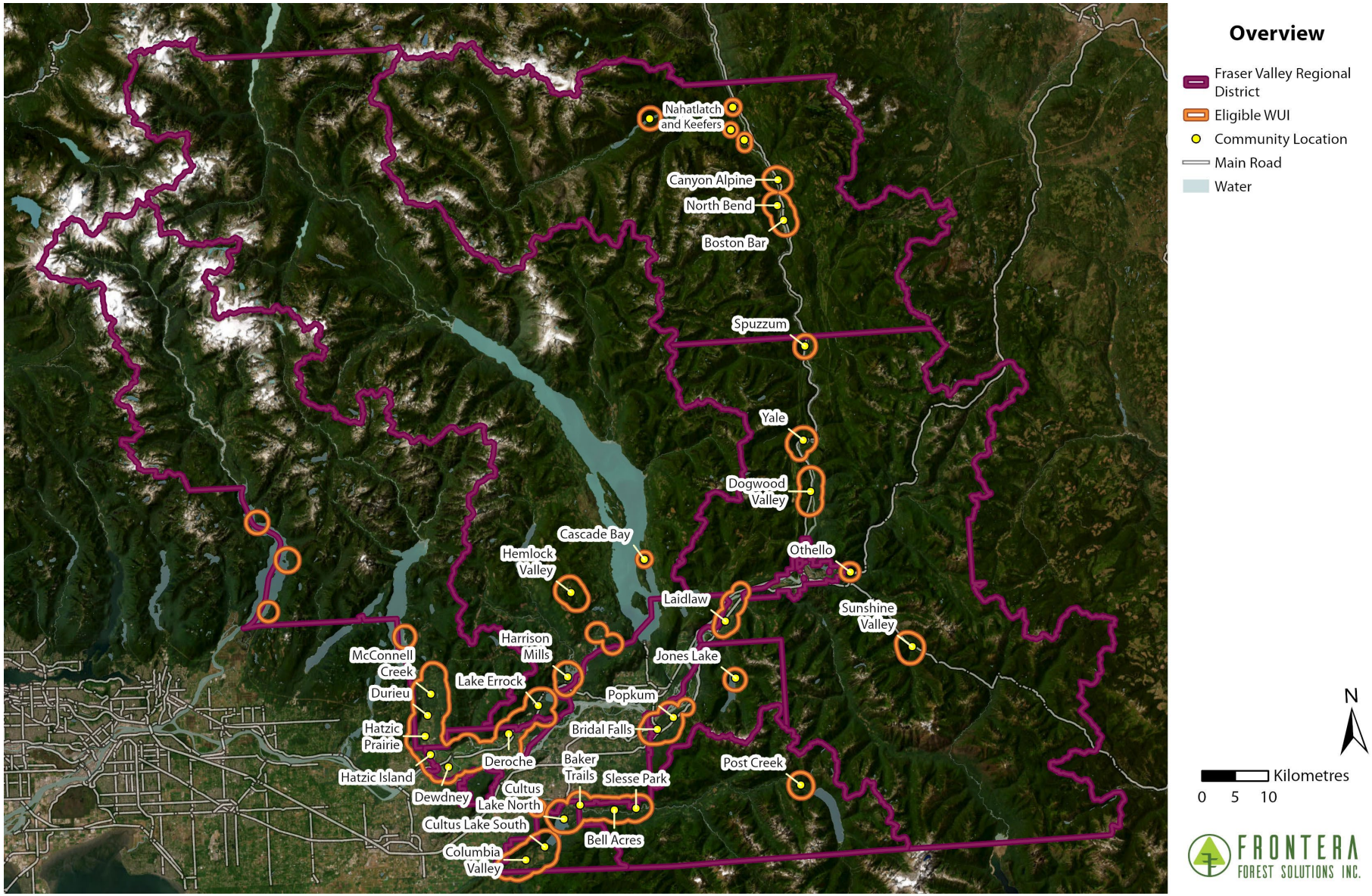


Figure 1. Areas of Interest and eligible WUI for the CWRP.

Electoral Area A

In EA A, the WUI is located in the Fraser Canyon and includes the communities of Boston Bar, North Bend, Canyon Alpine and Nahatlatch & Keefers (**Figure 2**). Boston Bar, Canyon Alpine, and North Bend form one continuous WUI, bisected by the Fraser River, with Boston Bar and Canyon Alpine on the east shores and North Bend on the west. Nahatlatch & Keefers and is located north of this continuous WUI on the west side of the Fraser, with multiple distinct WUIs. Nahatlatch & Keefers were severely impacted by the 2023 Kookipi Wildfire, which destroyed just under 30 structures which includes 6 homes, 3 businesses, and many outbuildings. The total area of the WUIs for EA A is approximately 56.19 km^2.

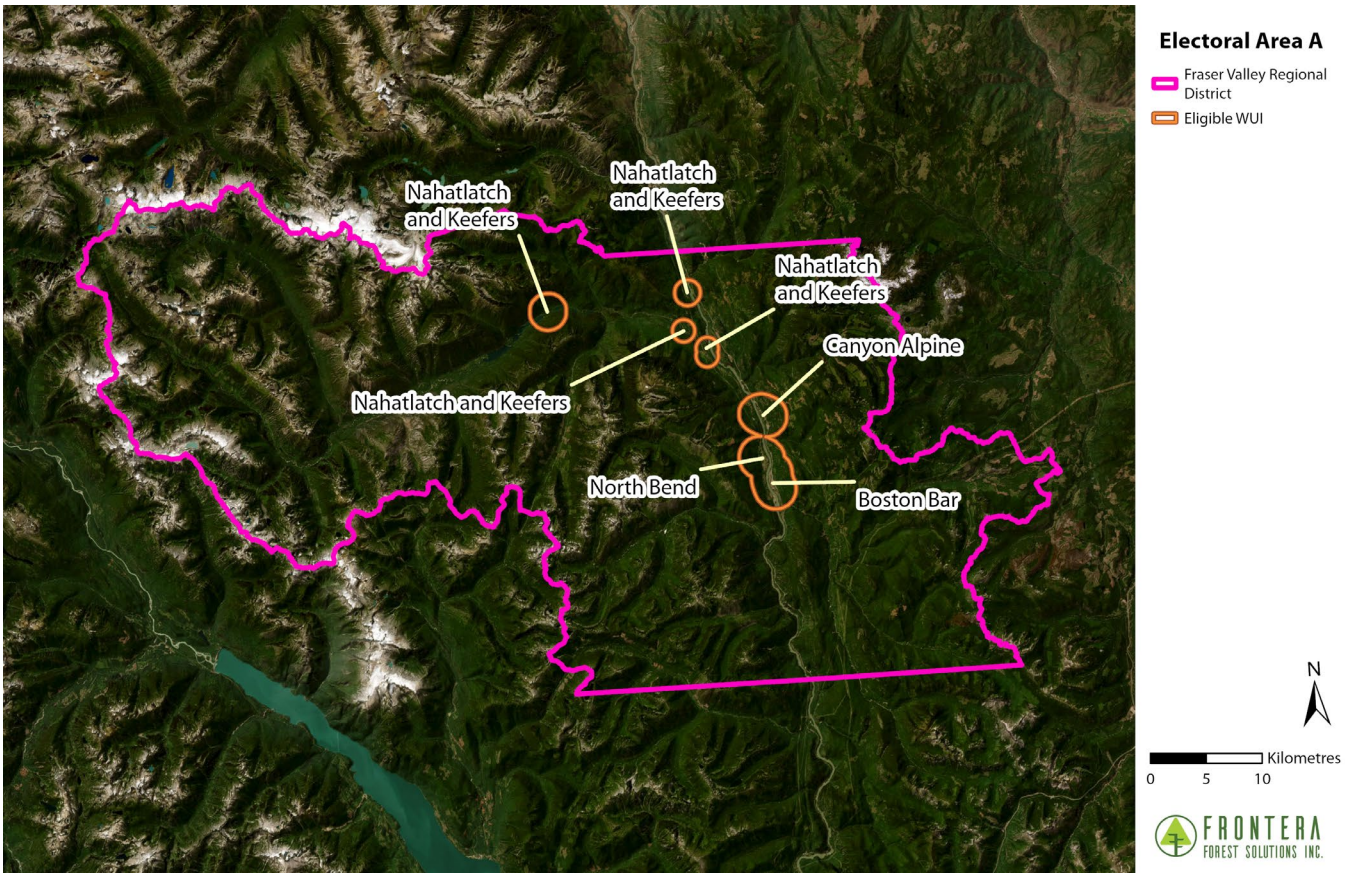


Figure 2. WUI and communities within EA A.

Electoral Area B

EA B is located south of EA A, and includes 6 WUIs (**Figure 3**). These WUIs include the communities of Spuzzum, Yale, Dogwood Valley, Othello, Sunshine Valley and Laidlaw. Spuzzum, Yale and Dogwood Valley are all communities located along the Trans-Canadian Highway on the west shores of the Fraser River, north of Hope. Othello is located east of and abutting the District of Hope, located on the northern shore of the Coquihalla River, and accessed via the Othello Road. Sunshine Valley is located on Highway 3, approximately 20km southeast of Hope. Spuzzum, Yale, Dogwood Valley, Othello, and Sunshine Valley abut with steep, forested landscape, and have vegetation throughout the communities. Laidlaw is located due west and abutting the District of Hope, on the south-eastern shore of the Fraser River, and surrounding Highway 1. Laidlaw is composed of primarily agricultural land, but includes steep forested land to the southeast. EA B's WUIs covers an area of approximately 89.33 km^2 in total.

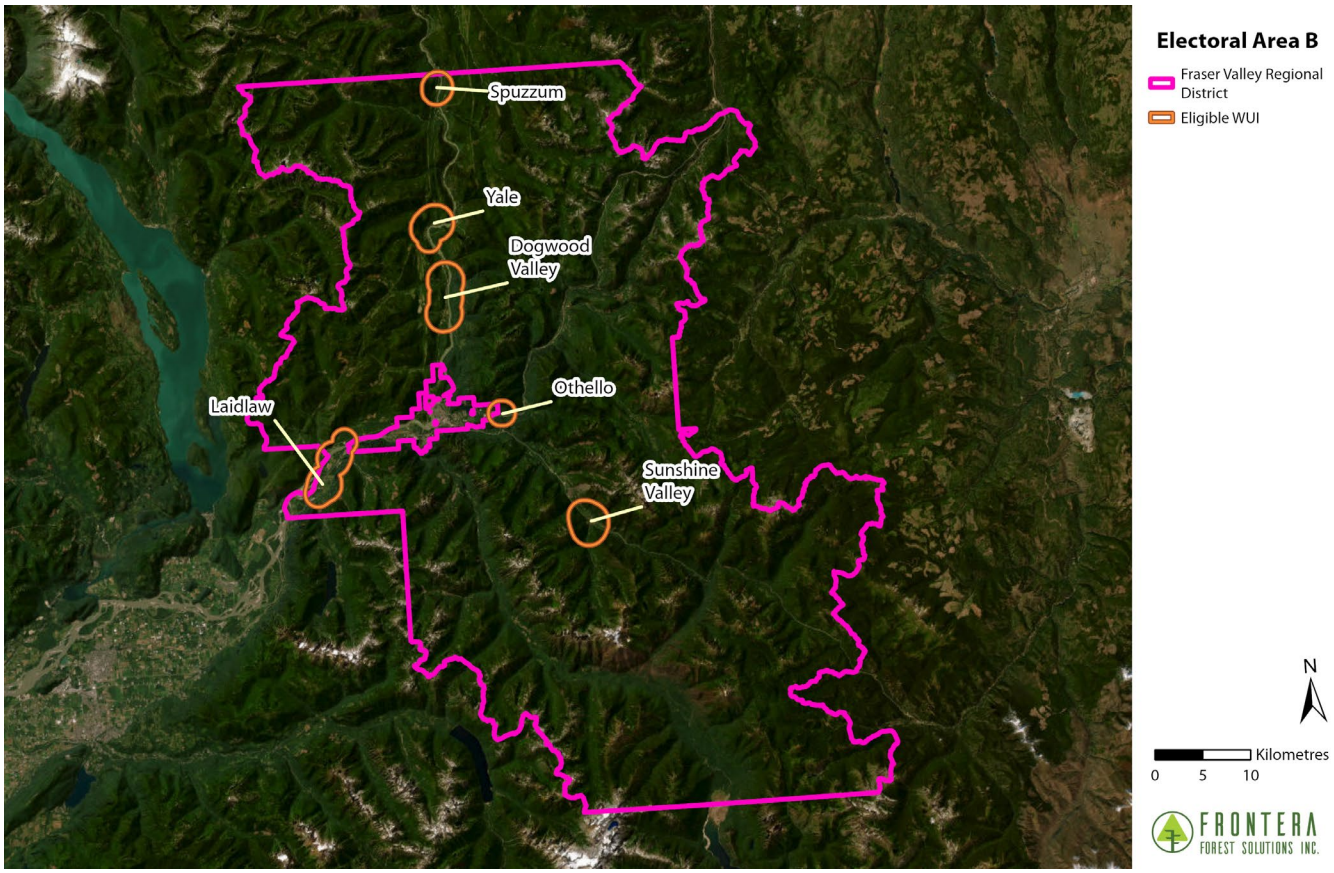


Figure 3. WUI and communities within EA B.

Electoral Area C

EA C occupies the north central portion of the FVRD, between EA A/EA B east, and EA F west (**Figure 4**). In EA C, there are five distinct WUIs, which includes the communities of Harrison Mills, Hemlock Valley, Lake Errock and Cascade Bay. Harrison Lake is the major geographical feature, with Cascade Bay located on its eastern shore. This heavily forested community is one of the more isolated in the FVRD, and is accessed by a rough Forest Service Road (FSR) from the municipality of Harrison Hot Spring 15 km south. Located west of Harrison Lake is Hemlock Valley. Hemlock Valley's WUI includes the Sasquatch Mountain Ski Resort and the numerous homes at the base of the resort. Hemlock Valley is surrounded by continuous forested land, and is accessed via the Hemlock Valley Road, which has had multiple extended closures for geotechnical issues. EA C also includes Long Island and Echo Island, however the structure density in here is insufficient to meet CRI criteria to be designated as WUI for the CWRP. These areas do have *wildfire risk*, and vulnerability to wildfire is increased by the lack of formal structure fire protection.

Harrison Mills is a community located southwest of Harrison Lake. Harrison Mills is comprised of a single, relatively dense neighbourhood on the shores of Harrison Lake, with continuous forest to the east. Harrison Mills is accessed via Highway 7. Lake Errock, located nearby to the southwest, has a similar composition, but located on the much smaller Lake Errock, and also accessed via Highway 7. EA C's WUIs cover an area of approximately 74.45 km^2 in total.

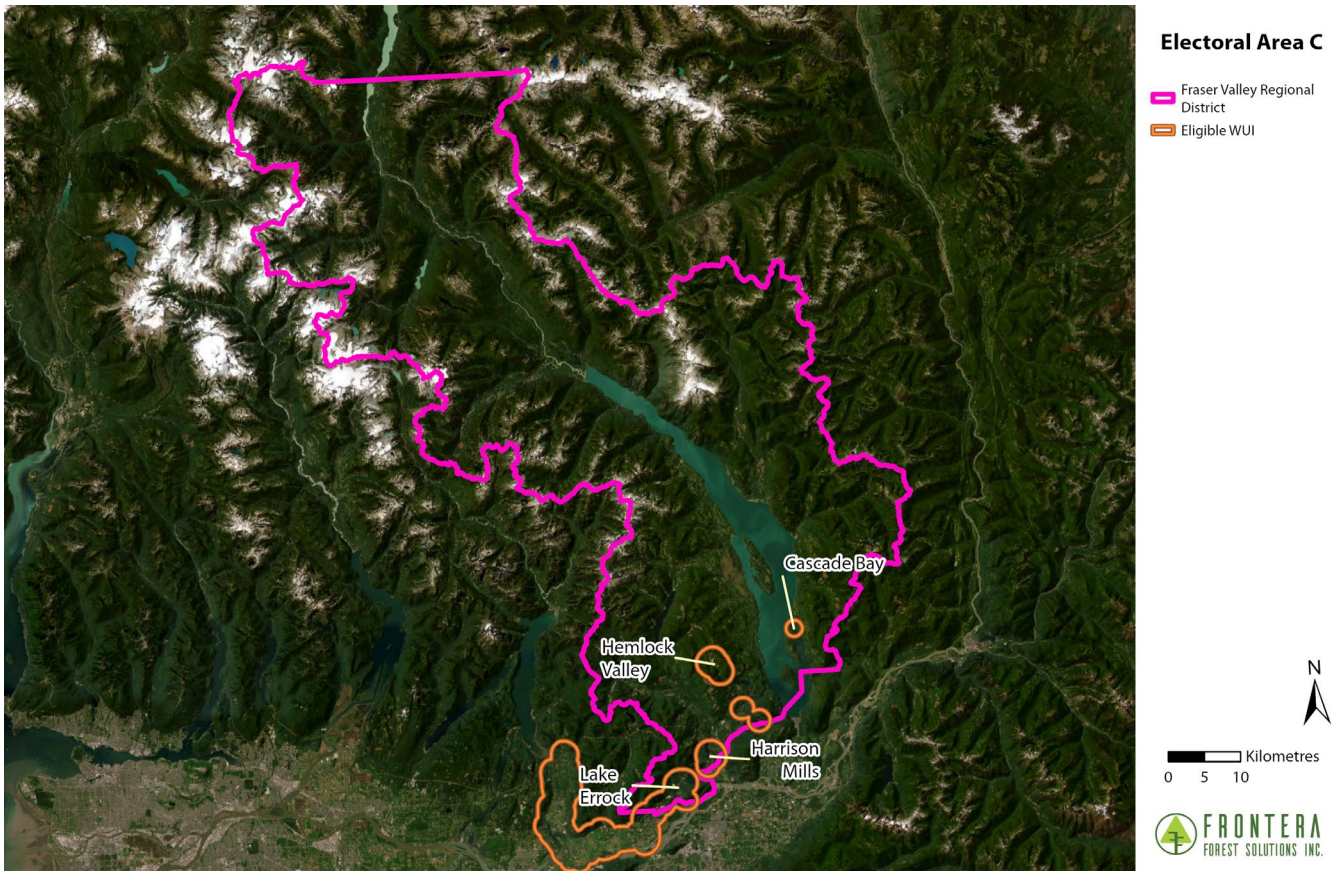


Figure 4. WUI and communities within EA C.

Electoral Area D

EA D occupies the central part of the FVRD. EA D is heavily forested with minimal development, largely limited to its western extent where Popkum and Bridal Falls are within the Fraser Valley (**Figure 5**). There are two WUIs in EA D. The first includes the communities of Popkum and Bridal Falls. These communities are largely developed with housing and agricultural land, with continuous forested vegetated limited to the steep mountain in the southeast of the WUI. Highway 1 runs through Popkum and Bridal Falls. The second WUI area surrounds Jones Lake, a remote area with a cluster of primarily recreational properties. This community is surrounded by continuous and mountainous forest vegetation and Wahleach Lake (also known as Jones Lake) itself. Jones Lake is accessed via the Jones Lake FSR, an approximately 20-km rough forest road that is accessed from Highway 1. EA D's WUIs cover an area of approximately 36.81 km^2 in total.

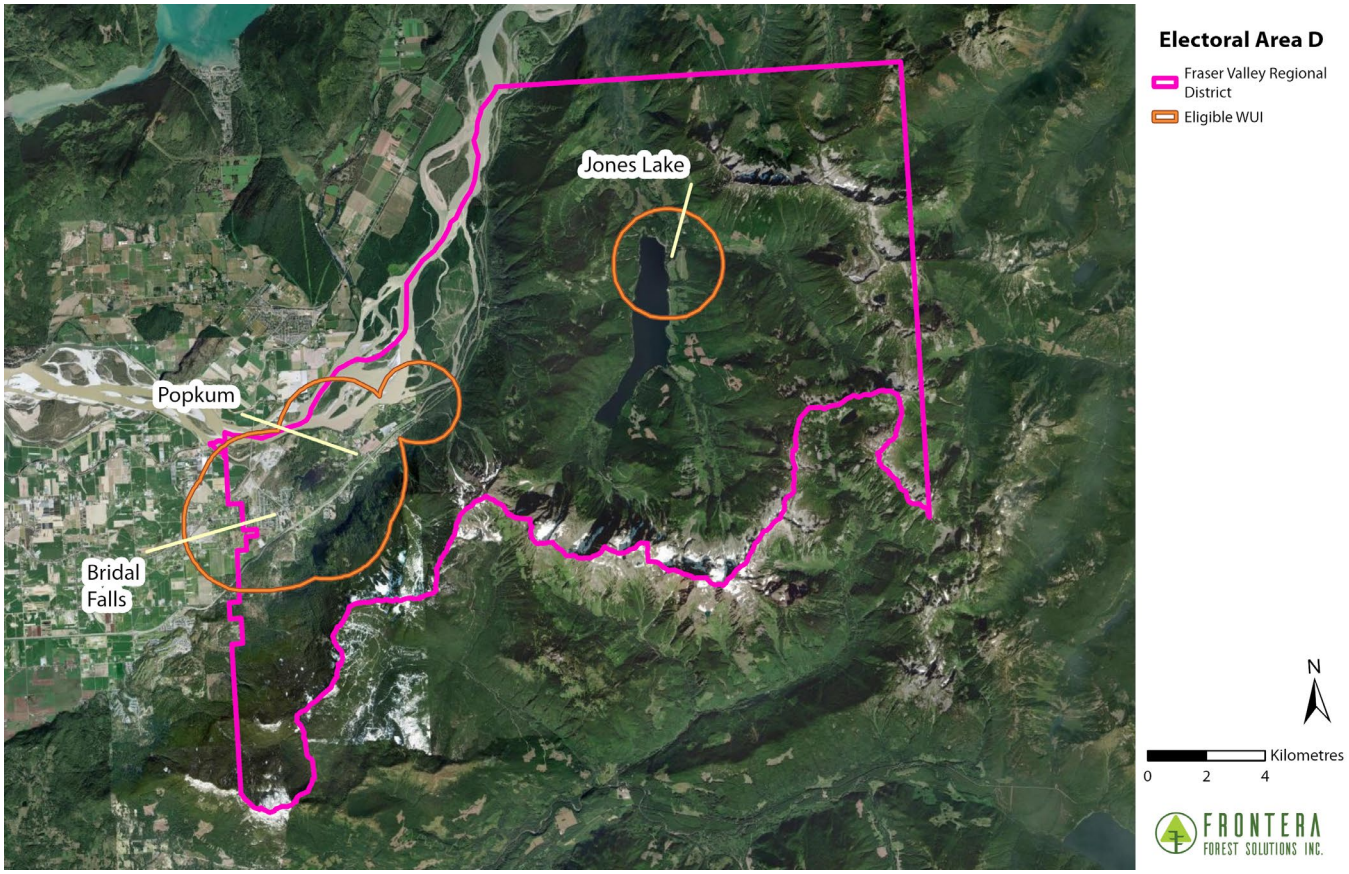


Figure 5. WUI and communities within EA D.

Electoral Area E

EA E occupies the southeastern extent of the FVRD (**Figure 6**). The two WUIs in EA E surround the communities of Post Creek, with an additional larger, continuous WUI surrounding the communities of Slesse Park, Baker Trails and Bell Acres, all of which are located on and accessible via Chilliwack Lake Road. Slesse Park, Baker Trails and Bell Acres are all located in the far west of EA E, near Cultus Lake and the City of Chilliwack. These communities are all located at the base of the Chilliwack River Valley and on the northern shores of the Chilliwack River, with steep forested slopes above. Post Creek is approximately 30 km further down Chilliwack Lake Road. The community of Post Creek is heavily forested, and surrounded by continuous forested land. EA E's WUIs cover an area of approximately 41.85 km^2.

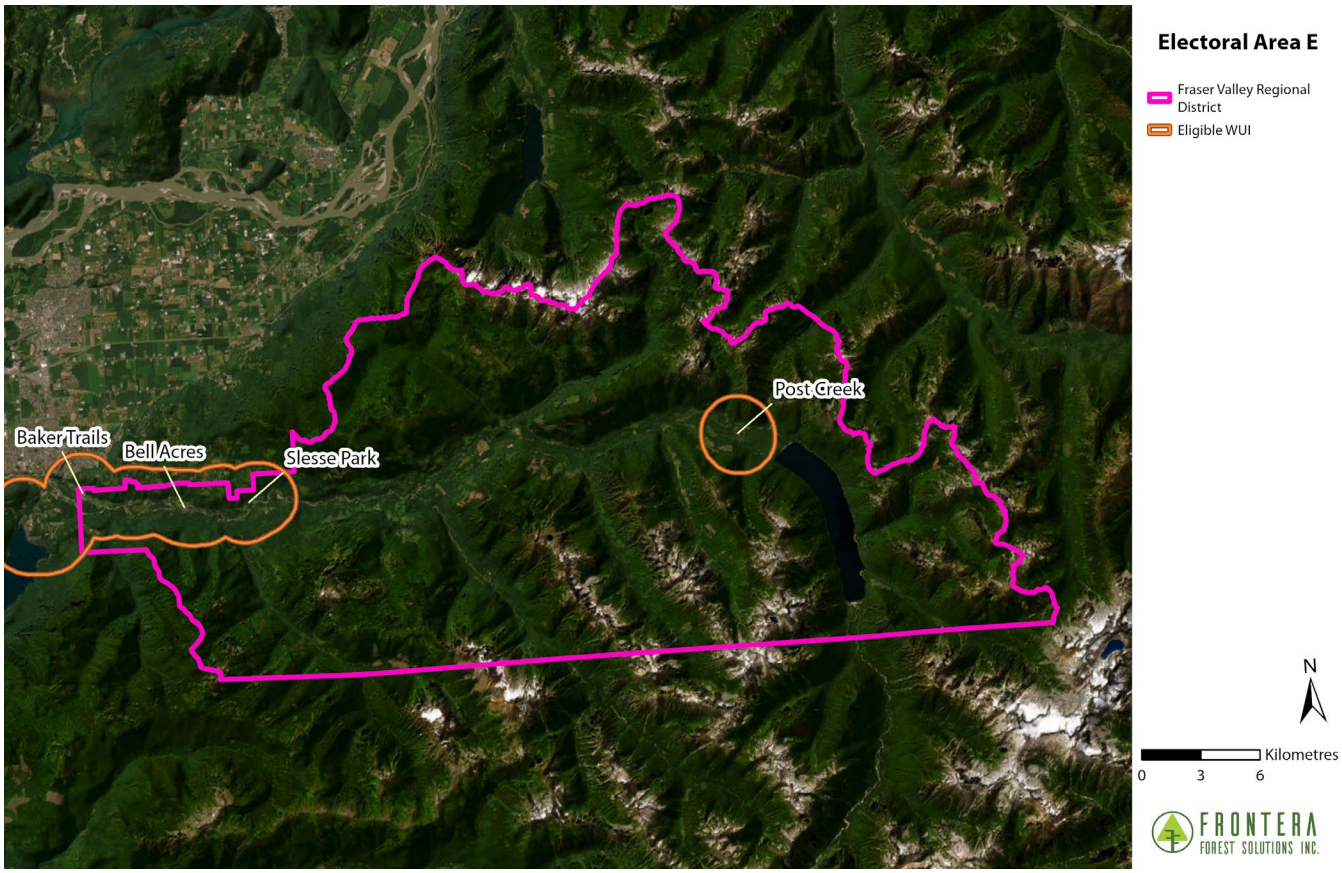


Figure 6. WUI and communities within EA E.

Electoral Area F

EA F is located in the northwest corner of the FVRD (**Figure 7**). There are five distinct WUIs in this EA, with one large WUI including Durieu, Hatzic Prairie, and McConnell Creek. The remaining four WUIs surround remote, recreational primary communities that are boat access only, located on Stave and Pitt Lake. The WUI that includes Durieu, Hatzic Prairie and McConnell Creek is large, and mostly comprised of large private agricultural and acreage style properties. The communities themselves are located on flat terrain at the base of the valley, with forested slopes east and west. The other remote communities are heavily forested, surrounded by steep terrain to the east, and large waterbodies west. The total area for EA F's WUIs is approximately 86.76 km^2.

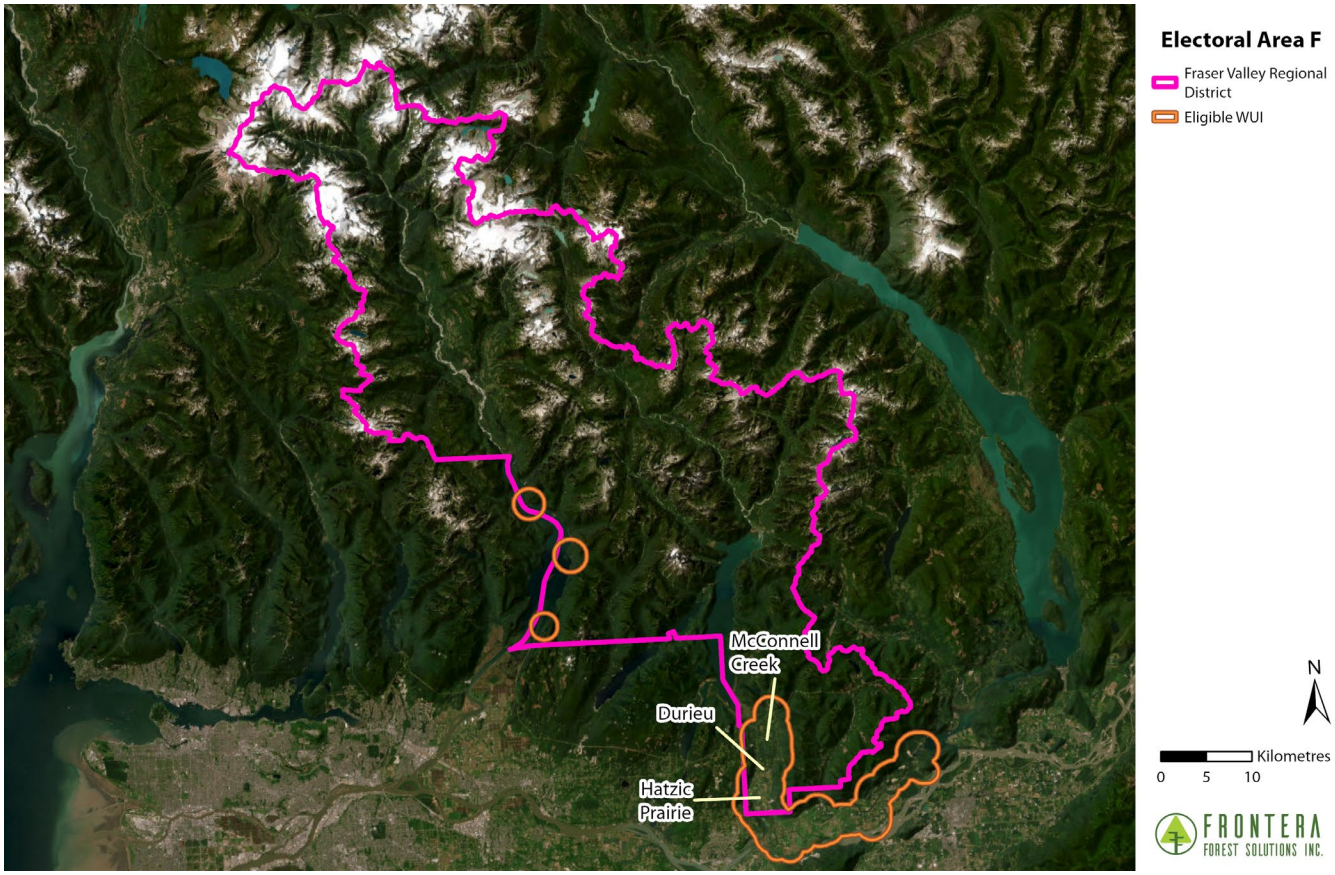


Figure 7. WUI and communities within EA F.

Electoral Area G

EA G is located in the western, central portion of the FVRD (**Figure 8**). EA G is notable in that most of the EA is occupied by one, large continuous WUI area. This includes the communities of Deroche, Dewdney, and Hatzic Island. The communities found within the WUI include Deroche, Dewdney and Hatzic Island. Although all communities are on the north shore of the Fraser River in the Fraser Valley, the WUI is bisected by the Nicomen Slough, with the only crossings located in Dewdney and Deroche. Dewdney is primarily occupied by agricultural properties, with limited forest in the northern areas where mountainous terrain begins. Deroche is a more forested community, with extensive forest west and north. Hatzic Island, is a long and narrow island, with a variety of development including relatively dense residential communities and agricultural properties. All communities are primarily accessed by Highway 7, with Hatzic Island accessed via a small bridge on Shook Ave which connects with Highway 7 1 km south. The total area for EA G's WUIs is approximately 72.26 km^2.

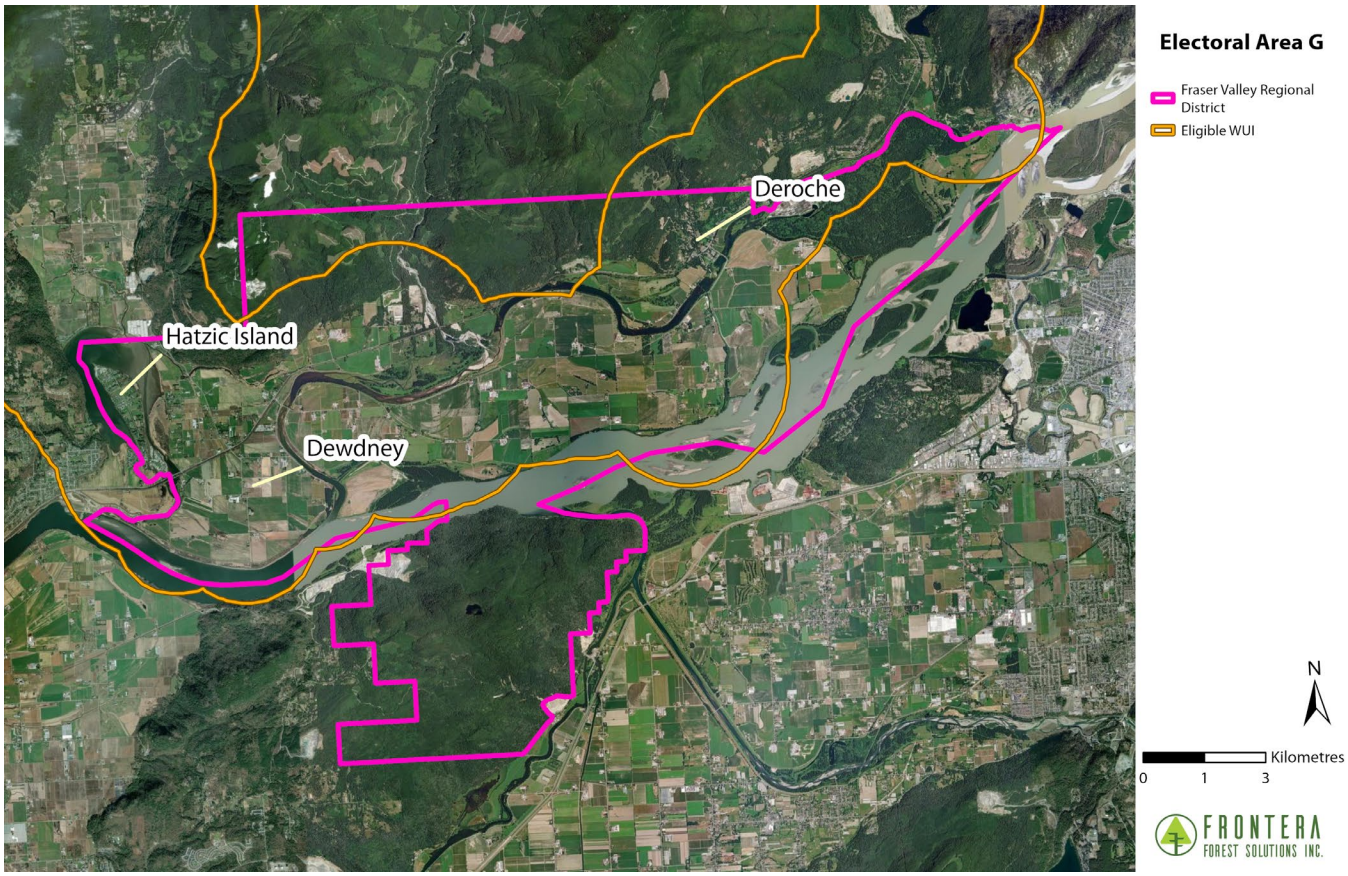


Figure 8. WUI and communities within EA G.

Electoral Area H

EA H is located in the southwestern corner of the FVRD (**Figure 9**). There are two distinct WUI areas within EA H. The first includes the communities of Cultus Lake South and Columbia Valley, both located south of Cultus Lake. The second includes the community of Cultus Lake North. Columbia Valley is mostly comprised of agricultural style properties at the valley bottom, with steep forested slopes beyond. Cultus Lake North and South are primarily dominated by dense residential areas. While these are also surrounded by forested land on the slopes beyond the communities, there is more forested greenspace interspersed within the communities than in Columbia Valley. The area of the EA H WUIs is approximately 56.28 km^2.

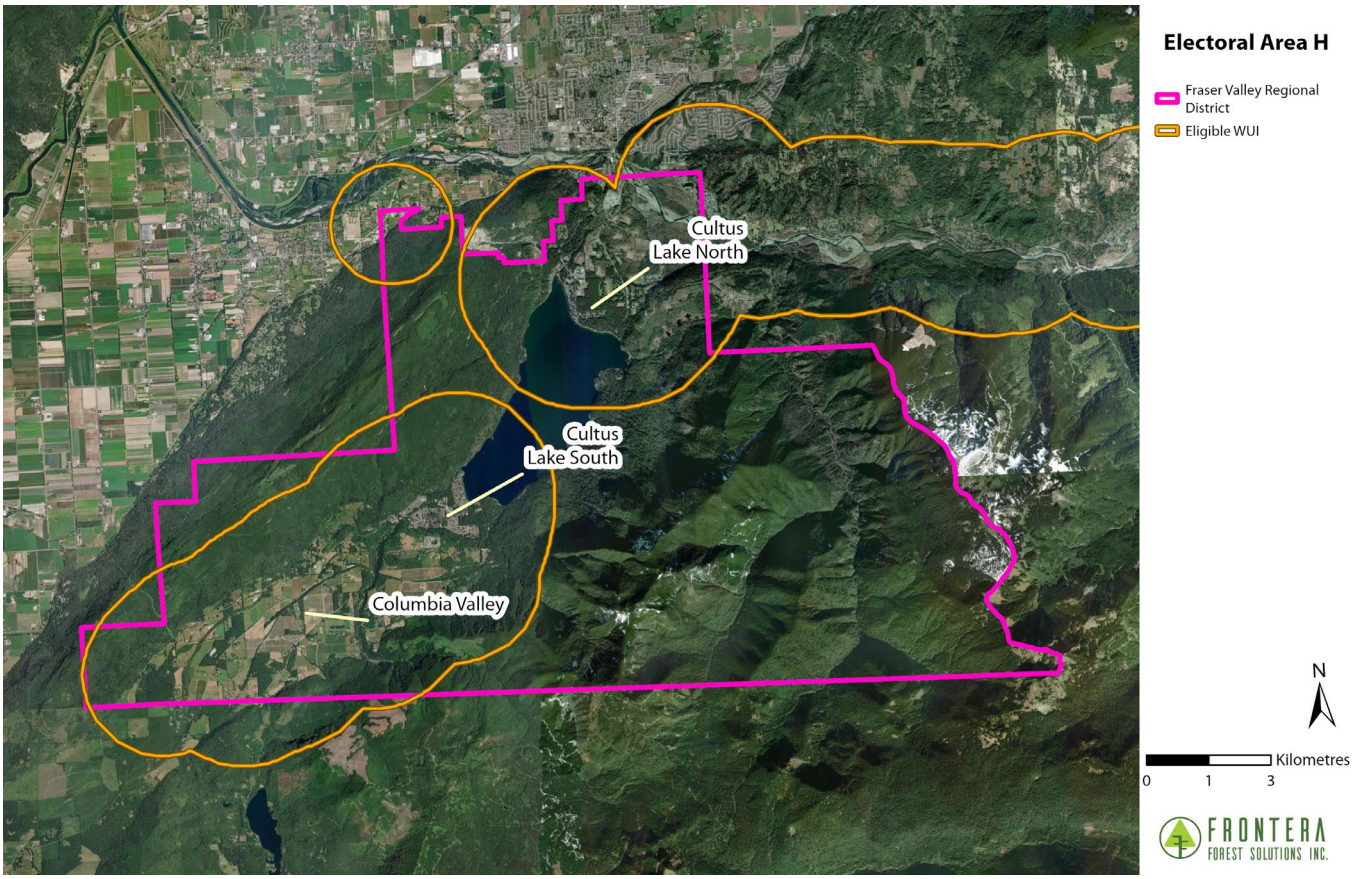


Figure 9. WUI and communities within EA H.

3.3. Community Information

This section describes the human population, demographics and settlement patterns within the WUI. Human life is the number one priority for protection from wildfire, and WUI areas with higher populations may have higher *wildfire risk*. Similarly, demographic information can provide insight into socio-economic factors that increase vulnerability to wildfire, as well as the ability to proactively mitigate *wildfire risk*. For example, a population with a high median age may indicate a high elderly population, which may require more support during a wildfire evacuation. In contrast, populations with a higher income may have more ability to proactively mitigate *wildfire risk* on their property without external support. **Table 5** summarizes population for the FVRD, EAs, and unincorporated communities of the FVRD. Incorporated municipalities and Reserves have been excluded from this data.

The total population of the FVRD's unincorporated EAs is approximately 12,000 people[4]. This population is predominantly found in WUI for this CWRP, with a much smaller proportion living outside of these communities and the WUI. The median age for the FVRD unincorporated EAs is 53, well above the BC provincial average. Similarly, the median income is $37,475, well below the provincial average of $40,800. EA A, EA B, EA C, and EA H have the highest median ages at around 57. EA A and EA B have the lowest median incomes at a $28,400 and $31,000.

Census data used for community information and demographics for the FVRD communities may be unreliable, and underestimate population. People in electoral areas often populate Census responses based on their mailing address rather than the physical location of their home which can confuse end statistics in Census for properties located in electoral area where their community name might be different than their Canada Post mailing address (e.g. most of EA E and H use "Chilliwack" as a mailing address and most of EA F and much of EA G have "Mission" as a mailing address.) Several communities lack complete census data. Several unincorporated communities in the FVRD EAs have populations that vary seasonally, or are expected to increase in the near future. This is worth additional attention in *wildfire risk* mitigation, particularly in communities where seasonal fluctuations result in increasing population during *wildfire season* months. These communities include Harrison Mills, Hemlock Valley, Slesse Park, Hatzic Island, Cultus Lake North and South, and Sunshine Valley. Sunshine Valley's population and number of structures is expected to significantly increase with a new development, which may add up to 1,500 new residences in a landscape where FVRD does not hold a regulatory role for use planning or development regulations[5]. **Table 5** summarizes community information for the communities within the FVRD's unincorporated areas; data is sourced from the FVRD EMP as well as Statistics Canada.

4 Statistics Canada. 2021 Census of Canada: Profile Data for FVRD Electoral Areas [Census Subdivision], British Columbia. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released November 15, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/search-recherche/results-resultats.cfm?Lang=E&SearchText=Fraser+Valley (accessed September 30, 2025)

5 Fraser Valley Regional District. Fraser Valley Regional District Emergency Management Plan January, 2024. Stephanie Hooker and Tarina Colledge. Version 1.

Table 5. Population and selected demographic information.

Electoral Area	Communities	Population	Number of Dwellings	Median Age	Median Income
EA A	Boston Bar	238	140	60.8	
	North Bend	107	70	58.4	
	Canyon Alpine				
	Nahatlatch & Keefers				
	EA A	**495**	**287**	**57.2**	**28,400**
EA B	Dogwood Valley	211	102	57.2	
	Laidlaw	173	70	51.2	
	Spuzzum	20	16		
	Sunshine Valley	208*	262	54.4	
	Yale	162	118	62	
	Othello				
	EA B	**869**	**598**	**57.2**	**31,000**
EA C	Harrison Mills	589**	332	62.4	39,600
	Hemlock Valley	82**	181	56.4	
	Lake Errock	343	166	51.6	43,200
	Cascade Bay				
	EA C	**1133**	**894**	**58.8**	**39,600**
EA D	Bridal Falls	383	164	61.6	40,400
	Popkum	1710	570	41.2	45,600
	Jones Lake				
	EA D	**2092**	**735**	**46**	**44,800**
EA E	Baker Trails	565	292	58	34,000
	Bell Acres	604	243	47.2	42,400
	Slesse Park	266**	107	53.6	
	Post Creek				
	EA E	**1568**	**724**	**53.6**	**38,800**
EA F	Durieu	400	188	44.8	38,800
	Hatzic Prairie	409	191	44.4	40,800
	McConnell Creek	514	227	48.8	38,800
	EA F	**1384**	**783**	**46.4**	**39,200**
EA G	Deroche	141	174	48.8	
	Dewdney	493	174	41.2	
	Hatzic Island	561**	490	56	34,400
	EA G	**1,692**	**897**	**46.4**	**36,000**
EA H	Columbia Valley	257	114	53.2	32,800
	Cultus Lake North	1217**	773	57.2	41,600
	Cultus Lake South	792**	605	58	47,600
	EA H	**2,459**	**1,575**	**56.8**	**42,000**
FVRD Unincorporated Areas		**11,692**	**6,493**	**53**	**37,475**

Note: Blank cells are due to lack of census data.

** indicates data was obtained from EMP.

3.4. Fire Suppression Capabilities

Wildfires in the WUI often require both structural firefighter response and wildland firefighter response. Structural firefighters are trained to limit and extinguish structure and vehicle fires, and are typically community or municipality based. Structural firefighters have limited wildfire training and equipment. Wildland firefighters are trained to action fires that are burning organic vegetation, with limited training in structural or vehicular fires. In BC, the provincial BC Wildfire Service (BCWS) is responsible for wildland fire management and suppression. BCWS will not directly action structural or vehicular fires. Wildfire in the WUI typically requires a response from both types of firefighting agencies and their staff. As such, assessing the capabilities of any community to respond and protect itself from *interface fire* requires understanding the resources available within and near the community.

The following sections provide high-level descriptions of structural fire and wildfire protection in the FVRD unincorporated EAs. For additional details, such as staffing, equipment, and water availability, see the **10 Cross-Training** and **11 Emergency Planning** sections of this CWRP. The following subsections provide a simple overview of fire suppression services that operate within the FVRD WUI.

3.4.1. Structural Fire Protection

Regional districts in BC provide services to participating areas that directly fund those services through property taxation. Many areas are not within a structure Fire Protection Area (FPA), and lack structural fire protection services. Fire Departments (FD) and/or fire protection services can exist in many forms.

Additionally, fire services may be owned/operated by agencies or private industry. Some of these FD models have formal taxation, while others result in the collection of dues to the department.

Regional Districts, on behalf of unincorporated communities can sometimes access fire services through agreements with neighbouring FDs. Residents can ask their local area, such as the FVRD, for a service, and the regional district then taxes to create funding for that service. These taxes are then used to pay for this service, which the regional district can arrange to be provided by a willing service provider, such as a neighbouring FD. This frequently occurs when unincorporated areas abut incorporated municipalities with formal FDs.

The above processes result in varying levels of fire protection within regional districts of BC, and the FVRD is no exception. The FVRD oversees seven FDs that provide fire protection services for some communities within its unincorporated EAs. These FDs provide fire protection services for most of the FVRD unincorporated EA communities. Several additional communities receive fire protection services from FDs external to the FVRD via specific service agreements. There are four communities that lack formal structural fire protection: Jones Lake, Cascade Bay, and Nahatlatch & Keefers. Sunshine Valley and Cultus Lake Park Board are serviced by FDs that are not administered by the FVRD.

Interface Fire

A wildfire that involves or may involve structures.

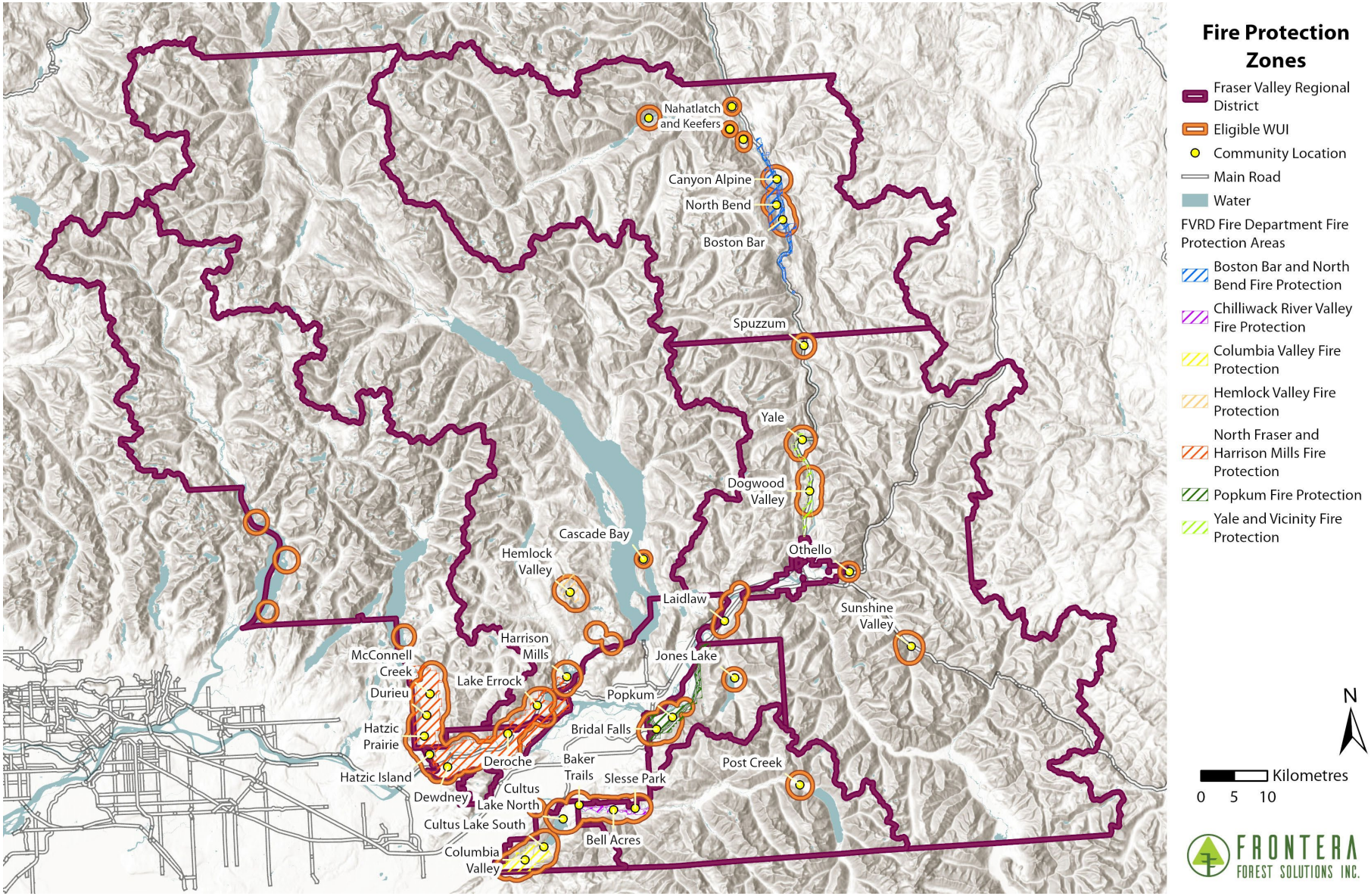


Figure 10. Map of Fire Protection Areas within the AOI.

3.4.2. Wildfire Protection

The BCWS is a very large, provincially run agency responsible for managing and extinguishing wildfires on Crown Public Lands throughout BC. This involves the strategic locating of resources throughout the province, as well as moving resources throughout the province to areas of the highest wildfire hazard and highest wildfire activity. Wildfire hazard and wildfire activity can vary daily, and have major variations between different areas in the province, and as such local resource availability may be limited during particularly busy periods of the summer. This is compounded by the increased workload in recent years, resulting in resource depletion throughout BC during busy periods. This means that while resources may be based within a specific area, they may not always be present or available for wildfire suppression.

The AOI is located almost entirely in the Fraser Fire Zone of the Coastal Fire Centre. The BCWS operates two major forestry bases in this zone, both of which are located in the FVRD. The first is in EA B at the Haig Base, located just outside of the District of Hope. This fire base is central to BCWS wildfire response in the Fraser Fire Zone within the Coastal Fire Centre, and as such is the central operating base for several BCWS resources. This includes five *initial attack* crews, one 20-person unit crew, several wildfire officers, and a small warehouse of suppression equipment. The second base is located in Cultus Lake in EA H, just outside the community of Cultus Lake North. This provides additional local resources, primarily in the form of a 20-person unit crew.

Photo 6. View of Spuzzum.

3.5. Values at Risk

The following section is a description of the extent to which wildfire has the potential to impact the VAR identified within the WUI. VAR are the human or natural values that may be impacted by wildfire; this includes human life, property, CI, high environmental and cultural values, and resource values. High VAR are often found within the WUI, but can also be geographically isolated, such as communication towers.

3.5.1. Human Life and Safety

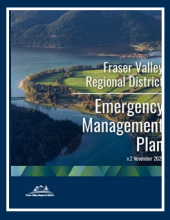
Human life and safety are the highest priorities in the event of a wildfire. A key consideration is the evacuation of at-risk areas and safe egress. Evacuation can be complicated by the unpredictable and dynamic nature of wildfire. Orderly evacuation takes time and safe egress routes can be compromised by quickly moving/changing wildfire, or by traffic congestion and accidents.

Communities within the FVRD have considerable variety in egress and access. Some communities have a high level of connectivity with the broader region, and have multiple routes of egress. Other communities, in contrast, have only single access and egress routes, often using Forest Roads with less regular maintenance, slower travel times, reduced capacity, and high vulnerability to varying weather conditions. The FVRD communities with limited access and egress routes are Bell Acres, Slesse Park, Post Creek, Jones Lake, Hemlock Valley, Cascade Bay, and Nahatlatch and Keefers. These communities have either one route in and out, or are accessed by FSRs with limited capacity and potential road quality concerns in evacuation support.

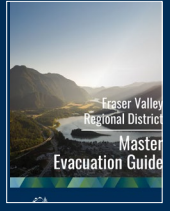
The *FVRD Emergency Management Program* (see **11 Emergency Planning** for more detailed discussion) is responsible for planning and coordinating evacuations within the FVRD. As such, a Master Evacuation Guide and some geographically targeted Evacuation Guides have been developed. The Master Guide acts as an aggregator assembling the general evacuation framework for all EAs, while geographically specific guides provide more detail on primary and secondary routes, local contacts and resources, vulnerable populations, and any other important information relevant to evacuation in these areas. As of the date of publication of this CWRP, evacuation guides are in place for EA A, EA E, EA H and Hemlock Valley. The FVRD relies on provincial grants to create these and efforts are focused on communities with high risks and few escape routes.

Wildfire planning for emergencies should be tailored to access and egress constraints. More isolated communities with limited access and egress will require more detailed planning, including potential evacuations. This is reflected in the FVRD approach to evacuation planning, which has prioritized detailed guides for areas with limited egress. Similarly, planning must also acknowledge the potential for access/egress routes to be compromised by wildfire. This may require more proactive evacuation alerts or orders in the event of wildfire occurring in specific locations, vegetation management to protect egress routes, or detailed shelter in place plans. It may also benefit the FVRD in proactive information exchange with BCWS for prioritized response action. Similarly, cross-training exercises may be conducted for wildfire scenarios where egress is compromised. This is discussed in more detail in **10 Cross-Training** and **11 Emergency Planning**.

Read the Plans: Links to FVRD Emergency Management Program Documents



Emergency Management Plan



Master Evacuation Guide

3.5.2. Critical Infrastructure

Critical Infrastructure are the structures or facilities that are essential to the health, safety, security, economic well-being, and/or effective functioning of a community or government. Protection of *Critical Infrastructure* during a wildfire event is an important consideration for emergency response preparedness and effectiveness, to enable effective coordination of evacuation when necessary, and to maintain and/or prioritize essential services for restoration during emergency and disaster recovery. *Critical Infrastructure* includes emergency and medical services, electrical and gas services, transportation and primary road networks, drinking and wastewater systems, social/support services, and communications infrastructure. Increasing the resiliency of CI to wildfire by incorporating *FireSmart* principles is crucial to mitigating wildfire impacts to a community and enabling faster recovery.

Critical Infrastructure is owned and managed by a variety of organizations including the FVRD, but also other community resiliency allies on the landscape. The FVRD may have limited ability to manage assets that are not directly managed by the FVRD, but given their importance to wildfire resiliency planning, these must be included in a CWRP. This may include non-FVRD-managed water infrastructure, telecommunications infrastructure, and non-affiliated FD infrastructure. The CI within the FVRD WUI is detailed in **Table 6**, where it is broken down by EA and nearest FVRD community. Locations for CI within the FVRD WUI are shown in **Figure 11.**

The definition of *Critical Infrastructure* used in the CWRP varies from the definition used in broader emergency planning. Generally, the CWRP uses a narrower definition, and as such the FVRD EM Plan contains some additional locations of *Critical Infrastructure* not included in this CWRP. As EDMA's definition to *Critical Infrastructure* evolves, this section may require updating to align with any regulation for *Critical Infrastructure* emergency management.

Photo 7. Communications infrastructure on Sumas Mountain.

Table 6. Critical Infrastructure in the FVRD WUI.

**There are additional locations of CI in the FVRD EMP that do not meet the criteria of the CWRP definition of CI. These are listed in the FVRD EMP community profiles, and include other FVRD-owned/operated amenities, non-FVRD-owned/operated amenities, and self-supported amenities.*

Community	Type	Name	Location	Latitude	Longitude
EA A					
Boston Bar	Fire response	Boston Bar Fire Hall #1	47715 Alder Road	49.86270	-121.44234
Boston Bar	Emergency response	Boston Bar Royal Canadian Mounted Police	47864 Old Boston Bar Rd	49.86574	-121.44263
Boston Bar	Water treatment	Boston Bar Water Treatment Plant	47850 Ash Rd	49.86713	-121.43865
Boston Bar	Water source	Boston Bar Reservoir	47850 Ash Rd	49.86482	-121.43796
Boston Bar	Emergency response	Canyon Lanes	47585 Trans Canada Highway, Boston Bar	49.86021	-121.44021
Boston Bar	Water source	Boston Bar water intake	One & One Quarter Mile Creek	49.86891	-121.43615
North Bend	Fire response	North Bend Fire Hall #1	48904 North Bend Cres	49.88399	-121.45683
North Bend	Water treatment	North Bend Water Treatment Plant	49007 A Chaumox Rd	49.88792	-121.45842
North Bend	Water source	North Bend Reservoir	49007 A Chaumox Rd	49.88792	-121.45878
North Bend	Sewer	North Bend Sewer	65000 North Bend Rd	49.87990	-121.45341
North Bend	Sewer	North Bend Sewer Lagoon	49°53'02.67" N 121°26'57.78" W	49.88406	-121.44938
North Bend	Solid waste treatment	Chaumox Landfill	50390 Chaumox Rd	49.91511	-121.46178
North Bend	Water treatment	North Bend Water Intake	Drachmann Brook	49.88950	-121.45906
EA B					
Dogwood Valley	Fire response	Yale Fire Hall #2	28555 Trans Canada Highway	49.51587	-121.42072
Dogwood Valley	Water source	Dogwood Valley Well Pump	49.47729, -121.43186	49.47729	-121.43186
Dogwood Valley	Water source	Dogwood Valley Reservoir	49.47727, -121.43181	49.47727	-121.43181
Dogwood Valley	Emergency response	Camp Squeah (poss emergency site)	27915 Trans Canada Hwy, Hope, BC V0X 1L3	49.50562	-121.42128
Ruby Creek	Communications	Rogers Communications Tower	Highway 7 west of Moore Kostiuk Rd (30 m)	49.36235	-121.58476
Laidlaw	Emergency response	Camp Hope (poss emergency site)	61855 Lougheed Hwy., Hope, BC V0X 1L0	49.38208	-121.52409
Yale	Fire response	Yale Fire Hall #1	31246 Douglas St	49.56219	-121.43000
Yale	Water source	Yale Well Pump	65050 Albert St	49.56552	-121.43000
Yale	Water source	Yale Reservoir	65225 Albert	49.56768	-121.43042
Yale	Emergency response	All Hallowes Recreational Park	30860 Trans Canada Hwy, Yale, BC V0K 2S0	49.55868	-121.44231

Community	Type	Name	Location	Latitude	Longitude
EA C					
Harrison Mills	Water source	Morris Valley Well Pump	14500 Morris Valley Rd	49.26194	-121.94430
Harrison Mills	Water source	Morris Valley Reservoir	14555 Morris Valley Rd	49.26112	-121.95186
Harrison Mills	Sewer	Morris Valley Waste Water Treatment Plant	14555 Morris Valley Rd	49.26196	-121.94997
Harrison Mills	Sewer	Morris Valley Sewer Lift Station	14550 Morris Valley Rd	49.26302	-121.94784
Harrison Mills	Solid waste treatment	Harrison Mills Transfer Station	14050 Chehalis FSR	49.25222	-121.95435
Hemlock Valley	Fire response	Hemlock Valley Fire Hall #1	47100 Laurel Rd., Hemlock Valley	49.37429	-121.92373
Hemlock Valley	Solid waste treatment	Hemlock Valley Transfer Station	47094 Laurel Rd	49.37457	-121.92424
Hemlock Valley	Communications	Hemlock Valley Tower Repeater	On Sasquatch Chair Lift Structure	49.39105	-121.93453
Lake Errock	Communications	Rogers Communications Tower	East side of Deroche Mountain	49.23256	-122.02162
Lake Errock	Fire response	North Fraser Fire Hall #2	43824 Watkins Rd., Lake Errock	49.21986	-122.01299
Lake Errock	Water source	Lake Errock Well Pump	49.23251, -122.00634	49.23251	-122.00634
Lake Errock	Water source	Lake Errock Reservoir	49.23615, -122.01703	49.23615	-122.01703
EA D					
Bridal Falls	Water source	Area D Water Well Pump #1 & #2	52454 Yale Rd	49.18347	-121.77720
Bridal Falls	Water source	Area D Water Well Pump #3	10340 Caryks Rd	49.18878	-121.77190
Bridal Falls	Sewer	Minter Gardens Wastewater Treatment Plant	9980 Llanberis Way, Popkum BC	49.17986	-121.76649
Bridal Falls	Solid waste treatment	Thompson Rd Lift Station	49.17984, -121.77183	49.17984	-121.77183
Popkum	Fire response	Popkum Hall #1	10570 Popkum Road North	49.19305	-121.73818
Popkum	Water source	Area D Reservoir	49.19064, -121.73390	49.19064	-121.73390
Popkum	Water source	Area D Camperland Meter House	53730 A Bridal Falls Rd	49.18733	-121.74147
EA E					
Baker Trails	Sewer	Baker Trails Sewage Treatment Plant	46511 Chilliwack Lake Rd	49.08721	-121.93960
Bell Acres	Fire response	Chilliwack River Valley Fire Hall #1	48665 Chilliwack Lake Road	49.08074	-121.87852
Bell Acres	Emergency Response	Chilliwack Fish and Game Club	48685 Chilliwack Lake Rd	49.08344	-121.87793
Bell Acres	Water source	Bell Acres Well Pump	49044 A Riverbend Dr	49.07785	-121.86753
Bell Acres	Water source	Bell Acres Reservoir	49.08160, -121.86759	49.08160	-121.86759

Community	Type	Name	Location	Latitude	Longitude
EA F					
Durieu/ Hatzic Prairie	Fire response	North Fraser Fire Hall #3	11980 Sylvester Rd., Durieu	49.21932	-122.22722
Durieu/ Hatzic Prairie	Water source	Hatzic Well Pump 1+2	11620 Seux Rd	49.21347	-122.23521
Durieu/ Hatzic Prairie	Water source	Hatzic Reservoir	49.21829, -122.22359	49.21829	-122.22359
Hatzic Prairie	Solid waste treatment	Sylvester Rd Transfer Station	10033 Sylvester Rd	49.18459	-122.23271
EA G					
Deroche	School	Deroche Elementary	10340 North Deroche Rd., Deroche	49.19032	-122.07373
Deroche	Water source	Deroche Well Pump	41634 Lougheed Hwy	49.19600	-122.07567
Deroche	Water source	Deroche Reservoir + Booster Pump	10699 A N Deroche Rd	49.19620	-122.07608
Dewdney	Fire response	North Fraser Fire Hall #1	8840 Rowan Rd., Dewdney	49.16251	-122.17222
Dewdney	School	Dewdney Elementary	37151 Hawkins Pickle Rd., Dewdney	49.16543	-122.19650
Dewdney	Water source	Dewdney Water PRV	SW Corner of Lougheed & Hawkins Pickle Rds	49.16527	-122.19838
EA H					
Columbia Valley	Fire response	Columbia Valley Fire Hall #1	1202 Kosikar Road	49.02476	-122.04840
Cultus Lake North	Fire response	Cultus Lake Fire Hall #1	75 Sunnyside Blvd	49.07398	-121.97594
Cultus Lake North	Water source	Cultus Lake Reservoir	60 Sunnyside Blvd	49.07069	-121.97633
Cultus Lake North	Water source	Sunnyside Campground Holding Tanks	3405 Columbia Valley Rd., Cultus Lake BC	49.06727	-121.96323
Cultus Lake North	Sewer	Cultus Sewer Treatment Disposal SL #3	70 Sunnyside Blvd	49.07276	-121.97579
Cultus Lake North	Sewer	Cultus Sewer Treatment Disposal SL #1	49.07088, -121.97831	49.07088	-121.97831
Cultus Lake North	Sewer	Cultus Sewer Treatment Disposal SL #2	49.07447, -121.98309	49.07447	-121.98309
Cultus Lake North	Sewer	Cultus Sewer Treatment Disposal SL #4	49.07706, -121.98152	49.07706	-121.98152
Cultus Lake North	Sewer	Cultus Lake Wastewater Treatment Plant	3720 Columbia Valley Highway	49.06981	-121.96371
Cultus Lake North	Water source	Cultus Lake Well Pump	60 Sunnyside Boulevard	49.07068	-121.97629
Cultus Lake South	Sewer	Aquadel Wastewater Treatment Plant	49.03133, -122.01452	49.03133	-122.01452
Cultus Lake South	Emergency response	Stillwood Camp and Conference (poss evacuation site)	2XGW+4H, 44005 Watt Rd, Lindell Beach, BC V2R 6G8	49.02476	-122.00633

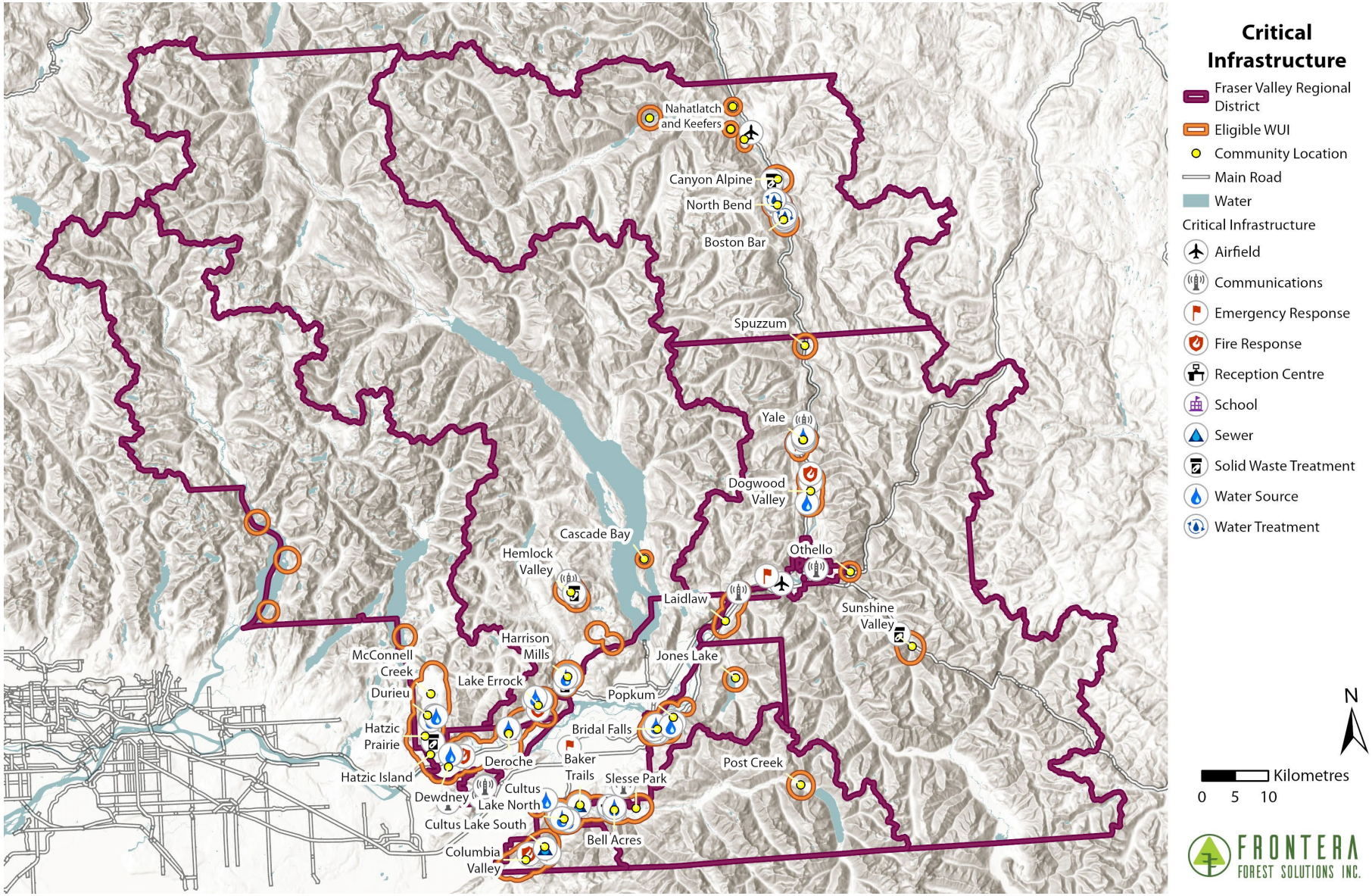


Figure 11. Map of CI locations within the AOI and WUI.

Community Water Supply Infrastructure

Potable water supply is critical to our communities. Sufficient water is also critical for fire suppression, and can be most rapidly deployed to wildfires when water supply networks have comprehensive and well supplied hydrant systems. But wildfires can have severe and long-lasting impacts on water supply. This can include decreased water quality through erosion and sedimentation in water sources, and water supply infrastructure can also be damaged through wildfire, compromising networks. Water supply and supporting infrastructure are not only VAR for the functioning of a community, but important to protect for their utility in protecting communities from wildfire.

Regional districts in BC do not typically provide drinking water services to all communities and properties within their administrative boundaries. While they may provide water services to certain locations in their unincorporated EAs, many residents rely on private systems or improvement district water systems. Improvement districts are a form of local authority that can raise fees from a community to provide a specific service, without taking on all the responsibilities of an incorporated municipality or regional district. As such, regional districts in BC typically have extremely diverse water systems with varying levels of supply and supporting infrastructure.

Water supply within the FVRD EAs is a mix of improvement districts, private systems, as well as neighbourhood systems owned and operated by the FVRD. The water sources that provide water to the communities varies between ground and surface water, with many communities drawing their water from creeks or brooks that may be dually impacted by droughts amidst increased *wildfire risk*.

On the next page the water supply systems in the WUI are broken down into EAs, with brief descriptions of each community. The primary focus of this assessment is the built infrastructure that supports water networks, as this infrastructure is vulnerable to wildfire, and most critical in supporting the functioning of these networks. Watersheds, while important for certain water supply networks and also vulnerable to wildfire, are typically mostly outside of the WUI and on Crown Public Lands. Water supply systems and infrastructure are summarized in **Table 7**. This information was obtained through reviewing the FVRD Official Community Plans (OCPs), and information on the FVRD systems was reviewed with the FVRD Engineering Services. Information on the non-FVRD-managed systems may be incomplete, as these systems may have changed since the FVRD's last knowledge of them at the time of OCP development. **Figure 12 on page 37** shows all the FVRD water services areas, as well as the community watersheds detailed in the following section.

Photo 8. Unincorporated communities rely on surface and groundwater supplies.

Table 7. Summary of water systems in the FVRD WUI.

**Some communities have a combination of systems, some managed by the FVRD. Communities with most properties receiving water via the FVRD-managed systems have been identified as "Y" under "FVRD-Managed" in the table.*

Community	FVRD-Managed (Y/N)	Description
EA A		
Boston Bar	Y	Supplies approximately 166 dwellings. The source is One & One Quarter Mile Creek. There are 14 hydrants a 465m^3 water reservoir and a water treatment plant.
North Bend	Y	Supplies approximately 100 dwellings. The source is Drachmann Brook. The system includes a 342m^3 reservoir, a water treatment plant and seven hydrants.
Canyon Alpine	N	Canyon Alpine is supplied by the Canyon Alpine Improvement District. Sourced from four springs and two wells with a capacity of 65,000 gallons. There are no hydrants.
Nahatlatch & Keefers	N	Sourced from four springs and seven creeks. There are no fire hydrants.
EA B		
Dogwood Valley	Y	Supplies 44 FVRD dwellings. Sources from well. The system has a 450m^3 water reservoir and four hydrants.
Laidlaw	N	Two dozen unlicensed wells.
Spuzzum	N	Spuzzum has two licensed water sources connected to licensed waterworks. It also has two unlicensed wells.
Sunshine Valley	N	Sunshine Valley has a regulated private water utilities company and a couple of wells. There are private hydrants present. Seasonal water shortages common.
Yale	Y	Supplies 258 FVRD dwellings. Sourced from well with 570m^3 water reservoir and twenty hydrants.
Othello	N	Nine unlicensed wells and five licensed brooks and creeks. No fire hydrants.
EA C		
Harrison Mills	N	Private system with two springs, fifteen wells, and hydrant network.
Hemlock Valley	N	Private system with two wells. Hydrants are in place, but non-operational.
Lake Errock	Y	Supplies 359 dwellings. Supplied by well with a 574m^3 water reservoir and fourteen hydrants.
Cascade Bay	N	Has no licensed or unlicensed water sources on record. No fire hydrants.
EA D		
Bridal Falls	Y	Area D water system supplies 1500 dwellings. Supplied by three wells with 1650m^3 reservoir with 65 hydrants.
Popkum	Y	Area D water system supplies 1500 dwellings. Supplied by three wells with 1650m^3 reservoir with 65 hydrants.
Jones Lake	N	Supplied by two licensed creeks and the Jones Lake. No hydrants.
EA E		
Baker Trails	N	Supplied by 28 unlicensed wells.
Bell Acres	Y	Supplies 95 dwellings. Supplied by well with 205m^3 water reservoir and eight hydrants.
Slesse Park	N	Slesse Park relies primarily on private wells. No hydrants.
Post Creek	N	Post Creek has three licensed water sources connected to licensed waterworks. It also has 22 unlicensed wells.

Community	FVRD-Managed (Y/N)	Description
EA F		
Durieu	Y	Durieu has 1 spring and 35 wells. There are fourteen hydrants.
Hatzic Prairie	Y	Supplies 334 dwellings. Supplied by two wells, and has a 650m3 water reservoir with 28 hydrants.
McConnell Creek	N	150 wells, no hydrants.
EA G		
Deroche	Y	Supplied by well with a 329 m^3 water reservoir and ten hydrants.
Dewdney	N	The FVRD has a bulk water supply agreement with Abbotsford Mission Water and Sewer Commission to provide water to four properties in the community of Dewdney. Additionally, there is also one licensed well and thirty unlicensed wells. There are four hydrants.
Hatzic Island	N	Supplied by forty shallow wells and sand points.
EA H		
Columbia Valley	N	Columbia Valley has over 160 wells and four hydrants, two private water utility companies and a private network of licensed waterworks.
Cultus Lake North	Y	Supplies 1,164 dwellings, however most of these are located within the Cultus Parks Board administered area. Supplied by two wells with an 1800 m^3 water reservoir and 25 hydrants.
Cultus Lake South	N	Cultus Lake South has 42 wells, 2 private water utility companies and a network of licensed waterworks. There are thirteen hydrants.

Photo 9. Creek entering Fraser River from Yale Community Watershed.

3.5.3. Community Watersheds

A watershed is an area of land where all of the precipitation and surface water drains into a specific outlet, such as a creek, river, or lake. Under the Forestry and Range Practices Act, watersheds that provide domestic water to licensed users can be legally designated as community watersheds. This designation is aimed to protect the quality, quantity and flow of the water for human consumption. There are several acts to protect community watersheds, and in many cases, there are specific management plans dedicated to protecting or enhancing community watersheds within a specified area.

Wildfires and forestry activities can have significant impacts on watershed function. In the aftermath of a wildfire, intense heat can cause surface soils to become hydrophobic, reducing their ability to absorb water. This increases surface run-off, which can heighten the risk of flooding, reduce groundwater recharge and contribute to drought vulnerability. The loss of vegetation in a wildfire can also increase soil erosion and nutrient runoff into waterways and rivers, affecting water quality and marine life.

Forestry practices can have similar effects, such as increased erosion due to vegetation removal, but can also introduce unique impacts. For example, creating roads can alter natural drainage patterns, creating channels that divert water away from surface waterways and potentially into the groundwater system, affecting both surface flow and water availability downstream. Vegetation modification to reduce *wildfire risk* within watersheds must therefore carefully consider potential impacts. **Table 8** provides a summary of watersheds within the WUI of the FVRD unincorporated EAs. **Figure 12** shows the location of these watersheds.

Table 8. Summary of watersheds in the FVRD WUI.

Community	Watershed Name
EA A	
Boston Bar	Coutlie Community Watershed
Boston Bar	One & One Quarter Community Watershed
North Bend	Two Mile Community Watershed
North Bend	Centre Community Watershed
North Bend	Hallisey Community Watershed
North Bend	Drachmann Community Watershed
North Bend	Stoyoma Community Watershed
EA B	
Dogwood Valley	Pickney Community Watershed
Spuzzum	Choate Community Watershed
Sunshine Valley	Trite Community Watershed
Yale	Yale Community Watershed
EA C	
Harrison Mills	Elbow Community Watershed
Hemlock Valley	Cohen Community Watershed
EA D	
Bridal Falls	Nevin Community Watershed
EA E	
Baker Trails	Southbright Community Watershed
Slesse Park	Young Creek Community Watershed
EA F	
Durieu/ Hatzic Prairie	Kenworthy Community Watershed
EA G	
Deroche	Deroche Community Watershed
EA H	
Columbia Valley	Parent Creek Community Watershed
Columbia Valley	Adams Spring Community Watershed
Cultus Lake South	Spring Community Watershed
Cultus Lake North	Fin Community Watershed
Cultus Lake North	Wells Community Watershed
Cultus Lake North	Edmeston Community Watershed
Cultus Lake South	Watt Community Watershed
Cultus Lake South	Ascaphus Community Watershed

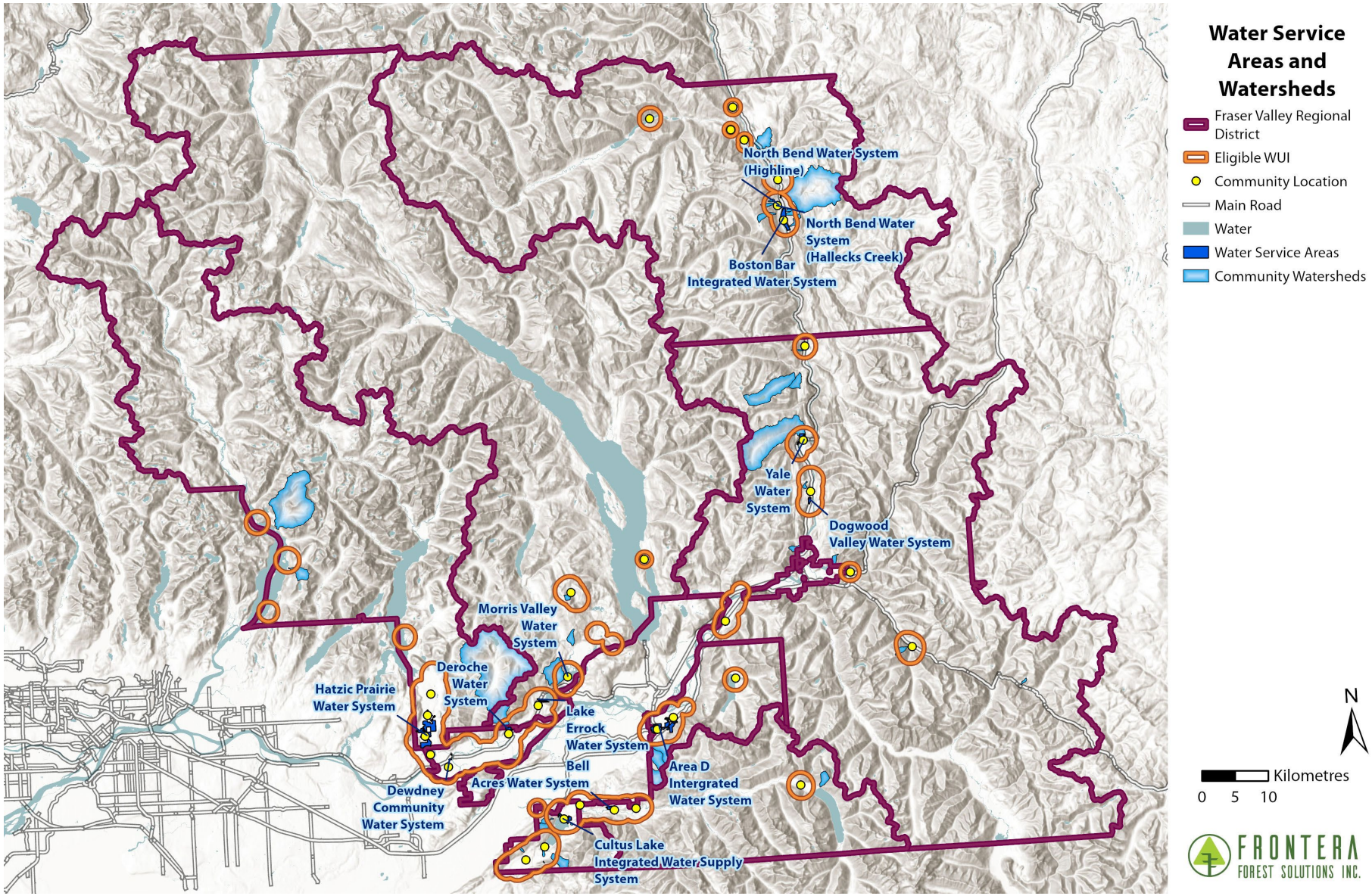


Figure 12. Map of FVRD water supply areas and watersheds.

3.5.4. Environmental Values

There are a multitude of important environmental values with special protections within the WUI of the FVRD's unincorporated EAs. This includes legally protected areas, provincial and regional parks, species and ecosystems at risk, Old Growth Management Areas (OGMAs) and Wildlife Habitat Areas (WHAs). Wildfire has the potential to significantly impact these sensitive environmental values. Additionally, vegetation management should take care to coordinate activities with protection of these environmental areas, and comply with relevant legislation designed to protect these environmentally sensitive areas.

There are 37 protected areas and parks within the FVRD WUI. This includes 14 Provincial Parks. BC Parks runs a parallel *wildfire risk* reduction program for reducing *wildfire risk* within their jurisdictional areas, and as such vegetation management projects in these parks and protected areas are led by BC Parks.

The FVRD also manages 14 regional parks across the region. However, only 8 of these are within the unincorporated EAs. These are large, generally natural areas with extensive greenspace. Most of these are partially, or completely, within the WUI. There are several small Community Parks, comparable to municipal parks in size and scope.

See **Figure 13** for a map of BC Parks Provincial Parks and Protected Areas, as well as the FVRD Regional Parks.

Species at Risk and Other Protected Areas

The AOI/WUI is home to unique ecosystems and valuable habitat for a multitude of fish and wildlife. Several species and ecosystems at risk exist within the area. Species and ecosystems at risk are legally protected under a multitude of federal and provincial acts including the federal *Species at Risk Act* (SARA)[6], *Fisheries Act*[7], and *Migratory Birds Convention Act*[8], as well as the provincial *Wildlife Act*[9] and *Forest and Range and Practices Act*[10].

Additionally, there are a multitude of Wildlife Habitat Areas (WHA) and Old-Growth Management Areas (OGMA). These are areas with various protections and activity restrictions as per government legislation, limiting permissible activities that involve vegetation management. Forest operations to reduce *wildfire risk* are possible within OGMAs and WHAs, but must ensure they are compliant with the guidelines of the relevant Orders. There are a total of 101 OGMAs and 72 WHAs within the WUI of the FVRD unincorporated EAs, and these are depicted in **Figure 14 on page 40**.

The Conservation Data Centre is a provincial dataset with information related to plants, animals, and ecosystems at risk. Species are rated as being Red, Blue or Yellow Listed based on their conservation status rank, to help set conservation priorities. Of highest conservation concern are the Red-Listed species which are species or ecosystems that are at risk of being lost (extirpated, endangered or threatened). Blue-Listed and Yellow-Listed are species or ecosystems of special concern. There are 61 individual occurrences of species of concern within the WUI of the FVRD unincorporated EAs. This includes 25 blue-listed species or ecological communities, and 23 red-listed species, ecological communities, or areas with critical habitat. Note that there are multiple duplicate occurrences. These areas and occurrences are shown in **Figure 14**. Some occurrences are masked, with a large radius surrounding shown instead; this is to protect highly sensitive and particularly vulnerable occurrences.

6 *Species at Risk Act*, Statutes of Canada 2002, c. 29. https://laws.justice.gc.ca/eng/acts/s-15.3/
7 *Fisheries Act*, Revised Statutes of Canada 1985, c F-14. https://laws-lois.justice.gc.ca/eng/acts/f-14/
8 *Migratory Birds Convention Act*, Statutes of Canada 1994 c.22. https://laws.justice.gc.ca/eng/acts/M-7.01/
9 *Wildlife Act*, Statutes of British Columbia 1996 c. 488. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96488_01
10 *Forest and Range Practices Act*, Statutes of British Columbia 2002 c. 69. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_02069_01

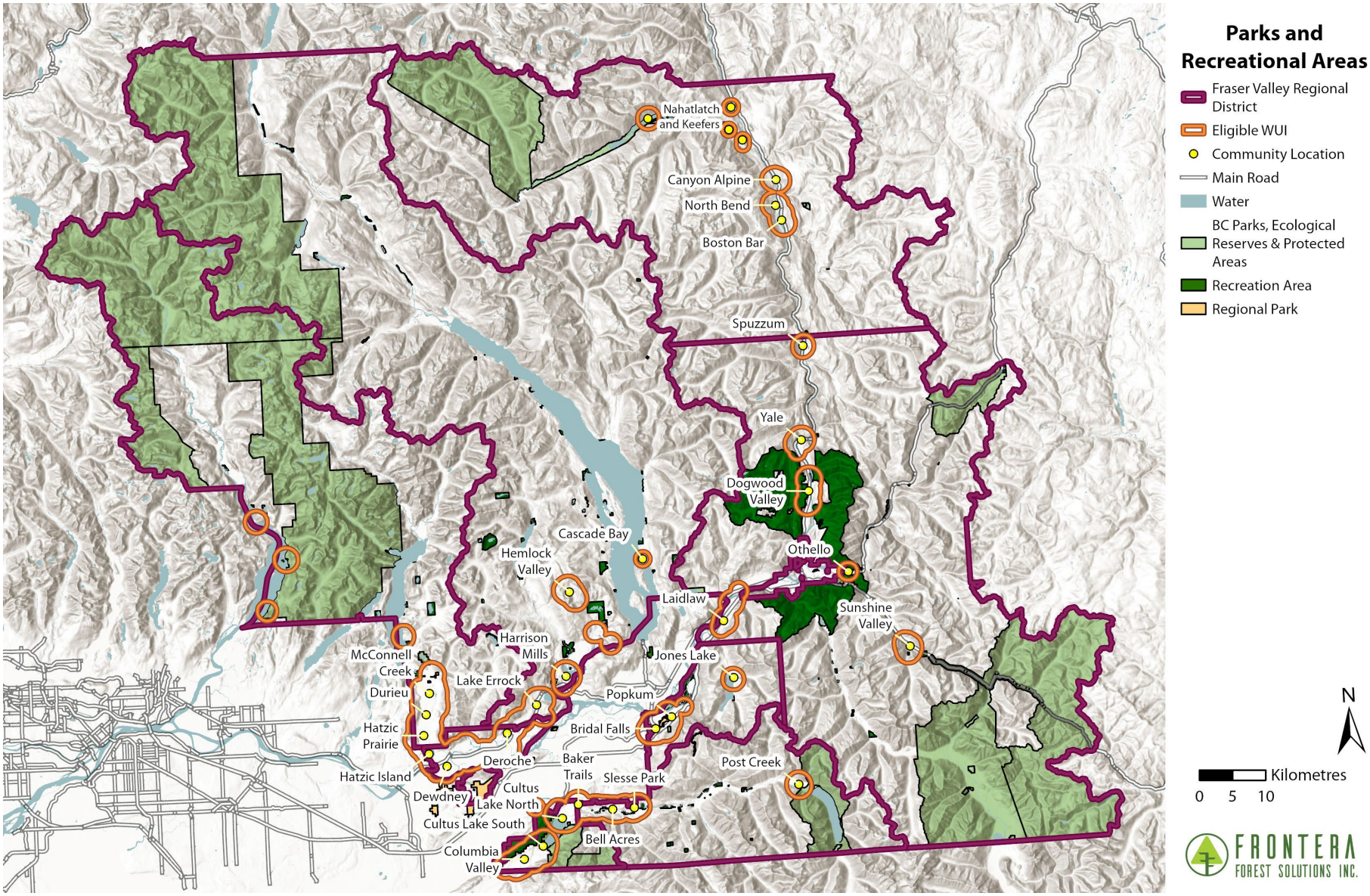


Figure 13. Map of Parks and Recreational Areas within the AOI.

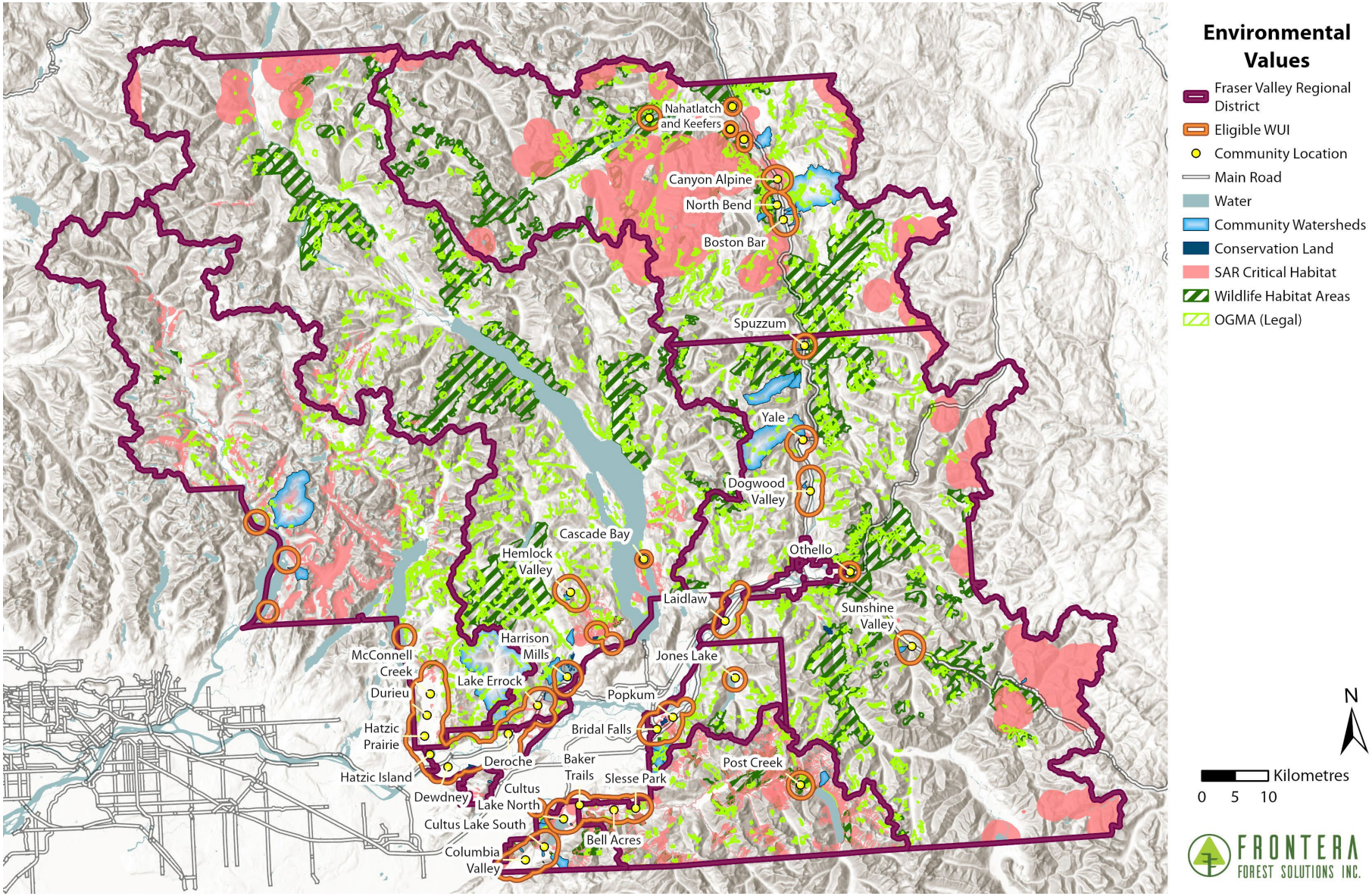


Figure 14. Map of environmental values within the AOI.

3.5.5. Electrical Infrastructure and Supply

Power lines pose both an ignition concern, through vegetation falling onto power lines and igniting wildfires, as well as a safety concern for first responders. Wildfires near electrical lines must be deenergized by BC Hydro prior to any wildfire response. No wildfire can be safely actioned near a powerline until the lines have been deenergized. Large wildfires often require shutdowns of entire networks, which can complicate emergency response when support facilities lack backup power.

Electrical services in the FVRD are provided by BC Hydro. A 500kV transmission line parallels Highway 1 in the north of the FVRD, and then crosses west through EA C and F. This line is mostly outside the WUI, but does enter the WUI occasionally. Power is distributed through a grid of wood and fibreglass transmission poles.

The main transmission line is in a large right-of-way and constructed of metal, and is very unlikely to compromised by wildfire. However, distribution lines are supported by wooden poles, and in much narrower right-of-ways, and are therefore much more vulnerable to wildfire. In the event of wildfire compromising distribution lines, localized power outages are likely. BC Hydro has a comprehensive vegetation management program to reduce the likelihood of trees falling on powerlines. Crews regularly assess right of ways, identify trees that may require proactive removal, and coordinates removal of these trees. BC Hydro also dedicates staff in the event of a wildfire for strategically de-energizing lines to ensure first responder staff safety. BC Hydro also works during recovery from damaging events to prioritize restoration of power supply quickly and efficiently. Power crews may need consideration for access to areas under evacuation order and in advance of planned/phased community re-entry.

Photo 10. Transmission line near Yale.

3.5.6. Cultural Values

The land within the FVRD has been home to Indigenous Peoples since time immemorial. The FVRD shares the land with more than 30 First Nations with 146 Reserves. These groups form a variety of distinct language groups and cultures, some of which include the Nlaka'pamux, St'at'imc, Stó:lō, and Sts'ailes Peoples, each with their own distinct history, traditions, and culture. Accompanying this CWRP was an engagement process with IGBs that the FVRD is co-located among, led by the FVRD on a government-to-government basis. Although this plan is limited to analysis, the recommendations included may involve additional engagement, particularly for prospective **Vegetation Management** projects.

The BC Archaeological Branch maintains a spatial database of archaeological and heritage sites that may be protected under BC's Heritage Conservation Act. This database is intended to facilitate high level planning, and is not intended to replace local First Nations consultation regarding these sites, which may include internal archeological databases, or requirements for detailed site level archaeological assessments. This data was reviewed as part of the CWRP development process, and 274 protected sites were identified. Sites are generally concentrated along the Fraser River, which has a long history of Indigenous use. Planning vegetation management in these areas should include a review of the Archaeological Branch database, consultation with local IGBs, and potentially assessments by a professional archaeologist. Additionally, the FVRD will need to consider that *fuel management* projects are mitigation, which creates additional linkages to the Indigenous Engagement requirements of the Emergency and Disaster Management Act (EDMA).

The FVRD has dedicated staff in the Integrated Planning department that are engaged in Indigenous Relations and government to government relationship development. These staff will be important resources in navigating consultation with IGBs.

Photo 11. Forest near Cascade Falls Regional Park.

3.6. Community Summaries

Table 9 provides a summary of the key VAR information within the WUIs of the unincorporated portions of the FVRD EAs, as well as within the unincorporated hamlet communities within the EAs. This data has been informed by the FVRD Emergency Plan. Some cells are blank due to lack of census data. The following factors that increase vulnerability to wildfire are highlighted in yellow in the table:

- A **lack of structure fire protection services** limits response capabilities in the event of a wildfire.
- **Water services not administered by the FVRD**, though present, may not be reliable or sufficient due to supply limitations. Though many water systems may be robust and capable of supporting wildfire suppression, a lack of reliable data makes this difficult to determine. Therefore, using a precautionary principle, a lack of water services managed by the FVRD is assessed as a factor that increased vulnerability to wildfire.
- Communities with **only one reliable egress route** were identified has having an egress vulnerability.

Table 9. Summary of Values at Risk in the FVRD WUI.

**Community factors that especially increase vulnerability to wildfire are highlighted in yellow.*

Community	Population	Structures	CI (#)	FVRD Fire Protection (Y/N)	FVRD Water Services (Y/N)	Limited Egress (Y/N)
EA A						
Boston Bar	234	140	6	Y	Y	N
North Bend	107	70	7	Y	Y	Y
Canyon Alpine	72	33	0	Y	N	N
Nahatlatch & Keefers			0	N	N	Y
EA B						
Dogwood Valley	211	102	3	Y	Y	N
Laidlaw	173	70	1	Y	N	N
Spuzzum	20	16	0	Y	N	N
Sunshine Valley	208	262	0	N	N	N
Yale	162	118	3	Y	Y	N
Othello			0	Y	N	N
EA C						
Harrison Mills	589	332	5	Y	Y	N
Hemlock Valley	82	181	3	Y	N	Y
Lake Errock	343	166	4	Y	Y	N
Cascade Bay			0	N	N	Y
EA D						
Bridal Falls	383	164	4	Y	Y	N
Popkum	1710	570	3	Y	Y	N
Jones Lake			0	N	N	Y

Community	Population	Structures	CI (#)	FVRD Fire Protection (Y/N)	FVRD Water Services (Y/N)	Limited Egress (Y/N)
EA E						
Baker Trails	565	292	1	Y	N	N
Bell Acres	604	243	4	Y	Y	N
Slesse Park	266	107	0	Y	N	N
Post Creek			0	Y	N	Y
EA F						
Durieu	400	188	3	Y	Y	N
Hatzic Prairie	409	191	0	Y	Y	N
McConnell Creek	514	227	0	Y	N	N
EA G						
Deroche	141	174	3	Y	Y	N
Dewdney	493	174	3	Y	N	N
Hatzic Island	561	490	1	Y	N	Y
EA H						
Columbia Valley	257	114	1	Y	N	N
Cultus Lake North	1217	773	9	Y	Y	N
Cultus Lake South	792	605	1	Y	N	N

4: Wildfire Risk Assessment

A *wildfire risk* assessment provides a decision support tool for determining the most appropriate *wildfire risk* reduction activities and opportunities to increase community resiliency. The *wildfire risk* profile of each community is different, can capturing this *wildfire risk* accurately is critical to ensuring mitigation actions reflect that *wildfire risk* profile.

In the context of a CWRP, *wildfire risk* has a specific definition, and is different from the similar term *wildfire threat*. *Wildfire threat* is ability of a wildfire to ignite, spread, and consume organic material (trees, shrubs, and other organic materials) in the forest. *Wildfire threat* describes the potential wildfire behaviour, or wildfire environment, in an area (see **Figure 15**). The major components used to define *wildfire threat* are fuel, weather, and topography, also known as the wildfire environment. *Wildfire threat* is simply put, the probability of a vegetated area to support severe wildfire.

Wildfire risk combines *wildfire threat* with the potential consequences it will have on human; *wildfire risk* is the likelihood of severe wildfire having impacts on values. Therefore, to understand *wildfire risk*, *wildfire threat*, and the wildfire environment that drives it, must first be understood.

Wildfire danger, or hazard, is an additional technical term which describes the potential for severe wildfire at a moment time, usually summarized daily during *wildfire season*. *Wildfire danger* is useful for estimating the daily likelihood of wildfire ignition and spread, which can in turn be used to guide wildfire preparedness and operational planning. *Wildfire danger* is highly variable, and thus less useful for long term planning. For a complete discussion of *wildfire danger*, see **4.1.5 Canadian Forest Fire Danger Rating System**.

Figure 15. The wildfire behavior triangle.

Wildfire Danger

Often called wildfire hazard or fire danger, wildfire danger describes the potential for severe wildfire at a moment in time. Wildfire danger is monitored and summarized daily during *wildfire season* by many wildfire agencies.

4.1. Wildfire Environment

The three main components that drive *wildfire threat* are topography, vegetation (potential fuel for wildfire), and weather. Together these impacts interact to influence the potential wildfire behaviour (*wildfire threat*) in a vegetated area.

4.1.1. Topography

Topography is a landscape component that can influence fire behaviour, particularly slope, slope position, and aspect. Slope position and aspect can affect the temperature, solar intensity, fuel moisture, and relative humidity (RH) as a consequence of varying degrees of solar radiation. Slope affects local wind patterns, with steeper slopes facilitating greater up-slope wind speeds during the day, and fuels upslope being closer to flames during a fire. Warmer aspects (i.e., south-facing in Canada) and steeper slopes increase the rate of spread (ROS) of a fire. Fire that spreads faster is more difficult to control, making potential values situated on upper slopes more vulnerable. Topography also plays a large role in weather, particularly in a mountainous area, where topographic features can increase wind speed or alter wind direction.

The FVRD is very mountainous, but with wide and deep valleys throughout (**Figure 16**). These valleys meet steep and rapidly climbing mountains. Almost all of the communities within the FVRD's unincorporated EAs are located at the bottom of valleys and below the steepest slopes. While this mitigates the risk of slope driven wildfire, topographic impacts on wind may result in a funneling effect, where winds perpendicular to valley orientations can increase wildfire intensity and spread.

One notable exception to the topographic trends in the FVRD is the community of Hemlock Valley, which is located in an elevated region between Harrison Lake and the Chehalis River. This community represents a significant concentration values upslope of fuels, and is also located on a southerly aspect. *Wildfire risk* will be elevated in this area by topographic factors. The only egress from this community is also located on a southerly, sloped aspect. In the event of a wildfire south of this area, not only will the community be threatened, but the egress route may also be vulnerable to wildfire.

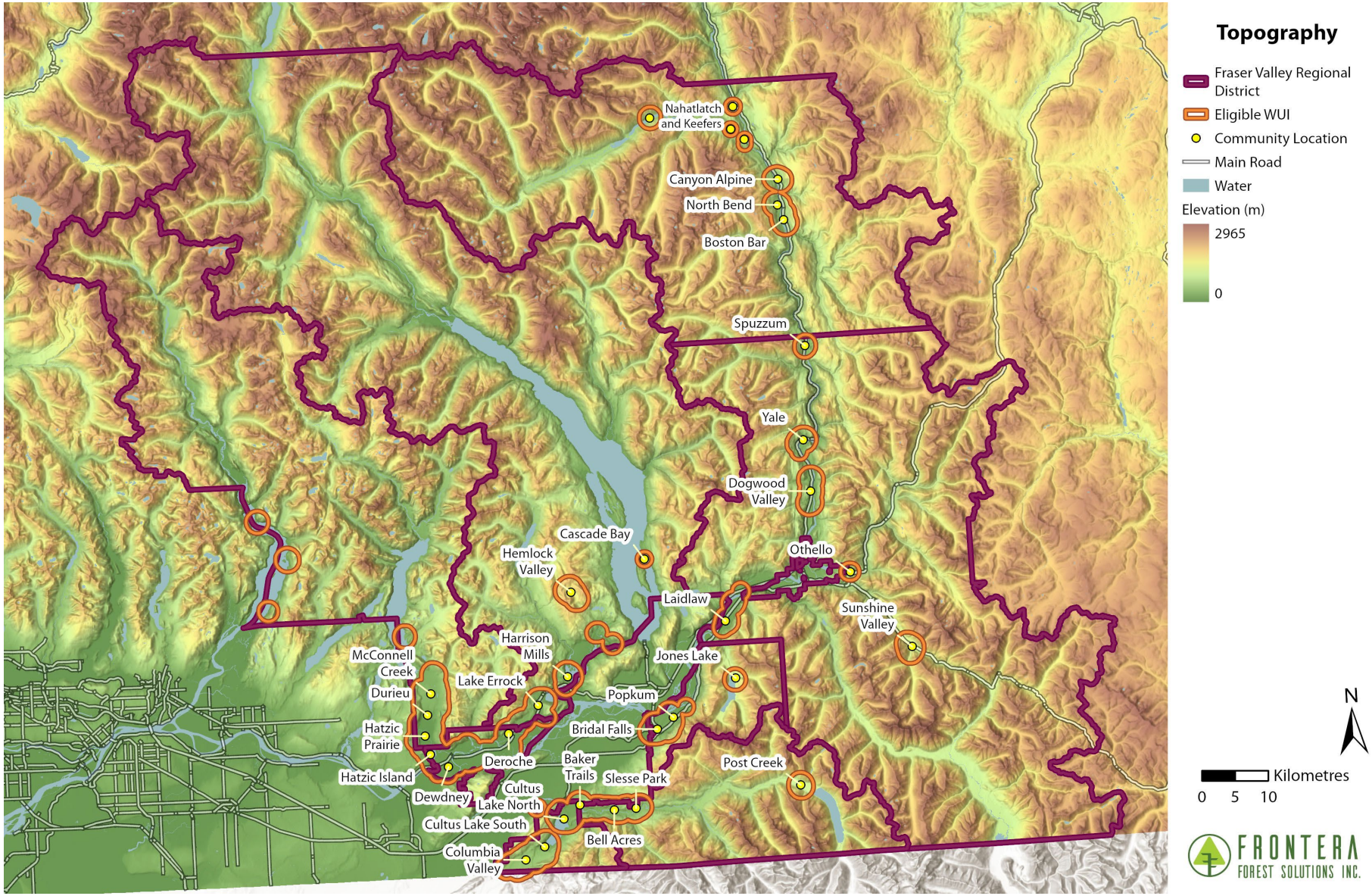


Figure 16. Map of topography in the AOI.

4.1.2. Vegetation (Fuels)

Vegetation is the fuel that sustains wildfire, and is therefore referred to as fuels. Fuels refers to the loading, size and shape, arrangement (horizontal and vertical), compactness, chemical properties, and moisture content within organic materials. In a forest environment, the focus is primarily on woody fuels. Fuels are discussed below by Biogeoclimatic zones, *fuel types*, and forest health issues, all of which influence and describe fuel composition.

Biogeoclimatic Ecosystem Classification Zones

Understanding the ecosystems of an area provide insight on the fuel conditions in the area, as well as the historical *wildfire regime*. The vegetation (fuels) within any given area of British Columbia can be summarized using the provincial *Biogeoclimatic Ecosystem Classification (BEC) system*[11]. The BEC system in BC describes and categorizes ecological zones by vegetation, soils, and climate. Regional subzones are derived from relative precipitation and temperature. Subzones may be further divided into variants based upon climatic variation and the resulting changes in the vegetative communities. Understanding the vegetative communities of an area can help predict the natural disturbance regime, including the historical wildfire intensity and severity.

The WUI for the FVRD encompasses several distinct BEC subzones, each characterized by unique climatic conditions that influence local ecosystems, summarized in **Table 10**.

The BEC zones present in the FVRD WUI generally become drier and cooler as they move from west to east (**Figure 17**). The Coastal Western Hemlock (CWH) Dry Maritime (dm) subzone is the most common subzone within the WUI for the region, accounting for over half the of the WUI. This subzone's climate is characterized by warm relatively dry summers, as well as moist, mild winters that rarely see snow. It has a long growing season and limited water deficits. These are highly productive ecosystems that support dense forests with significant biomass accumulation. Although generally considered moist by provincial standards, extended dry periods and summer droughts are common, particularly in the drier subzones. These dry conditions, combined with abundant fine *surface fuels* and continuous canopy structures, can increase *wildfire risk* in these areas.

Table 10. BEC Zones in the FVRD WUI.

BEC Zone	Area in WUI (ha)	Percent of WUI
CWHdm	30,991	58.2%
CWHds1	8,230	15.5%
IDFww	4,223	7.9%
CWHvm1	2,706	5.1%
CWHxm1	2,676	5.0%
CWHms1	1,900	3.6%
CWHvm2	1,206	2.3%
MHmm1	976	1.8%
MHmm2	253	0.5%
CMAunp	103	0.2%

The CWH Southern Dry Submaritime (ds1) subzone is the second most common subzone within the WUI for the region. This subzone's climate is characterized by its transitional nature between the coast and interior. It experiences warm dry summers and moist, cool winters with moderate snowfall. Zonal sites can feature water deficits within the growing season. In comparison to CWHdm, CWHds1 has less precipitation in general with increased water deficit levels and cooler temperatures, though with higher levels of snowfall.

The Interior Douglas Fir (IDF) Wet Warm (ww), though only accounting for 7.9% of the WUI area, is notable as it represents an interior BEC zone. This BEC zone is found in the far northeast of the FVRD, near Boston Bar and North Bend. This BEC zone is markedly drier and warmer than the CWH BEC zone that dominates the rest of the FVRD. While spatially limited, this BEC zone is associated with much more frequent wildfires due to a drier and warmer climate.

11 See: https://www.for.gov.bc.ca/hre/becweb/system/how/index.html#basic_concepts

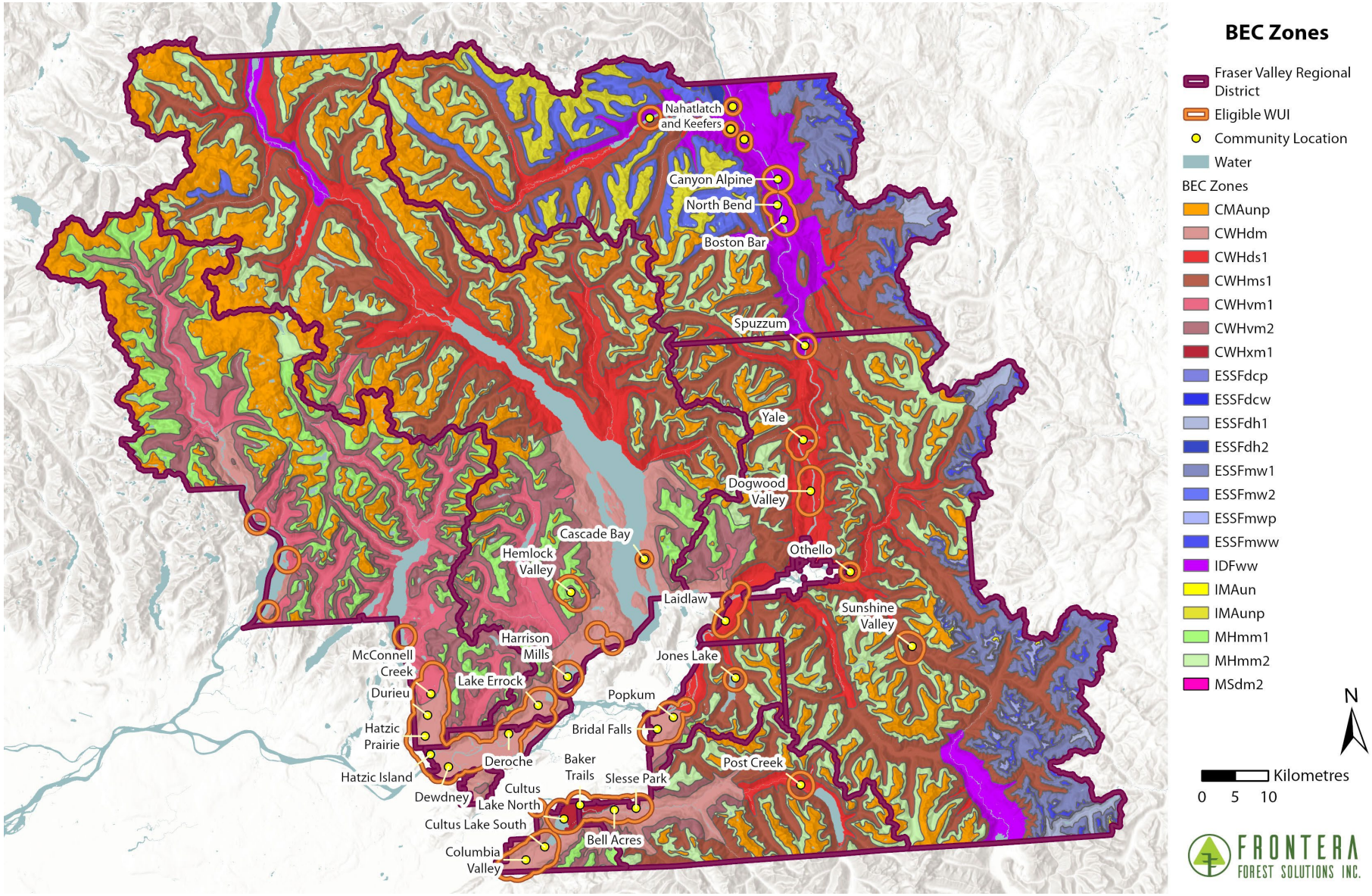


Figure 17. Map of BEC zones in the AOI.

Fuel Types

The *Canadian Forest Fire Behaviour Prediction System* (FBP) outlines five major fuel groups and sixteen *fuel types* modeled based on characteristic fire behaviour within common boreal vegetation under defined weather conditions[12]. In general, *fuel types* are defined in the FBP System by overall vegetation structure, dominant overstory species, and understory, *ladder fuel*, and forest floor characteristics. Fuel typing is used to aggregate forests into similar categories to estimate potential wildfire behaviour.

Fuel typing is a subjective process, as many of the vegetation communities of BC are not suitably represented by the boreal forest-based FBP *fuel types*. Therefore, the most appropriate *fuel types* were assigned based on best-available scientific research and information, professional experience, and practical knowledge. In BC, there are accepted *fuel types* used to align forests with the best representative FBP *fuel type*[13].

Fuel types are a key driver of *wildfire threat*, and accurately capturing *fuel type* is crucial to ensuring the projected *wildfire threat* is accurate. Therefore, determining *fuel types* is a critical component of this CWRP. This process involves reviewing the latest BCWS *fuel types* map, a map driven by remote sensing with minimal ground truthing. Local inaccuracies are common, as this map is derived at a provincial scale. During the CWRP, these inaccuracies are identified by completing site visits throughout the community, corrected as necessary using study plot, and a new and accurate *fuel type* map is created for use in identifying Local Wildfire Threat. Accurate fuel typing is also critical in identifying potential **Vegetation Management** areas, discussed more in that section.

The most common *fuel types* within the WUI of the FVRD's unincorporated EAs are D-1/2 (39%), C-5 (23.7%), and M-1/2 (15%). The D-1/2 *fuel type* is considered low hazard due to high moisture retention in foliage. *Slash fuel types* are less common in the WUI, but have been noted as challenging by BCWS for suppression. C-5 is the most prevalent *coniferous fuel type* in the FVRD. C-5 is characterized by a *coniferous* overstory with large vertical gaps between surface/ladder and crown fuels. This conifer *fuel type* only supports extreme wildfire behaviour under extreme conditions, such as very hot, dry, and windy weather. M-1/2 forests generally are moderately hazardous, largely depending on the percent composition of conifers in the overstory and understory. The C-3 forests are considered the most hazardous *fuel types* identified within the WUI, with a higher likelihood of extreme wildfire behaviour. This is due to the higher density and smaller fuel strata gap between surface and crown fuels. However, this *fuel type* is rare in the WUI, primarily in young forests recovering from disturbance.

Table 11 provides a summary of *fuel types* within the WUI and their characteristics, and **Figure 18 on page 52** provides a map of *fuel types*. It is important to note that vegetation conditions are constantly changing, due to both human and natural disturbance. Thus, this is a dynamic factor influencing wildfire behaviour.

Wildfire Regime

Wildfire regime is the characteristic pattern of wildfire in an area over long time periods, describing typical wildfire frequency, size, severity, and spatial distribution.

12 Natural Resources Canada. Canadian Wildland Fire Information System: Canadian Forest Fire Danger Rating System (CFFDRS). https://cwfis.cfs.nrcan.gc.ca/background/summary/fdr

13 Perrakis, D. and G. Eade. 2015. British Columbia Wildfire Fuel Typing and Fuel Type Layer Description 2018 Version. BC Wildfire Service, Ministry of Forests, Lands, and Natural Resource Operations. https://cfs.nrcan.gc.ca/publications?id=39432

Table 11. Fuel types within the FVRD WUI.

Fuel Type	Area (% of vegetated, public land)	FBP/CFFDRS Description	AOI Description	Wildire Behaviour During High Wildfire Danger Level	Crown Fire/ Spotting Potential
C-3	1.6%	Mature jack or lodgepole pine	Young, denser coastal conifers with elevated vertical and horizontal continuity	Surface and crown fire, high fire intensity and ROS	High
C-5	23.7%	Red and white pine	Lower density conifers with large gap between crowns and surface fuels	Surface fire with intermittent crowning, moderate fire intensity and ROS	Moderate
C-7	5.6%	Ponderosa Pine–Douglas-Fir	Low density, open conifer forest, typically with grass understory	Surface and crown fire, high fire intensity and ROS	High
D-1/2	39%	Aspen (leafless and green)	Deciduous stand, primarily alder, cottonwood, and maple	Surface fire, low to moderate ROS and fire intensity	Low
M-1/2	15%	Boreal mixedwood (leafless and green)	Mixed stand of conifers and deciduous species, often patchy	Surface fire spread, torching of individual trees and intermittent crowning	Moderate
Non-fuel	0.8%	-	Little to no flammable vegetation, paved surfaces, recent burns, gravel pits	Minimal potential for fire	None
Water	12%	-	Water	None	None

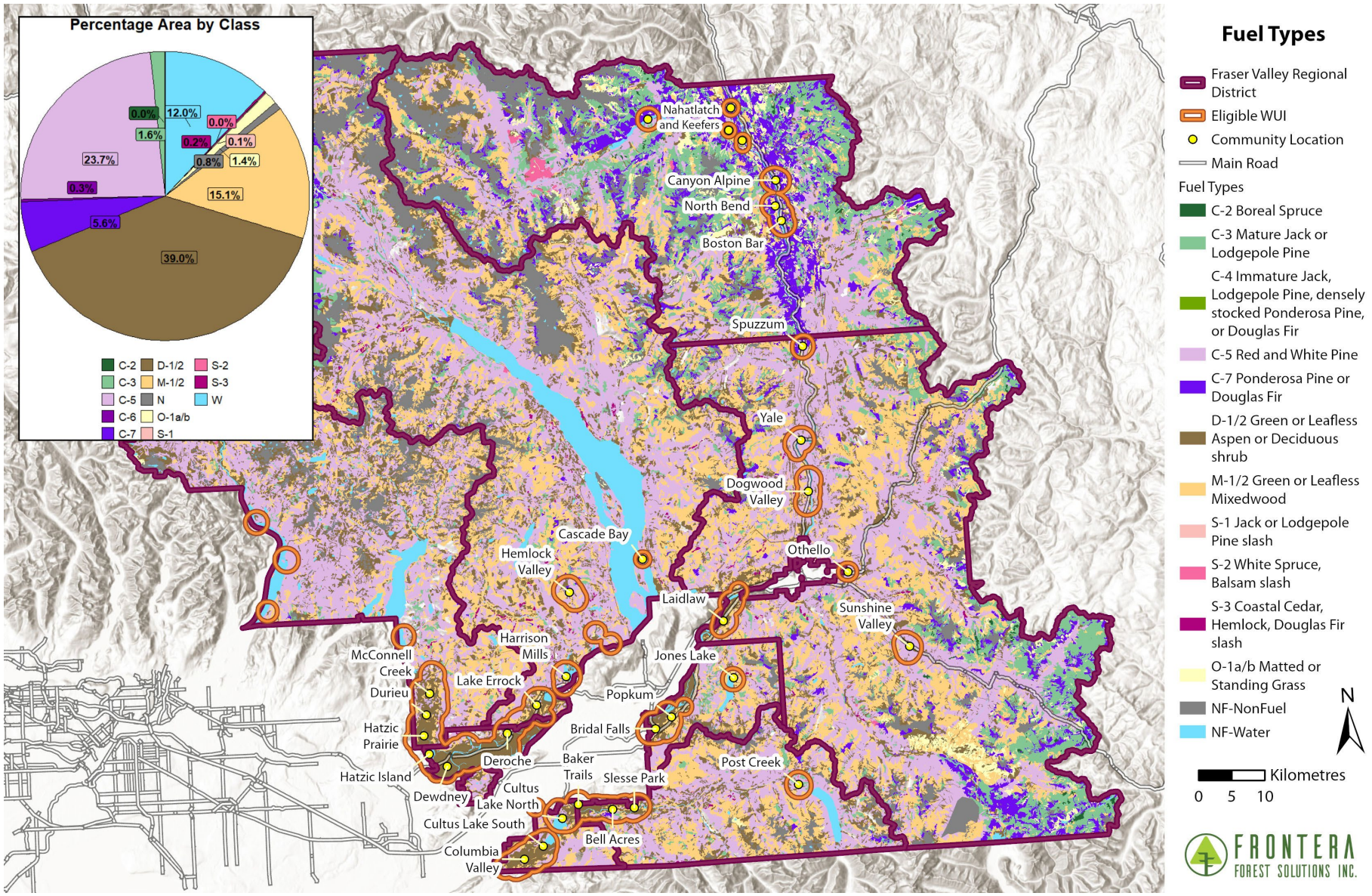


Figure 18. Map of fuel types in the AOI.

Forest Health Issues

Forest health issues can contribute to fuel loading by causing or increasing tree mortality, which in turn leads to dead fuel throughout the forest. Dead fuels, particularly when elevated, are drier than live fuels and burn more readily. Stressed vegetation is more susceptible to pest impacts, further increasing mortality and fuel loading. There are a number of forest health concerns within the forests of the FVRD. The most prominent health concerns in the WUI for this CWRP are discussed below.

Western spruce budworm

Western spruce budworm is a native defoliator moth caterpillar that mines the tree needles as they emerge from their buds in the late spring, primarily of Douglas fir, but also true firs. The effects are displayed by a reddening of needles, starting at the top of the tree and spreading down depending on the severity of the outbreak. Mild budworm outbreaks rarely cause mortality, but if severe defoliation occurs for multiple successive years, the mortality can become significant. When mortality does occur, it is mainly of stands with less virility and diversity, as well as younger trees that do not have the energy reserves to survive complete defoliation. During production of this CWRP, extensive impacts were observed throughout the FVRD, with widespread areas visibly impacted. If this continues and leads to severe mortality, there could be significant increases in wildfire behaviour and susceptibility in affected stand. The forests surrounding Sunshine Valley, in particular, appeared to be severely impacted.

Douglas-fir beetle

Douglas-fir beetle is a native insect that attacks fallen trees or trees predisposed by other factors, such as drought, defoliation or root diseases. It is endemic through Douglas-fir range, but outbreaks appear periodically on the coast, lasting about 3-4 years each decade. Management options include the removal of infected trees through harvesting and felling healthy trees to act as trap trees to attract the beetles, which can then be removed before beetle emergence in spring. This pest can increase mortality and fuel accumulations, potentially increasing wildfire behaviour.

Drought

Periods of drought in summer months have been increasing and becoming more intense. This can cause drought stress and mortality in all age classes of tree growing in shallow or course textured soils, but has a higher impact and larger area of effect for mature trees. If the drought is severe enough, such as in 2018, there can be serious levels of tree decline and mortality. Drought stress can also greatly increase the risk of infestation by other pests or pathogens. Drought stress may be a conflating factor leading to the expansive Spruce Budworm outbreak observed during the development of this CWRP.

Photo 12. Impacts of western spruce budworm seen near Sunshine Valley.

4.1.3. Wildfire History

Natural Disturbance Type

Ecosystems in BC are classified into five *Natural Disturbance Types* (NDTs) based on the frequency and severity of disturbances, such as wildfires, windstorms, landslides, and insects[14]. Wildfires are a primary agent of disturbance in most ecosystems in BC. These categories help us understand how our natural landscapes evolve and function over time.

Most of the ecosystems (92%) in the WUI are classified as *NDT1* and *NDT2*. In these zones, wildfires occurred with relatively low frequency, occurring an average of once every 200 years. These fires were moderate in size, between 20 to 1,000 hectares, and often patchy with large unburnt areas found throughout. As a result, post-wildfire forests also had a patchy composition, with a wide variety of ages, sizes, densities, and species. Human activity including wildfire suppression has significantly reduced these types of wildfires in the last fifty years. These NDT's dominate all the FVRD's EAs with the exception of EA A.

Within EA A, there are extensive and continuous areas that are classified as *NDT4*—ecosystems with frequent stand-maintaining events. There areas occupy approximately 8% of the total WUI of the FVRD's unincorporated EAs. These areas are present surrounding the Fraser River in EA A, and are present within the WUI of the communities of Canyon Alpine, North Bend, Boston Bar, and Nahatlatch & Keefers. Within these ecosystems wildfires historically occurred every 5 to 50 years, typically burning at a low intensity and maintaining an open structure with widely spaced, fire-tolerant tree species. These regular fires helped limit fuel buildup, promote grassy understories and sustain a diverse, uneven-aged forest composition. However, *fire exclusion* policies and suppression activities over the last century have disrupted this natural regime. As a result, forests have become denser, with increased fuel accumulation and greater risk of high intensity wildfires.

Observed Wildfire History

The BCWS maintains a database of all wildfires that have occurred and required a BCWS response in the province since 1920. This includes point data (since 1945) for where a wildfire ignited and its ignition cause, as well as polygon data (since 1920) for fires that exceed 2 hectares. It should be noted that wildfire completely managed by local FDs are often not included within this database.

Within the entirety of the FVRD AOI there have been approximately 7,200 wildfires recorded since 1945 (**Figure 19 on page 56**). Approximately 75% of these were human caused, highlighting the high potential for fires within the region to be human caused. It is important to note that human caused wildfires are often not intentional, and associated with human activities such as yard maintenance, vehicles, power line failure, industrial activities, and recreation. Notably, wildfire frequency in the area appears to be increasing, with over half of wildfires since 1945 occurring in the last 20 years. This increase could be due to a combination of factors including climate change, expanding development into interface areas, and improved detection and reporting.

Focusing on the WUI of the FVRD unincorporate EAs, approximately 1,200 fires have occurred here since 1945. Since the WUI only comprises 4% of the AOI's total area, the relative frequency of wildfire in the WUI is high (16%). Of these, 93% were human caused (**Table 12**).

Fire Exclusion

A phenomenon where human land management has resulted in ecosystems departing from their natural or historic fire regime.

14 BC Ministry of Forests. Forest Practices Code Biodiversity Handbook. 1995. King's Printer for British Columbia. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/frep/frep-docs/biodiversityguidebook.pdf

The Kookipi Creek Wildfire entered the WUI of Nahatlatch & Keefers, burning approximately 18,000 ha, more than twice the area of any other fire. This wildfire resulted in the FVRD declaring a State of Local Emergency, involving evacuation alerts and orders, and resulting in structure loss within the WUI.

Overall, the wildfire history in the AOI reflects the Natural Disturbance Regime discussed above. However, there appears to be a potential shift to more frequent fires with increasing severity, posing greater risks to communities, infrastructure and ecosystems. This is most notable in the drier portions of the WUI, particularly the northern areas of the Fraser Canyon, evidenced by recent severe wildfire in and adjacent this area.

Table 12. Wildfire history summary for the FVRD WUI.

**No fire ignition data (human vs lightning) is available for 2023 and 2024, which skews this data. Area burned was available for these years and has been included.*

***Human data includes wildfires with unknown causes. These are typically human-caused, but the BCWS has been unable to determine the source.*

Fire Year (by decade)	Lightning	Lightning (%)	Human**	Person (%)	Total fires	Area Burned (ha)
1945-1954	2	3.23%	60	96.77%	62	3,008.4
1955-1964	12	11.21%	95	88.79%	107	517.5
1965-1974	15	8.77%	156	91.23%	171	277.4
1975-1984	11	10.09%	98	89.91%	109	52.9
1985-1994	10	13.70%	63	86.30%	73	184.6
1995-2004	10	7.04%	132	92.96%	142	191.4
2005-2014	6	1.55%	381	98.45%	387	2.7
2015-2024*	5	2.92%	166	97.08%	171	1,055.6
Totals and averages	71	7.31%	1151	92.69%	1222	11,187.0

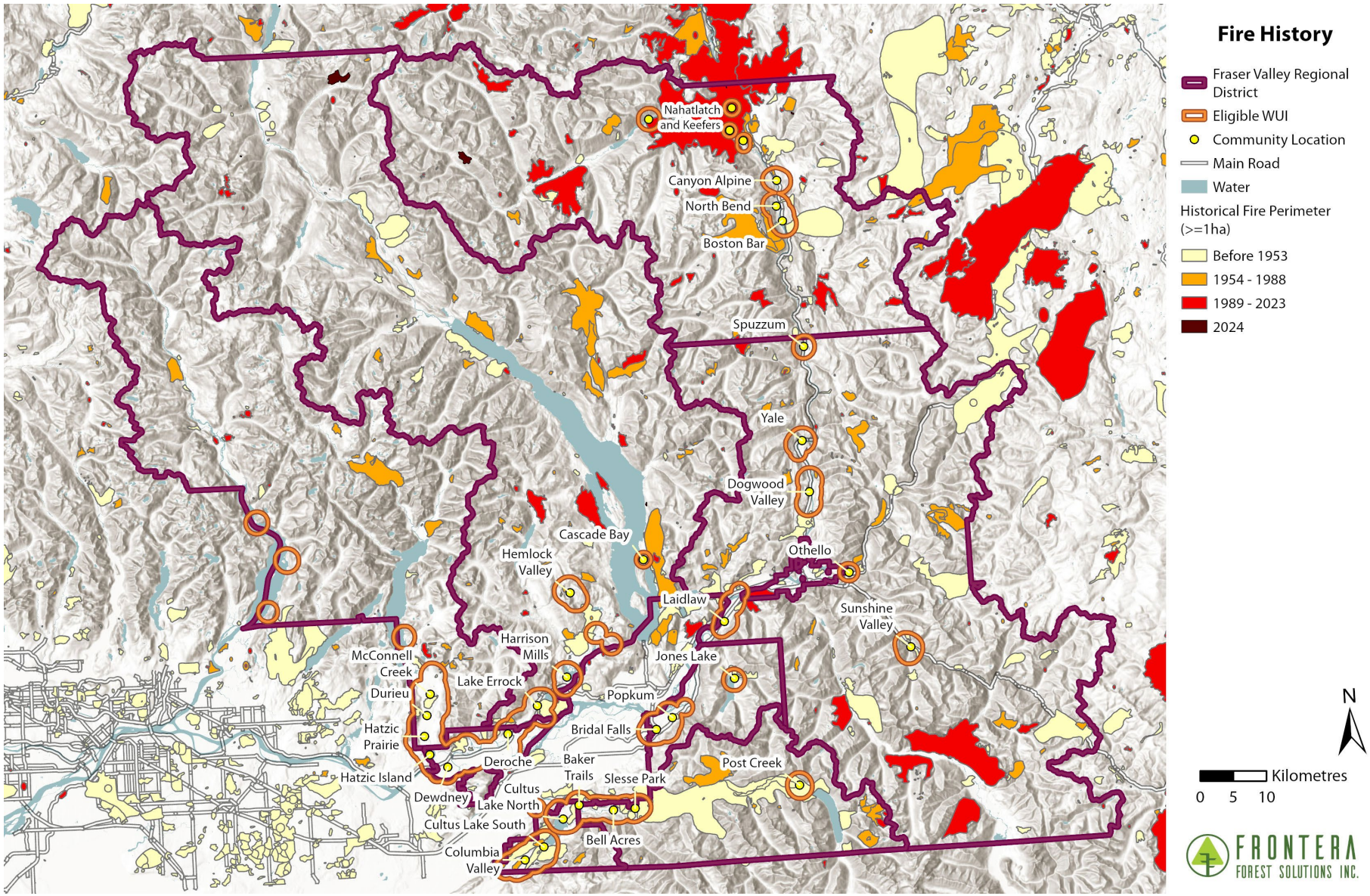


Figure 19. Map of wildfire history in the AOI.

4.1.4. Weather

Weather refers to changes in our atmosphere that take place over short periods of time, such as days, weeks, or months. Attributes including temperature, RH, precipitation, wind speed, and wind direction play a critical role in the ignition, spread, and duration of wildfires. These factors, combined with the broader climate conditions, also shape the development of forest ecosystems and the accumulation of vegetative fuel, creating conditions conducive to potential wildfire behaviour.

In contrast, climate describes the typical prevailing weather of an area over an extended period of time, typically decades to centuries. Climate is important for predicting typical weather patterns during fire season months, as well as the vegetation present in an ecosystem.

Most of the FVRD is characterized by a mild coastal climate. The FVRD receives high amounts of precipitation in the winter and significantly less in the summer months. The wettest month, November, gets nearly 200 mm of rain on average. In contrast, the driest month, August, gets 34 mm of rain on average. Temperatures in the FVRD are moderated by its coastal location; winters are mild with average temperatures at freezing point or above. The coldest month, December, averages 0°C, while the warmest months, July and August, have an average temperature of 18°C. January is the snowiest month with 276 mm. Reduced snowpack results in less water run-off during spring and summer, potentially exacerbating drought conditions and leading to limited water supply.

One exception to the above is EA A and its communities. This area is significantly warmer and drier than the other EAs and communities, receiving only approximately 720 mm of precipitation annually, and with annual average temperatures 5-7 °C warmer. There are similar patterns of wetter winters and drier summers, however the summers tend to have much warmer temperatures and drier conditions than the rest of the FVRD. This is a major factor in both the markedly different vegetation present in this area, as well as the different NDT.

Wind direction and speed is a major factor in wildfire behaviour and direction of spread. Topography also influences local winds, altering large scale winds at a local scale due to funneling and eddying in valleys and ridgelines. In a heavily mountainous area with broad valleys, local winds will often vary from the large-scale wind patterns. The FVRD typically experiences westerly and southwesterly winds, originating in the Pacific Ocean. However, easterly winds also occur, though less frequently. Though uncommon, these can be strong and in the summer are often carrying warm, dry air from the interior of BC. These outflow conditions are associated with some of the highest *wildfire danger*, and often the largest wildfires in coastal areas occur during these conditions. However, these conditions typically occur less than 10 days per year.

Most of the FVRD will experience periods of weather that supports wildfire ignition and spread. Weather conditions that can cause extreme wildfire behaviour do occur nearly every summer, but only for a short period during the hottest and driest period of the year, typically peaking in August. However, the window where these conditions occur is narrow. One exception is EA A, where this window is much longer, often occurring in all of July and August.

Photo 13. Fraser Canyon at Boston Bar. Topographic features have significant effects on local winds.

The complexity of wind in the FVRD is illustrated in **Figure 20** and **Figure 21**. These windrose diagrams provide a visual summary of wind direction and intensity at a specific location. The triangles around each centre indicate the originating direction of the wind and its average speed. The Haig weather station, located in EA B, illustrates the southwesterly winds that are the dominant landscape pattern through most of the FVRD. However, the Four Barrel Test weather station, located near Boston Bar, shows how these winds can be modulated by topography. The winds follow the direction of the Fraser Valley, with southwesterly winds becoming more common.

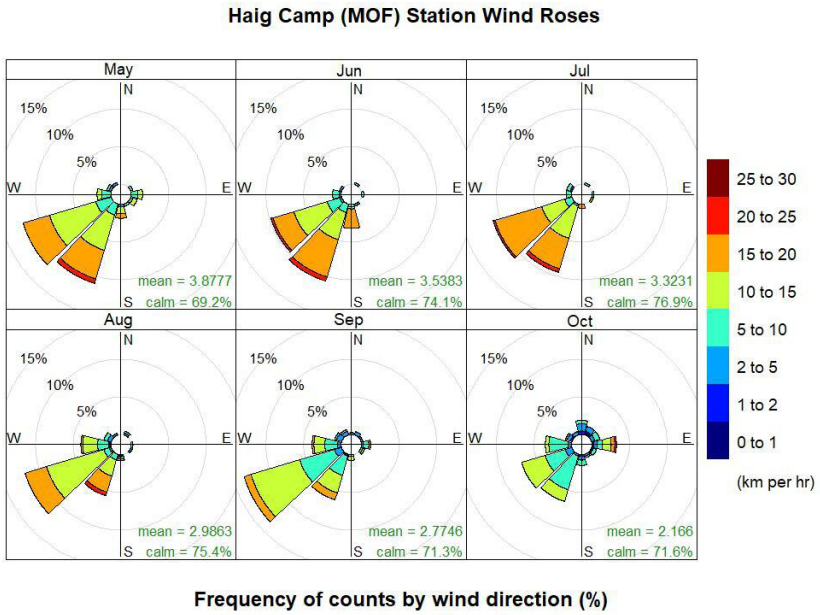


Figure 20. Windrose for the Haig Camp weather station.

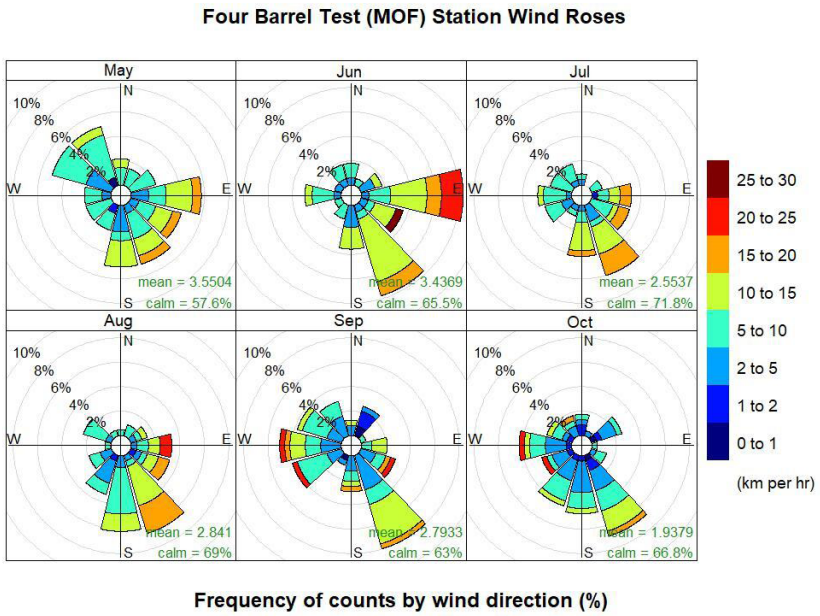


Figure 21. Windrose for the Four Barrel Test weather station.

4.1.5. Canadian Forest Fire Danger Rating System

The National Canadian Forestry Service developed the *Canadian Forest Fire Danger Rating System*[15] to assess *wildfire danger* and potential wildfire behaviour. Fire Danger Classes provide a relative index of how easy it is to ignite a wildfire and how difficult control is likely to be. A network of fire weather stations is maintained throughout the province during the fire season by the BCWS, and the recorded data are used to determine fire danger represented by Fire Danger Classes on forest lands within/around a community. The fire danger information can be obtained from the BCWS and is most commonly to monitor fire weather, restrict high risk activities when appropriate, and to determine hazard ratings associated with bans and closures. This data is updated daily to provide a daily estimate of the *wildfire danger*.

The *Wildfire Act* [BC 2004][16] and *Wildfire Regulation* [BC Part 3/2021][17] specify responsibilities and obligations with respect to fire use, prevention, control, and rehabilitation, and restrict high risk activities based on Fire Danger Classes. The five Fire Danger Classes are defined as follows:

- **Class 1 (Very Low)**: Fires are likely to be self-extinguishing and new ignitions are unlikely. Any existing fires are limited to smoldering in deep, drier layers.
- **Class 2 (Low)**: Creeping or gentle *surface fires*. Ground crews easily contain fires with pumps and hand tools.
- **Class 3 (Moderate)**: Moderate to vigorous *surface fires* with intermittent crown involvement. They are challenging for ground crews to handle; heavy equipment (bulldozers, tanker trucks, and aircraft) are often required to contain these fires.
- **Class 4 (High)**: High-intensity fires with partial to full crown involvement. Head fire conditions are beyond the ability of ground crews; air attack with retardant is required to effectively attack the fire's head.
- **Class 5 (Extreme)**: Fires with fast spreading, high-intensity *crown fire*. These fires are very difficult to control. Suppression actions are limited to flanks, with only indirect actions possible against the fire's head.

Crown Fire

Fire that occurs primarily in the *aerial fuels* of a forest. Crown fires have the highest intensity and spread of all types of wildfire and are very challenging to suppress. Crown fires are almost always accompanied by a ground and surface fire. Can be intermittent, where only individual trees or group of trees aerial canopies are involved, or continuous, where the entire flame front is consuming the aerial canopies of all trees.w

Surface Fire

Fire that occurs primarily in *surface fuels*. Usually accompanies a crown fire.

15 Natural Resources Canada. Canadian Wildland Fire Information System: Canadian Forest Fire Danger Rating System (CFFDRS). https://cwfis.cfs.nrcan.gc.ca/background/summary/fdr

16 Wildfire Act, S.B.C. Chapter 31 2004. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/04031_01

17 See: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/11_38_2005

Analysing the average *wildfire danger* classes during *core fire season* summarizing how frequently an area experiences conditions where wildfire can ignite, spread rapidly, and pose suppression challenges. Given the diversity of weather conditions in the FVRD, summaries are provided for two stations. The Haig station is located in EA B, and is representative for most of the FVRD, with exception of EA A (**Figure 22**). EA A is much warmer and drier, and is represented by the Four Barrel Test weather station, located just north of Boston Bar in EA A (**Figure 23**).

Core Fire Season

Core fire season for most of the FVRD occurs during June, July and August, with a slightly longer fire season in EA A. This is the period when weather conditions regularly support wildfire ignition and spread, and when a majority of wildfires occur. Wildfires do occur outside of this period, but are much less frequent and exhibit less aggressive wildfire behaviour. Core fire season varies by location, and is longer in duration in warmer and drier climates.

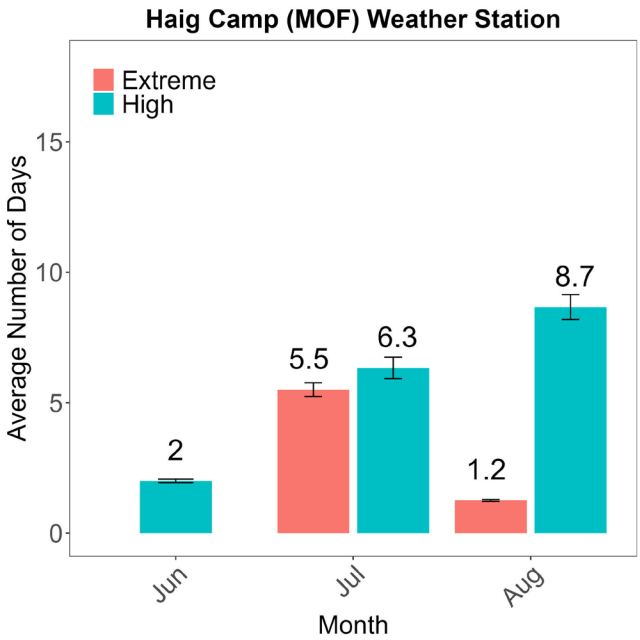


Figure 22. Wildfire danger days in core fire season at the Haig weather station.

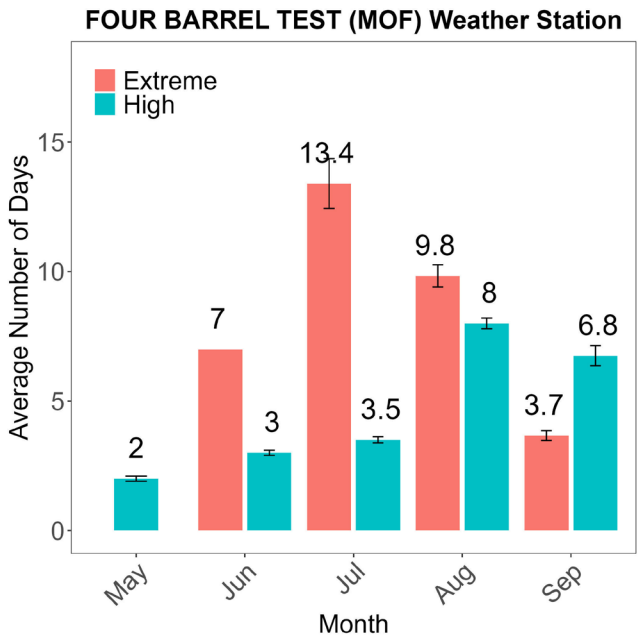


Figure 23. Wildfire danger days in core fire season at the Four Barrel Test weather station.

The diversity of weather conditions is reflected in the variation between Haig Camp and Four Barrel Test weather stations during core fire season. The Haig Camp data is representative of the average weather conditions during fire season in most of the FVRD, excluding EA A. In some of the wetter areas, such as EA C, the Haig Camp data likely overstates the typical summer *wildfire danger*. An average of 25% of the total core fire season (June, July, and August) days will experience high or extreme *wildfire danger*. This means that the FVRD can expect weather conditions that support high intensity, rapidly spreading, and difficult-to-control wildfires to occur on average for 25% of days during each core fire season.

EA A is much drier and warmer than the other EAs of the FVRD. The Four Barrel Test station weather data shows how this not only extends the core fire season to include May and September, but also how this results in elevated *wildfire danger*. An average of 37% of core fire season in EA A will have *wildfire danger* of high or extreme. Most importantly, 14% of fire season on average will consist of days with extreme *wildfire danger*, double the frequency recorded at the Haig Base station.

Fire danger predictions are useful for daily preparedness, but reviewing seasonal averages is more helpful for long term preparation. By analyzing average danger days, the FVRD can predict and be prepared for particularly taxing periods. Most importantly, the geographic variation in *wildfire danger* in the FVRD must also be linked to wildfire preparedness. A process for using *wildfire danger* to inform preparedness planning is described in **11 Emergency Planning**.

Photo 14. Coquihalla River and surrounding valley near Othello.

4.2. Community Wildfire Environment Summaries

Table 13 provides a summary of the factors that drive *wildfire threat* in communities in the FVRD unincorporated electoral areas.

Table 13. Wildfire environment summaries for the FVRD unincorporated communities.

Community	Topography	Weather	Fuels	Other factors
EA A				
Boston Bar	On eastern bank of Fraser River, at valley bottom with west facing aspect.	The warmest and driest conditions in the FVRD. Prevailing winds are northerly, funneling down the Fraser Valley and blowing south.	Large variety of fuel types, predominantly C-7 but with some M-1/2 and C-3 nearer the values of the community.	Further up the slope there is signs of slight western spruce budworm defoliation
North Bend	On western bank of Fraser River, at valley bottom with east facing aspect.	The warmest and driest conditions in the FVRD. Prevailing winds are northerly, funneling down the Fraser Valley and blowing south.	Predominantly C-7, with a small proportion of M-1/2 and D-1/2 nearer the values of the community.	Higher up the valley wall there is severe western spruce budworm defoliation.
Canyon Alpine	On eastern bank of Fraser River, at valley bottom with west facing aspect.	The warmest and driest conditions in the FVRD. Prevailing winds are northerly, funneling down the Fraser Valley and blowing south.	Predominantly C-7, with a small patches of D-1/2.	Higher up the valley wall there is severe western spruce budworm defoliation.
Nahatlatch & Keefers	Nahatlach on northern bank of Hannah Lake, at valley bottom with steep south facing aspect. Keefers on western bank of Fraser River, at valley bottom with east facing aspect.	The warmest and driest conditions in the FVRD. Prevailing winds are northerly, though may be disrupted by local topography.	Nahatlatch is predominantly C-7 the side of the river the values are on, and C-3 with some C-5 on the opposite side. Keefers is almost exclusively C-7, with some patches or O-1a/b. There are 2 other patches of WUI outside the main community, both of which is predominantly C-7 followed by C-3, C-5 and M-1/2.	Large areas of WUI impacted by 2023 wildfire. This has reduced current fuel loading.

Community	Topography	Weather	Fuels	Other factors
EA B				
Dogwood Valley	On western bank of Fraser River, at valley bottom with east facing aspect.	Summers are generally warm and dry and winters cool and moist. Winds are mostly southwesterly, but with a strong component of northeasterly, channeled by the Fraser Valley.	Fueltype is mostly C-5 with a mosaic of D-1/2 M-1/2 throughout the WUI.	Minor western spruce budworm impacts visible.
Laidlaw	On southeastern bank of Fraser River, at flat valley bottom, nearest slope is southeast with northwest facing aspect.	Warm, dry summers and cool moist winters. Winds are split between southwesterly and northeasterly along the direction of the valley.	Around the community is a mixture of D-1/2 and M-1/2 with some C-5 further up the valley wall.	
Spuzzum	On western bank of Fraser River, at valley bottom with east facing aspect.	Summers are hot and dry and winters cold and moist. Prevailing winds are northerly, funneling down the Fraser Valley and blowing south.	Largely C-7 with some D-1/2 and O-1a/b	
Sunshine Valley	At bottom slope of a northwest to southeast running valley, on both sides, and in valley bottom. Both northeast and southwest facing aspects.	Summers are warm and dry, and winters cool and moist. The wind direction in Sunshine Valley is generally split between northwesterly and southeasterly.	There are D-1/2 or open areas in the flat of the valley bottom, but as slopes begin, fuel type is almost exclusively C-5	Western spruce budworm defoliation extending down to the valley floor but worsening at higher elevations.
Yale	On northwestern bank of Fraser River on a bend, at valley bottom with east and south facing aspects.	Summers are generally hot and dry and winter cold and moist. Winds are mostly southwesterly, but with a strong component of northeasterly, channeled by the Fraser Valley.	Mostly C-5 with some D-1/2 around the community and along the riverbank.	Minor western spruce budworm impacts visible.
Othello	On northern bank of Coquihalla River, at valley bottom with south facing aspect.	Warm, dry summers and cool moist winters. While the prevailing wind is westerly, Othello lies in a convergence of valleys leading to variable wind directions, with easterly winds often accompanied by a reduction in RH.	Fuel types are a C-5, M-1/2 and D-1/2 mosaic immediately around the community values, but overall mostly C-5.	

Community	Topography	Weather	Fuels	Other factors
EA C				
Harrison Mills	On western bank of Harrison River, Harrison Bay to the south and east and wetlands to the north. At valley bottom with east facing aspect.	Warm, dry summers and cool moist winters. The prevailing wind is easterly, putting the bay between the community and the flow of the wind.	Mostly C-5 with small patches of M-1/2 and D-1/2.	
Hemlock Valley	An elevated valley midway up Sasquatch mountain, steep south, east and west aspects.	Cooler summers and winters and higher precipitation year-round than the rest of the communities, though summers would still be considered relatively dry. The prevailing wind is southwesterly, with a component of northeasterly.	Large variety of fuel types, predominantly C-5 but with significant proportion of M-1/2.	Severe spruce budworm defoliation and mortality.
Lake Errock	Values on the western bank of Lake Errock have an east facing aspect and values to the south of Lake Errock in valley bottom have both east and west facing aspects to either side.	Warm, dry summers and cool moist winters. The community is situated along the eastern shore of Errock Lake as well as to the south. The prevailing wind is easterly.	Fuel types around the community are largely M-1/2 and D-1/2, with more C-5 at higher elevations.	
Cascade Bay	On both sides of a narrow bay in on east side of Harrison Lake, at bottom slope with east and west facing aspects.	Warm, dry summers and cool moist winters. The prevailing wind is southwesterly, with a component of northeasterly.	C-5 around values, but with a large proportion of D-1/2 on the mainland side of the WUI.	
EA D				
Bridal Falls	In flat valley bottom between a valley wall to the southeast with northwest facing aspect, and the Fraser River and floodplains to the north and west.	Warm, dry summers and cool moist winters. The prevailing wind is northeasterly, with some reversal of southwesterly.	Fuel type almost exclusively D-1/2 with a small proportion of M-1/2.	
Popkum	In flat valley bottom between a valley wall to the southeast with northwest facing aspect, and the Fraser River and floodplains to the north and west.	Warm, dry summers and cool moist winters. The prevailing wind is easterly.	Fuel type almost exclusively D-1/2 with a small proportion of M-1/2.	
Jones Lake	On the eastern shore of Jones Lake, at valley bottom with west facing aspect.	Warm, dry summers and cool moist winters. The prevailing winds are southwesterly; however, it is almost equally split with northeasterly winds channeled by the gully.	Fuel types are mostly high conifer percentage M-1/2.	Recent harvesting to the east, some dense areas of fuels where regeneration is occurring.

Community	Topography	Weather	Fuels	Other factors
EA E				
Baker Trails	On the northern bank of Chilliwack River, at the valley bottom with southwest facing aspect.	Warm, dry summers and cool moist winters. The prevailing wind is easterly.	Fueltype is almost exclusively D-1/2.	
Bell Acres	On the northern bank of Chilliwack River, at valley bottom with south facing aspect.	Warm, dry summers and cool moist winters. The prevailing wind is easterly.	Fueltype on the community side of the river is D-1/2 with patchwork M-1/2. Across the river there are mostly coniferous fuels.	
Slesse Park	On the northern bank of Chilliwack River, at valley bottom with southeast facing aspect.	Warm, dry summers and cool moist winters. The prevailing wind in Slesse Park is easterly.	Around the values is largely M-1/2, but the WUI as a whole has more D-1/2 and a small proportion of C-5.	
Post Creek	In a narrow but flat valley bottom, with steep southeast and northwest facing slopes to the north and south.	Warm, dry summers and cool moist winters. The prevailing wind is southwesterly; there is however a strong component of easterly winds.	In and around the community is C-3 and S-3, moving further out in the WUI is C-5.	Network of recent clearcut fuel breaks around community, with varying levels of fuel cleanup.
EA F				
Durieu	In a wide valley bottom with a slight south facing aspect and steep valley walls to the east and west.	Warm, dry summers and cool moist winters. The prevailing winds are southerly, though northerly is almost as common.	The flat valley bottom is dominated by agricultural and developed properties. Up the valley walls transition to more coniferous content with M-1/2 and C-5.	
Hatzic Prairie	In a wide, flat valley bottom with steep valley walls to the east and west.	Warm, dry summers and cool moist winters. The prevailing winds are southerly, though northerly is almost as common.	The flat valley bottom is dominated by agricultural and developed properties. Up the valley walls transition to more coniferous content with M-1/2 and C-5.	
McConnell Creek	In a wide, flat valley bottom with steep valley walls to the east and west.	Warm, dry summers and cool moist winters. The prevailing winds are southerly, though northerly is almost as common.	The flat valley bottom is dominated by agricultural and developed properties. Up the valley walls transition to more coniferous content with M-1/2 and C-5.	

Community	Topography	Weather	Fuels	Other factors
EA G				
Deroche	On the northwestern bank of Nicomen Slough, at the valley bottom with a southeast facing aspect.	Warm, dry summers and cool moist winters. The prevailing winds are northeasterly, but the wind also frequently blows to the south.	D-1/2 dominates the WUI, with the community being both in D-1/2 and M-1/2, transitioning to more C-5 at the edge of the community moving up the valley wall.	
Dewdney	In a flat valley bottom with Nicomen Slough to the east, Fraser River to the south and Hatzic Island to the west. Steep southeast facing aspect slope to the north.	Warm, dry summers and cool moist winters. The prevailing winds are northeasterly, but the wind also frequently blows to the south.	Valley floor is all farmland, in the northern part of the WUI where the valley wall begins, filetype is M-1/2 which transitions to C-5 at higher elevations.	
Hatzic Island	Flat island in the middle of Hatzic Lake.	Warm, dry summers and cool moist winters. The prevailing wind on the island is northeasterly, but the wind also frequently blows to the south.	Hatzic Island is fully developed, land is either buildings, grass, or lines of trees splitting land separate land parcels.	
EA H				
Columbia Valley	In a flat valley with a steep, southeastern aspect, valley wall to the northwest, and a steep, northwestern aspect, valley wall to the southeast.	Warm, dry summers and cool moist winters. The prevailing winds are easterly, but the wind also frequently blows to the south.	Valley floor is mostly farmland with some small patches of M-1/2 and C-5. The valley walls are equally C-5, M-1/2 and D-1/2.	
Cultus Lake North	In a flat valley with a steep, southeastern aspect valley wall to the northwest, a steep, northwestern aspect valley wall to the southeast, and Cultus Lake to the southwest.	Warm, dry summers and cool moist winters. The prevailing winds are easterly, but the wind also frequently blows to the south.	There are equal proportions of C-5, D-1/2 and M-1/2 around the community values, with a higher proportion of D-1/2 further out in the WUI	
Cultus Lake South	In a flat valley with a steep, southeastern aspect valley wall to the northwest, a steep, northwestern aspect valley wall to the southeast, and Cultus Lake to the northeast.	Warm, dry summers and cool moist winters. The prevailing winds are easterly, but the wind also frequently blows to the south.	Fuel types immediately around the values are predominantly D-1/2 with some M-1/2 and C-5. Further to the north, there is a higher proportion of C-5 and to the south more D-1/2.	

4.3. Wildfire Threat

Establishing *wildfire threat* for an area involves synthesizing the previously discussed factors of wildfire behaviour to predict potential *wildfire threat*. This process starts with the *Provincial Strategic Threat Analysis* (PSTA), which is then refined and ground truthed at the community scale to accurately determine the Local Wildfire Threat. Refining the PSTA requires synthesizing updated local *fuel types*, weather for the community, and local topography. All CWRP's follow a local *wildfire threat* assessment process outlined by the BCWS, using the Wildfire Threat Assessment Guide[18] and supplemental guidance[19].

Provincial Strategic Threat Analysis

A province wide assessment of *wildfire threat*, conducted at a provincial scale. The PSTA provides multiple datasets that can be used to predict wildfire behaviour at a landscape scale. Inaccuracies are common at a local or community scales.

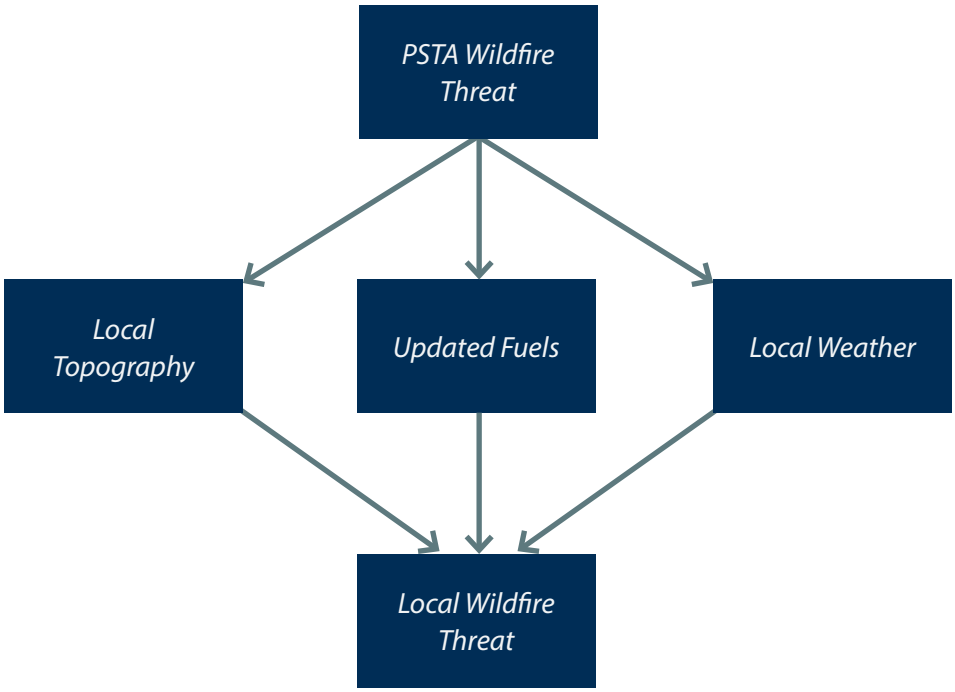


Figure 24. Local wildfire threat process summary.

18 See: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/wildfire-status/prevention/fire-fuel-management/fuels-management/2020-wildfire-threat-assesment-guide-final.pdf

19 See: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/wildfire-status/prevention/fire-fuel-management/fuels-management/2020_determining_wildfire_threat_and_risk_at_a_local_level.pdf

4.3.1. Provincial Strategic Threat Analysis

The PSTA is a spatial dataset developed by the BCWS to assess and predict potential *wildfire threat* and risk to values, utilizing three inputs including forest *fuel types*, *spotting* potential, and fire occurrence density. The PSTA is generated at a provincial scale, and is a static model of *wildfire threat* that is updated annually. The PSTA uses remotely derived inputs, with no ground truthing. Similarly, the PSTA does not include local weather conditions for identifying *wildfire threat* for a specific community. Most importantly, the PSTA does include an analysis of how wildfires move through fuels in a landscape area. The PSTA is useful as an initial starting point for *wildfire threat* assessment at a community scale, but requires refinement through the CWRP process to accurately guide *wildfire risk* mitigation actions.

The PSTA stratifies vegetated areas into *wildfire threat* classes of extreme, high, moderate, or low. Private land is not evaluated in the PSTA. Non-fuel areas such as alpine tundra or water are considered no threat due to the lack of vegetation to support wildfire.

The PSTA identifies a diverse *wildfire threat* in the WUIs of the unincorporated areas of the FVRD, ranging from low to extreme. However, most of the area is in the moderate and high PSTA *wildfire threat* class. There is a general gradient of increasing PSTA *wildfire threat* moving from west to east in the FVRD, corresponding with the drier and warmer climate in the east, particularly in the northern extents of the FVRD in the Fraser Valley. The PSTA *wildfire threat* in the FVRD also tends to be lower in valley bottoms, but increasing rapidly on steep slopes adjacent valley bottoms. The areas of highest PSTA *wildfire threat* surround the communities in EA A (**Figure 25**).

Spotting

A phenomenon where a wildfire spreads wind carried embers beyond the main body of a wildfire. These embers can enter structures and cause *interface fire*, as well as start new wildfires separate from the main wildfire body.

Table 14. PSTA wildfire threat within the FVRD WUI.

PSTA Threat Class	Area in WUI (ha)	% of Total Area in WUI
Extreme	2911.8	5%
High	11,467.2	20%
Moderate	14,003.4	25%
Low	1,930.7	3%
Non-fuel (water)	6,981.9	12%
No data (private land)	19,711.5	35%

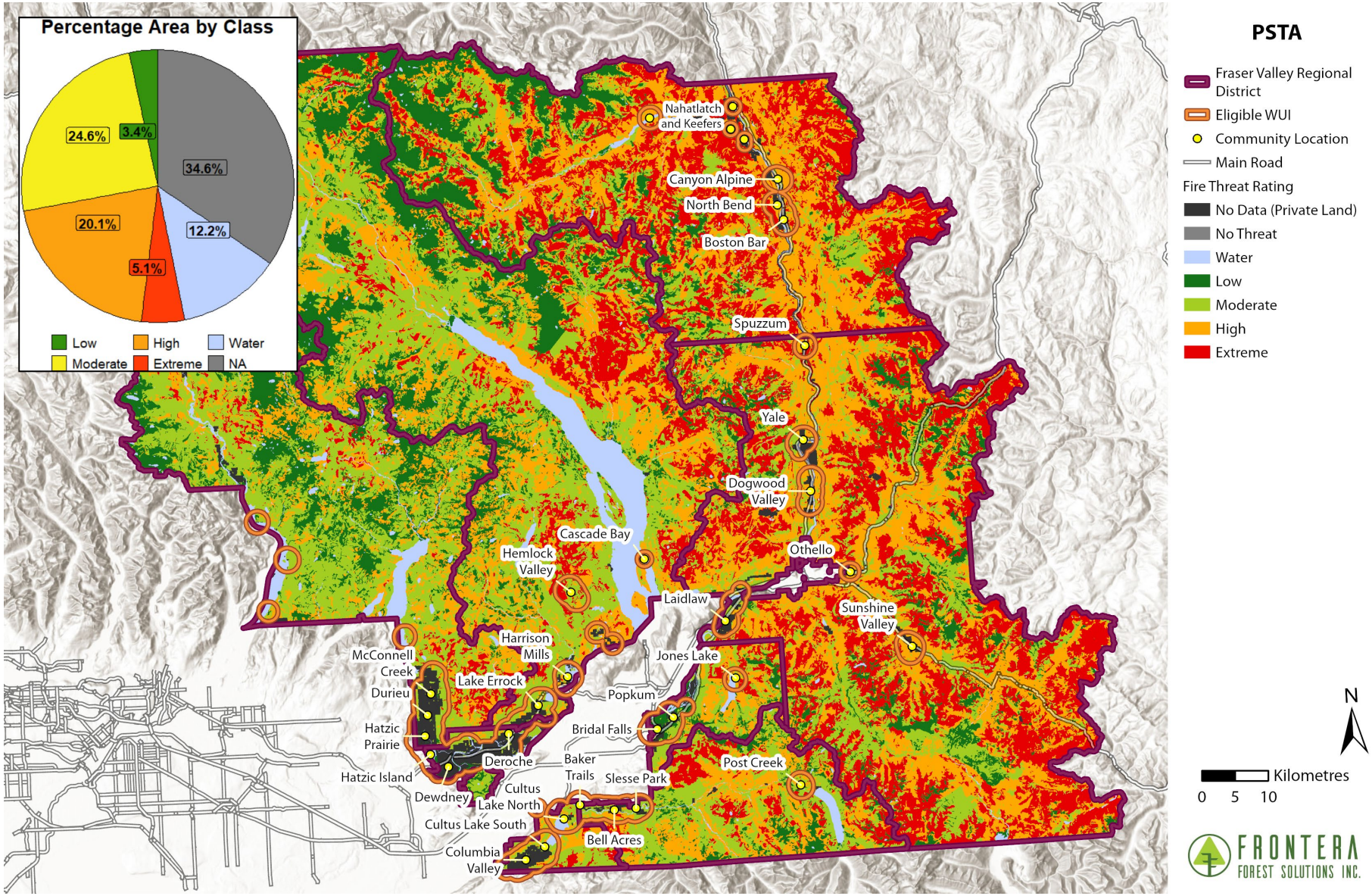


Figure 25. Map of PSTA within the FVRD AOI.

4.3.2. Local Wildfire Threat Assessment

The PSTA data above has been refined through a technical process incorporating higher resolution data of topography, accurate and verified *fuel types*, and local weather conditions. The details of this technical process are described in Appendix C: Local Wildfire Risk Assessment, and the results are summarized below and shown in **Figure 26**. Note that under the terms of CRI grant funding, private land is not included in this assessment.

The local *wildfire threat* assessment expands on the PSTA by incorporating those factors into a model of wildfire spread, incorporating weather and fuel continuity to make predictions on where wildfires are most likely to spread in the landscape. The PSTA does not incorporate fuel connectivity and continuity, and as a result often overstates the *wildfire threat*. For example, an extremely isolated area, such as a forested island in an ocean, may have an extreme PSTA *wildfire threat*, despite its isolation significantly limiting its likelihood of being involved in wildfire. Conversely, lower threat forests that are surrounded by continuous extreme threat forests may be very likely to be involved in wildfire carried through those surrounding forests, but will be assessed as low threat through the PSTA process. The local *wildfire threat* assessment enhances the PSTA *wildfire threat* assessment by incorporating factors of spread, such as topography, weather, and continuity, into the assessment of an area of forests potential wildfire behaviour. To align this assessment with grant funding guidelines, this assessment includes only the WUI and areas immediately surrounding it, and is not completed for the entire AOI.

The local *wildfire threat* assessment identified most of the FVRD unincorporate areas having a mostly moderate *wildfire threat*. These results were fairly consistent across the EAs of the FVRD, with the southeastern EAs (EAs B, D, E, and H) having a low wildfire to moderate local *wildfire threat*. The remaining areas generally had a moderate local *wildfire threat* with large continuous areas of high local *wildfire threat*. Interestingly, the local *wildfire threat* in EA A is markedly less than the PSTA *wildfire threat*, likely as a result of the 2023 Kookipi wildfire, which has reduced fuel loading throughout this area.

The PSTA and local *wildfire threat* assessments provide insight into what types of wildfires the FVRD can be prepared to experience and where those wildfires are most likely to occur. However, these assessments do not capture the potential impacts of wildfires on the communities within the FVRD unincorporated EAs. A majority of wildfires in BC and in the landscape of the FVRD have minimal impacts on communities, and are natural processes that serve an important purpose in our ecosystems. Resiliency means identifying the wildfire scenarios with the highest potential impact to the communities of the FVRD unincorporated EAs, and planning accordingly to mitigate those impacts. The *wildfire risk* analysis detailed in **4.4 Wildfire Risk** provides a broader analysis more focused on areas where wildfire impacts have higher likelihood, allowing for strategic and pragmatic mitigation actions.

Photo 15. Area burned by Kookipi wildfire in 2023.

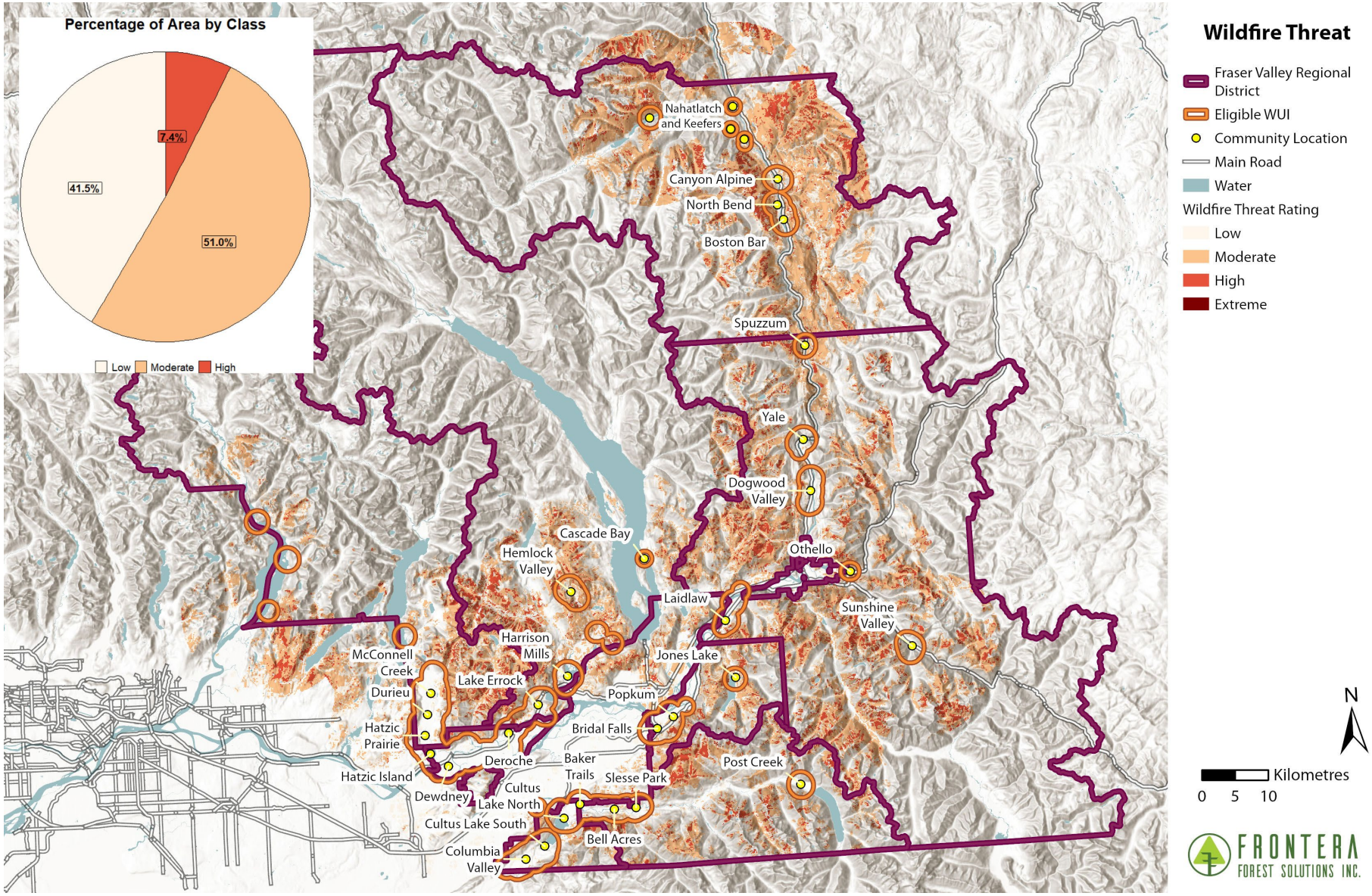


Figure 26. Map of local wildfire threat in the AOI.

4.4. Wildfire Risk

Wildfire risk consists of the probability of severe wildfire, combined with the potential consequences of that wildfire. The local *wildfire threat* assessment detailed above identifies the probability of wildfire entering the WUI of the communities of the FVRD unincorporated communities, and the PSTA *wildfire threat* identifies the potential wildfire behaviour when wildfires do enter those WUIs. Consequence of wildfire is established by identifying where community values are located, and creating distance buffers around values to determine locations where wildfire could have the highest impact. *Wildfire risk* combines *wildfire threat* with proximity to structures to identify the areas of highest concern within a community. The technical process for determining *wildfire risk* is described in **Appendix B: Fire Risk Mapping Methodology with Burn-P3 and BurnP3+**. Note that under the terms of grant funding, private land and most of the AOI beyond the WUI are not included in this assessment.

Wildfire risk varies throughout the FVRD based on the wide variety of factors that inform the wildfire environment. This is very typical in an area as large and diverse as the FVRD. The overall *wildfire risk* for unincorporated EAs of the FVRD is low. This means that large, landscape wildfires can spread into the WUIs of communities and can cause impacts, but this is expected to be relatively rare. However, it is important to note that when planning for low frequency and high consequence events like wildfires, even rare events can have far reaching and devastating impacts to a community. An illustrative map of *wildfire risk* can be seen in **Figure 27 on page 77**.

There are two distinct locations with an elevated *wildfire risk* in the unincorporated EAs of the FVRD. The first is the community of Hemlock Valley. This community is located mid-slope on a southerly aspect, and is surrounded by continuous *coniferous* fuels. There is limited egress from the community. There is also widespread mortality in these forests due to a recent Spruce Budworm outbreak, which will increase the *wildfire risk*. These areas are discussed below, while **4.5 Community Wildfire Risk Summaries** summarizes *wildfire risk* and factors driving it for each of the communities in the FVRD unincorporated EAs.

The second area of elevated *wildfire risk* is EA A and its communities of Boston Bar, North Bend, Canyon Alpine, and Nahatlatch and Keefers. This area is much warmer and drier than the rest of the FVRD, and is subject to a much higher *wildfire danger* during each *wildfire season*. This area, as well as the adjacent areas of the Thomspon Nicola Regional District north, have seen recent and severe wildfire impacts in the 2023 Kookipi Wildfire, as well as the 2021 Lytton Wildfire.

The *wildfire risk* analysis is a broad assessment to capture overall trends and patterns through a landscape. This analysis is intended to guide landscape level wildfire resiliency decisions, such as which areas to prioritize for mitigation. It is not designed to capture the nuance and complexity of *wildfire risk* and fine scale, such as at the individual property level. Site level planning can use this landscape level *wildfire risk* assessment as a resource, but site level planning such as *FireSmart* activities or vegetation management should incorporate site level factors. There are a host of resources that are described in the subsequent sections of this report to facilitate site level planning.

4.4.1. Wildfire Risk and Climate Change

The earth's climate is going through a dramatic rapid warming period, largely attributed to human emissions of carbon dioxide. *The Climate Change Adaptation Program*[20] summarizes The Pacific Climate Impacts Consortium's findings for the projected impacts of climate change on the Fraser Valley. The effects of climate change will be quite significant in the region by 2050, with summers becoming warmer and drier. Precipitation is expected to modestly increase; however, this increase will largely occur in winter months, having minimal effect on reducing *wildfire danger* during *wildfire season*. Extreme heat summers days, where temperature exceeds 30 degrees, are projected to almost quadruple in frequency from 8 days per year to 29 days per year (Chilliwack). Summer precipitation is expected to decrease by 12%.

Climate change will have significant impacts on the *wildfire risk* in the FVRD. There will be more days in each summer where severe wildfire becomes possible, due to the increased frequency of high temperatures and low relative humidities. Similarly, long periods of dry, warm weather will result in persistent periods of elevated *wildfire danger*. Thus, wildfire hazard, the daily potential for wildfire ignition spread, and *wildfire threat*, the seasonal probability of severe wildfire, will both increase. However, there is considerable uncertainty with climate change projections, and providing quantitative assessments of *wildfire threat* within the FVRD cannot be provided with any certainty.

Climate change will also impact the vegetation present in the FVRD. Vegetation may become stressed due to the warmer and drier summer, increasing drought induced mortality as well as vulnerability to forest pathogens and pests. Conversely, climate change will also lengthen the growing season, creating more abundant fuel for wildfire. Climate change will increase the fuel availability in the FVRD, both by creating accumulations of dead, highly flammable vegetation, and increasing the net biomass in the FVRD.

Photo 16. Interface near Dewdney.

20 "Fraser Valley - BC Climate Change Adaptation Program." 2023. BC Climate Change Adaptation Program. June 8, 2023. https://www.bcclimatechangeadaptation.ca/regional-adaptation/fraser-valley/

4.5. Community Wildfire Risk Summaries

Table 15 provides a summary of relative *wildfire risk* for communities in the FVRD unincorporated EAs. This integrates the PSTA *wildfire threat*, the local *wildfire threat* assessment, and the local *wildfire risk* assessment to identify an overall *wildfire risk* of each community, relative to other communities in the FVRD unincorporated EAs. Key details of the wildfire environment are highlighted, providing some context to the *wildfire risk*.

Table 15. Summary of wildfire risk for communities in the FVRD unincorporated EAs.

Community	Wildfire Risk	Details
EA A		
Boston Bar	High	Wildfire risk is high. PSTA wildfire threat is high, and local wildfire behaviour threat is moderate. Risk is somewhat mitigated by the Fraser River disrupting fuel continuity, and low in-community continuity.
North Bend	High	Wildfire risk is high. PSTA wildfire threat is high, and local wildfire behaviour threat is moderate. Risk is somewhat mitigated by the Fraser River disrupting fuel continuity, and low in-community continuity.
Canyon Alpine	High	Wildfire risk is high. PSTA wildfire threat is high, and local wildfire behaviour threat is moderate. Risk is somewhat mitigated by the Fraser River disrupting fuel continuity, and low in-community continuity.
Nahatlatch & Keefers	High	Wildfire risk is high, but highly variable. PSTA wildfire threat is high, however local wildfire threat is low. This is largely due to the 2023 Kookipi wildfire reducing fuel loading, which has not been incorporated into the PSTA, but has been incorporated into the local wildfire threat assessment. Areas affected have minimal risk, however unaffected areas have high wildfire risk.
EA B		
Dogwood Valley	High	Wildfire risk is high. PSTA wildfire threat is moderate, with moderate to high local wildfire threat. Fuel continuity is disrupted by the Fraser River, however west, north, and south, and in-community there is high fuel continuity.
Laidlaw	High	PSTA wildfire threat is high, local wildfire threat is moderate. Minimal fuel in-community, and fuels widely separated from values.
Spuzzum	High	Wildfire risk is high. PSTA wildfire threat is high, and local wildfire threat assessment shows areas where wildfire has elevated likelihood of entering community. While the Fraser River limits wildfire from east, fuels are continuous in and around community,
Sunshine Valley	High	Wildfire risk is moderate. Although PSTA wildfire threat is high, most of community is downslope of steep coniferous fuels, thus local wildfire threat assessment shows limited potential for spread into community. Large fuel break at base of valley limits east west spread. Structures on slope in southern portion of community at highest risk.
Yale	Moderate	PSTA wildfire threat highly variable, and local wildfire threat assessment shows some potential for wildfires to threaten community. Fraser River and Highway 1 disrupt fuel continuity.
Othello	High	Wildfire risk is high. PSTA wildfire threat is high, and local wildfire threat shows potential for wildfires to threaten community. Minimal fuel continuity disruptions in WUI.

Community	Wildfire Risk	Details
EA C		
Harrison Mills	Low	PSTA wildfire threat is moderate to high, and local wildfire threat assessment shows some potential for wildfire to enter community. Water and forest fragmentation disrupt WUI fuel continuity, and minimal in community vegetation.
Hemlock Valley	Extreme	Community surrounded by moderate to extreme PSTA wildfire threat. Local wildfire threat assessment identified moderate potential for wildfire to enter WUI. Ski resort clearing has reduced fuel continuity, however Spruce Budworm impacts have high potential to further increase risk in forested portions of WUI. Single egress route is vulnerable to wildfire.
Lake Errock	Moderate	Wildfire risk is moderate. PSTA wildfire threat is moderate, with a moderate local wildfire threat. Some fuel disruptions limiting fuel continuity, but high continuity of fuel within community.
Cascade Bay	Moderate	Wildfire risk is moderate. PSTA wildfire is low to high, with a low local wildfire threat. Fuel continuity disrupted by water. Single egress on FSR is vulnerable to wildfire.
EA D		
Bridal Falls	Moderate	Wildfire risk is moderate. PSTA is high, and there is a high local wildfire threat on steep coniferous slopes adjacent community. However, fuel continuity is disrupted by development with low fuel continuity in community.
Popkum	Moderate	Wildfire risk is moderate. PSTA is high, and there is a high local wildfire threat on steep coniferous slopes adjacent community. However, fuel continuity is disrupted by development with low fuel continuity in community.
Jones Lake	High	Wildfire risk is high. PSTA ranges from low to extreme, with a moderate local wildfire threat. Fuel is only partially discontinuous due to water. High in-community fuel continuity. Sole egress on FSR that is vulnerable to wildfire.
EA E		
Baker Trails	Low	Wildfire risk is low. PSTA wildfire threat is low, with a low local wildfire threat assessment. Surrounding fuels have low continuity and high deciduous component. Low in-community fuel continuity,
Bell Acres	Moderate	Wildfire risk is moderate. PSTA wildfire threat is moderate to high, with a moderate local wildfire threat. Moderately continuous fuels surrounding community, and moderate in-community continuity.
Slesse Park	Moderate	PSTA wildfire threat is moderate, with a low local wildfire threat. Moderately continuous fuels surrounding community, and moderate in-community continuity.
Post Creek	High	Wildfire risk is high. PSTA wildfire threat is high, however local wildfire threat is low. Recent clearing has reduced fuel continuity surrounding community, but high levels of in-community fuel continuity. Sole egress on FSR that is vulnerable to wildfire.
EA F		
Durieu	Low	Wildfire risk is low. PSTA wildfire threat is moderate, with a low local wildfire threat. Valley bottom fuels heavily fragmented.
Hatzic Prairie	Low	Wildfire risk is low. PSTA wildfire threat is moderate, with a low local wildfire threat. Valley bottom fuels heavily fragmented, with water south further disrupting fuel continuity.
McConnell Creek	Moderate	Wildfire risk is low to moderate. PSTA wildfire threat is moderate, with a low local wildfire threat. Valley bottom fuels fragmented, however more heavily forested than communities south.

Community	Wildfire Risk	Details
EA G		
Deroche	High	PSTA wildfire threat is moderate, with a moderate to high local wildfire threat. Some disruptions to fuel continuity, but within community there is continuous fuel.
Dewdney	Low	Wildfire risk is low. Minimal PSTA data due to extensive private land, but land is primarily agricultural and developed. Minimal fuel continuity.
Hatzic Island	Low	Wildfire risk is low. Minimal PSTA data due to extensive private land, but land is primarily agricultural and developed. Minimal fuel continuity.
EA H		
Columbia Valley	Moderate	Wildfire risk is moderate. PSTA wildfire threat is moderate to high, however local wildfire threat is low. Fuel disrupted by valley bottom agriculture, with minimal in-community fuel continuity.
Cultus Lake North	Moderate	Wildfire risk is moderate. PSTA wildfire threat is moderate to high with moderate local wildfire threat. Fuel disrupted by water south, with moderate in-community fuel continuity.
Cultus Lake South	Low	Wildfire risk is moderate. PSTA wildfire threat is moderate to high, however local wildfire threat is low. Fuel disrupted by water north and agriculture south, with moderate in-community fuel continuity.

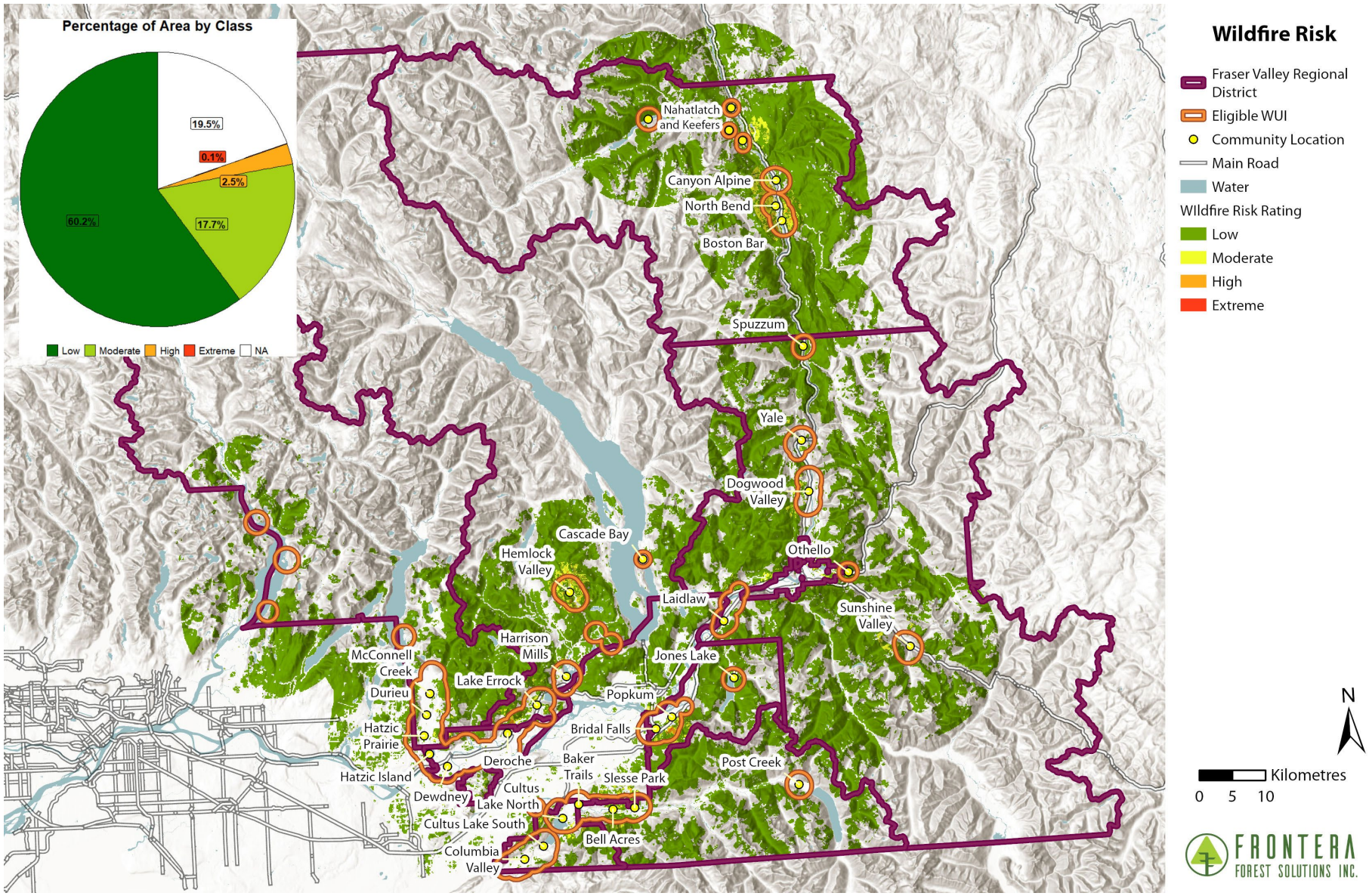


Figure 27. Map of wildfire risk in the FVRD AOI and WUI.

5: Disciplines of FireSmart

The following sections of this Community Wildfire Resiliency Plan (CWRP) provide a series of actions recommended to reduce *wildfire risk* to the incorporated electoral areas of the FVRD. These recommendations have been designed for the FVRD, and the FVRD's role within emergency management planning. There are *wildfire risk* mitigation activities that will reduce *wildfire risk* to communities in the FVRD unincorporated electoral areas, but are not part of the FVRD's role in local government or emergency planning.

The recommended actions are contextualized through the lens of *FireSmart*. *FireSmart* is the national program for building resilience to wildfire in interface communities. Each province has a committee, all of which are coordinated though the federal FireSmart Canada program. *FireSmart* is designed for a wide array of audiences, from first responders to community members. The actions recommended in this CWRP are categorized into the seven disciplines of *FireSmart*:

1. Education (**page 87**)
2. Legislation and Planning (**page 92**)
3. Development Considerations (**page 98**)
4. Interagency Cooperation (**page 105**)
5. Cross-Training (**page 109**)
6. Emergency Planning (**page 114**)
7. Vegetation Management (**page 121**)

Each discipline is addressed individually in this CWRP as an independent section. Pertinent recommended actions are discussed in each section, and summarized at the end of each section. Several recommended actions may involve components of 2 or more disciplines; to avoid duplication, these recommendations have been included in the most relevant section only. The **Action Plan** combines all these recommendations, with added detail on timelines, leader(s), metrics for success, and any other relevant notes.

There are also three key components of *FireSmart* programming in BC that are foundational to the *FireSmart* disciplines: CWRPs, *Community FireSmart and Resiliency Committees* (CFRC), and *FireSmart Coordinators*. These key components of *FireSmart* are crucial to action implementation and *FireSmart* programming delivery, and thus overarch all seven of the *FireSmart* disciplines. These components are discussed in this section below. This section also introduces the key concepts of *FireSmart* programming, all of which are discussed throughout the seven disciplines sections.

5.1. Concepts of FireSmart

FireSmart is the foundation of the recommendations in this CWRP, and therefore an understanding of *FireSmart* is crucial to understanding many of the recommendations. The goal of *FireSmart* is to create communities that are resilient to wildfire. This does not mean eliminating wildfire, but rather, limiting the impacts wildfire has on an area. The primary focus in *FireSmart* is protecting critical values in a community, such as homes and *Critical Infrastructure*. *FireSmart* therefore takes a values outward approach to limit wildfire impacts.

During an interface wildfire, structures can be involved through several ignition pathways. The first is direct flame, when wildfire in vegetation is directly in contact with the structure. The second is through convective heat, when a wildfire is near, usually within 10m, and the heat is sufficient to cause autoignition. The third pathway is through ember ingress, where embers travel through the air from the main body of a wildfire and involve a structure. These embers, which can travel several kilometers, can accumulate on combustible services or enter through structure openings. Building structures that are resilient to wildfire requires proactively mitigating these three pathways to ignition.

FireSmart Canada

BRITISH COLUMBIA FireSmart

Figure 28. Benefits of FireSmart within 10 metres of structures.

FireSmart compliance within 10 metres of structures can significantly increase the likelihood of home survival in the event of a wildfire. Graphic from FireSmart Canada (www.firesmartcanada.ca).

Ember *spotting* is the primary method by which wildfires involve structures. Thousands of embers can accumulate on a single structure, and cause combustion by penetrating a structure, or cause ignition on combustible materials used in construction of that structure.

FireSmart divides the structure and surrounding area into three separate zones inside the *Home Ignition Zone*. Risk mitigation activities in each of these zones are designed to prevent the pathways to ignition associated with these zones.

The *Immediate Zone* includes the structure and the area within 0-1.5m surrounding the structure. The primary goal of mitigation in this zone is to prevent structure ignition by embers or direct flame. *FireSmart* principles should be integrated into the construction of the structure, to ensure it is as resistant to ignition as possible. No combustible materials, such as wooden fences or planter beds, vegetation, or bark mulch, should be present within 1.5m of the building exterior. A 15cm inflammable ground to siding clearance should be established. Complying with *FireSmart* guidelines will limit the structures exposure to ember, radiant, and convective pathways to ignition.

The *Intermediate Zone* refers to the area within 1.5 and 10m from the structure. The primary goal of this area is to limit wildfire from establishing in combustible materials or vegetation near the home, and expose the structure to radiant or convective ignition. This area is primarily focused on ensuring the landscaping in this zone is suitable, and includes both vegetation and hardscape materials. Only fire-resistant vegetation should be present in this zone, with no conifers or *coniferous* vegetation. No combustible materials such as firewood piles, combustible detached structures, combustible fences, or combustible decorative features should be present in this zone.

The *Extended Zone* refers to the area within 10 and 30m from the structure. The primary goal of this area is to reduce the intensity of a wildfire. Flammable vegetation should be limited in density and continuity. This can be done through selective tree removal, tree pruning, debris management, and surface vegetation clean up. Reducing wildfire intensity in this zone will limit the structure to exposure to radiant heat.

5.2. Foundations of FireSmart for Local Governments

Wildfire resiliency funding in BC is primarily provided through the Community Resiliency Investment FireSmart Community Funding and Supports (CRI FCFS) program. This program provides funding to local governments and IGBs for specific actions to build wildfire resiliency, with rigorous documentation, eligibility, and reporting requirements. This program emphasizes the need for three foundational components of *FireSmart*: a CWRP, the *FireSmart Coordinator* role, and the *Community FireSmart and Resiliency Committee* (CFRC). These key components should be present in any community aiming to build resilience to wildfire: A CWRP outlines a strategic vision to building wildfire resilience, while the *FireSmart Coordinator* and CFRC provide the support required to implement that plan.

The CRI program is an extremely valuable resource for wildfire resiliency in the FVRD. The FVRD has regularly accessed this funding for several years, and has created a rigorous FireSmart Program within the FVRD EM Program. Maintaining a CWRP, CFRC, and a *FireSmart Coordinator* ensures the FVRD is eligible for CRI allocation-based funding, a streamlined process for wildfire resiliency funding. As such, maintaining these foundations of *FireSmart* is crucial for the FVRD's wildfire resiliency initiatives. The CRI program is also constantly evolving, reflecting our dynamic understanding of wildfire resiliency. As such, the FVRD should ensure that opportunities for wildfire resiliency funding are regularly explored. Many of these opportunities may be explored with parallel departments of the FVRD, such as Engineering and Utilities, Parks, and Protective Services. These departments may be able to inform grant funding opportunities for their respective programs, which can in turn inform the regional wildfire resiliency planning led by the FVRD EM Department, and *wildfire risk* reduction in each relevant FVRD department.

Community Wildfire Resiliency Plans

CWRPs are the foundation to building wildfire resiliency in communities in BC. These plans use a *FireSmart* lens to produce a vision and roadmap for reducing the *wildfire risk* in a community. These plans provide recommended actions for building resiliency to wildfire, with important advice on implementation. It will be important to share the CWRP, especially its recommendations with relevant FVRD lead departments and identify *FireSmart* funding opportunities to achieve objectives. The FVRD EM program will be responsible for stewarding and maintaining this CWRP; as such, it is important that the FVRD Emergency Management Executive Committee and EM team reads and understand this plan, enabling them to translate the key details to relevant departments of the FVRD, elected officials, allies on the landscape such as IGBs, adjacent local governments, and the general public.

This updated CWRP is an important first step for building wildfire resiliency for the FVRD. However, *wildfire risk* is not static, and neither are communities. Similarly, *wildfire risk* mitigation activities will also impact *wildfire risk*, and the vulnerabilities present in a community. Therefore, this CWRP must be maintained and periodically revised. This should consist of an annual review of the CWRP Action Plan, identifying actions implemented, as well as lessons learned through that implementation process. There should also be a complete review and update of the CWRP every five years or when new thresholds occur, such as large new developments, community boundary alterations, new census data or any changes to the FVRD's *wildfire risk* reduction services. This will ensure the document remains relevant for the FVRD. This should consist of updated *wildfire risk* modelling based on new *wildfire threat* analysis, and incorporating any *wildfire risk* mitigations implemented. The CWRP should be shared with relevant FVRD departments to ensure that all staff involved in emergency management, community protection, and operations are aware of the action items and necessary steps for moving forward with wildfire resiliency.

Figure 29. The Home Ignition Zone.

Graphic from FireSmart Canada (www.firesmartcanada.ca)

The CWRP also exists in a network of various government plans and documents, particularly within the FVRD EM Program. A key principle of the EM Program is maintaining the applicability of documents and plan in an everchanging natural, legislative, and administrative environment. Therefore, periodic maintenance of this CWRP is also required. This "evergreening" of the CWRP will consist of smaller scale updates based on local alterations in the wildfire environment or *values at risk*, and will ensure applicability.

FireSmart Coordinator

Building resiliency to wildfire in a community and navigating the various disciplines of *FireSmart* is a complex process, challenging for both community leaders and residents. The *FireSmart Coordinator*, as defined by the CRI program role fulfilled by a dedicated staff member with both local knowledge of the community and knowledge of the *FireSmart* program. This role is intended to be flexible, embedding in local government where most practical. It can be fulfilled by a dedicated staff member, as part of an existing staff member's role, or by an external contractor.

The FVRD currently has a full-time *FireSmart Coordinator* embedded in the FVRD EM Program. This position was created in October 2021, and has been consistently filled and funded through regular CRI grants. The *FireSmart Coordinator*'s role is to identify and pursue funding for *FireSmart* activities, personally deliver *FireSmart* programming, and also support and collaborate on any wildfire resiliency projects in the region. The *FireSmart Coordinator* was instrumental in supporting the development of this CWRP. It is critical that the FVRD's *FireSmart Coordinator* position is continually funded, staffed, and maintained, as this position is key to ensuring the actions embedded in this CWRP are implemented.

The FVRD FireSmart Program operates at both an electoral area wide level and community level. A simple summary of electoral area wide initiatives can be found in **Table 16**. The success of various initiatives can help inform planning future initiatives recommended in the FireSmart Discipline sections of this CWRP. Additional details on these initiatives can be found in the specific section of this CWRP. Details on community specific initiatives are found in **Table 17 on page 84**.

The FVRD FireSmart Program also provides specific services in each community. Some of these initiatives are community or resident led, such as requesting a FireSmart Home or Neighbourhood Assessment. Others are initiated by the FVRD FireSmart Program, such as *FireSmart* educational events or Wildfire Preparedness Days. A summary of specific community wildfire resiliency actions led by the FVRD in the last five years is provided in **Table 17**. Note that this list is not exhaustive, but rather intended to provide some context on the various levels of *FireSmart* in the communities of the FVRD's unincorporated electoral areas.

A challenge of wildfire resiliency is that it requires engagement from communities. This is evident in variation in the community uptake of FVRD *FireSmart* assessments. Education often is effective in increasing uptake. The FVRD can carefully consider how wildfire resiliency investments occur in communities, but the balance is delicate. Investing in communities where community led initiatives are successful can lead to much higher reduction in overall *wildfire risk*. However, communities with less interest or uptake in community led *wildfire risk* mitigation may require additional support, but large resiliency investments may have only marginal benefits. *Wildfire risk* also varies widely throughout the FVRD unincorporated electoral areas; wildfire resiliency investments should be informed by the *wildfire risk* of communities.

The FVRD will need to consider the role of the Cultus Lake Park Board (CLPB) in relation to the Cultus Lake Park for *FireSmart* purposes. The *Cultus Lake Park Act* of 1932 enables the CLPB to undertake fire management within the park. This has enabled the CLPB to apply for its own CRI funding, and organize its own *FireSmart* program. As the CLPB builds out its own *FireSmart* program, FVRD can consider strategic transferring of *FireSmart* tasks to the CLPB once they have their own *FireSmart* program established.

Table 16. Regional wildfire resiliency initiatives led by the FVRD FireSmart Program.

FireSmart Discipline	Current Activities
Education	The FVRD actively maintains a FireSmart website, with a host of resources for residents and routinely cycles FireSmart awareness on social media channels.
Education	The FVRD provide FireSmart Home Assessments to residents and property owners at no cost.
Education	The FVRD administers a FireSmart Rebate Program.
Education	The FVRD has completed numerous FireSmart Neighbourhood Assessments (see **Table 17**).
Education	The FVRD has planned and hosted several wildfire preparedness days with education opportunities and waste disposal (see **Table 17**).
Education	The FVRD has provided educational webinars in each electoral area.
Education	The FVRD has planned and hosted numerous FireSmart events in each electoral area (see **Table 17**).
Community Planning	See **8 Development Considerations** for details on Critical Infrastructure Assessments.
Community Planning	See **8 Development Considerations** for details on Critical Infrastructure Mitigation.
Community Planning	See **12 Vegetation Management** for details on FireSmart Assessments for greenspace.
Development Considerations	See **8 Development Considerations** details for FireSmart integration on bylaws.
Development Considerations	See **8 Development Considerations** for details for FireSmart integration on wildfire development permit areas.
Interagency Cooperation	The FVRD participates in the Fraser Valley Wildfire Resiliency Collaborative. See **Community FireSmart and Resiliency Committee** for details.
Interagency Cooperation	All FVRD Staff received Indigenous cultural safety and humility training in 2024.
Interagency Cooperation	2 staff members from FVRD attended the Wildfire Resiliency and Training Summit conference in 2024, and 2025 and some Fire Department members form a department that is wildfire trained and are deployed to support wildfire response.
Emergency Planning	The FVRD provides FireSmart information and resources at Public Events.
Cross-training	The FVRD FireSmart Coordinator has extensive FireSmart training, including Local FireSmart Representative and Wildfire Mitigation Specialist training.
Cross-training	The FVRD FireSmart program has facilitated this training for interested Fire Department members. See **10 Cross-Training** for details on fire department training.
Cross-training	The FVRD FireSmart Program is embedded in the FVRD EM Program, and significant training has occurred.
Vegetation Management	The FVRD has commissioned five Fuel Management Prescriptions. See **12 Vegetation Management** for details.

Table 17. Community wildfire resiliency initiatives led by the FVRD FireSmart Program.

Community	Community FireSmart Assessment		FireSmart Events
	Home	Neighbourhood	
Boston Bar	10	Yes	Yes
North Bend	5	Yes	Yes
Canyon Alpine	4	Yes	Yes
Nahatlatch & Keefers	2	No	No
Dogwood Valley	4	Yes	Yes
Laidlaw	4	Yes	Yes
Spuzzum		No	No
Sunshine Valley	18	Yes	Yes
Yale	5	Yes	Yes
Othello	1	No	No
Harrison Mills	2	Yes	No
Hemlock Valley	14	Yes	Yes
Lake Errock	5	Yes	Yes
Cascade Bay	11	Partial	Yes
Bridal Falls	1	Yes	No
Popkum	2	Yes	No
Jones Lake		Yes	Yes
Baker Trails	7	No	Yes
Bell Acres	13	Yes	No
Slesse Park	5	Yes	No
Post Creek	16	Yes	Yes
Durieu	6	Yes	Yes
Hatzic Prairie	1	No	No
McConnell Creek	6	Yes	Yes
Deroche	2	Yes	Yes
Dewdney		Yes	No
Hatzic Island		No	No
Columbia Valley	5	No	Yes
Cultus Lake North	15	Yes	Yes
Cultus Lake South	8	Yes	Yes

Community FireSmart and Resiliency Committee

A CFRC is a regional body that brings together the various actors in *FireSmart* and wildfire resiliency in that region. This can include representatives from neighbouring governments, fire departments, FLNRO, the BCWS, and other important groups. CFRCs are intended to be broad, high-level committees for coordinating planning and sharing knowledge across a region. The framework is designed to be as flexible as possible, to meet the community and regions needs and capacity.

Local Municipal and First Nation FireSmart Programs have become more and more common throughout BC. In the FVRD, this resulted in overlapping authorities, occasionally resulting in parallel programs duplicating efforts and drawing resources from external organizations such as the BCWS. The FVRD addressed this by creating the Fraser Valley Wildfire Resiliency Collaborative (FVWRC), a framework to collaborate on wildfire resiliency and *FireSmart* initiatives within the region while reducing the duplicate demands on the plethora of actors involved. Participating parties rotate hosting in their community and all parties have a reduce demand on the provincial staff necessary to sustain the distinct *FireSmart* programs in up to 6 municipalities, and 31 First Nations throughout the region.

The FVWRC has been a model of success, with rotating hosts, twice annual meetings for sharing and exchanging ideas, and parties owning and maintaining their own records. The FVWRC enables more effective cross-organizational awareness of provincial WRR projects, and streamlined opportunities to highlight common gaps and challenges to effective *FireSmart* programming. While the FVRD conceptualized the FVWRC to be a shared model with collaborative ownership, it may be essential for FVRD to help maintain the FVWRC and ensure it's continuity. The FVWRC acts as the FVRD's CFRC, and continued implementation and coordination of the FVWRC is a foundational and critical component of wildfire resiliency.

In addition to the FVWRC, the FVRD maintains an Emergency Management Executive Committee (EMEC) which has two key responsibilities, established by bylaw, that benefit the FireSmart Program:

1. Integrating the departments of FVRD within the emergency management program to ensure the organization, its staff, and volunteers are prepared to manage emergencies.
2. Direct interdepartmental initiatives and projects that are interlinked with the emergency management program.

The EMEC receives information about *FireSmart* and emergency management related topics ensuring a high level of senior leadership awareness and support. The EMEC meets the requirements of a *FireSmart* leadership committee within the FVRD for the purposes of grant funding.

Photo 17. View near Laidlaw.

Table 18. FireSmart foundations recommendations.

Related Disciplines*	Recommendation
	Identify opportunities to increase FireSmart assessments, public activities, and vegetative management through CRI grant funding. Opportunities may include: creating cost recovery mechanisms for other departments (such as Fire Services, Parks, Engineering, etc.) to help achieve wildfire risk reduction activities in their relevant areas.
EDU, EM	Read and understand the sections on wildfire risk and the key factors that drive wildfire risk, as identified in this CWRP.
EDU, LEG, EM, TRX, VEG	Share CWRP recommendations with relevant FVRD lead departments and identify FireSmart funding opportunities to achieve objectives.
EDU, LEG, EM	Evergreen the CWRP and consider seeking grant funds for a full review and refresh five years from publication, or when triggers/thresholds are achieved.
	Maintain the FVRD Wildfire Resiliency Dashboard.
EM	Maintain a staffing role that carries responsibilities for FireSmart programming, and wildfire risk reduction.
IAC	Maintain membership in the Fraser Valley Wildfire Resiliency Collaborative.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

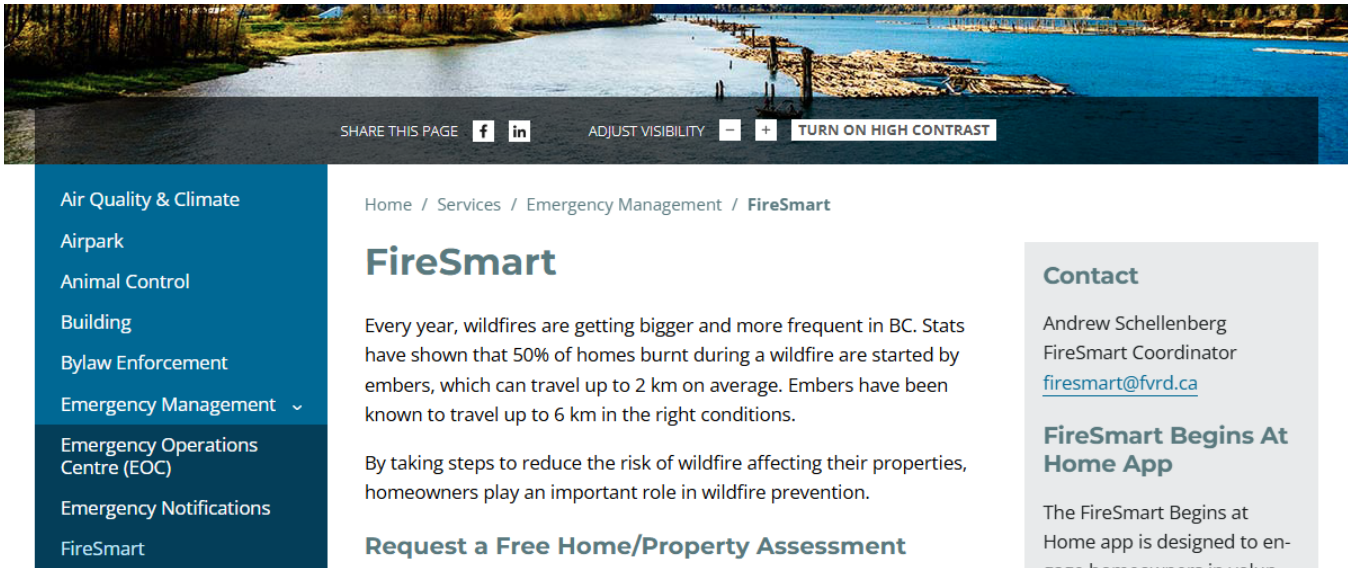


Photo 18. The FVRD's dedicated FireSmart webpage.

6: Education

The education discipline focuses on communicating *wildfire risk* and wildfire resilience information to all the members of a community. Every member of a community, from residents to land managers and elected officials, has a shared responsibility for wildfire resilience. The responsibilities for *wildfire risk* mitigation vary, but an understanding of *wildfire risk* and resilience are of importance to all community members. The goal of the education discipline is to create an understanding of *wildfire risk*, which can in turn empower residents to act within their capacity to build community resilience. The FireSmart Education funding, provided through the CRI program described in **5.2 Foundations of FireSmart for Local Governments**, is designed to be used to maximize exposure to *wildfire risk* reduction and resiliency information in a myriad of creative ways.

The recommended actions for *FireSmart* education are numerous; community education is challenging and requires multiple avenues to reach community members. The CWRP categorizes these actions into Active and Passive Education initiatives. Active initiatives are recurring, requiring repeated actions and therefore capacity from the FVRD FireSmart Program. These also often include participation and engagement which is reciprocated at the community level from residents and community champions. Passive initiatives typically require effort at the outset to establish, but subsequently require only maintenance at a lower level of effort. These initiatives allow for community members to engage with resources on their own schedule, respecting their capacity and ability to engage.

The FVRD FireSmart Program has been actively leading FireSmart Education in the communities of the FVRD unincorporated areas for several years. As such, many programs detailed below exist already. These are discussed, and opportunities for enhancement are also explored. There is considerable cross-over between Education and the other FireSmart Disciplines. This section focuses on the wildfire resiliency initiatives that are primarily based on education, while initiatives that have education as a co-benefit are discussed in the more pertinent sections of the CWRP. Specific details on completed FVRD-led *FireSmart* educational activities are discussed in **5.2 Foundations of FireSmart for Local Governments**.

6.1. FireSmart Educational Messaging

Effective *FireSmart* education requires consistent and concise messaging. Wildfire resiliency is a complicated topic, and many residents may lack the capacity or desire to deeply engage with the complexity of wildfire resiliency in the FVRD's unincorporated electoral areas. The FVRD should ensure all educational initiatives are simple, but also aligned with the FVRD's role as a local government in wildfire resiliency. Some key messages to consider:

- Wildfire resiliency requires a "whole of society" approach, including various levels of government, Indigenous Governing Bodies, and residents.
- The FVRD's role is to lead electoral area wide projects in wildfire resiliency, but also to support grassroots community-led action.
- *FireSmart* mitigation is extremely effective in promoting wildfire resiliency. Actions led by community members benefit both themselves, and their community as a whole.
- The FVRD provides many *FireSmart* services that are no cost to community members, with no obligations involved and no sharing of any data collected in relation to privately owned land.
- Human-caused wildfires can also be human prevented.

Active Education

Active education involves specific events, conversations, and presentations that meet residents and provide information and access to *FireSmart* educational material. Active education is most successful when leveraging pre-existing community gatherings to add on a *FireSmart* education component.

FireSmart events, led by the FVRD FireSmart Program have been occurring regularly and annually throughout the FVRD unincorporated electoral areas. These events can be highly effective, but often uptake and participation by residents varies by community. *FireSmart* education events are often most effective when connected to other community events or gatherings, such as Fire and Life Safety fairs, fire department events, community festivals and/or farmer's markets. Developing a public facing calendar on the FVRD *FireSmart* website will be helpful in providing information on these events to the public, as well as general information on the FVRD FireSmart Program, in addition to training and exercises for Emergency Operations Centre (EOC), Emergency Support Services (ESS), EM, and the forthcoming PREP program. Training and exercises achieve maximum efficiency when there is a central and reliable source of information and clear information on how to register. Additionally, training and exercises offered among the nine fire departments throughout the electoral areas that are open to registration could also be listed here. Continuing to invite regional partners to participate in these events, such as the BCWS, First Nations staff, and staff from allied agencies such as Ministry of Transportation, Emil Anderson Maintenance, search and rescue organizations, municipalities, and allies across the landscape identified in the EM Plan, and non-standard organizations like the Fraser Valley Mountain Bikers Association and others, furthers opportunity to increase consistent messaging and enhance understanding of the *wildfire risk* reduction, and wildfire response coordination. Educational partnerships with these regional resiliency partners should be continued, while expanding access whenever possible.

A key component of the FVRD FireSmart Program is providing educational tools and resources for residents and neighbourhoods of the communities in the unincorporated areas. FireSmart Home Assessments are provided by the FVRD FireSmart Program at no cost, providing an assessment of vulnerabilities to a home or structure and helping guide resident led actions. This important activity should continue and be actively promoted at all events and coupled with all FVRD Passive resources detailed below. As discussed in **3.3 Community Information**, there are vulnerable populations that may require additional support in mitigating vulnerabilities identified in a FireSmart Home Assessment. The FVRD has provided a rebate program for *FireSmart* mitigation on private property, however this is administratively burdensome. The FVRD should consider refining this program to focus on vulnerable populations and/or high-risk areas and emergency site partners, and develop a streamlined process to reduce administrative burden.

The FVRD FireSmart Program also supports *FireSmart* education at the neighbourhood scale. This has consisted of FireSmart Neighbourhood Assessments that provide a broad assessment of communities, intended to show residents the benefits of shared action within the community. Mitigation is also supported through funding community clean-up days (See **12 Vegetation Management**). Exemplary

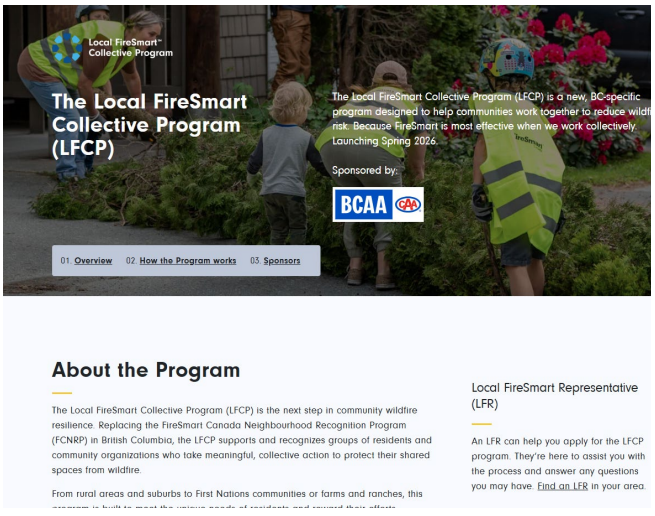


Photo 19. The webpage for the new BC FireSmart Collective program, launching 2026.

communities can receive FireSmart Recognition for their shared efforts, which has occurred in several communities. This program is being shifted to the BC FireSmart Collective model, providing more details on the various stages of a neighbourhood's *FireSmart* journey. The FVRD should continue to support neighbourhood *FireSmart* mitigation in the communities of the FVRD unincorporated electoral areas while transitioning to the newly required model. The new BC FireSmart Collective program may result in requirements to update Neighbourhood Assessments.

Education often focuses on the general public, often missing the value of educating other allies across the landscape. There are several groups in the region that could benefit from specific educational initiatives. This includes, but is not limited to: departments of the FVRD outside of the FVRD EM Program, such as FVRD Engineering and Utilities, Parks, Planners, Regional Planners, Fire Departments, utility providers, Environment and Invasive Species Management, and Indigenous Relations staff. Providing *FireSmart* education to the FVRD departments provides staff with a strong foundation of the FireSmart Program, and will also help build awareness of certain initiatives that the FVRD EM Program may support through grant funding that relate to the other business units and their services. This can consist of annual workshops or webinars, depending on FVRD capacity and leadership support. There is opportunity to embed this education within the Emergency Management Training and Exercise program by focusing on education that leads toward wildfire scenario-based exercises and expand to include those who would be part of the EOC Operations section functioning on the landscape, such as police, fire, and search and rescue.

Similar to the above, there are members of the general public or external organizations that may be leveraged to provide access to a broader audience. Community champions embedded in the PREP program are an excellent resource to leverage for reaching a broader public audience. These community champions can serve as useful touchpoints between the FVRD FireSmart Program and the general public, providing a local resource in communities for delivering *FireSmart* education.

Providing *FireSmart* education to teachers in schools within the FVRD's electoral areas would also be beneficial for providing *wildfire risk* and awareness to students. The FireSmart BC Education Program is a resource explicitly made for teachers to introduce principles of *FireSmart* for students ranging from kindergarten to Grade 12, and is paired with a curriculum alignment guide. The FireSmart Program emphasizes the effectiveness of introducing wildfire preparedness initiatives at a young age, and this has been a partial driver of the increased knowledge levels of *FireSmart* throughout BC. This program is intended to parallel similar programs developed for home fire safety delivered by structural fire departments. This can also be extended to resort and camp style accommodations throughout the FVRD unincorporated electoral areas provides another potential avenue for education. This may be particularly valuable for camps that have been identified as *Critical Infrastructure* in supporting emergency response (See **3.5 Values at Risk**).

Photo 20. Development in Hemlock Valley.

Passive Education

Passive education involves providing access to *FireSmart* educational materials that resident can access on their own schedule. The FVRD's FireSmart webpage is the key hub for providing information to residents of the communities of the FVRD unincorporated areas. It provides resources and links that residents can use to request home and neighbourhood wildfire hazard assessments, as well as access provincial *FireSmart* guides, such as landscaping around the home. However, this website is part of a broader network of FVRD communications and resources for residents, many of which are not coordinated with this website. The FVRD should continue to maintain and update this website, but also explore developing linkages to this hub in other FVRD webpages.

This CWRP is foundational to wildfire resiliency throughout the FVRD's unincorporated electoral areas. Recognizably, the requirements regarding CWRPs and the size of the FVRD result in this document being understandably lengthy, and at times technical, and therefore unlikely to be read fully by most members of the public. Despite the CWRP required content, there are some highly valuable educational messages within this CWRP that are informative to residents. As such, these messages have been distilled into one page community summaries, tailored based on wildfire environment and risk for the various communities of the FVRD's unincorporated electoral areas. The FVRD should print and publish these summaries, and make them available along with other *FireSmart* resources.

The FVRD can consider creating additional educational materials for their website. This can be in the form of pre-recorded webinars, which residents can access on their own time. The FVRD could create localized webinars that are tailored to the unique circumstances of each community in the FVRD's unincorporated electoral areas. These webinars can also be used for the FVRD's PREP program (see **11.3 Preparedness**). Another example of educational material could be to create a FireSmart Gardening and Landscaping guide that identifies plants, materials and resources suitable within the hardiness zones present in the FVRD. These ideas are all eligible for funding under the CRI grant stream and will enable maximum use of the grant while creating efficiencies for outreach education.

Many residents of the FVRD may not be frequent visitors the FVRD website, or frequent internet users whatsoever. Therefore, non-digital educational initiatives must also continue to be developed and explored. When conducting a highly visible wildfire resiliency activity, such as **Vegetation Management**, the FVRD should install signage or educational materials. These not only provide education that is tied to visible results, but also provide an opportunity to direct users to additional resources. Similarly, the FVRD can provide *FireSmart* resources at key community information points, such as pre-existing notice boards, community centres or halls, tourism and camp venues, and regional parks. This may require **Interagency Cooperation** when these information points are not owned or managed by the FVRD.

The FVRD has developed an Emergency Preparedness Workbook which aims to support residents in preparation, response, and recovery from an emergency. This provides useful information to residents to prepare from various emergency scenarios, including wildfire. The specific sections of this Guide which address wildfire should be updated to create linkages to this CWRP, as well as to the broader FVRD FireSmart Program. FVRD staff have proposed to update this guide to better reflect *FireSmart* in the 2026 Emergency Management workplan and make it available in print form.

Table 19. FireSmart Education recommendations.

Related Disciplines*	Recommendation
	Continue to participate in community events with a FireSmart presence and resources.
EDU, TRX, IAC, EM	Consider developing a public-facing training calendar to facilitate educational events and cross-training opportunities throughout the region for wildfire risk reduction and wildfire coordination through Emergency Operations Centres.
	Consider creating policy for management of FireSmart rebates for populations that self-identify as being unable to physically complete mitigation activities.
	Organize and host FireSmart and/or wildfire risk reduction awareness sessions for FVRD staff and volunteers.
	Introduce FireSmart for Educators resources to school principals to increase awareness of these tools. These may also be of interest to childcare providers and children's camp counsellors. These efforts could coincide with the Master of Disaster school programs to inspire workshops that aim at both risk reduction, readiness, and evacuations.
FS, LEG, EM, TRX, VEG	Offer FireSmart information and presentations to resort and camp style accommodations across the electoral areas.
VEG	Continue to provide FireSmart home assessment services to residents of FVRD unincorporated areas.
VEG	Complete/update FireSmart neighbourhood assessments for all communities in the FVRD unincorporated electoral areas.
	Transition current FireSmart Recognized Neighbourhoods to the new BC FireSmart Collective model.
	Continue to support communities participating in the Local FireSmart Collective Program.
EM	Print and publish community wildfire risk summaries (one-pagers) to the relevant communities.
	Review and consider updates to the FVRD website content and consider FireSmart program content in addition to other web pages where information related to drought, water systems capacity, and fire services capacity also have correlating wildfire resiliency content added.
	Using CRI funding, consider creating pre-recorded webinars and videos for FireSmart on the FVRD website, and for use in PREP.
	Using CRI grant funding, create a FireSmart Gardening and Landscaping guide that identifies plants, materials and resources suitable within the hardiness zones and WUI risk zones of the FVRD.
	If planning large wildfire resiliency projects ensure FireSmart communications, education and signage are present, where appropriate. Consider purchasing FireSmart Sandwich board signage with CRI grant funding
	Provide FireSmart resources at key community information points.
EM	Update the FVRD Household and Individual Emergency Preparedness Workbook to include FireSmart information.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

7: Legislation and Planning

Legislation and regulation are potential tools for reducing *wildfire risk* on public land. Provincial and Federal Acts and Regulations can provide means for local governments and First Nation governments to implement *wildfire risk* reduction. However, *wildfire risk* resiliency activities must also be aligned with these Acts and Regulations. Similarly, local governments can also leverage existing bylaws by integrating *FireSmart* principles. These are differentiated from development specific bylaws and regulations that may be present in a community, which are discussed in **8 Development Considerations**.

7.1. Federal and Provincial Acts and Regulations

Wildfire risk resiliency activities must be aligned with Provincial and Federal Acts and Regulations. Although there may be opportunities for integrating wildfire resiliency and *FireSmart* goals into these Acts and Regulations, that is beyond the power of a local government like the FVRD. Instead, the FVRD must ensure that all proposed wildfire resiliency activities are aligned with these Acts and Regulations.

Table 20 describes the Acts and Regulations most relevant to FVRD led *wildfire risk* mitigation activities, with an overview of their relevance to *wildfire risk* mitigation. Note that Acts have corresponding regulations, which outline the specific details for implementing the relevant Act. The *Emergency and Disaster Management Act*[21] is particularly important to this CWRP, and is discussed following **Table 20**.

Table 20. Federal and Provincial Acts relevant to wildfire risk mitigation.

Act/Regulation	Description	Importance
Federal Acts and Regulations		
Fisheries Act [22]	Framework for protection and management of fisheries in Canada	**Vegetation Management** near waterways must be planned in accordance with this Act.
Species at Risk Act [23]	Designed to protect threatened animals, plants, and ecosystems, and provide recovery strategies.	**Vegetation Management** must assess the presences of SARA, and if present be designed to minimize impact.
Migratory Birds Convention Act [24]	Designed to protect birds, nests, and eggs from disturbance, both direct and in-direct.	**Vegetation Management** must limit disturbances to birds. This is particularly important during nesting season in the summer months.

21 *Emergency and Disaster Management Act* Statutes of British Columbia 2023 c. 37. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/23037

22 *Fisheries Act*, Revised Statutes of Canada 1985, c F-14. https://laws-lois.justice.gc.ca/eng/acts/f-14/
23 *Species at Risk Act*, Statutes of Canada 2002, c. 29. https://laws.justice.gc.ca/eng/acts/s-15.3/
24 *Migratory Birds Convention Act*, Statutes of Canada 1994 c.22. https://laws.justice.gc.ca/eng/acts/M-7.01/

Act/Regulation	Description	Importance
Provincial Acts and Regulations		
Local Government Act[25] & *Community Charter*[26]	Sets out the framework for structure and operations of local government, as well as main powers and responsibilities.	All wildfire resiliency actions led by the FVRD must be within their scope as a local government as determined by these laws.
Building Act and Building Code[27]	Sets the minimum standards for safety, health, accessibility, fire protection, and efficiency for most buildings in BC.	See **8 Development Considerations** for discussion on new development.
Open Burning and Smoke Control Regulation[28]	Sets guidelines for open burning to reduce human and environmental health impacts from smoke.	**Vegetation Management** often uses open burning to dispose of waste. Burning must comply with this Regulation.
Wildfire Act and Regulation[29]	Defines the legal responsibilities for fire prevention and management. This includes limits on activities due to wildfire hazard, and guidelines for wildfire prevention.	All municipal activities should be aligned with this legislation.
Forest and Range Practices Act[30]	Governs forest and range activities in BC.	**Vegetation Management** on crown land must comply with this legislation.
Fire Safety Act[31]	Addresses fire safety and prevention in BC to reduce the risk of fire to life, property, and the environment	This Act is generally focussed on structural fire, however the goals of interface fire risk mitigation in this CWRP are broadly aligned with this Act.

Emergency and Disaster Management Act (EDMA)

The Emergency and Disaster Management Act (EDMA) is a new piece of legislation that has expanded the role of local government in emergency management. Previous emergency management legislation in BC was focused on emergency response. EDMA is now more comprehensive, addressing four phases of emergency management: mitigation, preparedness, response, and recovery. EDMA also requires that local governments consult with and make efforts to achieve agreements with Indigenous Governing Bodies (IGBs) for co-management of emergency planning and response in the traditional territory defined by the IGB. EDMA requires local governments develop and maintain emergency management plans and programs. The FVRD has restructured their Emergency Management Program and supporting documents to align with EDMA, with various ongoing projects in progress or planned to ensure continued alignment.

25 Local Government Act, Statutes of British Columbia 2015 c. 1. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/15002
26 BC Community Charter, Statutes of British Columbia 2003 c. 26. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/03026_00_multi
27 Building Act, Statutes of British Columbia 2015 c. 2. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/15002
28 BC Environmental Management Act: Open Burning Smoke Control Regulation BC Reg 152/2019, Statutes of British Columbia 2003, BC Reg 152/2019. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/152_2019/
29 BC Wildfire Act, Statues of British Columbia 2004 c. 31. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/04031_01
30 BC Forest and Range Practices Act, Statues of British Columbia 2002 c. 69. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_02069_01
31 BC Fire Safety Act, Statutes of British Columbia 2016 c. 19. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/16019

7.2. Local Government Regulations

Water Conservation Regulation Bylaw

The FVRD Water Conservation Regulation Bylaw[32] empowers FVRD to regulate water conservation within Electoral Areas in the FVRD to ensure protection and supply of drinking water to all residents and businesses, specifically limited to the FVRD owned and operated water systems. The bylaw restricts usage of drinking water for other usages except for drinking and fire suppression. The water conservation regulations are applied in stages, designated by the FVRD Director of Engineering and Community Services, in consultation with the affected Electoral Area Director, the Board, and the affected community. The stages range from Stage 1 to Stage 4, where stage 1 consists of even numbered civic addresses can only water their lawns, gardens and landscaped areas, on even numbered days in the calendar and vise versa for uneven numbered civic addresses. Stage 4 regulations impose the restriction of water usage except for fire prevention or for the health and safety of any person. This bylaw only applies to FVRD water systems in Electoral Areas C, E, F, G (with the exception of Deroche) and H.

Photo 21. View of Post Creek community.

Unsightly Premises Bylaw

The FVRD Unsightly Premises Bylaw[33] regulates that property owners are not to accumulate, discharge or litter on their premises. This includes materials and debris considered as "unsightly" (such as rubbish, derelict vehicles, or neglected growth) or "unwholesome" (such as stagnant water, odorous or hazardous accumulations, or anything posing a health, fire or environmental hazard). The bylaw also prohibits littering of any sort. This bylaw supports fire protection by requiring property owners to keep their premises clear of any debris accumulation that could pose a fire risk. This bylaw applies to all electoral areas of the FVRD, except areas in Electoral Area E and areas in Cultus Lake Park.

The above bylaws could be leveraged to manage *wildfire risk* and emergency preparedness. However, these bylaws are complaint based, meaning enforcement relies on community engagement, which varies. This means any leveraging of those bylaws will result in varying degrees of increase in wildfire resiliency based on factors beyond the control of the FVRD. Further, bylaw expansions and changes in service levels are complex for regional districts, and require support from elected officials, local residences, and approval from the Inspector of Municipalities. Expansions of services, service levels, and service areas may require costly feasibility assessments to determine the business case for expanding a service. It is very unlikely that residents will be in favour of services that result in increased taxation and costs. While there may be opportunities for expanding the above noted bylaws, the benefits are likely marginal to overall wildfire resiliency, and unrealistic for FVRD implementation.

32 FVRD Water Conservation Regulations 2016, Bylaw no.1387, https://www.fvrd.ca/EN/main/government/bylaws.html

33 FVRD Unsightly Premises and Unwholesome Matter Regulation 1996, Bylaw no.0037 https://www.fvrd.ca/EN/main/government/bylaws.html#letter-u

Emergency Management Program bylaws

The FVRD has recently made updates to their Emergency Management Program to align with EDMA legislation and has bylaws specifically relevant to the EM Program. The Emergency Management Program Service Area Merger Bylaw[34] consolidates multiple previously established emergency program service areas (each tied to distinct geographies) with varying levels of service into a single "Emergency Management Program Service Area," covering all Electoral Areas of the FVRD. The bylaw simplifies the structure for providing a common emergency management program across the participating areas within the electoral areas and sets out how the costs for this consolidated service area will be recovered. The Emergency Management Regulations Establishment Bylaw[35] establishes how the FVRD regulates its emergency management program.

These bylaws enable the Emergency Management Program, which is described in detail in the both the FVRD Emergency Management Program Policy[36], and the FVRD Emergency Management Plan[37]. The former is the high-level policy framework document approved by the FVRD Board of Directors, outlining the foundational program context, governance and management structure of the EM program, the EM program core services, and how it is shared or distributed throughout the organization. The FVRD Emergency Management Plan describes the emergency management environment and the program structure and services in the FVRD unincorporated electoral areas and creates interdepartmental linkages between FVRD business operations and emergency management. A separate FVRD Hazard Report[38] has been developed to identify hazards which may cause emergencies in the FVRD unincorporated electoral areas and specifically identifies wildfire as a hazard with a need for updated wildfire hazard mapping. A key principle of the FVRD Emergency Management Program is ensuring plans and documents can be reviewed and updated as needed. For more information on the operations of the FVRD Emergency Program, see **11 Emergency Planning**.

Photo 22. View of Sunshine Valley.

34 FVRD Emergency Management Program Service Area Merger 2020 bylaw no.1606 https://www.fvrd.ca/EN/main/government/bylaws.html
35 FVRD Emergency Management Regulations 2021 bylaw no.1622 https://www.fvrd.ca/EN/main/government/bylaws.html
36 Fraser Valley Regional District Emergency Management Program Policy. (2023). Fraser Valley Regional District. https://www.fvrd.ca/assets/Government/Documents/Emergency~Management/FVRD%20Emergency%20Management%20Program%20Policy%20-%202023%2006%2012.pdf
37 Fraser Valley Regional District Emergency Management Plan. (2024). Fraser Valley Regional District. https://www.fvrd.ca/EN/main/services/emergency-management.html
38 Fraser Valley Regional District Hazard Report 2023. BGC Engineering Inc. https://www.fvrd.ca/assets/Government/Documents/Emergency~Management/Hazard%20Report%20-%20Final.pdf

7.3. Action Planning

All recommended actions in this CWRP have been designed to align with Federal and Provincial Acts and Regulations. There may be opportunities for wildfire resiliency and *FireSmart* principles to be incorporated into these Acts and Regulations; however, this is outside of the scope and role of the FVRD.

EDMA requires that local governments mitigate and prepare for emergencies. This CWRP forms a key piece of the FVRD's role in emergency management, by identifying opportunities for *wildfire risk* mitigation and enhancing preparedness for wildfire. A key principle of the FVRD Emergency Management Program is ensuring plans and documents can be updated. The Wildfire Planning Dashboard provides a simple platform for key CWRP information and opportunities, and should be updated annually as wildfire resiliency activities are completed. The Dashboard and this CWRP may require updates as *wildfire risk* conditions change. Triggers for updates may include large new developments, community boundary alterations, expansion of FVRD wildfire-related services such as water or fire services, new census data, or a significant change to the wildfire environment, or relevant statutory and regulatory modernization. Similarly, a comprehensive review of the CWRP should be completed every five years. To align updates with other FVRD EMP document review cycles, this CWRP should be ideally updated in years ending in 6 or 1, with a next update in 2031.

EDMA also requires collaboration with Indigenous Governing Bodies in emergency management. The CWRP development process has aligned with this requirement by supporting an FVRD-led engagement process with First Nations staff responsible for emergency management and *FireSmart*. However, collaboration is an ongoing process and should continue as wildfire resiliency opportunities are explored. This CWRP, when complete, should be shared with First Nations co-located within the unincorporated areas.

Assessing and mitigating hazards is a key component of EDMA. With some high *wildfire risk* on land managed by external agencies, such as the Ministry of Forests or BC Parks, FVRD's role in both assessing and mitigating risks for lands where they are not the land manager presents challenges. **Vegetation Management** to mitigate risk on land managed by external agencies will require **Interagency Cooperation**, and is explored more in the relevant sections of the CWRP. However, sharing the details of this CWRP is a key first step for supporting *wildfire risk* mitigation activities led by external agencies.

The FVRD manages large regional parks that have varying wildfire hazard levels. The FVRD has opportunities to mitigate *wildfire risk* in these areas through **Vegetation Management** and updating policies. The FVRD Emergency Management department can share information from this CWRP with FVRD Parks staff, and can support consideration of *wildfire risk* management policies for regional and community park management. For example, development of policy could be considered that reduces *wildfire risk* in FVRD parks in all four phases of emergency management. Possible options include:

- Mitigation: reducing flammable debris accumulations associated with trail or parks development and maintenance.
- Preparedness: consider wildfire training for regional parks staff.
- Response: develop mechanisms for closing parks during periods of extreme *wildfire risk* or when active wildfires are near regional parks.
- Response: understanding the potential impacts of wildfires to regional parks, and the steps that may be involved in recovering regional parks from wildfire.

This integration of wildfire resiliency with parks management may be best accomplished through revisions to the existing FVRD Regional Parks Strategic Plan[39], or when this plan is next updated.

39 Fraser Valley Regional District Regional Parks Strategic Plan 2014-2024. (2024). FVRD. https://www.fvrd.ca/assets/Parks~and~Recreation/Documents/2014%20-%202024%20Strategic%20Parks%20Plan.pdf

Table 21. FireSmart Legislation and Planning recommendations.

Related Disciplines*	Recommendation
FS, IAC	Share the CWRP with First Nations that are co-located among the FVRD electoral areas and invite collaboration where opportunities arise.
	Consider developing wildfire risk management policies for regional and community park management.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

Photo 23. View near Cultus Lake.

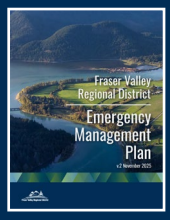
8: Development Considerations

Development decisions, such as land use types, structure density, road patterns, and other considerations, shape the built and natural environments. These decisions can bring lasting impacts to the WUI and *wildfire risk* by affecting public and first responder safety and survivability of homes, *Critical Infrastructure*, and other community features. Considering these factors early in the development process can reduce *wildfire risk* to life safety and property. It is important to note that the province has a key role in subdivision approvals, and is the roads authority and maintains operations management responsibilities for all roads in unincorporated electoral areas, including Forest Service Roads. For more on these complexities, see the FVRD Emergency Management Plan and Master Evacuation Guide.

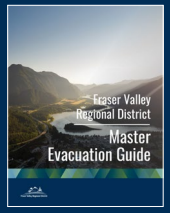
The FVRD plays a role in wildfire resiliency in development in the FVRD unincorporated areas. Firstly, the FVRD leads management and development of certain infrastructure, depending on the FVRD provided services in particular areas. For example, in areas with fire protection provided by an FVRD-managed fire department, the FVRD will have a role in the management and development of infrastructure, such as fire halls, that are necessary for providing those services.

The FVRD also plays a role in managing development on private property, through the issuing of building permits and development permits in certain areas. There are tools available to local governments to manage development and incorporate *FireSmart* principles in new construction in the unincorporated electoral areas of the FVRD. However, these tools must be carefully considered within the context of the FVRD and its governance role and structure. Many governance tools are more suitable for incorporated municipal governments, rather than regional districts, and these tools may not be feasible or even possible for the FVRD to implement. This section discusses the various ways the FVRD can work towards wildfire resiliency within the context of new development.

Read the Plans: Links to FVRD Emergency Management Program Documents



Emergency Management Plan



Master Evacuation Guide

8.1. Critical Infrastructure

Critical Infrastructure are structures or facilities that are essential to the health, safety, security, economic well-being, and/or effective functioning of a community or government. *Critical Infrastructure* is a critical value to protect from wildfire, discussed in detail in **3.5.2 Critical Infrastructure**. Increasing the resiliency of *Critical Infrastructure* to wildfire reduces the risk of major impacts to its functionality during a wildfire, which can support an effective wildfire response. Similarly, *Critical Infrastructure* wildfire resiliency improves its likely survivability and narrows the recovery related impacts so that *Critical Infrastructure* can continue to support the communities and services that depend on it.

The FVRD is one of a network of regional actors that manages and develops *Critical Infrastructure* in the unincorporated electoral areas of the FVRD. As such, the FVRD can only directly manage and influence the *Critical Infrastructure* associated with FVRD provided

services, while other agencies must manage their own *Critical Infrastructure*. Therefore, collaboration is required to ensure all *Critical Infrastructure*, including those assets not managed by the FVRD, is resilient to wildfire. Options for collaboration are discussed in **9 Interagency Cooperation**.

The FVRD FireSmart Program has been proactive in improving the resiliency of *Critical Infrastructure* to wildfire. This program has worked to provide FireSmart Critical Infrastructure Assessments for a majority of the FVRD owned *Critical Infrastructure* in the unincorporated electoral areas. These assessments quantify the vulnerability of *Critical Infrastructure* to wildfire. These assessments provide a numerical score, as well as key drivers of that score. When these assessments identify *Critical Infrastructure* as having a high vulnerability to wildfire, mitigation can be planned. Continuing these assessments will continue to increase FVRD's awareness of potential wildfire vulnerabilities to *Critical Infrastructure*, and allow for effective mitigation planning.

The FVRD FireSmart Program uses the assessments detailed above to actively mitigate key vulnerabilities. In partnership with the FVRD Engineering and Utilities department, seasonal staff are tasked with small scale vegetation management around FVRD-managed utilities *Critical Infrastructure*. Managing vegetation around structures is often the most cost-effective way to reduce wildfire vulnerability, in contrast with costly retrofits to replace building construction materials or components. This provides an effective, streamlined, and timely option for reducing wildfire vulnerability of FVRD-managed *Critical Infrastructure*, and should be continued. FVRD may wish to explore opportunities to expand this program within other departments to reduce *wildfire risk* in parks, and around Fire Protection-related infrastructure.

A key challenge of mitigating wildfire vulnerability in *Critical Infrastructure* is the associated cost. Replacing building components, such as flammable siding or HVAC systems, is expensive, and often infeasible. For example, when structures that are at or near the end of their service life, large investments may not be justifiable. It is a wise practice for regional districts to continue mitigation efforts, however, to maximize use of grant funding and resources, the FVRD might wish to consider the development of a planned approach to *Critical Infrastructure* mitigation, identifying prioritization for mitigation based on a series of factors like risk level and criticality in a wildfire to sustaining fire flows, or resources that support wildfire fighters and populations. **Table 22** provides a list of FVRD-managed *Critical Infrastructure* in the WUI, with a priority based on the *wildfire risk* surrounding the Critical Infrastructure. This prioritization may be used to inform planning mitigation of wildfire vulnerability of *critical infrastructure* in the FVRD unincorporated electoral areas.

It is often more cost effective in the long run to integrate *FireSmart* principles into the design and construction of new *Critical Infrastructure*. Although the initial cost may be increased up front, taking action to reduce *wildfire risk* may reduce future risks post-wildfire due to insurance ineligibility, inability for provincial disaster financial assistance that arise from choices not to build with mitigative principles, or future retrofits when priorities shift or budget/grants can be secured for this purpose. Despite the upfront cost implications for designing and building structures resilient to wildfire effectively works toward the intent of disaster risk reduction under the Emergency and Disaster Management Act. Due to the financial implications of risk reductive building and landscaping design, in certain low risk locations, *FireSmart* construction may only have a marginal benefit to reducing wildfire vulnerability, and thus an increased resiliency standard may be unnecessary. Therefore, the FVRD should consider, as appropriate, integrating *wildfire risk* mitigation within FVRD commissioned projects, understanding that not all projects require complete integration of *FireSmart* design and principles.

Table 22. Critical Infrastructure and mitigation priority

An asterisk (*) in the Mitigation Priority column indicates partial mitigation has been completed. "Type" indicates if the infrastructure is FVRD-owned, support infrastructure, or other infrastructure, as identified in the FVRD EM Plan.

Community	Name	Type	FVRD CI Assessment Completed? (Y/N)	Mitigation Priority
EA A				
Boston Bar	Boston Bar Fire Hall #1	FVRD	Y	High*
Boston Bar	Boston Bar RCMP	Other	Encourage mitigation by operator/owner	
Boston Bar	Boston Bar Water Treatment Plant	FVRD	Y	High*
Boston Bar	Boston Bar Reservoir	FVRD	Y	High
Boston Bar	Canyon Lanes	Support	Encourage mitigation by operator/owner	
Boston Bar	Boston Bar Water Intake	FVRD	Y	High
North Bend	North Bend Fire Hall #1	FVRD	Y	High*
North Bend	North Bend Water Treatment Plant	FVRD	Y	High*
North Bend	North Bend Reservoir	FVRD	Y	High
North Bend	North Bend Sewer	FVRD	Y	High
North Bend	North Bend Sewer Lagoon	FVRD	N	High
North Bend	Chaumox Landfill	FVRD	N	High
North Bend	North Bend Water Intake	FVRD	N	High
EA B				
Dogwood Valley	Yale Fire Hall #2	FVRD	Y	Low
Dogwood Valley	Dogwood Valley Well Pump	FVRD	Y	Low*
Dogwood Valley	Dogwood Valley Reservoir	FVRD	Y	Low*
Dogwood Valley	Camp Squeah (poss. Emergency site)	Support	Encourage mitigation by operator/owner	
Ruby Creek	Rogers Communications Tower (FVRD infrastructure present)	Support	Encourage mitigation by operator/owner	
Hope	Camp Hope (poss. Emergency Site)	Support	Encourage continued mitigation by operator/owner	
Yale	Yale Fire Hall #1	FVRD	Y	Low
Yale	Yale Well Pump	FVRD	Y	Low*
Yale	Yale Reservoir	FVRD	Y	Low*

Community	Name	Type	FVRD CI Assessment Completed? (Y/N)	Mitigation Priority
EA C				
Harrison Mills	Morris Valley Well Pump	FVRD	Y	Moderate*
Harrison Mills	Morris Valley Reservoir	FVRD	Y	Moderate*
Harrison Mills	Morris Valley Waste Water Treatment Plant	FVRD	Y	Moderate
Harrison Mills	Morris Valley Sewer Lift Station	FVRD	Y	Moderate*
Harrison Mills	Harrison Mills Transfer Station	FVRD		Moderate
Hemlock Valley	Hemlock Valley Fire Hall #1	FVRD	Y	Very High*
Hemlock Valley	Hemlock Valley Transfer Station	FVRD		Very High
Hemlock Valley	Hemlock Valley Tower Repeater	FVRD	Y	Very High
Lake Errock	Rogers Communications Tower (FVRD infrastructure present)	Other	Encourage mitigation by operator/owner	
Lake Errock	North Fraser Fire Hall #2	FVRD	Y	Moderate*
Lake Errock	Lake Errock Well Pump	FVRD	N	Moderate
Lake Errock	Lake Errock Reservoir	FVRD	Y	Moderate*
EA D				
Bridal Falls	Area D Water Well Pump #1 & #2	FVRD	Y	Moderate*
Bridal Falls	Area D Water Well Pump #3	FVRD	Y	Moderate*
Bridal Falls	Minter Gardens Wastewater Treatment Plant	FVRD		Moderate
Bridal Falls	Thompson Rd Lift Station	FVRD		Moderate
Popkum	Popkum Hall #1	FVRD	Y	Moderate
Popkum	Area D Reservoir	FVRD	Y	Moderate*
Popkum	Area D Camperland Meter House	Support	Encourage mitigation by operator/owner	
EA E				
Baker Trails	Baker Trails Sewage Treatment Plant	FVRD	Y	Low
Bell Acres	Chilliwack River Valley Fire Hall #1	FVRD	Y	Moderate
Bell Acres	Chilliwack Fish and Game Club	Other	Encourage mitigation by operator/owner	
Bell Acres	Bell Acres Well Pump	FVRD	Y	Moderate
Bell Acres	Bell Acres Reservoir	FVRD	Y	Moderate*
EA F				
Durieu/ Hatzic Prairie	North Fraser Fire Hall #3	FVRD	Y	Low*
Durieu/ Hatzic Prairie	Hatzic Well Pump 1+2	FVRD	Y	Low
Durieu/ Hatzic Prairie	Hatzic Reservoir	FVRD	Y	Low*
Hatzic Island	Sylvester Rd Transfer Station	FVRD	N	Low

Community	Name	Type	FVRD CI Assessment Completed? (Y/N)	Mitigation Priority
EA G				
Deroche	Deroche Elementary	Other	Y	Moderate
Deroche	Deroche Well Pump	FVRD	Y	Moderate
Deroche	Deroche Reservoir + Booster Pump	FVRD	Y	Moderate*
Dewdney	North Fraser Fire Hall #1	FVRD	Y	Very Low
Dewdney	Dewdney Elementary	Other	Y	Very Low
Dewdney	Dewdney Water PRV	FVRD	N	Very Low
EA H				
Columbia Valley	Columbia Valley Fire Hall #1	FVRD	Y	Low
Cultus Lake North	Cultus Lake Fire Hall #1	Other	Encourage mitigation by operator/owner	
Cultus Lake North	Cultus Lake Reservoir	FVRD	Y	Moderate*
Cultus Lake North	Sunnyside Campground Holding Tanks	Other	Encourage mitigation by operator/owner	
Cultus Lake North	Cultus Sewer Treatment Disposal SL #3	FVRD	Y	Moderate
Cultus Lake North	Cultus Sewer Treatment Disposal SL #1	FVRD	Y	Moderate
Cultus Lake North	Cultus Sewer Treatment Disposal SL #2	FVRD	N	Moderate
Cultus Lake North	Cultus Sewer Treatment Disposal SL #4	FVRD	N	Moderate
Cultus Lake North	Cultus Lake Well Pump	FVRD	Y	Moderate*
Cultus Lake South	Aquadel Wastewater Treatment Plant	FVRD	Y	Low
Cultus Lake South	Stillwood Camp and Conference (Poss Evacuation Site)	Support	Encourage mitigation by operator/owner	

Photo 24. View of the interface near Bridal Veil Falls.

8.2. Development

Structures on private land often have the highest *wildfire risk*. The FVRD supports mitigating this risk by promoting property owners and occupants in FVRD unincorporated electoral areas to take action. This is achieved through FireSmart Assessments and various other tools to support *FireSmart* mitigation performed by the owners/occupants. There are also various tools available to local governments that can be used to require *wildfire risk* mitigation on private land. However, it is important to note that as a regional government, the FVRD has fewer realistic options for requiring *wildfire risk* mitigation on private land, in contrast with a municipality. Any administrative tools for *wildfire risk* mitigation on private land should carefully consider the development context and the ability of the FVRD to implement and manage these tools.

The FVRD manages the use of land in the unincorporated electoral areas through multiple Official Community Plans (OCPs). OCPs act as guiding documents for the development of the communities they apply to. The OCPs contain objectives and policies designed to achieve those objectives, all of which shape a long-term vision for the areas they apply to. When aiming to guide community development to increased resiliency to wildfire, the OCP is a potential tool for integrating *wildfire risk* assessment and *FireSmart* principles into new development. Wildfire is often included as a natural hazard within a community, and under Section 488 (1) of the *Local Government Act*[40], local governments can designate Development Permit Areas (DPAs) for the protection of development from hazardous conditions. A DPA can identify areas vulnerable to a specific natural hazard, and include guidelines to ensure new development is protected from this natural hazard. Wildfire DPAs are one of the most common tools used by local governments in BC for managing *wildfire risk* on private land.

Several of the OCPs include a requirement for a wildfire hazard assessment report in new development that includes rezoning or subdivision in areas of moderate, high, or extreme wildfire hazard. This approach strikes an effective balance between the goal of building wildfire resiliency, and the FVRD's capacity and ability to manage *wildfire risk* on private land from a multihazard perspective. The details of these requirements vary by OCP, and are provided in **2 Relationships to Other Plans**. These consistently require a wildfire hazard assessment. The FVRD recently led a grant-funded process to develop a wildfire assessment Terms of Reference, which is intended to create consistency in these assessments across OCPs. These Terms of Reference are planned to be considered by the Regional Board in 2026. As other OCPs for the FVRD's unincorporated electoral areas are updated, integrating the approach and language are to be considered. This will ensure consistency across electoral areas, and by focussing on wildfire hazard rating, will not incur unnecessary burden on development in low hazard areas.

Wildfire DPAs are a popular and effective tool for managing *wildfire risk* on private land. However, there are challenges with implementing DPAs in the FVRD unincorporated electoral areas, which may limit the feasibility and effectiveness of DPAs. Wildfire DPAs are only triggered by construction, new development, subdivision/rezoning, or land alteration. Therefore, many properties will not be impacted by a DPA, and may remain in a state of elevated *wildfire risk* for a long period. Even when triggered, wildfire DPAs remain tied to development, and once complete, site conditions can change, and there is limited ability for long-term enforcement of wildfire DPA provisions by the FVRD. Additionally, FVRD does not provide building and development services in all landscapes, and therefore many areas exist without building permits or inspections. Thus there is a limited ability to regulate the building process in these areas, especially through a wildfire DPA, and additionally due to the limitations of OCPs not existing for all landscapes. For example, the entirety of Sunshine Valley is in an area of increased

40 *Local Government Act*, RSBC 2015 c. 1. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/04031_01

wildfire risk, however, FVRD has no role in land use planning, development, or bylaw enforcement in this area. Finally, and most importantly, wildfire DPAs require increased administrative capacity from the FVRD to manage. This may require increased funding for related FVRD services, which in turn requires broad support from residents of the unincorporated electoral areas to fund the increased levels of service. It is typical for residents to oppose increased costs, and therefore wildfire DPAs may be unlikely to garner the necessary broad support of residents. As such, while wildfire DPAs are a useful tool, the FVRD may consider other administrative tools that are more pragmatic and feasible within the context of the FVRD's administrative role within its unincorporated electoral areas.

There are multiple options for the FVRD to use as tools for reducing *wildfire risk* on private land. For example, the Squamish-Lillooet Regional District has recently developed a regulatory bylaw that provides direction on maintenance, installation, and management of vegetation that increases *wildfire risk*. This may be a tool the FVRD may wish to use as a model for a similar FVRD regulation, however, the FVRD would equally need to consider its capacity to regulate and enforce a bylaw related to landscape management, including OCP policies, a DPA, or a specific bylaw. The FVRD should carefully consider the most pragmatic approach for adopting or expanding administrative tools for regulating or managing *wildfire risk* on private land, with consideration to the effectiveness and capacity to manage any of these tools.

Table 23. FireSmart Development Considerations recommendations.

Related Disciplines*	Recommendation
	Continue to conduct FireSmart Critical Infrastructure Assessments for all critical infrastructure in this CWRP.
	Develop a planned approach for prioritizing mitigation of Critical Infrastructure FireSmart vulnerabilities.
	Continue to mitigate wildfire risks to eligible Critical Infrastructure.
	Consider procurement activities and where appropriate, include wildfire risk mitigation within FVRD commissioned projects.
	Continue to incorporate wildfire as a natural hazard for all OCPs that apply to FVRD unincorporated electoral areas.
	Consider administrative tools available for land use regulation that continue to foster wildfire risk reduction in high risk areas.
	Consider the development of a strategy to increase wildfire resiliency throughout FVRD's current land use planning and development framework.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

9: Interagency Cooperation

It takes the collaborative efforts of multiple stakeholders working together to build resiliency to wildfire across a landscape. This includes not only partners within the FVRD Regional District local government organization, but also external partners such as the provincial government, adjacent incorporated municipalities, and other partners in regional resiliency such as Indigenous Governing Bodies (IGBs). The focus of this section explores opportunities for cooperation between the FVRD and partners and allies on the landscape.

9.1. Collaboration with Indigenous Governing Bodies

The FVRD is home to over 30 First Nations with 146 reserves. These self-governing Nations directly manage land within their reserves. Additionally, Indigenous Peoples have inherent right and title beyond reserve boundaries acknowledged through both the BC *Declaration on the Rights of Indigenous Peoples Act*[41] and the BC *Emergency and Disaster Management Act*[42] (EDMA). While many First Nations have reserves that are outside of the WUI, often traditional Indigenous interests and inherent rights and titles extend to and throughout the WUI of the unincorporated communities of the FVRD. IGBs may be running their own parallel wildfire resiliency programs for supporting *wildfire risk* mitigation, not limited to reserve lands, which can include vegetation management and both cultural and prescribed fire. There will be natural and understandable overlap between the WUI for the unincorporated areas of the FVRD electoral areas and the WUI for IGB reserve lands and interests within the FVRD, and potentially overlap between each of the distinct wildfire resiliency programs.

Engagement and consultation with IGBs are required under the BC *Emergency and Disaster Management Act* which includes efforts to reach agreements regarding which areas each nation wishes to be engaged or consulted for, as well as which phases of emergency management (see **11 Emergency Planning** and **7 Legislation and Planning**). Engagement with IGBs in the FVRD, given the overlap of WUIs, is also imperative to building wildfire resiliency across the landscape. While engagement and consultation have been legislated, relationships are based on mutual collaboration and acknowledgment of joint interests over land and environment, regardless of statutory obligations. During the development of this CWRP, the FVRD engaged IGBs through their emergency management and/or FireSmart Program staff regarding the CWRP development process. This engagement process provided an opportunity for soliciting feedback on both the CWRP, as well as the FVRD Emergency Management Program and FireSmart Program, and supports continuing a strong relationship between the FVRD and local IGBs. It was acknowledged that many IGBs have low capacity to undertake the volume of engagement they have been receiving. Collaboration with IGBs must be ongoing with specific initiatives within the FVRD *wildfire risk* mitigation program, and more generally the FVRD EM program. The FVRD has already committed to sharing this CWRP, its recommendations, as well as some of the supporting tools developed in parallel with this CWRP, such as the wildfire dashboard. The FVRD should also ensure that opportunities for collaboration with IGBs in *wildfire risk* mitigation are explored whenever possible with recognition of the overlapping authorities and complex landscape with shared use of provincial roadways as evacuation routes, and more.

41 *Declaration on the Rights of Indigenous Peoples Act*, SBC 2019, c. 44, https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/19044
42 *Emergency and Disaster Management Act*, SBC 2023, c. 37, https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/23037

Photo 25. View of the Lake Errock community.

Vegetation Management is of particular relevance for collaboration with IGBs. *Fuel management* projects require consultation with IGBs, and address specific traditional interests, and concerns of IGBs within each project. Involving IGBs early in the planning stage allows for ease of accommodating these concerns, and also for planning flexibility and is required under the EDMA (mitigation and preparedness). When pursuing *fuel management* prescriptions, the FVRD should consult with IGBs early in the process in a collaborative and ongoing approach to highlight mutual interests, and ensure projects are not to the detriment of Indigenous Cultural and Traditional Interests and Knowledge.

9.2. Collaboration with Regional and Provincial Groups

There are a variety of actors across the landscape of the FVRD working towards wildfire resiliency. This includes the aforementioned IGBs, but also provincial agencies and incorporated municipalities. Each of these groups is approaching *wildfire risk* mitigation through a lens that reflects their authorities and accountabilities. The provincial Wildfire Risk Reduction (WRR) program manages *wildfire risk* on Crown Public Lands within the FVRD, led by a local WRR Land and Resource Coordinator out of the Chilliwack Natural Resource District office. This program assesses *wildfire risk* at a landscape scale, identifies and prioritizes area for *fuel management*, and coordinates site level *fuel management* activities.

The WRR program works on a lens that may not fully capture the local concerns and risk factors at the scale of the communities of the FVRD's unincorporated electoral areas. For example, a WRR plan may not be aware of the importance of a specific road for evacuation, or vulnerable populations within a community. During the development of this CWRP, collaboration occurred between the WRR program and the FVRD EM Program, ensuring linkages were in place early in the process. The FVRD should maintain this relationship, and advocate for WRR *fuel management* projects in areas of particular importance to the communities within the unincorporated electoral areas of the FVRD. This should include sharing FVRD evacuation route guides to demonstrate the importance and criticality of specific evacuation routes, allowing for them to be prioritized in the WRR program *fuel management* planning for protection. Leveraging the existing WRR program on Crown Public Lands may create opportunities for the FVRD EM Program to focus funding and capacity on other areas more aligned with the FVRD's authorities and accountabilities for emergency management.

There are six incorporated municipalities within the FVRD: the Cities of Abbotsford, Chilliwack, and Mission, the Districts of Hope and Kent, and the Village of Harrison Hot Springs. These municipalities are responsible for wildfire resiliency within the context of their role as local governments, and may have parallel wildfire resiliency programs to the FVRD's. These communities may have their own Community FireSmart Resiliency Committee (CFRC), or be active participants of the Fraser Valley Wildfire Collective, as discussed in **5.2 Foundations of FireSmart for Local Governments**. The FVRD can participate in meetings of independent subregional CFRC's when necessary, such as when specific opportunities for collaboration are being explored at a meeting. However, these programs are independent of the FVRD's, and the independence of these programs must be respected in the context of their CFRCs. As such, the FVRD should create opportunities for these subregional CFRC's to invite FVRD participation, but understand that these opportunities may not be utilized.

9.3. Interagency Training Opportunities

Collaborating with regional groups can also help with **Cross-Training** by building effective relationships with response partners in the FVRD landscape. These relationships can be leveraged to share specialized expertise that will enhance wildfire response. For example, structural firefighters can train with BCWS wildland firefighters to ensure seamless integration in the event of a multi-agency wildfire response. This can be explored within FVRD Emergency Management in discussions or tabletop field exercises.

The Wildfire Resiliency and Training Summit is an annual event in the spring of each year in varied locations in BC. This event provides opportunities for knowledge exchange, skill development, and relationship building between various agencies. This Summit includes representatives from IGBs, local governments, and provincial agencies, and provides a forum for information sharing and learning about wildfire resiliency. The Summit is also a venue to share information on the latest guidance from provincial funding agencies, such as the Community Resiliency Investment Program, which is crucial to continued grant support for the FVRD FireSmart Program. The FVRD has regularly sent staff to this Summit, and should continue to do so annually. The Summit is of high value to fire departments that are dispatched or deployed to support wildfire response, however, the CRI grant enables a limited amount of personnel to attend, and the grant funding is best prioritized to staff with oversight for both *FireSmart* and Fire Services, and other FVRD services that are undertaking wildfire mitigation and planning efforts.

Table 24. FireSmart Interagency Cooperation recommendations.

Related Disciplines*	Recommendation
	Inform FVRD, allies, adjacent and overlapping jurisdiction, IGBs and public of the new CWRP and dashboard.
FS, LEG	Share the CWRP with First Nations that are co-located among the FVRD electoral areas and invite collaboration where opportunities arise.
VEG	Engage IGBs in relation to fuel mitigation projects .
VEG	Continue to collaborate with regional partners on fuel management activities.
VEG, EM, EDU	Encourage fuel management activities led by external agencies.
	Participate in subregional CFRC meetings when needed.
	Continue to send appropriate staff to annual FireSmart BC Wildfire Resiliency and Training Summit.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

10: Cross-Training

Wildland-Urban Interface resiliency planning and incident response draw on many different professions, some who typically work in a wildfire environment, while others may do so only situationally. Cross-training of firefighters, operational staff, utility workers, local government and First Nations administration, planning and logistics staff, and other key positions will help support the development of comprehensive effective *wildfire risk* reduction planning and activities, as well as a safe and effective response.

Effective emergency response, including response to wildfires, requires response individuals are trained to the appropriate level including those in emergency services (police, fire, ambulance, search & rescue, etc). Ensuring adequate training aids in effective response coordination and tactics, and increases the safety of responders and the public. Similarly, supporting mitigation of hazards such as wildfire requires a certain level of training to ensure that local expertise is available to guide *wildfire risk* mitigation.

The FVRD plays a key role in emergency management in the unincorporated electoral areas of the FVRD through the FVRD Emergency Management (EM) program (see **11 Emergency Planning**). Not only does the FVRD EM support response coordination (and coordination of responding emergency services through an EOC), it also supports *wildfire risk* mitigation through its FireSmart Program. The FVRD oversees seven of the nine fire departments within the FVRD unincorporated electoral areas. FVRD EM must also maintain effective relationships with the external, non FVRD-managed fire departments to ensure effective coordination of emergency services during response. These departments will be involved in wildfire response in their respective fire protection areas, and effective response can be enhanced through specific training. The FVRD EM Program includes a community-level emergency preparedness program, the Preparedness, Resiliency and Emergency Program (PREP). Success of this program, and its effectiveness in supporting emergency coordination and response efforts, also requires training. The following sections explore opportunities for training to enhance wildfire resiliency within the FVRD.

10.1. FVRD EM Program Training

The FVRD FireSmart Program is part of the FVRD EM Program, and led by the EM department. Staff within this department design, create, host, and coordinate training within the scope of the Training and Exercise Program and Plan. The FVRD has held a continuous position since 2021 for their FireSmart Program which has enabled it to grow one of the most mature and continuous *FireSmart* programs in BC. This staff member has key responsibilities for program oversight, grant project management, public engagement, education, and delivery of specific FVRD provided *FireSmart* services. This staff position should be maintained with the requisite training standards and qualification to ensure effective program delivery (discussed in **5.2 Foundations of FireSmart for Local Governments**).

Some *wildfire risk* mitigation projects are complex, requiring additional and specific knowledge not typically held in a *FireSmart Coordinator* or local government staff position. For example, *fuel management* often requires support from a Registered Professional Forester with specialized wildfire knowledge. Managing these projects can be challenging for local government when there are large knowledge gaps between staff and hired consultants. As such, expanding the FVRD EM Program to include a wildfire professional may enhance the FireSmart Program, and may create future grant funding harmonies in relation to the RFP requirements for CWRP updates. This staff member would require advanced qualifications in natural resource management, registration with

a professional organization such as the Forest Professionals BC association, specialized knowledge in wildfire management, and experience in *FireSmart* programming and delivery. A list of potential qualifications can be accessed on the FireSmart BC website. The FVRD EM Program should consider developing, or supporting the development of the existing *FireSmart Coordinator* role, into a Wildfire Professional role. The key consideration is if this expansion would enhance FVRD FireSmart Program delivery and achieving its objectives.

The *FireSmart Coordinator* role is currently filled by the FVRD Emergency Management Coordinator (EMC) role in the FVRD EM Program. The EMC is primarily responsible for the coordination and delivery of *FireSmart* programming and administering grant funding of *FireSmart* initiatives within the FVRD unincorporated electoral areas. Within the scope of the EMC functions, there are additional expectations of coordination, delivery, and administration of the FVRD EM Programs. The *FireSmart Coordinator* role has a higher emphasis on project delivery, however many *FireSmart* initiatives require higher level project management, often involving retaining and managing highly specialized contractors. As such, the FVRD may want to consider expanding the *FireSmart Coordinator* role into one that involves more training to enhance the project management components. This will provide additional FVRD expertise in supervising and managing specialized *wildfire risk* mitigation programs such as:

- **Interagency Cooperation**: This often involves liaising with external technical specialists. Having similar expertise in the FVRD EM Program will streamline and enhance these discussions.
- **Vegetation Management**: This FireSmart Discipline often requires external contractors. In-house technical expertise will enable more efficient and effective project management if the FVRD pursues *fuel management* prescriptions or treatment.
- **Emergency Planning**: An FVRD specialized resource with a higher understanding of wildfire behaviour will provide an additional resource for community champions in the PREP program.
- **Legislation and Planning**: In the event specific policies are developed for *wildfire risk* mitigation in parks, in-house FVRD wildfire expertise can be used to inform those policies. If implemented, this expertise can be used to assist in guiding these policies through specific strategies.

An expanded *FireSmart Coordinator* role would also align this position more closely with the administration and coordination components of the EMC role. *FireSmart* provides a description of a Wildfire Forest Professional role, which is an option for the FVRD to consider. Included in this description is a list of qualifications and training standards, including professional certifications and *FireSmart* training. This position would also benefit from additional GIS training to manage data outputs from various wildfire resiliency projects. However, GIS training is currently not fundable through the CRI funding program. Many of these standards are already held in the current FVRD *FireSmart Coordinator* role, and the FVRD should consider expanding or supporting expansion of the current role into a Wildfire Forest Professional, including supporting the necessary training required. The CRI grant enables funding for multiple positions related to *wildfire risk* reduction and FVRD will gain greater impact from having both a Wildfire Forest Professional and a *FireSmart Coordinator*, in combination with seasonal FireSmart Crew members in Parks and Utilities.

The FVRD PREP program (discussed in more detail in **11 Emergency Planning**) is intended to support community led disaster readiness and resiliency. This framework aims to enhance community emergency preparedness by organizing local community groups, known as PREP Pods. Members of the Pods complete PREP training modules, which include trainings such as preparedness, risk reduction, neighbourhood-level exercises and drills and resiliency. There is an opportunity to leverage these Pods as local *FireSmart* resources in their community. The FVRD EM Program can support this by providing or coordinating basic *FireSmart* training, such as FireSmart 101 and Local FireSmart Representative training.

10.2. FVRD Fire Department Training

The FVRD Protective Services Department manages seven of the nine fire departments that operate within the FVRD unincorporated electoral areas. Fire Protection Areas are shown on **Figure 10 on page 25**. These departments are:

- Boston Bar/North Bend Volunteer Fire Department
- Chilliwack River Valley Fire Department
- Columbia Valley Fire Department
- Hemlock Valley Volunteer Fire Department
- North Fraser Fire Department
- Popkum Fire Department
- Yale and District Volunteer Fire Department

There are two external fire departments that provide protective services within the FVRD unincorporated areas. The FVRD does not manage or direct these departments. During a State of Local Emergency (SoLE), the FVRD EOC may direct any department when necessary.

The FVRD-managed fire departments are primarily established for the purpose of structural fire suppression. FVRD departments are declared as interior or exterior operations with the standard for both being defined by the BC Structure Firefighting minimum training standards. Of the 7 FVRD departments, three are declared interior operations based on these standards: North Fraser, Chilliwack River Valley, and Popkum. Many members of these fire departments have completed some wildland fire training, and some are able to integrate with the BCWS under the BC Interagency Agreement. Additionally, the FVRD Protective Services department seeks pre-season Board approval for BC Wildfire Service deployment requests for departments with the qualifications and equipment, where the department can still maintain the required level of service in their fire protection area.

FireSmart recommendations typically emphasize the importance of Structure Firefighters being trained in the S-100 and S-185 courses. There is already provincially recognized training that meets this purpose and is widely available to structure fire protection departments that deploy in support of BCWS. FVRD currently enables its firefighters to take WSPP-WFF1 Wildland Fire Operations & Safety. Some FVRD Fire Department members are trained instructors that can teach and provide certificates of completion to fire services personnel, not limited to FVRD fire services. The FVRD should consider policy development that enables cost recovery for time spent instructing these courses in support of the FireSmart Program advancement throughout the region. While the course must be offered free of charge to attendees, the time and expenses for instruction can be compensated, and is eligible for funding through the CRI program. Using FVRD's interdepartmental FireSmart funding options to advance this training will reduce wildfire risks both operationally and systemically. For example, the EM Program can use CRI funding to provide cost-recovery for fire department members to provide training to other members for courses identified in the CRI Program Guide. This often includes "Train the Trainers" courses, thereby increasing capacity for future training.

Photo 26. The North Fraser Fire Training Centre.

Some of the FVRD fire departments struggle with staffing and retaining staff. These issues can result in challenges with meeting the necessary standards for structural fire departments in BC. Establishing a minimum wildfire standard for all firefighters in FVRD fire departments may exacerbate existing staffing and training standards in some departments. While enhancing these departments wildfire response capabilities will increase effective wildfire response, it must be carefully considered in the context of other challenges.

FVRD may wish to consider basic wildfire training courses, including S-100 (Basic Fire Suppression and Safety) and S-185 (Fire Entrapment and Avoidance) to the EM/EOC Training and Exercise Plan (TR/EX). Opportunities to host these course, build Train-the-Trainer capacity, and cross train others will enhance response to small, low intensity wildfires that may occur across the landscape. FVRD staff in Emergency Management, Utilities, Parks, and more travel throughout the region and connecting these training opportunities to non-fire staff will be complementary to *wildfire risk* reduction and employer safety training.

In emergencies, including wildfires, all emergency services regardless of who manages them, have linkage to the EOC Operations Section. Whether they are FVRD or non-FVRD, fire services are connected to the EOC to escalate situational awareness and seek support from the EOC through the Operations Section - Fire Branch and/or via the Incident Commander who may maintain a more direct connection to the EOC Director or Liaison. Fire Services may perform operations tasks upon request or direction from the EOC as operations divisions. If they are deployed through the BCWS, they are supported by that organization instead of the EOC.

In addition to the seven FVRD-managed departments, there are two non-FVRD-managed departments. These are:

- Cultus Lake Fire Department—An agency department of the Cultus Lake Park Board, with fire responsibilities in the Cultus Lake Park Act of 1932. The Cultus Lake Park Board is currently developing its own CWRP, and will explore enhancing wildfire cross-training opportunities within that plan.
- The Sunshine Valley Volunteer Fire Department—An independent society fire department. This independent department is responsible for managing its own compliance with the BC Standards to support its own mandate and capabilities.

It is imperative that FVRD maintain healthy relationship with all fire departments that function in the electoral areas and include them in training, exercises, and cross-training. Wildfires are not jurisdictionally based, and wildfire management requires trust and relationship in advance of emergencies. Through increased pre-season wildfire workshops and exercises, or increased cross-training and inclusion in training sessions, relationships will be effectively maintained. Many complexities related to wildfire emergencies can be explored before wildfire emergencies arise. Coordinating training with the public facing calendar discussed in **6 Education** is an opportunity to facilitate and coordinate cross-training throughout the region.

Table 25. FireSmart Cross-Training recommendations.

Related Disciplines*	Recommendation
	Consider the functions of a FireSmart Wildfire Forest Professional and whether that would help FVRD achieve the FireSmart program objectives.
EM	Develop training for PREP Pods that effectively spreads FireSmart messaging and teaches people in communities how to amplify wildfire risk reduction and prevent wildfire startups.
	Encourage all fire departments in electoral areas to take basic wildfire suppression training to increase incident stabilization when dispatched to a fire start up that is not a structure fire. Where FVRD fire departments are achieving basic competencies, or are in high-risk areas, consider additional training opportunities.
IAC, EM	Continue to deepen the connection with the non-FVRD fire departments and the relationships among them, the EM staff for EOC purposes, and FVRD fire departments as part of operational readiness for wildfire emergencies.
IAC, EM	Explore opportunities to include wildfire emergency training within the FVRD EM/EOC Training and Exercise Program and Plan.
EM	Consider basic wildfire suppression training within the TR/EX and increase access to it for non-fire staff.
EM, IAC	Host a pre-wildfire season work shop annually and include likely allies on the landscape in a wildfire emergency (both FVRD and non-FVRD fire and other emergency services).
FS	Explore the creation of policies and processes that maximize the grant funding and compensate for services rendered under the eligible grant opportunities.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

11: Emergency Planning

Community preparations for a wildfire emergency requires a multi-pronged approach. Individuals and agencies need to be ready to react by developing plans, mutual-aid agreements, resource inventories, training and emergency communication systems. All of these make it possible for a community to respond effectively to the threat of wildfires as a whole.

The CWRP for the FVRD is an addendum to the FVRD EMP. The EMP is a high-level plan outlining the local government's management structure for emergency management.

Emergency planning by local governments is mandated the EDMA. This provincial legislation, created in 2023, replaced the previous Emergency Program Act, and greatly expands the role of local governments like the FVRD in emergency management. Under EDMA, local governments are now responsible for all four phases of emergency (mitigation, preparation, response, and recovery), with a greater emphasis on collaboration and co-decision making with IGBs. A more comprehensive discussion of EDMA, and how it has been integrated into the FVRD bylaws and regulations, is discussed in **7 Legislation and Planning**. This Emergency Planning section discusses the FVRD Emergency Management (FVRD EM) Program, its role in all phases of emergency management, and opportunities for increasing wildfire resiliency within that program.

Photo 27. View of the Fraser River near Dogwood Valley.

11.1. FVRD Emergency Management Program

The FVRD EM Program is provided to the Emergency Management Program Service Participating Area. This area is the unincorporated portions of the FVRD, and has no incorporated municipalities or First Nations communities as part of the participating area. However, the EM Program does liaise with these local governments and IGBs in emergency planning and capacity development such as training and exercises. The Service Participating Area is a very large area, with a diversity of populations and hazards. The WUI for this CWRP is within the eight EAs, aside from the few locations where the WUI overlaps incorporated municipality and First Nation Reserve land.

The FVRD EM Program Policy sets the policy framework for the Emergency Management Program. Further to this, the EMP, a comprehensive plan, demonstrates the internal linkages between all the business units of the FVRD and how their services are part of or complementary to the FVRD EM Program. The EMP outlines communities in the program's area, with relevant emergency management information for each community. The EMP also outlines the FVRD EM Program's role in all phases of emergency management, the structure of the FVRD EM Program, and decision making tools that can be used by the FVRD, or community resiliency groups. The EMP includes document libraries, categorized by phase of emergency management, that again link responsibilities of other business units, departments, and services to the organization's emergency management responsibilities.

One of the key tenets of the FVRD EM program is acknowledging the constantly changing emergency management environment. This is supported by a policy of "evergreening" most documents, ensuring mechanisms are in place to routinely update documents as conditions change. This CWRP includes recommendations to ensure alignment with this policy, by providing triggers and tools for updates and revisions (discussed in **5.2 Foundations of FireSmart for Local Governments**).

The EMP already included references to the former CWPP which will require housekeeping amendments to reflect the newer CWRP, and where relevant, may trigger updates to the EMP community resiliency circlegraphs.

11.2. Mitigation

Wildfire risk mitigation requires an all of society approach. The FVRD has a responsibility for *wildfire risk* mitigation, but only within the parameters of their role as local government in the unincorporated EAs of the FVRD, in relation to the developed communities. Under the *Local Government Act* and *Community Charter*, regional districts are not the lands manager of Crown public lands. Other regional partners must also work towards building wildfire resiliency for the landscape as a whole, including incorporated municipalities, IGBs, the provincial government and its agencies, as well as the general public. The Interagency Cooperation section of this CWRP describes how the FVRD can collaborate with other agencies working towards wildfire resiliency throughout the shared landscape.

The FVRD FireSmart Program is housed in the FVRD EM Program, and is critical to mitigation of *wildfire risk*. The FireSmart Program leads mitigation projects for the FVRD owned CI, and provides support to the FVRD residents of the unincorporated EAs pursuing *FireSmart* activities in their community. This program is crucial to mitigating *wildfire risk* by providing tools for the general public to mitigate risk on their property, and promote awareness of these tools and general knowledge of *wildfire risk* mitigation.

11.3. Preparedness

Emergencies such as interface wildfire will continue to occur in the FVRD. Ensuring resiliency to these events requires preparation. While mitigation will reduce the impacts of these events, communities may still be impacted through evacuations and response. Being prepared for these events streamlines the response and reduces the impacts to communities, promoting resiliency.

Wildfire danger is the daily likelihood of severe wildfire, informed by daily analysis by the BCWS. Severe wildfire events are somewhat predictable; although ignitions cannot be reliably predicted, the conditions that influence severe wildfire can be predicted. In the event of a wildfire in or near the WUI of the FVRD unincorporated areas, the FVRD EM Program will have a significant responsibility for coordination of response activities. This will include communications to residents, evacuation alerts and orders, and coordinating with other agencies. This can lead to a strain on the FVRD's staffing resources. This burden can be eased by identifying potential resource demands, through an FVRD Wildfire Preparedness Condition Guide, coordinated with the daily *wildfire danger*. This will ensure that the FVRD EM Program maintains situational awareness of *wildfire danger*, and is prepared when wildfire emergencies are most likely. **Table 26** provides a possible framework for consideration. It is important to note that given the size and diversity of the FVRD, *wildfire danger* will vary in the different microclimates. As such, the FVRD should review *wildfire danger* throughout the region, and set condition level based on the highest *wildfire danger* present. A framework such as this should be considered for inclusion in the FVRD EMP.

The FVRD EM Program operates over a very large and diverse area. Many communities also have limited contact or interaction with the FVRD in general, and are isolated or distant from the nearest urban centres. Local community members must take home-based action to prepare for emergencies. The FVRD EM Program supports this by providing a structure and tools for community members to prepare for emergency. Accompanying this CWRP are one-page community summaries, identifying the *wildfire risk* and tools to support residents in preparing for wildfire. Promoting these summaries will provide tools and resources for community members to prepare for wildfire.

The FVRD Preparedness, Resiliency & Emergency Program (PREP) framework is designed to support community driven disaster resiliency within communities under the umbrella of the FVRD EM Program. The large size of the FVRD and its many isolated communities may lead to delayed response times during an emergency. PREP is intended to compliment the FVRD EM Program by providing communities with resources and structure to prepare for emergencies. PREP is administered by community groups who enter into an agreement with the FVRD to be recognized as a Pod, led by a Pod leader to coordinate community or neighbourhood preparedness and liaise with the FVRD EM Program.

PREP Pods are envisioned as a key component of all phases of emergency management in the FVRD EMP to promote community resiliency to emergencies. Developing these PREP Pods is also a key component for the FVRD in preparing for emergencies. PREP Pods are intended to be a community driven initiative, and success requires motivating and promoting this program, its benefits, and how the FVRD EM Program can support it. This CWRP provides an important resource, not only through promoting awareness of *wildfire risk*, but also in promoting how the PREP Pods will play a role. The FVRD EM Program should continue the development of the PREP program and then promote it to encourage groups to onboard within the framework, and receive tools and resources for that program.

Table 26. Suggested wildfire preparedness conditions guide.

Fire Danger	Guidelines
II. Moderate	» Normal staffing levels and responsibilities. » Staff check wildfire danger weekly.
III. High	» Normal staffing levels and responsibilities. » Staff check wildfire danger regularly. Staff sit in on weekly BCWS planning call, engage with BCWS Zone Wildfire Coordinator. » Senior leadership staff notified of the preparedness level; EOC staffing considered in relation to changes in preparedness level. » Weather forecast monitored daily for any potential increases in wildfire danger (e.g. gusting winds, pressure changes, cold fronts, heat dome, etc.). » Ensure BCWS app map has alerts turned on for the 100km radius of the FVRD, generally. » Communications pathways refreshed with response agencies . » The FVRD's communications platforms share information from BCWS feeds and channels about wildfire preparedness, risk reduction, FireSmart at home, etc.
IV. Extreme	» EOC schedule and Parks schedule considered for standby, where appropriate. » Weather forecast monitored daily for any potential red flag days (extreme heat and wind warnings). » Regional wildfire situation reviewed daily, identifying any wildfires within or near the FVRD boundaries. » Consider possibility for Parks closures; these can be coordinated with any BC Parks closures within the FVRD. Where parks are closed to public, consider prioritizing additional FireSmart measures to mitigate wildfire risk. » Liaise with response agencies. » The FVRD's communications platforms share information from BCWS feeds and channels about wildfire. preparedness, risk reduction, FireSmart at home, etc.
V. Ongoing Wildfires	» All activities from Condition IV. » EOC and Parks staff on standby; activate EOC when needed to pre-plan for potential evacuations. » Provide daily updates to the FVRD's Senior Leadership, internal intranet, and local FDs. » Protective Services to inform the FVRD EM of any likely capacity limitations for FD response to wildfire. » Issue Evacuation Alerts and Orders based on recommendations from BCWS fire behaviour prediction as appropriate, and publicize with the FVRD's communications channels. » Consider advocating for BCWS led area restrictions in affected areas, communicate closures with the FVRD's communications channels.

11.4. Response

In the event of a wildfire in the WUI of the FVRD unincorporated EAs, the FVRD will have major responsibilities, most of which are coordinated through an Emergency Operations Centre. This will include issuing Evacuation Alerts/Orders based on recommendations from BCWS, liaising with external response agencies such as the BCWS and Royal Canadian Mounted Police, providing updates to other FVRD departments and elected officials, and also supporting communications with the media and public. Other FVRD departments may also be tasked in response activities, such as Parks implementing parks closures, or engineering and utilities managing threatened infrastructure. It is also expected that BCWS may directly seek the support from FDs for wildfire suppression support. When a wildfire occurs inside an FPA, actioning it is the responsibility of the relevant FD and they may request the assistance of the BCWS.

Evacuations are extremely disruptive and distressing events for community members. Reducing stress and uncertainty for community members enhances evacuation. This requires evacuation planning and communication with community members. The FVRD EM Program has prepared a Master Evacuation guide, with information relevant to all landscapes,

a generalized outline of evacuation processes that can be tailored for specific events in different communities, and which acts as an aggregator for geographic specific evacuation guides for areas with few egress routes and high risks such as EA E, EA H, Hemlock Valley, and Boston Bar and its surrounding area.

Evacuations require effective communication with evacuees or potential evacuees. The FVRD uses the Alertable notification system to send alerts to residents. This opt-in service works on a variety of platforms, and allows for rapid communication during emergencies and users can subscribe to be notified of evacuations by text message, email, phone call, direct-dial satellite, and smart speaker. This platform has seen wide up-take, and should continue to be promoted for its utility in emergency communication. However, many of the communities in the FVRD unincorporated EAs may lack telecommunications service. Leveraging the PREP Pods discussed previously is an opportunity to ensure local resources are available for disseminating information in communities that lack reliable telecommunications service, or where telecoms have been impacted by wildfire.

Wildfires are dynamic, and can be rapidly expanding. Wildfires can compromise evacuation routes, with radiant heat from fire making them unsafe to use, or from falling trees blocking routes. Many of the evacuation routes in the FVRD are outside the WUI, primarily on Crown land. As such, the provincial WRR program is designed to identify opportunities for increasing egress resiliency to wildfire. However, the WRR may lack the details on evacuation routes. The FVRD should provide information on evacuation routes for communities in the FVRD unincorporated EAs to the WRR program, ensuring these routes are assessed and planned for in WRR planning processes.

Wildfire response in the WUI of the FVRD unincorporated areas will involve the BCWS, and may also involve the FVRD's FDs. In the event the community is not within a FPA, the BCWS will lead wildfire response. In the event a FD is present, there will be a joint response with BCWS and the local FD. The FVRD provides fire protection services to many areas through its seven FDs. Some communities obtain fire services from departments not managed by the FVRD, or lack fire protection. In these areas the FVRD has limited ability to prepare these departments for *interface fire*. However, the FVRD does have some ability to promote response in the departments the FVRD oversees.

Effective wildfire response requires sufficient training, effective working relationships (see **9 Interagency Cooperation**), and suppression resources. Resources include equipment and training, as well as adequate water supply. Structure Protection Units (SPUs) are mobile repositories of wildfire suppression equipment for protecting structures from wildfire. However, these require special training, storage, and maintenance that may be beyond the capacity of the relatively small departments present in the FVRD managed FDs. Any SPU or wildfire-specific equipment should be coordinated with wildfire specific training in the FDs desiring these resources. Acquiring an SPU and/or wildfire equipment can occur in phases, coordinated with training levels in the FVRD FDs, ensuring staff are familiar with this equipment.

Water is a key resource in wildfire response. An effective water supply for wildfire suppression must be accessible with sufficient volume to support extended use. Water can be sourced from hydrants in water supply networks or from natural sources. However, typical to regional districts, water supply in the FVRD unincorporated areas varies widely, with some areas susceptible to seasonal water shortages. This is particularly the case in water supply networks that are not managed by the FVRD. Shortages tend to occur when *wildfire danger* is at its highest, and in recent years coincides with increasing drought frequency and length, limiting water supply when it is most likely to be required. A water supply analysis could be performed to identify all water sources in the FVRD unincorporated areas and their capacity to support extended wildfire suppression. However, it is important to note that water systems not managed by the FVRD will have limited data to support this analysis, and as such the value of this water supply analysis may be limited in those areas.

Photo 28. Fire damage on trees burned near Hope in 2023.

11.5. Recovery

Emergencies can have severe and lasting consequences to a community. Wildfire's can destroy structures, entire communities, and CI. Even in the absence of direct impacts to communities, indirect impacts can also be significant. The psychological stress of wildfires threatening homes can lead to Post-Traumatic Stress Disorder. Wildfires can also destabilize soil, leading to erosion and sedimentation in water sources, or create geotechnical hazards. Conversely, wildfires can also be beneficial, reducing fuel accumulations and dramatically lowering the future *wildfire risk* in and around communities. Therefore, a large wildfire within the WUI any of the FVRD's unincorporated communities is a potential trigger for revisiting this CWRP, and updating as needed.

The FVRD EMP contains an overview of disaster recovery that aims to enable situation specific post-emergency recovery. This framework is designed to be flexible, reflecting the highly uncertain impacts of an emergency of any type. The impacts of wildfire are highly variable, and a rigid framework guiding wildfire recovery is unsuitable. In the event of severe wildfire, recovery will require collaboration between the FVRD's departments, external agencies, community members, and potentially IGBs. Establishing and maintaining functional relationships with these agencies, as discussed in **9 Interagency Cooperation**, will enhance recovery efforts.

Table 27. FireSmart Emergency Planning recommendations.

Related Disciplines*	Recommendation
	Update EMP with information from this CWRP.
	Ensure CWRP is integrated into FVRD EMP document library.
	Create and integrate Wildfire Preparedness Conditions Guide into EMP.
EDU	Work with community groups to introduce PREP and invite them to become PREP Pods.
EDU	Continue to promote and support resident participation in the FVRD emergency alert system.
IAC, LEG	Share the FVRD Evacuation Route Guides with the Ministry responsible for forestry and Crown land management for awareness of the criticality of routes and the importance of wildfire risk reduction activities to protect those routes.
TRX	Consider acquiring wildfire specific suppression equipment for the FVRD's FDs, coordinated with wildfire training.
	Consider conducting a water supply analysis for FVRD unincorporated electoral areas to determine water supply availability fire suppression.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

12: Vegetation Management

The goal of vegetation management is to reduce the potential wildfire intensity and ember exposure to people, infrastructure, structures and other values through manipulation of both vegetation that is within or adjacent to a community. A well-planned vegetation management strategy that is coordinated with development, planning, legislation emergency management mitigation intents, and *wildfire risk* reduction objectives can greatly increase fire suppression effectiveness and reduce damage and losses to structure and infrastructure. Conversely, completing large scale vegetation management around properties that have very low *FireSmart* uptake may only have a marginal benefit to *wildfire risk* reduction.

12.1. Principles of Vegetation Management

Vegetation management is one of the most technically complex FireSmart Disciplines. The goal of vegetation management is reducing the potential wildfire behaviour in specific vegetated areas. Potential wildfire behaviour, or *wildfire threat* (see **4.3 Wildfire Threat**), describes the intensity, spread, and likelihood of ignition, driven by the types of vegetation, topography, and weather in a given area. Topography and weather cannot be reasonably adjusted, therefore adjusting the vegetation is the most pragmatic way to reduce *wildfire threat* in a vegetated area. All vegetated areas are flammable to some extent; the goal of vegetation management is significantly adjusting vegetation to reduce *wildfire threat*, but also preserving the functioning of that vegetated area and the important benefits it provides.

There are several characteristics of vegetation that impact *wildfire threat*. The first is the structure of the vegetation, describing the type of vegetation present. All vegetation is potential fuel for wildfire, and thus is often referred to as fuel in a wildfire context. However different types of vegetation are more flammable than other, or can become more flammable under certain weather conditions. *Coniferous* vegetation (needle bearing trees and shrubs), long grass, and dead vegetation dry out much more rapidly than *deciduous*, leafy vegetation. Therefore, removing or minimizing the presence of *coniferous* trees, grass, or dead vegetation in an area will reduce *wildfire threat*.

The arrangement of fuels is also important. Vegetation that is continuous, vertically and/or horizontally, allows for wildfire to spread easily. This is particularly important in the aerial canopies of *coniferous* fuels, where the abundance of conifer needles provides large accumulations of fuel for wildfire. When wildfire occurs in the canopies of trees (the crowns of trees), it is referred to as *crown fire*, and results in a dramatic increase in wildfire behaviour and reduced expected success of suppression. Almost all wildfires begin as *surface fires*, therefore preventing these *surface fires* from becoming *crown fires* is a key principle of vegetation management. When there are large vertical gaps in fuel continuity between surface and *aerial fuels*, *crown fire* has a reduced likelihood. Horizontal continuity is also important; by creating gaps in this continuity, wildfires will spread slower. In some cases, vegetation must be eliminated altogether to effectively reduce *wildfire threat*.

Vegetation management is best understood at the different scales it occurs on. *FireSmart* vegetation management is aligned with *FireSmart* principles, creating defensible space directly beside *values at risk*, typically limited to the 30m *FireSmart Extended Zone* surrounding a value. *Fuel management* is a larger scale form of vegetation management, often occurring at a scale of tens or hundreds of hectares. *Fuel management* aims to reduce *wildfire risk* for a much larger area, such as a community or egress route.

12.2. FireSmart Vegetation Management

FireSmart vegetation management occurs directly adjacent *values at risk*. This focuses on the vegetation within 30m of a specific value. Vegetation is removed within the 0-1.5m *Immediate Zone* around a value. Vegetation is adjusted to reduce *wildfire threat* in the 1.5 to 10m *Intermediate Zone*, usually removing all flammable vegetation such as *coniferous* trees and shrubs, long grass, and dead vegetation. Within the 10-30m *Extended Zone*, the structure and arrangement of vegetation is adjusted to reduce *wildfire threat*, similar to in the *Intermediate Zone* but with less intensity of vegetation management.

12.2.1. FVRD Residential FireSmart Vegetation Management

The FVRD FireSmart Program both promotes *FireSmart* vegetation management for residents of the FVRD unincorporated electoral areas, and directly leads *FireSmart* vegetation management on FVRD owned/managed property and assets. For residents, this primarily occurs through education about the *wildfire risk* associated with certain vegetation, as well as the benefits of *FireSmart* vegetation management. The FVRD also provides tools and resources for supporting resident led *FireSmart* vegetation management, both at the individual property scale and the neighbourhood scale.

A major challenge of *FireSmart* vegetation management is debris disposal. One of the tools the FVRD FireSmart Program provides is in the form of neighbourhood clean-up days. These events consist of the FVRD providing disposal for debris (pruned branches, yard trimmings, etc.) created through residential *FireSmart* vegetation management, sponsored by the *FireSmart* grant funds. The work is led by residents on their own property, but the FVRD supports by disposing of debris, at no charge to residents. The FVRD should continue supporting these clean-up days to interested communities within the FVRD unincorporated electoral areas.

Residents may pursue *FireSmart* vegetation management on an ongoing basis, rather than at one single event coordinated with a neighbourhood clean-up day. As such, vegetative debris may increase as more communities normalize *FireSmart* into their routine community knowledge. This may result in vegetative debris that exceeds annual anticipated volumes and results in unplanned budgetary impacts to FVRD transfer stations. The FVRD can support this by continuing to explore other opportunities for disposing of the associated waste. This can consist of chipping events or providing green waste bins in communities. The FVRD should explore alternative opportunities for supporting waste disposal for debris created through *FireSmart* vegetation management by residents of the FVRD unincorporated electoral areas, and take advantage of creative solutions. For example, the Strathcona Regional District makes chipped materials available through a proposal-basis for public purposes, such as erosion control in parks and trails where the materials are not remaining near or around developed structures.

Photo 29. Piles are collected for debris disposal in some unincorporated communities.

12.2.2. FVRD Community FireSmart Vegetation Management

The FVRD owns or manages land and properties throughout the unincorporated areas of the FVRD. This includes *Critical Infrastructure* as well as regional parks. For these areas, the FVRD can directly lead *FireSmart* vegetation management to protect *values at risk* or to reduce ignition risk. The FVRD FireSmart Program has made significant strides in this area. The Program completes assessments, either *Critical Infrastructure* or Greenspace, which then guide the vegetation management that is completed by FVRD seasonal staff. Two seasonal staff members from the FVRD Engineering and Utilities department then conduct vegetation management for FVRD Utilities infrastructure. This program has been extremely effective, both with outcomes and operational efficiency, at reducing *wildfire risk* to FVRD-owned or -managed *Critical Infrastructure*.

The FVRD owns and manages large regional and community parks throughout the AOI. Regional parks are often large, natural areas with few *values at risk*, similar to BC Parks. The main *values at risk* in the parks are typically limited to *critical infrastructure*, often in the form of telecommunications facilities. As such, there is a specific guide and methodology for determining vegetation management in these areas, the FireSmart Culturally Significant Sites and Green Spaces Guide. This methodology is useful for guiding small scale vegetation management in greenspaces near trails, picnic areas, parking lots, or other high use areas in a park setting. The FVRD FireSmart Program has completed several of these green space assessments, and should continue to complete these assessments. There is an opportunity to create seasonal positions for implementing these green space assessments and completing vegetation management in FVRD Parks, similarly to the Engineering and Utilities seasonal positions.

12.3. Fuel Management

Fuel management describes large scale vegetation management. This typically occurs on Crown Public, local government, or First Nations Reserve land at large scale, in the 10s or even 100s of hectares. This primarily occurs in naturally vegetated areas adjacent *values at risk*, with the aim of reducing *wildfire threat* while preserving a healthy functioning forest. Given the size and multiple complex objectives, detailed planning is required to successfully complete these projects.

A *fuel management* prescription (FMP) is a document that outlines objectives and strategies for *fuel management* in a specific area, referred to as a *fuel treatment unit* (FTU). This is prepared by a Registered Professional Forester (RPF) with specialized training and expertise in *fuel management*. The FMP not only outlines objectives and strategies for reducing *wildfire threat*, but also for protecting other importance values present in the area. This includes recreational values like trails, or biodiversity values like sensitive habitat, among many others. Once the FMP is complete, a contractor then implements the FMP by physically modifies the forest closely following the guidance of the FMP. Often this work is supervised and coordinated by an RPF to ensure the FMP is followed closely.

Fuel management requires consultation with Indigenous Governing Bodies to ensure objectives and strategies are aligned with their inherent Indigenous Rights. Inherent Indigenous Rights extend far beyond reserve boundaries, and often overlap, and as such consultation with IGBs is often extensive and rigorous. Ensuring IGBs are involved early on and throughout the *fuel management* process is critical, and is highlighted in **9 Interagency Cooperation**.

Fuel management, both FMP preparation and implementation, has occurred within the FVRD unincorporated electoral areas, led by various regional actors in wildfire resiliency. The provincial Wildfire Risk Reduction (WRR) program has completed and is currently conducting planning and assessments for *fuel management* on Crown Public Lands. Section **9 Interagency Cooperation**

provides details on how the FVRD can collaborate with this program. First Nations and incorporated municipalities in the FVRD can also lead *fuel management*, however these projects rarely extend into the FVRD unincorporated electoral areas. Overall, minimal *fuel management* has occurred within the unincorporated electoral areas of the FVRD. This is typical to coastal areas, where *wildfire risk* has historically been low, and *fuel management* operations are challenging and costly. These challenges are largely due to steep terrain which is challenging to operate on, and limited access to potential *fuel management* areas.

The FVRD has commissioned five FMPs for areas near and within the WUI of the communities in the FVRD unincorporated electoral areas. These FMPs were prepared by a consulting RPF and funded through the Forest Enhancement Society (FESBC) of BC, a separate funding organization distinct from CRI, which has funded this CWRP. FES has different funding requirements from CRI, thus some of these FMPs are ineligible for CRI funding. However, two of these FMPs, the Sumas FMP and Beaudry FMP, located in Sumas Regional Park and the WUI for Lake Errock respectively, are in the WUI for this CWRP. The FVRD can pursue CRI funding for implementing these two FMPs, and may choose to pursue FES funding for the remaining three. It is important to note that CRI funding is limited to the WUI, which is often a challenge for regional districts where important infrastructure, such as telecommunications infrastructure necessary for emergency response, is located outside the WUI. As such, funding for these FMPs will require special dispensation and support from the CRI program.

Photo 30. *Fuel break* **near Post Creek.**

An additional FMP has been prepared for an area in the WUI of Cascade Bay in EA C. This FMP has been developed with community input and led by the timber land manager for the woodlot area surrounding Cascade Bay. This FMP will be implemented and led by that manager, and is proposed for completion in 2026. This provides an excellent example of the type of regional *fuel management* collaboration that is discussed in **9 Interagency Cooperation**.

The FVRD can pursue new *fuel management* projects throughout the WUIs of the FVRD unincorporated electoral areas in this CWRP. During this CWRP process, 20 candidate areas have been identified based on the wildfire environment in those WUIs. The FVRD can use CRI funding to develop FMPs, and subsequently implement those FMPs. **Figure 30 on page 127** and **Table 28 on page 128** detail these candidate areas for FMPs. These candidate areas, when primarily on Crown Public Lands, have been aligned with areas identified by provincial WRR planning to ensure consistency between the FVRD and WRR programs. However, the WRR *fuel management* areas have been adjusted in this CWRP for alignment with the FVRD EM Program goals.

Fuel management is a unique action for increasing wildfire resiliency in the FVRD unincorporated electoral areas. There is considerable overlap with parallel wildfire resiliency programs in the landscape, emphasizing the need for effective **Interagency Cooperation**. *Fuel management* is also complex, costly, and typically takes several years to complete. As such, the candidate areas for *fuel management* should best be understood as a menu of options, rather than a list of projects that should be completed. This provides planning flexibility, which is critical in an area of challenging *fuel management* operations like the FVRD. A suggested prioritization for FMP is targeting FMP areas located in communities with the highest *wildfire risk*, such as EA A, Hemlock Valley, or Jones Lake.

The FVRD EM Program may choose to prioritize other actions to maximize use of available grant funding and resources, or choose to only work on the highest priority *fuel management* areas. Similarly, the FVRD EM Program may also choose to prioritize *fuel management* areas based on criteria other than *wildfire risk*. This may include prioritizing areas where the adjacent neighbourhood or community has seen effective *FireSmart* vegetation management, ensuring *wildfire risk* reduction is maximized. Alternatively, the FVRD EM Program may prioritize areas where co-benefits of *fuel management* can be maximized, such as demonstration projects to enhance public education. As such, *fuel management* is a recommendation where the FVRD EM Program is encouraged to use their discretion when pursing specific projects, ensuring that a project is aligned with broader program goals, priorities, capacity, and funding.

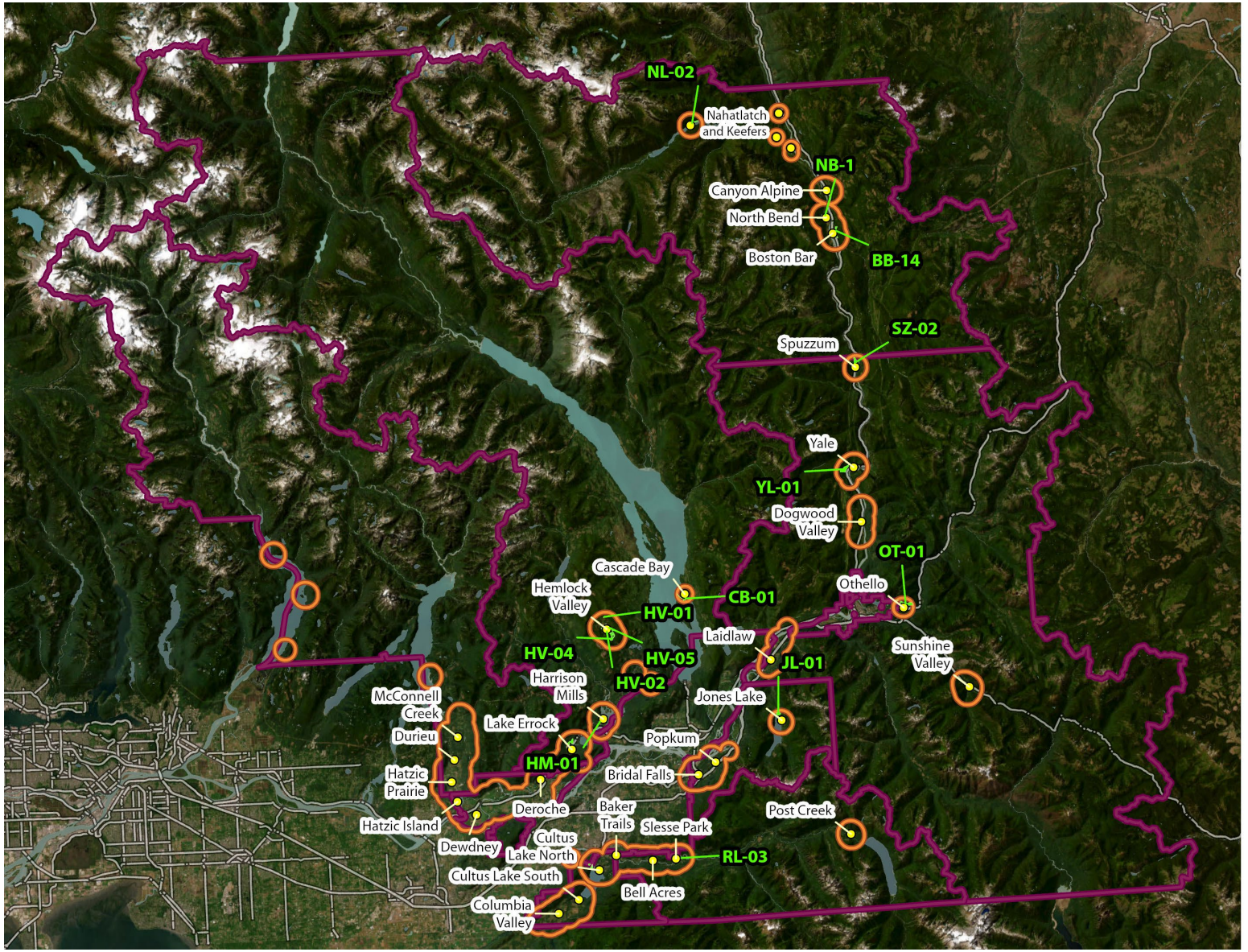
Photo 31. View of Jones Lake.

12.4. Prescribed Burning

Prescribed burning is the intentional use of wildfire to reduce *wildfire risk*. This involves controlled burning of fuels by highly trained personnel to reduce fuel loading, emulating natural wildfire. Indigenous groups made extensive use of controlled fire as part of cultural practices. This practice was largely eliminated by colonial administrators, but there is a large effort to reintroduce this practice to the landscape. Losing the expertise of Indigenous fire keepers has been impactful to not only Indigenous communities, but to the landscapes where fire was used as a tool and a natural part of the ecosystem. *Prescribed burning* is most effective in areas with a high density of *surface fuels* such as grass or brush. No feasible options for *prescribed burning* to reduce *wildfire risk* were identified in the WUI of the FVRD unincorporated electoral areas. This is very typical to coastal ecosystems, where forests are multi-strata with less *surface fuels*.

Table 28 on page 128 provides a summary of fuel treatment units that the FVRD may consider for developing FMPs. These areas have been selected based on their *wildfire threat* and risk, and their location in relation to communities and values. *Wildfire risk* is a key driver of identifying FTUs, but FTUs are specifically identified where fuel is a key driver of that *wildfire risk*. This occasionally yields results that are counter-intuitive; for example, an area of low or moderate risk may be a candidate FTU where *fuel management* will effectively reduce that *wildfire risk*. Conversely, areas of high *wildfire risk* may be infeasible for treatment when that *wildfire risk* is driven by topography, which would not be impacted by *fuel management*. Given the varying *wildfire risk* throughout the WUI, the FTUs are primarily located in the areas of highest *wildfire risk*.

FTUs are limited to the CWRP WUI of the FVRD's electoral areas. FTUs are coordinated with parallel wildfire resiliency programs such as the WRR program, and these have been identified. Some of these may have a low *wildfire risk* when viewed through the FVRD lens of this CWRP, but may have a higher risk from the perspective of these parallel programs; regardless, these have been included for consistency. The geometry of these FTUs has been altered where necessary to ensure alignment with the FVRD perspective of this CWRP.



Unit	Area (ha)	Electoral Area
BB-14	41.7	A
NB-1	8.2	A
NL-02	37.6	A
NL-22	20.2	A
OT-01	88.8	B
SZ-02	47.8	B
YL-01	67.5	B
CB-01	39.9	C
HM-01	7.4	C
HM-02	7.1	C
HV-01	4.1	C
HV-02	35.2	C
HV-03	22.8	C
HV-04	18.7	C
HV-05	32	C
LE-01	33.1	C
JL-01	23.2	D
JL-02	8.3	D
RL-03	3.1	E
VM-01	19.4	H
VM-02	6.3	H

Figure 30. Map of vegetation management areas in the FVRD AOI.

Table 28. Candidate fuel management areas.

Fuel Treatment Unit #	FVRD Community	Total Area (ha)*	Owner	Treatment Objective	Local Wildfire Risk	Treatment Notes
NL-22	North Bend	20.20	Crown	Value Protection	High	Overlaps Hallisey watershed, riparian constraints present. Coordinated with WUIWRR FTU.
NB-1	North Bend	8.22	Regional	Value Protection, Demonstration	High	FVRD owned land, possible demonstration project
BB-14	Boston Bar	41.89	Crown	Value Protection	High	Overlaps One and One Quarter watershed, riparian constraints present. Moderately steep terrain but roads present. Coordinated with WUIWRR FTU.
NL-02	Nahatlatch	37.56	Crown/Provincial Park	Value Protection	High	Multiple streams with riparian areas, partial OGMA overlap in west. Broken terrain, but generally moderate slopes. Possible access challenges due to private land adjacent and riparian areas. Coordinated with WUIWRR FTU.
YL-01	Yale	67.55	Crown	Value Protection	Moderate	Abuts BC Hydro ROW. Steep terrain in north portion of block. Streams present. Expect significant boundary adjustments. Coordinated with WUIWRR FTU, but with slight boundary adjustments.
SZ-02	Spuzzum	47.83	Crown	Value/Egress Protection	High	Moderately steep terrain, however FSR bisects unit providing excellent access
JL-02	Jones Lake	8.30	Crown	Value Protection	High	Overlaps recreation reserve. Borders cutblock with significant windthrow around edges of unit. Flat highly operable.
JL-01	Jones Lake	23.25	Crown	Value Protection	High	Adjacent wetland. Excellent access. Area of conifers with mixed/deciduous adjacent.
RL-03	Slesse Park	3.14	Crown	Value Protection	Low	OGMA and stream in east of unit. Coordinated with WUIWRR FTU. Excellent access, expected light, manual treatment.
VM-02	Cultus Lake North	6.34	Crown	Value Protection	Moderate	Overlaps Vedder Mountain Interpretive Forest. Overlaps recreational trail network, excellent access. Coordinated with WUIWRR FTU.
VM-01	Cultus Lake North	19.40	Crown/Provincial Park	Value Protection	Moderate	Overlaps Vedder Mountain Interpretive Forest. Overlaps recreational trail network, excellent access. Coordinated with WUIWRR FTU.
HM-01	Harrison Mills	7.39	Crown	Value Protection	Moderate	Elbow Creek Watershed on edge of unit and stream passing through unit. Excellent access.

Fuel Treatment Unit #	FVRD Community	Total Area (ha)*	Owner	Treatment Objective	Local Wildfire Risk	Treatment Notes
HM-02	Harrison Mills	7.14	Crown	Value Protection	Moderate	Steep terrain. Excellent access from FVRD property east.
LE-01	Lake Errock	33.86	Crown	Value Protection	Moderate	Variable terrain with excellent access.
HV-02	Hemlock Valley	35.25	Crown	Value Protection	High	Variable terrain with good access. Previously prescribed. Within Mountain Resorts Branch tenure. Several streams present.
HV-03	Hemlock Valley	22.77	Crown	Value Protection	High	Variable terrain with good access. Previously prescribed. Within Mountain Resorts Branch tenure. Several streams present.
HV-04	Hemlock Valley	18.72	Crown	Value Protection	High	Moderate but consistent slope. Several Streams converging into one flowing out south of unit. Partial overlap with OGMA. Previously prescribed. Within Mountain Resorts Branch tenure. Heavily impacted by Spruce Budworm.
HV-05	Hemlock Valley	31.95	Crown	Value Protection	High	Moderate but consistent slope. Several Streams converging into one flowing out south of unit. Adjacent OGMA with no overlap. Previously prescribed. Within Mountain Resorts Branch tenure. Heavily impacted by Spruce Budworm.
HV-01	Hemlock Valley	4.10	Crown	Critical Infrastructure Protection	High	FVRD infrastructure on lift station. Overlaps OGMA. Small stream present. Within Mountain Resorts Branch Tenure.
OT-01	Othello	88.75	Crown	Value Protection	High	Variable terrain, steep in some areas. Possible challenges with access due to pipeline. Stream present and OGMA overlap. Coordinated with WUIWRR FTU.

Table 29. FireSmart Vegetation Management recommendations.

Related Disciplines*	Recommendation
EDU, EM	Inspire neighbourhood vegetative clean-up days to assist in landscaping and FireSmart maintenance for homes in the community. Coincide with landscaping guides, and where possible introduce to local FireSmart landscaping partners for fire and drought resistant plants.
	Consider FireSmart Green Spaces Assessments for regional park trails identified in this plan.
	Create internal policy and/or process to enable FireSmart related extraordinary green waste to be funded internally under the FireSmart grant where planned community FireSmart events, chipping and binning events, or FireSmart home assessments have resulted in the green waste.
	Consider accomplishing vegetation management in Regional Parks via seasonal crew funded by the CRI grant specific to this purpose, similarly to those serving in Engineering & Utilities.
	Implement fundable Fuel Management Prescriptions that have been completed.
	Develop fuel management prescriptions for areas identified in this CWRP
DEV, EM	Continue the seasonal vegetative management roles in Engineering with an aim to: reduce vegetation outward to 30m, ensure removal of vegetative debris, and where relevant, invasive species removal.

** Acronyms: FS = Disciplines of FireSmart; EDU = Education; LEG = Legislation and Planning; DEV = Development Considerations; IAC = Interagency Cooperation; TRX = Cross-Training; EM = Emergency Planning; VEG = Vegetation Management.*

Appendix A: Glossary of Terms

Aerial fuels	Also known as crown fuels, the main canopy of the forest dominated by needles, leaves, and smaller branches.
Area of Interest (AOI)	The AOI for a CWRP includes all the area that lies within the municipal boundary, regional district boundary, or First Nations land including First Nation reserve land, land owned by a Treaty First Nation (as defined by the Interpretation Act) within treaty settlement lands, or land under the authority of an Indigenous National Government boundary.
Biogeoclimatic Ecosystem Classification (BEC) system	A hierarchical system for classifying ecosystems in BC based on the typical climax vegetation, incorporating the ecological effects of climate and soil.
Community FireSmart and Resiliency Committee (CFRC)	A committee for stakeholders in wildfire resilience at a community or regional scale. This committee provides a forum for sharing information, collaboration, and sharing of resources.
Community Resiliency Investment Program (CRI)	Commonly abbreviated to CRI, this program provides grant funding to communities for initiatives to reduce *wildfire risk*.
Community Wildfire Protection Plan (CWPP)	The predecessor format for community wildfire planning to CWRPs. Although similar in goals and objectives, CWPPs varied in format and focus.
Coniferous	Plants that produce cones to reproduce, typically with needle or scale foliage that remains year-round (evergreen). Typically much more flammable than *deciduous* trees.
Critical Infrastructure (CI)	Assets owned by the Provincial government, local government, public institution (such as health authority or school district), First Nation or Treaty First Nation that are essential to the health, safety, security or economic wellbeing of the community and the effective functioning of government, or assets identified in a Local Authority Emergency Plan Hazard, Risk & Vulnerability and CI assessment.
Crown fire	Fire that occurs primarily in the *aerial fuels* of a forest. Crown fires have the highest intensity and spread of all types of wildfire and are very challenging to suppress. Crown fires are almost always accompanied by a ground and *surface fire*. Can be intermittent, where only individual trees or group of trees aerial canopies are involved, or continuous, where the entire flame front is consuming the aerial canopies of all trees.
Deciduous	Plants that do not produce cones, typically leaf bearing. Typically less flammable than *coniferous* trees.
Extended zone	*FireSmart* zone that includes the area between 10m and 30m from the structure.
Fine fuels	Small diameter fuels (grass, needles, twigs, etc) that ignite rapidly and are consumed rapidly.
Fire break	A gap in vegetation/fuel continuity that will limit fire spread. Not to be confused with *fuel break*, which are vegetated, but with lower flammability vegetation to reduce fire spread and intensity.

Fire exclusion	A phenomenon where human land management has resulted in ecosystems departing from their natural or historic *fire regime*.
Fire regime	Describes the typical frequency, intensity, and size of wildfire within an ecosystem under natural conditions.
FireSmart	A nationwide program for supporting homeowners, land managers, local and provincial governments, and industry to increase resilience to wildfire in the WUI. Often used as a verb to describe the implementation of mitigation measures that increase wildfire resilience.
FireSmart coordinator	A local expert in *FireSmart* principles.
Fuel	Any combustible material. In the context of wildfire, this refers to vegetation.
Fuel break	A barrier or disruption in fuel continuity that reduces the ability of a wildfire to spread. Not to be confused with *fire break*; fuel breaks are typically vegetated with fuel that is less flammable, while *fire breaks* lack combustible vegetation.
Fuel management	Modifying forest structure to reduce the *wildfire threat*, typically through reducing horizontal and vertical continuity of fuels within the forest.
Fuel management implementation	The process where vegetation is physically modified to reduce *wildfire risk*, following a *fuel management* prescription.
Fuel type	Fuel types are defined under the Canadian Forest Fire Behaviour Prediction System (FBP) and are represented by certain forest characteristics.
Home ignition zone	The area that extends 30m in each direction from a home or structure. Further subdivided into the Immediate (0-1.5m from structure), Intermediate (1.5-10m from structure, and *Extended Zone* (10-30m from structure).
Immediate zone	*FireSmart* zone that includes the structure, as well as the area within 1.5 m surrounding the structure.
Initial attack	The first actions taken to manage a wildfire immediately after detection.
Interface fire	Wildfires that involve or may involve structures.
Intermediate zone	*FireSmart* zone that includes the area between 1.5m and 10m from the structure.
Ladder fuels	Fuels found above the *surface fuels* but below the aerial crown fuels, such as intermediate trees and branches. These fuels provide continuity between crown fuels and *surface fuels*.
Natural Disturbance Type (NDT)	A system for classifying ecosystems in BC by the types, severity, and frequency of natural disturbance in the absence of human interventions.
Mutual aid	A process where fire response agencies can respond to fires outside their normal jurisdiction, facilitated through mutual aid agreements between agencies.
Prescribed burning	The intentional use of wildfire as a tool, often to reduce *wildfire threat* or for other ecological benefits.

Primary forest	Often called old-growth forest, this is forest that has remained undisturbed for an extended period. Old growth is typically defined as over 140 years old in the interior of BC, and over 250 years old on the coast of BC.
Provincial Strategic Threat Analysis (PSTA)	A province wide assessment of *wildfire threat*, conducted at a provincial scale. The PSTA provides multiple datasets that can be used to predict wildfire behaviour at a landscape scale. Inaccuracies are common at a local or community scales.
Second growth forest	Forest regenerating from relatively recent disturbance, such as wildfire or harvesting. This is typically used to refer to forests growing after large scale tree removal through forestry operations.
Slash	Debris remaining from large scale vegetation removal, such as land clearing or forest harvesting.
Spotting	A phenomenon where a wildfire spreads wind carried embers beyond the main body of a wildfire. These embers can enter structures and cause *interface fire*, as well as start new wildfires separate from the main wildfire body.
Spot fire	A fire created through ember *spotting*, separated from the main fire area.
Surface fire	Fire that occurs primarily in *surface fuels*. Usually accompanies a ground fire.
Surface fuels	Vegetation found on or near the forest floor, such as grass, woody debris, moss, or herbs.
Values at Risk (VAR)	The human or natural resources that may be impacted by wildfire. This includes human life, property, CI, high environmental and cultural values, and resource values.
Wildfire	An unplanned fire that is driven by combustion of vegetation.
Wildfire danger	Often called wildfire hazard or fire danger, this term describes the potential for severe wildfire at a moment in time, usually summarized daily during *wildfire season*.
Wildfire risk	A measurement of the probability of severe wildfire combined with the consequences of wildfire.
Wildfire season	Often used to refer to the period in BC of highest wildfire frequency and severity, beginning April 1 and ending September 30.
Wildfire threat	The ability of a wildfire to ignite, spread, and consume organic material (trees, shrubs, and other organic materials) in the forest. The major components used to define wildfire threat are fuel, weather, and topography, also known as the wildfire environment.
Wildland-Urban Interface (WUI)	Also known as WUI, any area where combustible vegetation is adjacent or near structures or communities. Consists of the wildland-urban interface or wildland-urban intermix. Interface is where developed communities have a clearly defined boundary between forests and developed areas. Intermix is where the boundary lacks a clearly defined boundary.

Appendix B: Fire Risk Mapping Methodology with Burn-P3 and BurnP3+

Step 1: BurnP3+ Modelling and Mapping

Burn P3 Overview

Burn Probability (BP), Head Fire Intensity (HFI), and Rate of Spread (ROS) are important variables to consider when evaluating the potential *wildfire threat* and risk of a given area. These variables determine where the greatest potential fire behaviour might occur and how effective suppression or mitigation resources might be in addressing it. Burn-P3 wildfire modelling software generates BP, HFI, and ROS outputs by simulating wildfire events over spatial and temporal surfaces to generate a probability distribution of wildfire simulations. Through the use of Monte-Carlo simulations Burn-P3 and its successor, BurnP3+, leverages the Prometheus fire growth engine along with the Canadian Forestry Fire Danger Rating system to simulate wildfires on a landscape. The model can be run over any number of iterations (or fire seasons) and ignitions to examine multiple aspects of fire hazard and risk. The characterize *wildfire threat* and risk using BurnP3+.

Burn-P3 Conceptual Model

In order to best understand *wildfire threat* and risk to communities burn probability mapping has been a key improvement to landscape scale risk assessment work focused on community safety and wildfire mitigation. A major assumption of this approach is that by characterizing the fire environment and fuels for a given landscape and using stand level fire growth models to simulate thousands to hundreds of thousands of fires, a manager can best assess the relative probability of wildfire at any given point on *area of interest*[43]. This conceptual idea does not intuitively transfer over to a true probability of wildfire, but can be used in combination with other techniques to garner the mean or average probability of wildfire for a given season and region. Iterations denote the number of times that a year is simulated. Likewise, the number and location of fires occurring each year is determined either by a historical fire data frequency distribution or kernel density analysis. Simulations are designed to reflect realistic fires which likely move through contiguous, heterogenous landscapes. This differs from other *wildfire threat* methodologies, such as the PSTA, by simulating the wildfires that may actually spread through a landscape, as well as the potential intensities of the wildfire. Mitigation specialists, fire ecologists, or foresters working with simulation models must be aware of the constraints of this type of analysis and how to best employ and interpret the results of these models to transfer to operations[44].

43 Marc-André Parisien et al., "Applications of Simulation-Based Burn Probability Modelling: A Review," International Journal of Wildland Fire 28, no. 12 (2019): 913, https://doi.org/10.1071/WF19069.

44 M A Parisien et al., Mapping Wildfire Susceptibility with the Burn-P3 Simulation Model, 2005.

Burn-P3 Major Inputs

Major inputs to BurnP3 and BurnP3+ include digital elevation models, historical spatial ignition patterns, fire weather data and *fuel type* (Fire Behaviour Prediction System, FBP) datasets. In addition, the program's estimates are improved using interpolated wind grids, Biogeoclimatic zones and *Natural Disturbance Type* regime data – all of which help better describe the landscape conditions conducive to fire behaviour and best contextualize the regional impact of fire on nearby communities. The size of the area undergoing a fire simulation is particularly important for estimating ignition patterns, since area directly affects the sampling size of historical ignition locations that can be used in modelling. So, it is important to use broad enough regions and time frames to capture the fire climate and fire fuels relationships at the appropriate scale. Results from Burn-P3 thus allows for WUI areas to be assessed relative to the larger landscape, and understand potential interactions and landscape patterns of fire threat.

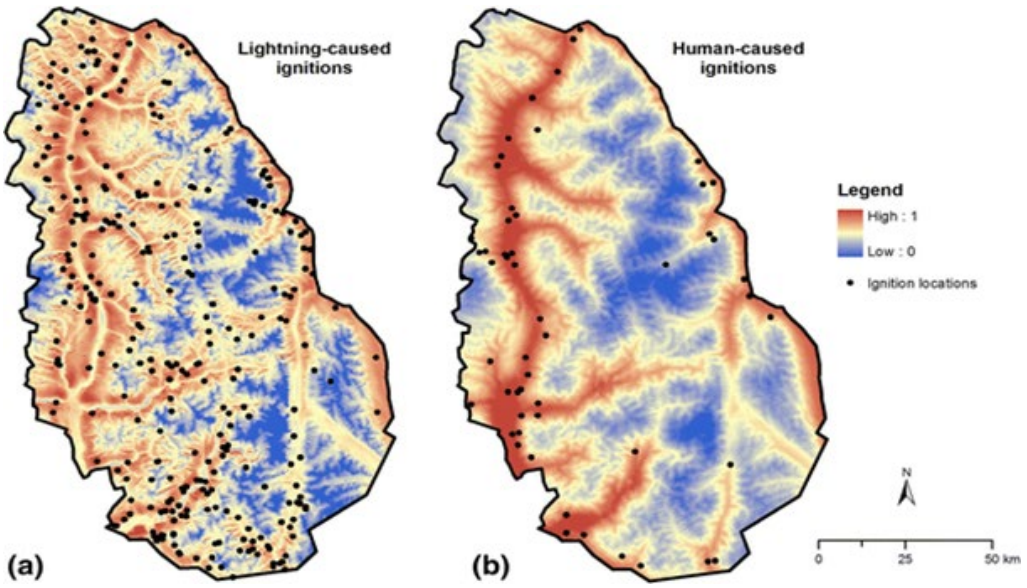


Figure 31. Burn-P3 representative ignition grids.

Burn-P3 Major Outputs

Burn-P3 outputs are in the form of raster cell grids, where each cell grid represents a given area (e.g., 50 m grid resolution means that each square on the map represents 2500 square meters). Chosen cell resolution is determined by a variety of factors including, but not limited to; the scale of historical fire behaviour patterns, potential computational load, data quality, landscape size, and forest/fuel/landscape structural patterns. Users can choose any multitude of outputs options but the BurnP3+ model outputs Rate of Spread rasters, Head Fire Intensity, and perimeter data for each fire run in a given simulation. Further outputs include most of the major outputs from the Fire Behaviour Prediction System of the CFFDRS. Interpretation of the results is open ended but to summarise usually users will generate surfaces of the mean or median rate of spread and head fire intensity for every cell on the landscape. As well, the system itself automatically computes the average burn probability per cell as the number of times that cell burned divide by the number of iterations. This can be interpreted as the total number of fires (ignitions) burned across the total number of years (iterations), thus the average burn probability for a given cell.

Frontera employs these methods to produce 3 key outputs for threat and risk assessments:

- Mean/Median/90th weighted Head Fire Intensity (HFI) (kw/m)
- Mean/Median/90th weighted Rate of Spread (ROS) (m/min)
- Burn Probability (BP) (%)

The median HFI and ROS determines the severity of a wildfire and how difficult it can be to suppress it based on behaviour. Relative burn probability of a wildfire occurring in each area is based on the number of times a grid cell was burned in simulations. BurnP3 burn probability outputs are then reproduced as a relative value for any given cell on the landscape. Since some areas and forest types are more prone to fire ignitions and spread, relative probability gives a better assessment of the potential risk for a given landscape as opposed to an absolute value. This approach contextualizes any given location in an area of interest to the broader landscape and helps better inform decision: land managers can prioritize threatened areas with higher relative burn potential rather than highest absolute burn potential. For both HFI and ROS, the median is generated by Burn-P3 out of the total iterations for each cell grid. Median is used instead of the mean in order to limit the influence of outliers, as in common in fire data, but 90th percentile values may also be used for threat mapping.

Burn-P3 Additional Inputs

In addition to spatial inputs, there are multiple non-spatial parameters that the user must set. These are described in **Table 30**.

Table 30. Major Burn-P3 model inputs and methods for deriving.

Input	Decription	Further Information
Ignition Probability Surfaces	Mapped surface of ignition probability based on biophysical and anthropomorphic input variables fitted to a random forest classification model for both Human and Lightning.	Surfaces are generated by season and ignition variables. If all seasons for summer fires (Spring, Summer, Fall) are used then 3 grids are created per ignition cause (Human or Lightning)
Seasons (Optional)	Used to control and alter different Burn-P3 model parameters. Seasons can be unrelated to environmental conditions, can be related to fire distributions or follow typical summer weather patterns. (Ie early summer (spring), mid-summer (summer) or late summer (fall))	Can affect timing of ignitions, hours per day of burning, ignition surfaces and green-up parameters
Natural Disturbance Type (NDT) and Weather Zones (WXZ	Spatial maps of NDT and WXZ which correspond to landscape patterns of climate and vegetations. Used to differentiate by areas of common weather patterns or fire types	Do not have to correspond to BC's NDT or WXZ (BEC) system. Can be based on any ecologically sound method to distribute the landscape area by climate and fire trends.
Weather Station Data	Spreadsheet that includes metrics used in Fire Weather Index (FWI) System and as inputs into the FBP system which drives Prometheus.	Can use different stations for different mapped weather zones based on location. Analyst makes an assessment about data quality and length of station data. Usually at least one station per weather zone. Yet stations apply to fires burning by natural disturbance type zone.

Input	Decription	Further Information
Distribution sets	Spreadsheets detailing the frequency distribution, location, and percentage of different non-spatial parameters. Can also be random or based on previously set coordinates	1. Number of ignitions per year (percent of frequency) 2. Proportion of ignitions occurring in spring, summer, fall, and as human or lightning-caused 3. Number of spread event days – the days when fires are noticeably increasing in size 4. Number of hours per day of burning
Minimum fire size	How large a fire must grow after ignition to be recorded and considered escaped	NA
Green-Up/Curing/Wind Grids	Optional inputs which modify the date of green up of deciduous fuel stands (switching fuel types), the curing percentage of grass fuel types, and the domain or average wind speed and direction grids for the particular region respectively.	NA

Field Reconnaissance

The FBP *fuel types* used in Burn-P3 as a spatial data set require field verification as the spatial data may not capture all recent landscape changes and/or may be inaccurate within particular areas of interest. Reconnaissance was conducted and any inconsistencies between field observations and the spatial data set were corrected using field-derived shapefiles of true *fuel types*. The *fuel type* layer was vectorized to merge polygonal changes and then reverted to a raster layer to be implemented in Burn-P3.

Model Tuning

An advantage to large scale Monte-Carlo based simulation modelling is that it allows for a relatively easy to interpret output and logical conceptual method to predict burn probability for a given region. Yet to this end it can act as a "Black-Box" model which must be tuned, interpreted, and tested by qualified and experienced practitioners with solid understandings of the underlying systems. Deployment of such a model without proper testing or input examining can result in outputs with major levels of error and overconfidence in poor results. As such Frontera employs model tuning for all model runs using Burn-P3 and BurnP3+. Initial models are run with small iteration sizes 200-500 in order to test assumptions, examine outputs, and establish model confidence. Key parameters which can be tested are the distribution of ignitions by Season, *Natural Disturbance Type*, and Cause, the mean and median fire size, fire exceedance probability curves, the total burned area truncation by the historical number of ignitions, and perhaps best of all the distributions of fire sizes. These historical observations are key to improving model fit and ensuring the final model run is as accurate as possible. Final models are then run on large numbers of iterations and fires to ensure model stability and the best model assessment of regional burn probability.

Model Interpretation

Beyond simple analysis of the global outputs from a burn probability simulator, fire behaviour analysts must inspect the component intermediate outputs from BurnP3+ to examine why the model predicted burn probability in that patterns it did. To do this, Frontera examines the fire perimeters themselves from all modelled fire seasons to examine trends in spread patterns, ignition locations, and fire activity. Interpreting the model and ensuring accuracy of its results must be examined carefully for each domain of interest. BurnP3+ in its current usage is more akin to a large fire simulator than a simple landscape scale fire dynamics

model because of the use of a spread event day theory, high graded fire weather, and ignition pattens based on historical fires. As such the use of the model should be interpreted only as a tool to examine the probability of extreme and large fire events not necessarily all landscape fire patterns. One can think of a burn probability map as a surface which describes the *relative flammability of locations on a given landscape* given ample extreme fire weather. Of the key parameters which affect fire behaviour patterns at the landscape scale (topography, fuel and climate), two of which (fuel and climate) may be tuneable to ensure appropriate model fit by region and care should be taken to ensure appropriate fire drivers are considered depending on your region. Determining whether your AOI is generally a *fuel-driven* or *weather-driven fire regime*[45] is important to consider when adjusting model inputs. *Fuel type* considerations should be taken more seriously in fuel driven *fire regime*s whereas appropriate fire weather data should be considered more relevant in weather driven regimes.

Special Consideration: Coastal Fire Regimes

Modeling of coastal *fire regimes*, particularly in British Columbia, is of a unique challenge given the mismatch of *fuel types* in the Canadian Forestry Fire Danger Rating system with those present in Coastal zones; especially the Coastal Western Hemlock and Coastal Douglas-Fir zones of the BC BEC system. Coastal *fire regimes* in BC are extremely power law-distributed with long fire return intervals, few large fire events, and small fire sizes. Fire behaviour is largely *weather-driven* in that fuel loads are high enough to support extreme fire behavior, but wet conditions, high RHs, and temperatures moderated by the coast render conditions for fire unlikely. The dominant disturbance in these forests is biotic (beetles, decay fungi, etc.) and wind, rather than wildfire.

Stand structures which develop as a result of these wet conditions: dense mixed species, multilayered stands with high coarse woody debris loads and heavy understory *deciduous* layers with forb, herb, and moss matts support the suppression of fire activity. It is the closed canopy and microsite conditions produced in these stands which keeps in stand fine fuel moistures high and temperatures moderated. Because of this, prolonged drought and/or very extreme fire weather conditions are needed for extreme fire activity. Luckily because of this, fuel typing mismatches are less impactful on simulated fire activity since fire weather is a driving factor. This works functionally in the model by the modification of input fire weather data. Fire behaviour analysts consider only fire weather which is conducive to extreme fire behavior for the *area of interest*. In this case, following Wang et al 2014; 2023; 2025[46] or by filtering for fire weather leading up to and during recorded fire events, conditions which are conducive to fire behavior are selected by appropriate eco-domain and would intuitively be higher on the coast since conditions for fire activity need to be elevated. These weather conditions would also be more variable as microsite and topographical conditions render station weather data more variable than weather in boreal regimes. Since BurnP3+ is only intended to burn fires which actually spread, these conditions would translate to more extreme fire behavior as would be expected under prolonged drought and extreme summer conditions that override controls on fuel moisture and fire activity in coastal stands. The result of this relationship implies that Burn-P3 would then be applicable to model hazardous and rare conditions of coastal fires in BC, despite the limitations of the FBP fuel typing system for coastal stands.

45 Daniel S. Boshoff, "Understanding Fire Regimes: A Biogeographical Perspective," Jàmbá Journal of Disaster Risk Studies 16, no. 1 (2024), https://doi.org/10.4102/jamba.v16i1.1673.

46 Xianli Wang et al., "The Potential and Realized Spread of Wildfires across Canada," Global Change Biology 20, no. 8 (2014): 2518–30, https://doi.org/10.1111/gcb.12590; Xianli Wang et al., "Critical Fire Weather Conditions during Active Fire Spread Days in Canada," Science of The Total Environment 869 (April 2023): 161831, https://doi.org/10.1016/j.scitotenv.2023.161831; Xianli Wang et al., "When Is Fire Weather Extreme Enough for Active Fire Spread in Canada?," Philosophical Transactions of the Royal Society B: Biological Sciences 380, no. 1924 (2025): 20230465, https://doi.org/10.1098/rstb.2023.0465.

Step 2: Wildfire Threat Mapping

The Burn-P3 outputs are raster cell grid maps, and each cell in the grid can be overlayed with HFI, BP, and ROS to determine multiple aspects of fire threat within a single grid cell area. Each grid cell identifies:

1. The median or 90th ROS in metres per minutes
2. The median or 90th HFI in kilowatts per metre (kW/m)
3. The likelihood of fire occurring in each cell (BP)

Overall *wildfire threat* can be quantified by putting these maps together for each grid cell by giving a range of values a score. The scores for each component are obtained by binning a range of values as shown in **Table 31**.

The range applied for head fire intensity is based on the PSTA scoring system[47], and rate of spread intervals were derived from the National categorization from Natural Resources Canada[48]. Relative probability scoring is tailored to each area of interest using R-generated data analyses, which identifies outliers to remove possibly erroneous maximum values and is usually standardized to a maximum value. The analyses then define equal interval breaks based on every tenth percentile using the newly calculated maximum probability detailed in **Table 31**.

Table 31. Scoring system for Burn-P3 components.

Score	Median HFI (kw/m)	Score	Relative Probability (%)	Score	Median Rate of Spread (m/min)
0 (nonfuel)	0	0 (nonfuel)	0	0 (nonfuel)	0
1	0.01 – 1,000	1	> 0 to 10th percentile	1	> 0 – 1
2	1,000.01 – 2,000	2	> 10th to 20th percentile	2	> 1 – 3
3	2,000.01 – 4.000	3	> 20th to 30th percentile	3	> 3 – 6
4	4,000.01 – 6,000	4	> 30th to 40th percentile	4	> 6 – 10
5	6,000.01 – 10,000	5	> 40th to 50th percentile	5	> 10 – 14
6	10,000.01 – 18,000	6	> 50th to 60th percentile	6	> 14 – 18
7	18,000.01 – 30,000	7	> 60th to 70th percentile	7	> 18 – 20
8	30,000.01 – 60,000	8	> 70th to 80th percentile	8	> 20 – 22
9	60,000.01 – 100,000	9	> 80th to 90th percentile	9	> 22 – 25
10	> 100,000	10	> 90th percentile and all outliers	10	> 25

The final output of spatially mapped *wildfire threat* is the result of taking the three scores of each important component of *wildfire threat* (BP, ROS, and HFI) and utilizing the weighted sum equation:

Wildfire Threat = (Head Fire Intensity Score*0.3) + (Rate of Spread Score*0.3) + (Probability of Burn Score*0.4)

47 https://catalogue.data.gov.bc.ca/dataset/bc-wildfire-psta-head-fire-intensity
48 https://cwfis.cfs.nrcan.gc.ca/ha/fbnormals?type=ros&month=7

The assigned weights for each score represent the importance of that component influencing the overall *wildfire threat*. All scores range between 0 and 10, with 0 representing non-fuel areas (i.e., no chance of a fire occurring), 1 representing the lowest threat level, and 10 representing the highest threat level. Final *wildfire threat* is reclassified into four possible rankings using the PSTA ranking system[49], summarized in **Table 32**.

Table 32. Burn-P3 scores and threat rating.

Score Range	Threat Rating
> 8 – 10	4 (Extreme)
> 6 – 8	3 (High)
> 3 – 6	2 (Moderate)
> 0 – 3	1 (Low)
0	0 (No Threat)

Step 3: Values at Risk Mapping

Values at risk include all built values such as homes, structures, and *critical infrastructure*. *Values at risk* locations are obtained using existing spatial sources and consulting with the local community, conducted as part of the CWRP development process. After obtaining all value spatial information, a proximity analysis is conducted to determine how close each grid cell from Steps 1 and 2 is to these values. **Table 33** shows the scoring schemes used for proximity to values for each cell.

Table 33. Proximity to values scoring.

Score	Proximity to Values (m)
0	2000 +
1	1000 - 2000
2	501 - 1000
3	201 - 500
4	0 - 200

49 https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/wildfire-status/prevention/fire-fuel-management/fuels-management/2020_determining_wildfire_threat_and_risk_at_a_local_level.pdf

Step 4: Overall Wildfire Risk Mapping

The overall *wildfire risk* process is finalized by combining the *wildfire threat* analysis in Steps 1 and 2 with the value analysis in Step 3. This determines the overall *wildfire risk* based on the threat of wildfire and the proximity to *values at risk*. These are combined using the following equation:

Overall Wildfire Risk = Wildfire Threat Score * Proximity to Values Score

Previous analysis and research[50] have shown the equation above does not assign a disproportionate weight of importance to either the threat component or values component.

Wildfire Risk Score Interpretation

After the production of *wildfire risk* scores the distribution of values is analysed by wildfire analysts and then normalized to a distribution of values that reflects where the greatest potential risk is. Highest absolute risk has a potential value of 40, but certain landscapes may not achieve that extreme and so normalization ensures risk is contextualized to the greater landscape. As such output values will change and be scaled as need be. They are then reclassified into interpretably classes based on the distribution of risk scores. See **Table 34** for a summary of these classes.

Table 34. Wildfire risk classes and description.

Wildfire Risk Class	Description
Extreme	Highest risk to surrounding values, major suppression resources required, likely uncontrollable fire behaviour and loss of values.
High	High risk to surrounding values, significant suppression resources required, potential for loss of values and uncontrollable fire behaviour effects.
Moderate	Moderate risk to surrounding values, suppression success possible, but potentially requiring significant resources.
Low	Minimal risk to surrounding values, suppression success likely.
None	No risk to structures, persons, or values.

50 Adaktilou, Nektaria & Stratoulias, Dimitris & Landenberger, Rick. (2020). Wildfire Risk Assessment Based on Geospatial Open Data: Application on Chios, Greece. ISPRS International Journal of Geo-Information. 9. 516. 10.3390/ijgi9090516.